

Final

Drainage Report

Village Hall, Hophurst Lane, Crawley Down

Date: June 2026

Ref: 6522

Status: Final

Prepared By: Hemsley Consulting Ltd

For: The Crawley Down Village Hall
Management Committee

CONTENTS

1	Introduction	1
2	Pre-Development Conditions	2
2.1	Existing Site description	2
2.2	Existing Drainage systems	3
2.3	Ground Conditions	3
2.4	Drainage Hierarchy.....	5
2.5	Pre- and post development hardstanding areas	5
2.6	Pre- and post development discharge rates.....	6
3	Surface Water Drainage Design proposals.....	7
3.1	SuDS Suitability Assessment.....	7
3.2	Standard 1 – Runoff Destinations	7
3.3	SuDs Strategy.....	8
3.4	Standard 2 – Management of everyday rainfall interception)	9
3.5	Standard 3 – Management of extreme rainfall and flooding	10
3.6	Standard 4: Water Quality	11
3.7	Standard 5: Amenity	12
3.8	Standard 6: Biodiversity.....	12
3.9	Standard 7: design of drainage for construction, operation, maintenance, decommissioning and structural integrity	12
4	Foul Drainage Proposals	15
5	Summary And Conclusions	16

APPENDICES

Appendix A – Planning Drawings

Appendix B – Southern Water sewer asset map

Appendix C – Soakage Test results

Appendix D – Drainage Drawings

Appendix E – Exceedance plan

Appendix F – Hydraulic modelling outputs

1 INTRODUCTION

Scope of Services

Hemsley Consulting Ltd was appointed by The Crawley Down Village Hall Management Committee to provide foul and surface water drainage design advice in relation to the proposed development at Village Hall, Hophurst Lane, Crawley Down, RH10 4LJ

Development location and planning history

The site is located to the north of Hophurst Lane and currently comprises a car park to serve the sports fields to the north.

A planning application for the development of the site was submitted to Mid Sussex District Council on 9th December 2025 under application ref. DM/25/3155 for the construction of a new Village Hall and an associated car parking area.

This report aims to set out the foul and surface water drainage strategy for the development. It has been drafted to respond to the requirements of the Flood Risk and Drainage Team as set out in their consultation response dated 17th March 2026 and is in line with the National standards for sustainable drainage systems (July 2025).

2 PRE-DEVELOPMENT CONDITIONS

2.1 Existing Site description

The site is a quadrilateral shape bounded to the south by Hophurst Lane. A location plan and proposed site plan are provided in **Appendix A**.

Surface levels are indicated on the proposed site plan. The site falls from south to north but doesn't vary in level by more than 0.5m.

The Location Plan is provided in Figure 1 below.



Figure 1: Location Plan

2.2 Existing Drainage systems

No drainage infrastructure currently exists on the proposed site. The car park appears to be hard paved which drains to a single gully located in the north-west corner of the car park at its lowest point. The drainage from this point has not been surveyed and the existing destination of surface water is not known. The Google Maps image of the carpark from November 2022 shows surface water ponding, so whatever the surface water destination is, it is either undersized, or defective, or past its design life.

There are also two gullies located at the entrance into the site, however these are on the highways side of a line of cobble setts indicating that they drain the public highway. Other road gullies are located close to the entrance which also drain the public highway.

The Southern Water sewer asset plan (**Appendix B**) identifies a 150mm dia, public foul sewer located on the southern pavement of Hophurst Lane.

2.3 Ground Conditions

By inspection of the BGS Viewer the site is understood to be underlain by the Upper Tunbridge Wells Sand (see Figure 2 below).

A Soakage Test has been undertaken at the site to understand whether the soils have a potential for infiltration. The test examined the ability of the soils to accept infiltration at shallow depths as it was considered likely that a permeable paved solution was most suitable at this location.

A 600x600x600 trench was opened within the site and filled with water to a depth of 550mm. The drop in water level was recorded over a 2.5 hour period. The data recorded is provided in Table 1 below and assessed in **Appendix C**.

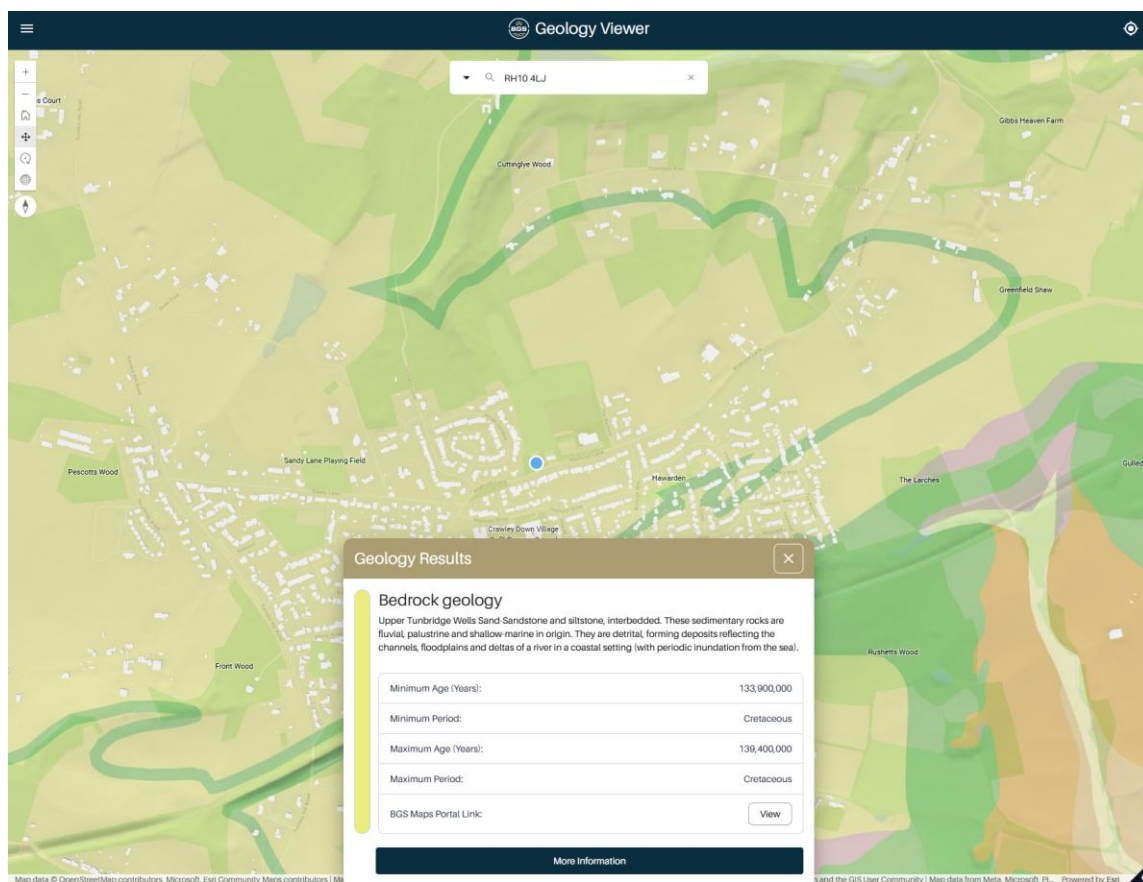


Figure 2: Extract from the BGS Viewer

Depth of water (mm)	Depth below ground level (mm)	Time recorded	Time elapsed (h:mm)
550	50	14:35	0:00
350	250	15:05	0:30
240	360	15:35	1:00
150	450	16:05	1:30
60	540	16:35	2:00
0	600	17:00	2:25

Table 1: Soakage Test results

From this dataset, the soil infiltration rate is estimated as 2×10^{-5} m/s (or 72 mm/hr).

The depth to the groundwater levels is not known and assumed to be greater than 2m.

2.4 Drainage Hierarchy

The National standards for sustainable drainage systems (July 2025) sets out the hierarchy of preference for the disposal of surface water from new development as follows:

1.2 Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

priority 1: collected for non-potable use

priority 2: infiltrated to ground

priority 3: discharged to an above ground surface water body

priority 4: discharged to a surface water sewer, or another piped surface water drainage system

priority 5: discharged to a combined sewer

From inspection of the data available for the site, the most appropriate destination for surface water is by infiltration.

Collection of roof runoff from non-potable use is also to be incorporated into the design of the scheme, given the use of the development and the number of toilets. However, rainwater harvesting cannot be relied upon to collect all rainfall runoff during peak design storm events and so it will overflow to the infiltration system proposed.

2.5 Pre- and post development hardstanding areas

Prior to development, the site is paved with impermeable asphalt and drains to a single road gully. The destination of surface water is not known, but it appears defective. The area drained is approximately 520sqm.

Site Element	Area (sqm)
Roof to Building	420
Paved area to front of building	100
Parking area	570
Total area of hardstanding	1,090

Table 2: Post-development hardstanding area

Considering the development's future use, there is no allowance provided for urban creep.

Other paving to the rear and side of the village hall shall be constructed as a permeable surface. It is recommended that this be paving slabs with grit-filled 5mm joints between to allow rainwater to percolate into the bedding layer and into the ground. Since they receive no runoff from any other hard surfaces, they are not included within the hydraulic modelling.

2.6 Pre- and post development discharge rates

As the destination of surface water runoff is not known the pre-development discharge rate cannot be determined. The post-development discharge rate from the site is considered to be zero as all surface water will drain to ground.

3 SURFACE WATER DRAINAGE DESIGN PROPOSALS

3.1 SuDS Suitability Assessment

The following assessment has been made to determine the most appropriate SuDS for incorporation into the drainage scheme, taking into account topography, available open space, and infiltration potential.

SuDS Feature	Applicable	Comment
Green Roofs	✗	Not feasible due to the architectural vernacular of the building
Rainwater Harvesting	✓	Collection of re-use of part of the roof runoff is proposed for re-use within the toilets
Rain Gardens	✗	Rain gardens have not been proposed due to the limited available space close to building
Permeable Paving	✓	Permeable paving is proposed for the parking area and the small, paved areas around the building
Filter Strips	✗	Not necessary where permeable paving is proposed
Swales (with or without underdrain)	✗	Not feasible due to the space available
Infiltration Basins	✗	Not feasible due to the space available
Detention Basins	✗	Not feasible due to the space available
Tanked Storage	✗	Tanked storage is not proposed

Table 3: SuDS Suitability Assessment

3.2 Standard 1 - Runoff Destinations

Rainwater Harvesting for non-potable use

The village hall has the potential to have intensive use at certain times and so it is considered prudent to propose the incorporation of a rainwater harvesting tank to re-use collected rainwater runoff from part of the roof for toilet flushing.

A 2,000 litre rainwater harvesting tank is proposed which will have a pumped connection to the toilets. It is not intended to contribute to rainwater storage during large rainfall events, it is assumed to be full when the design storm occurs, thus providing no benefits to protect against flooding.

Permeable pavement within infiltration to ground

The overflow from the RWH tank will discharge to the permeable paved sub-base from where it can percolate into the underlying strata.

The surfacing of the parking area shall be permeable and designed with permeable modular block paving. It is assumed that heavy vehicles will not be able to gain access to the parking area and so the Traffic Loading category for the permeable pavement design shall be Category 5.

With reference to Table 20.10 of the SuDS Manual, a permeable block pavement requires the following specification supporting Category 5 vehicular loads:

- 80mm thk Surfacing (modular block paving) in herringbone pattern
- 50mm Bedding layer (to Table 20.12 of the SuDS Manual)
- 100mm Asphalt concrete (AC 32 dense 40/60 designed in accordance with BSEN 13108-1:2006) cored with 75mm dia. holes on a 750mm orthogonal grid after laying filled with 6mm aggregate before the laying course is laid
- Sub-base layer (4/20 Coarse aggregate to BS7533-13:2009, as stated in Table 20.13 of the SuDS Manual)

These typical construction thickness assume a CBR of 5% at the formation level of the pavement. Where a 5% CBR is not achieved then a Capping layer of 6F2 material or other subgrade improvement will be required. The design presented in this report assumes a 5% CBR value.

The thickness of the sub-base may be increased in order to provide a greater volume of attenuation storage in order to ensure that there is no flooding during the design storm event (see Hydraulic Modelling below)

3.3 SuDs Strategy

The following measures are proposed for the new development:

1. Rainwater Harvesting and re-use within the toilets of the Village Hall
2. Permeable pavement allowing runoff to percolate into the underlying strata;
3. Attenuation storage during extreme rainfall events will be within the aggregate sub-base

These measures accord to Priority 1 and Priority 2 in the SuDS Hierarchy, therefore the system, is considered to achieve Standard 1.

Drawing showing the drainage layout design and standard details are provided in **Appendix D**. An extract from the drainage layout plan is provided in Figure 3 below.

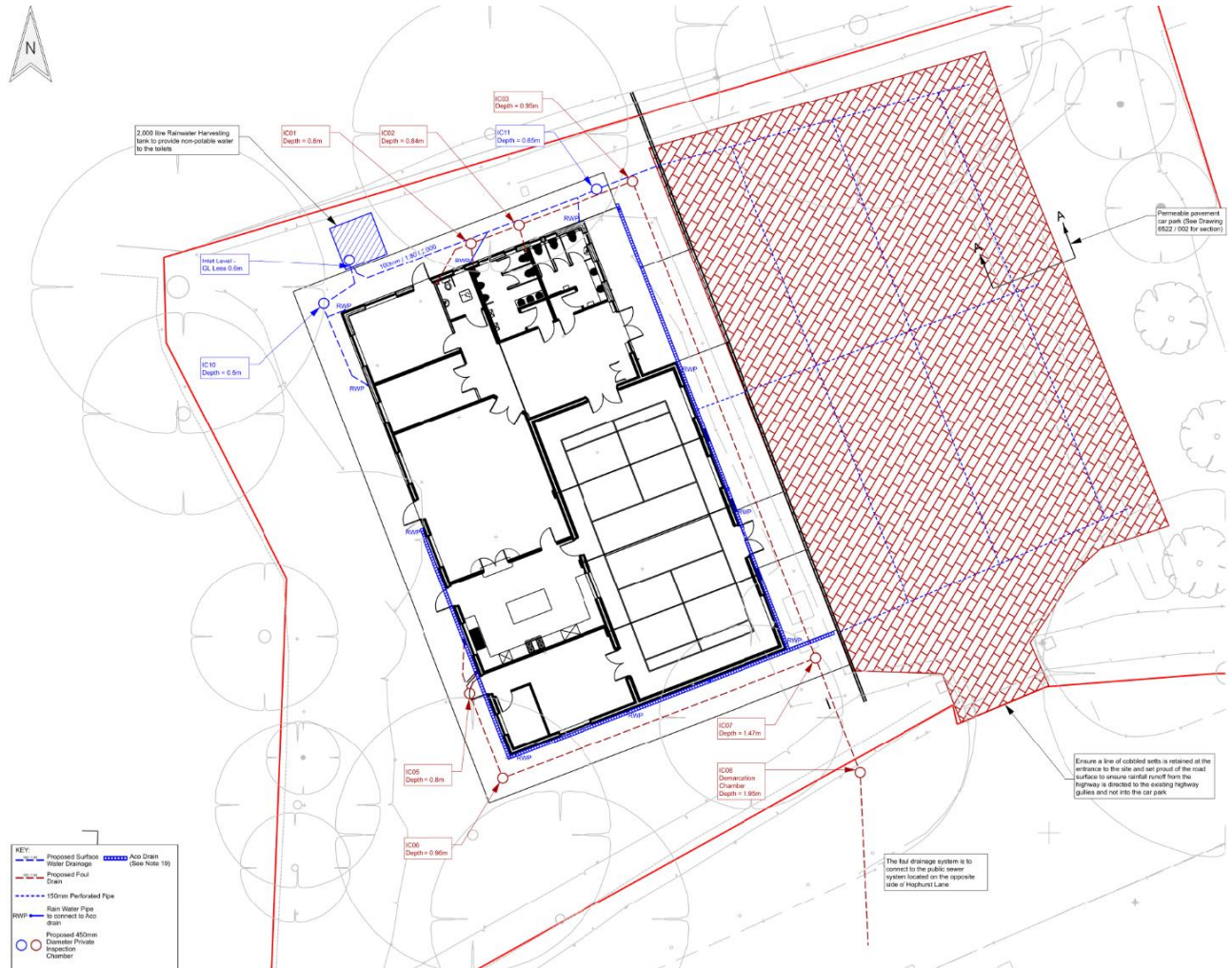


Figure 3: Extract from the Proposed drainage layout plan

3.4 Standard 2 - Management of everyday rainfall interception)

All runoff from the roof of the new building and the car park shall be designed to infiltrate to ground. As such, the system is considered to achieve Standard 2.

3.5 Standard 3 - Management of extreme rainfall and flooding

Climate change allowances

The new development is expected to be designed for a lifetime of 100 years and therefore be assessed against the 2070s epoch and apply the climate change allowance specified. For the Medway Management Catchment, the upper end allowance for the 3.3% annual exceedance rainfall event is 35% and for the 1% annual exceedance rainfall event it is 40%. For the 2050s epoch, the Upper End Allowance is a higher value (45%), so this will be used in the modelling.

These values are used in the hydraulic modelling to confirm that the surface water drainage strategy ensures that there is no increase in flood risk from the development and that the development is safe from surface water flooding.

Flooding from other, off-site sources

The Flood Risk Assessment document previously submitted for this planning application adequately assesses the risks of flooding to the site. It concludes that:

- The site is located in Flood zone 1 (low risk)
- The risk of surface water flooding is low
- The risk of groundwater flooding is low
- The risk of sewer flooding is low
- The risk of reservoir flooding is very low

Infiltration

The design soil infiltration rate is as 2×10^{-5} m/s (or 72 mm/hr).

A Factor of Safety of 1.5 has been applied to the soil infiltration rate as there is no damage or inconvenience from flooding.

Flooding

The Exceedance route is expected to be following the ground profile to the north and into the recreation ground. An exceedance plan is provided in **Appendix E**.

The surface water drainage system shall be designed so that flooding does not occur during rainfall events up to a 1% AEP event.

Hydraulic modelling has been carried out using Causeway Flow for storms up to the 1 in 100-year event with climate change with the results provided in **Appendix F**.

The half drain down time for the permeable pavement in the 3.3% AEP event (plus 35% climate change) is 220 minutes

Rainwater harvesting tank specification

The rainwater harvesting tank shall be located to the north side of the building adjacent to the toilets and will collect rainwater from the rainwater pipes adjacent to that location. Collected rainwater shall be pumped to a water distribution system which is dedicated to providing the non-potable water for toilet flushing. It is expected that a 2,500 litre tank will be sufficient.

Permeable Pavement specification

Taking into account the requirements for attenuation storage within the sub-base layer, the permeable pavement specification shall be as follows:

- 80mm thk Surfacing (modular block paving)
- 50mm Bedding layer (to Table 20.12 of the SuDS Manual)
- 100mm Asphalt concrete (AC 32 dense 40/60 designed in accordance with BSEN 13108-1:2006) cored with 75mm dia. holes on a 750mm orthogonal grid after laying filled with 6mm aggregate before the laying course is laid
- 400mm Sub-base layer (4/20 Coarse aggregate to BS7533-13:2009, as stated in Table 20.13 of the SuDS Manual)

3.6 Standard 4: Water Quality

The proposed SuDS are recognised by CIRIA C753 as providing pollutant treatment benefits as follows:

SuDS Feature	SuDS Feature
Permeable paving	Sediments and pollutants are removed by filtration and sedimentation through the gaps between permeable blocks and the sub-base and by infiltration into the subsoil

Table 4: SuDS Treatment Benefits

An assessment of pollutant treatment has been undertaken using the pollution index methodology outlined in the CIRIA SuDS Manual (C753). As illustrated below, the mitigation indices exceed the pollution hazard levels, thereby adequately treating surface-borne pollution generated by the development.

Pollution Hazard Level	Total Suspended Solids	Metals	Hydrocarbons
Roads	0.7	0.6	0.7
Roofs	0.2	0.2	0.05

Table 5: Pollution Hazard Level for Surfaces

SuDS Components	Total Suspended Solids	Metals	Hydrocarbons
Permeable Pavement	0.5	0.6	0.6

Table 6: SuDS Mitigation Indices for Detention basins

3.7 Standard 5: Amenity

The permeable pavement serves as a multi-functional space as it operates as the discharge point for all rainfall runoff and is also designed to support vehicular loading.

3.8 Standard 6: Biodiversity

The constrained nature of the site makes it difficult to incorporate Biodiversity measures alongside the SuDS design.

3.9 Standard 7: design of drainage for construction, operation, maintenance, decommissioning and structural integrity

It is understood that maintenance of the surface water system within the site will be undertaken by a private management company employed by the property owner

Key elements of the strategy comprise the following:

- Rainwater Harvesting tank
- Permeable paving

Recommended maintenance schedules are provided in tables 7 and 8 below.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspection of the tank for debris and sediment build-up, inlets/outlets/withdrawal devices, overflow areas, pumps and 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 repair	As required

Table 7: Maintenance activities for rainwater harvesting tanks

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations - pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional Maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator rather than spraying	As required - once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Remedial work to any depression, rutting, and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth - if required, take remedial action	Three monthly, 48 h after large storms in first six months
	Inspect all silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Table 8: Maintenance activities for permeable pavements

4 FOUL DRAINAGE PROPOSALS

A new foul sewer connection is necessary to serve the new building. Using the Southern Water sewer asset mapping data (**Appendix B**), a 150m diameter public foul sewer is located within the footway on the opposite side of Hophurst Lane. The nearest downstream manhole (7903) has a Cover Level of 127.09 and an Invert Level of 123.66m. This indicates that the depth of the sewer is 3.43m. One may conclude that it is possible to make a gravity connection to this manhole from the site, however it is not possible to conclude that a direct connection may be made to the sewer directly opposite the site as the depth of the sewer is not known. More investigations are necessary to confirm the connection point to the public sewer.

An application to connect to this sewer has been made to Southern Water.

5 SUMMARY AND CONCLUSIONS

This Drainage Strategy Report has been prepared in accordance with National and Local policy in support of the proposed development site.

An assessment of flood risk to both sites has been carried out and found that the site has a Low risk of flooding from all sources.

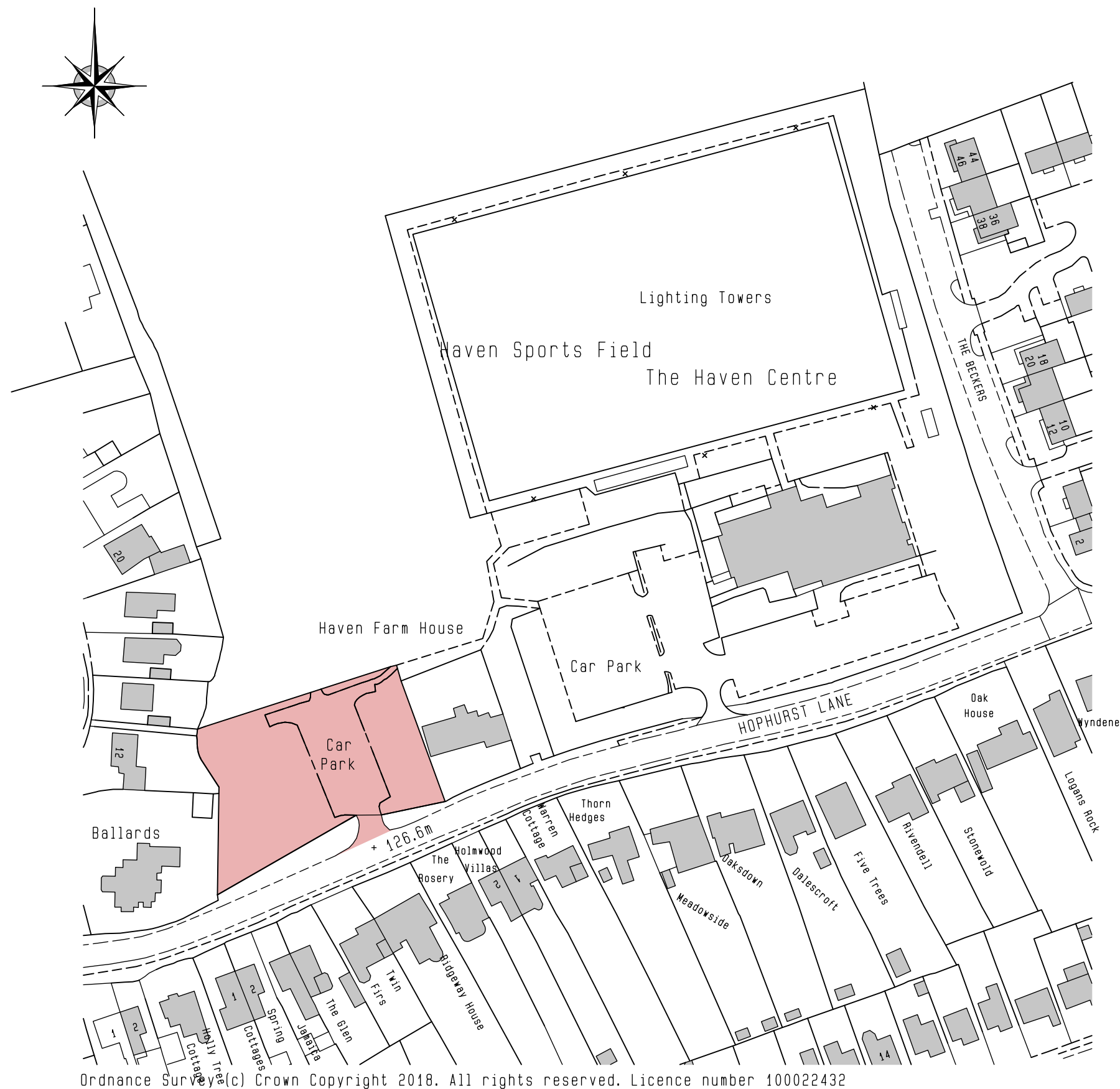
Drainage strategies have been prepared that provide sufficient attenuation to cater for events up to the 1 in 100-year storm with an allowance for climate change

The hydraulic modelling demonstrates that no flooding occurs during all storm events up to the 1 in 100 year event, including an allowance for climate change.

The drainage strategies also incorporate SuDS which provides collection and effective treatment at source. Maintenance schedules have been provided to ensure the continued operation of the systems for the design life of both developments.

Based on the above, the FRA and the surface water drainage strategy show that the proposed development meet the requirements of national and local planning policy and can be delivered without increasing flood risk to the surrounding area whilst remaining safe for the lifetime of the development.

Appendix A - Planning Drawings



Ordnance Survey (c) Crown Copyright 2018. All rights reserved. Licence number 100022432

LOCATION PLAN

A	Date	Revisions

© copyright

Les Humphrey Associates
Architecture Chartered Surveyors Designers

The Studio - The Rocks
Ivy Dene Lane
Ashurst Wood
West Sussex RH19 3TN

telephone: 01342 315206 fax: 01342 313984
email: les@leshumphreyassociates.co.uk



Client
THE CRAWLEY DOWN VILLAGE HALL
MANGEMENT COMMITTEE

Job Title
New Village Hall,
Land Adjacent to the Haven Centre
Sports Field,
Hophurst Lane,
Crawley Down,
West Sussex,
RH10 4LJ

Drawing Title

LOCATION PLAN

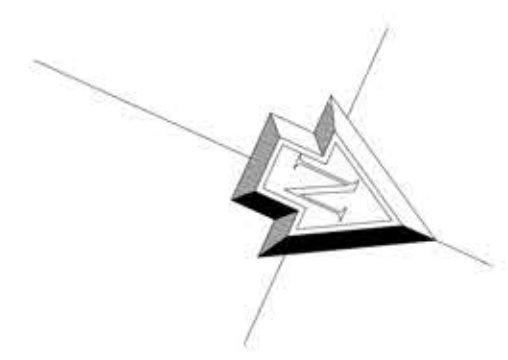
Scale 1 : 1250

Date 12=06-2021	Drawn by I.a.h.
-----------------	-----------------

Drg. No. 2116-09	Rev
------------------	-----



GROUND FLOOR PLAN
scale 1:100



H	07.06.21	drainage added
G	04.05.21	reduced scheme
E	29.05.20	reduced scheme
-	15.06.19	drawn
Rev	Date	Revisions

Les Humphrey Associates
Architecture Chartered Surveyors Designers

The Studio - The Rocks
Ivy Dene Lane
Ashurst Wood
West Sussex RH19 3TN
telephone: 01342 315206 fax: 01342 313984
email: les@leshumphreyassociates.co.uk



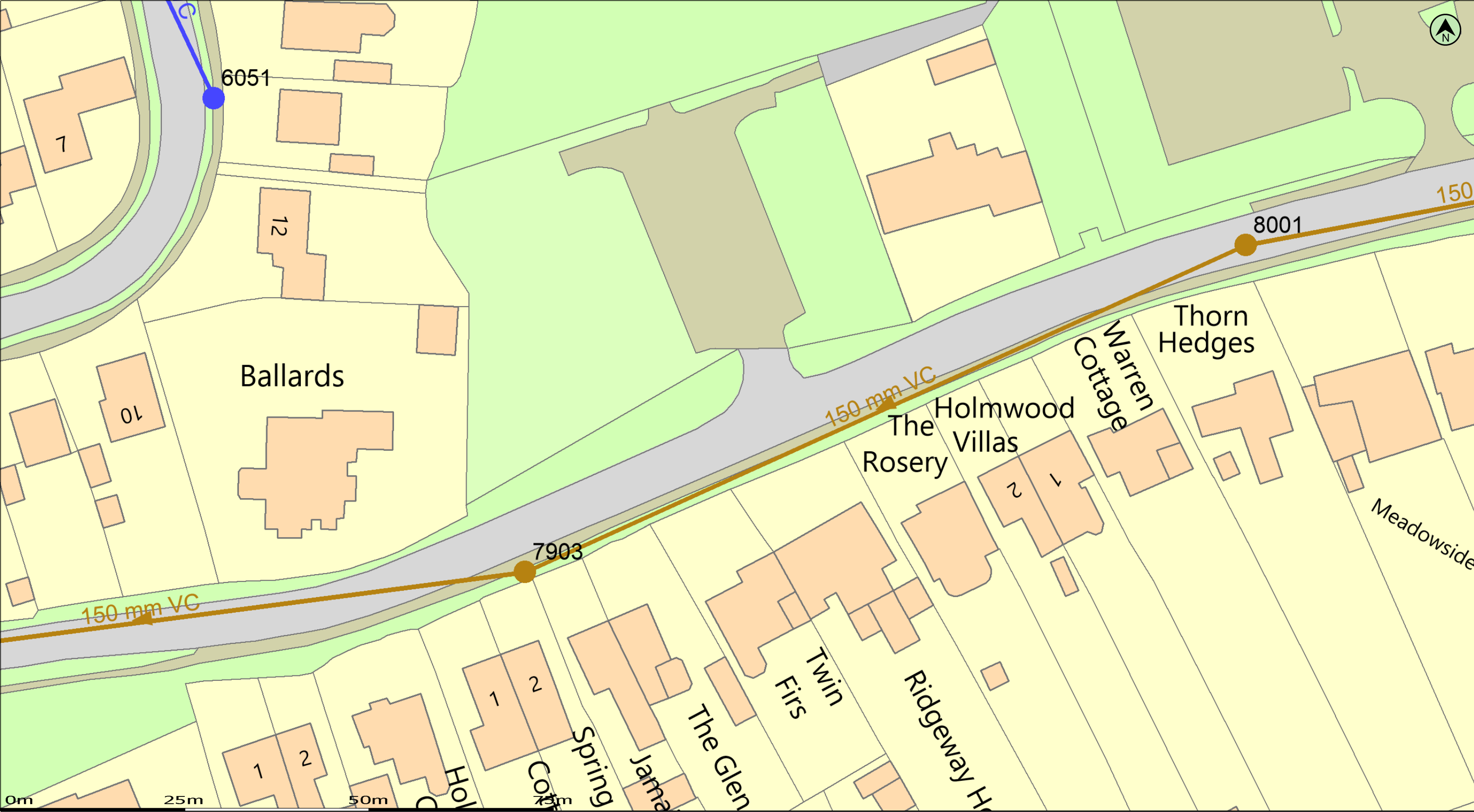
CLIENT:
**THE CRAWLEY DOWN VILLAGE
HALL MANAGEMENT COMMITTEE**

PROJECT:
**LAND ADJ HAVEN CENTRE
HOPHURST LANE
CRAWLEY DOWN
RH10 4LJ**

Drawing Title:
SITE PLAN

Date: JUNE 2019	Scale: 1:100 @ A1	Drawn: TC	Checked: TC
Drg. no. 2116-02	Revision: H		

Appendix B - Southern Water sewer asset map



(c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122

Date: 10/06/26

Scale: 1:500

Map Centre: 534744,138017

Data updated: 22/05/26

Our Ref: 2146164 - 1

Wastewater Plan A3
Powered by digdat

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

paul@timminsconsulting.co.uk

Crawley Down



Appendix C - Soakage Test results

Date of testing: 21/05/26.

Site Address: HAVEN CENTRE HOPFURST LANE. CLANCEY DOWN

Weather Conditions: DRY - OVERCAST THEN SUNSHINE

Trial Pit A – Surface Water Test

Size of Hole:

W350mm

L1000mm

D1500mm

600

600

600

TEST 1	TEST 2	TEST 3
Dropped in. 200mm 30 Mins	Dropped in 310mm 60 Mins	Dropped in 400mm 90 Mins

(enter times – taken to fall 75% - 25%)

Full = 550mm @ 14:35

240mm @ 15:35

60mm @ 16:35

350mm @ 15:05

150mm @ 16:05

Empty @ 17:00

Dept of Water: 1000m 550mm.

Ground water present during excavation: yes / no

Ground Conditions: DRY. HARD. ROOTS + HARD CORE

Trial Pit A – Surface Water Test

Size of Hole:

W350mm

L1000mm

D1500mm

TEST 1	TEST 2	TEST 3
Mins	Mins	Mins

Dept of Water: 1000m

Ground water present during excavation: yes / no

Ground Conditions:

Test Carried out by:

Signature:

Date:

Georgia

From: Les Humphrey <les@leshumphreyassociates.co.uk>
Sent: 18 May 2026 16:52
To: Georgia
Subject: Soakage test at Land near the Haven Centre Hophurst Lane, Crawley Down
Attachments: crawley down village hall location plan.pdf

Hi Georgia,

I attach a location plan for this site.

The hole is requested at 600 x 600 x 600mm dp. Any where amongst the trees on this parcel of land (X marks the spot)

- Usual porosity test requirements:
- Dig hole and fill with water (No Water on site)
- Leave to drain completely and then re fill.
- Time how long it takes to drain from full down to 25%to
- Repeat the fill and drain again.

This is a chargeable procedure Invoice made out to the Trustees of the Crawley Down Village Hall

Kind Regards,

Les

L. A. Humphrey. FASI, MRICS, FCIQB.

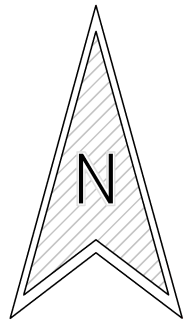
Les Humphrey Associates

Tel: 01342 315206

Mob: 07860160057

Full. 550mm. 2:35pm
350mm 3:05pm
240mm 3:35pm
150mm. 4:05pm
60mm 4:35pm
EMPT 5:00pm

Appendix D - Drainage Drawings



2,000 litre Rainwater Harvesting tank to provide non-potable water to the toilets

IC01
Depth = 0.8m

IC02
Depth = 0.84m

IC03
Depth = 0.95m

IC11
Depth = 0.65m

Inlet Level -
GL Less 0.6m

IC10
Depth = 0.5m

Permeable pavement
car park (See Drawing
6522 / 002 for section)

KEY:

- Proposed Surface Water Drainage
- Proposed Foul Drain
- 150mm Perforated Pipe
- Rain Water Pipe to connect to Aco drain
- Proposed 450mm Diameter Private Inspection Chamber
- Aco Drain (See Note 19)

Site View
(Scale 1:100)

GENERAL NOTES

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT HEMSLEY CONSULTING AND SPECIALIST CONTRACTORS PLANS AND DETAILS.
- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH ALL CURRENT REGULATIONS AND CODES OF PRACTICE AND IN ACCORDANCE WITH ALL APPROVED INSPECTORATE STANDARDS.
- ALL CHAMBER AND PIPELINE CONSTRUCTION TO BE IN ACCORDANCE WITH THE RELEVANT PROVISIONS OF THE BUILDING REGULATIONS PART H, BS EN 752 AND THE MANUFACTURERS' RECOMMENDATIONS.
- CONCRETE GRADES TO BE TO BS8500: GRADE ST4 UNLESS SPECIFIED OTHERWISE.
- PIPEWORK TO COMPRISE: 100/150MM DIA. OSMA DRAIN TO BS 13476 (FOR FOUL FLOW), AND 100MM/150MM/225MM OSMA TWIN WALL PIPE FOR SURFACE WATER FLOWS OR SIMILAR APPROVED.
- CLASS Z CONCRETE BED AND SURROUND TO BE PROVIDED AS FOLLOWS: 100MM DIA. WITH LESS THAN 0.30M COVER AND 150MM DIA. WITH LESS THAN 0.60M COVER 'FLEXCELL' OR SIMILAR REQUIRED AT EACH PIPE JOINT NB: CONCRETE BED AND SURROUND ALSO REQUIRED FOR PIPELINES BENEATH VEHICULAR AREAS AND ADAPTABLE CARRIAGEWAYS WITH LESS THAN 1.20M COVER FROM FINISHED LEVELS. GLASS S GRANULAR BED AND SURROUND TO BE PROVIDED WHERE PIPES ARE LOCATED BENEATH SURFACED AREAS WITH COVER DEPTHS GREATER THAN ABOVE.
- N.B. THE ABOVE INFORMATION RELATES TO PIPELINE PROTECTION AT DEPTHS FROM FINISHED LEVELS AND ADDITIONAL PROTECTIVE MEASURES MAY BE NECESSARY TO PROTECT PIPES FROM CONSTRUCTION OPERATIONS. TYPE 1 GRANULAR BACKFILL REQUIRED TO BEDDINGS Z & S.
- FOR FULL NOTES ON CLAY PIPES: REFER TO CPDA PAMPHLET TECHNICAL NOTES FOR VITRIFIED CLAY PIPES.
- ALTERNATIVE PIPES AND FITTING IN PLASTICS IN PVC-U STRUCTURED WALL OR PLAIN WALL MAY BE USED IN ACCORDANCE WITH WIS 04-35-01 AND BS EN 1401-01 WITH FLEXIBLE JOINTS AND MANUFACTURERS RECOMMENDATIONS.
- ALL EXISTING LEVELS OF DRAINS, MANHOLES & CONNECTION POINTS TO BE CHECKED BEFORE WORK COMMENCES.
- ALL EXISTING STATUTORY AUTHORITIES AND PRIVATE SERVICES, WATER MAINS ETC. TO BE CAREFULLY LOCATED AND EXPOSED BEFORE WORK COMMENCES.
- PRECISE SETTING OUT OF NEW DRAINS TO BE CHECKED ON SITE AFTER NOTES 8 & 9 ARE COMPLETE.
- LONG RADIUS BENDS TO BE USED AT BASE OF BG'S/SVP'S ETC.
- MANHOLE COVER LOAD CLASSES TO BS EN 124.
- FOUL DRAIN PIPES ARE GENERALLY 100MM LAID AT 1:60 UNLESS OTHERWISE STATED. SURFACE WATER DRAIN PIPES ARE 100MM DIAMETER GENERALLY LAID AT 1:60 UNLESS OTHERWISE STATED.
- BASE OF THE SLOW BEND TO SOIL STACKS SHALL BE AT FFL MINUS 600MM. THE FFL IS TO BE DETERMINED.
- FOUL DRAINS FROM INTERNAL STACKS SHOULD BE NO FLATTER THAN THE GRADIENTS SHOWN, BUT MAY REQUIRE STEEPER GRADIENT UPSTREAM OF EXTERNAL CHAMBERS.
- IT IS ASSUMED THAT ALL EXTERNAL SURFACES SHALL BE PERMEABLE. EXTERNAL SURFACING LEVELS AND LANDSCAPING PROPOSALS ARE TO BE ADVISED BY THE CLIENT TO THE DRAINAGE ENGINEER PRIOR TO COMPLETING THE DESIGN.
- ACO DRAINS ARE SIZED TO BE MULTIDRAIN 150D 0.0 OR SIMILAR AS APPROVED BY THE DRAINAGE ENGINEER.

PRELIMINARY

P1	02.06.26	PRELIMINARY ISSUE.
rev:	date	description
HEMSLEY CONSULTING LIMITED		
■ CONSULTING STRUCTURAL & CIVIL ENGINEERS ■		
Unit 18, Park Farm, Hundred Acre Lane Wivelsfield Green, West Sussex, RH17 7RU Tel. 01273 891738. E. Mail: mail@hemsleyconsulting.com		
client: THE CRAWLEY DOWN VILLAGE HALL MANAGEMENT COMMITTEE		
project: CRAWLEY DOWN VILLAGE HALL HOPHURST LANE, CRAWLEY DOWN		
title: CRAWLEY DOWN VILLAGE HALL DETAILED DESIGN		
date:	JUNE-2026	scale: 1:100 @ A1
drawn by:	SJP	checked: PT
project no:	6522	drawing no: 6522 / 001
		rev: P1
		sheet size: A1

Ensure a line of cobbled setts is retained at the entrance to the site and set proud of the road surface to ensure rainfall runoff from the highway is directed to the existing highway gullies and not into the car park

The foul drainage system is to connect to the public sewer system located on the opposite side of Hophurst Lane

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT HEMSELY CONSULTING AND SPECIALIST CONTRACTORS PLANS AND DETAILS.

ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH ALL CURRENT REGULATIONS AND CODES OF PRACTICE AND TO BE IN ACCORDANCE WITH ALL APPROVED INSPECTORATE STANDARDS.

MANHOLE FRAMES SHALL BE SET TO LEVEL, BEDDED AND LAUNCHED TO BE SQUARELY OVER THE BASE AND SIDES OF THE FRAME IN MORTAR, IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS. THE FRAME SHALL BE SEATED TO THE FULL DEPTH OF THE BEDDING OF ENGINEERING BRICKS, ON PRECAST CONCRETE MASONRY UNITS OR ON PRECAST CONCRETE COVER FRAME SEATING RINGS TO REGULATE THE DISTANCE BETWEEN THE TOP OF THE COVER AND THE TOP RUNG TO NO GREATER THAN 675MM.

A MORTAR FILLET SHALL BE PROVIDED WHERE THE CORNERS TO AN OPENING IN A SLAB ARE CHAMFERED AND THE BRICKWORK IS NOT FLUSH WITH THE EDGES OF THE OPENING. FRAMES FOR MANHOLE COVERS SHALL BE BEDDED IN A POLYESTER RESIN BEDDING MORTAR IN ALL SITUATIONS WHERE COVERS ARE SITED IN NRSWA ROAD CATEGORIES I, II OR III (IE: ALL EXCEPT RESIDENTIAL CUL-DE-SACS).

MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124, BS 7903 AND HIGHWAYS AGENCY GUIDANCE DOCUMENT HA 104/09. THEY SHALL BE OF A NON-ROCKING DESIGN WHICH DOES NOT RELY ON THE USE OF CUSHION INSERTS.

MANHOLE COVERS ON FOUL-ONLY SEWERS SHALL BE OF LOW LEAKAGE TYPES IN ORDER TO PREVENT EXCESSIVE SURFACE WATER INGRESS.

AS A MINIMUM, CLASS D 400 COVERS SHALL BE USED IN CARRIAGEWAYS OF ROADS (INCLUDING PEDESTRIAN STREETS), HARD SHOULDERS AND PARKING AREAS USED BY ALL TYPES OF ROAD VEHICLES.

(A). CLASS B 125 SHALL BE USED IN FOOTWAYS, PEDESTRIAN AREAS AND COMPARABLE LOCATIONS.

(B). IN SITUATIONS WHERE TRAFFIC LOADING IS ANTICIPATED TO BE HEAVIER THAN WOULD OCCUR ON A TYPICAL RESIDENTIAL ESTATE DISTRIBUTOR ROAD

(C). ALL MANHOLE COVERS SHALL BE THE NON-VENTILATING TYPE AND SHALL HAVE CLOSED KEYWAYS.

4. PIPE BEDDING DETAILS ARE AS FOLLOWS:

(I). THESE DETAILS ARE FOR GUIDANCE AND BEDDING TYPE IDENTIFICATION REFER ALSO TO 'SEWERS FOR ADOPTION' AND TRRL 'SIMPLIFIED TABLES OF EXTERNAL LOADS ON BURIED PIPELINES'

(II). BEDDING AT SIDES OF PIPES TO BE WELL COMPACTED.

(III). FOR CLASS Z BED AND SURROUND THE CONCRETE MUST BE ALLOWED TO GAIN STRENGTH BEFORE IT IS SUBJECTED TO LOADING FROM TRAFFIC OR CONSIDERABLE HEIGHTS OF BACKFILL. BACKFILLING, APART FROM PLACING AN INITIAL 300MM LAYER OF BACKFILL, SHOULD NOT COMMENCE UNTIL AT LEAST 24 HOURS AFTER THE PLACING OF CONCRETE IS COMPLETE.

(IV). DIMENSION Y - GRANULAR BEDDING:

(A) IN UNIFORM SOILS, $Y=1/6 BC$ OR 100MM WHICHEVER IS THE GREATER UNDER THE BARRELS BUT NOT LESS THAN 50MM UNDER THE SOCKETS (SUBJECT TO 400MM MAX).

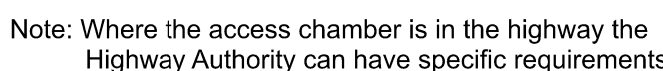
(B) IN ROCK OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, LARGE FLINTS OR OTHER IRREGULAR HARD SPOTS, $Y=1/4$ BC OR 150MM WHICHEVER IS THE GREATER UNDER THE BARRELS BUT NOT LESS THAN 150MM UNDER THE SOCKETS.

FOR CONCRETE BEDDING, THE MINIMUM DIMENSION IS 150MM.

P1	09.06.26	PRELIMINARY ISSUE.
rev.	date	description
HEMSLEY CONSULTING LIMITED ■ CONSULTING STRUCTURAL & CIVIL ENGINEERS ■ Unit 18, Park Farm, Hundred Acre Lane Wivelsfield Green, West Sussex. RH17 7RU Tel. 01273 891738. E. Mail: mail@hemsleyconsulting.com		
client: THE CRAWLEY DOWN VILLAGE HALL MANAGEMENT COMMITTEE project: CRAWLEY DOWN VILLAGE HALL HOPHURST LANE, CRAWLEY DOWN		
title: CRAWLEY DOWN VILLAGE HALL STANDARD DETAILS		
date:	JUNE-2026	scale: 1:100 @ A1
drawn by:	SJP	checked: PT
project no:	6522	drawing no: 6522 / 002
		sheet size A1
		rev: P1



Note: Refer to BS EN 13242 for full details.



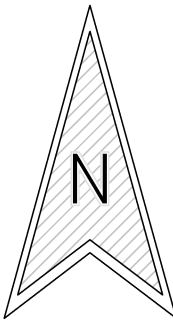
This pavement design is considered to be suitable for adoptable estate roads in accordance with Traffic Category 6 (Table 20.5 of the SuDS Manual 2015).

The design has been based upon 'Design and Construction of Concrete Block Permeable Pavements' published by Interpave and BS 7533-13.

It is assumed that the CBR of the natural soils at formation level is at least 5%. The design will require a change where CBR are measured to be less.

	CRAWLEY DOWN VILLAGE HALL
--	---------------------------

Appendix E - Exceedance plan



KEY:

➡ Exceedance Flow Direction

Site View
(Scale 1:100)

PRELIMINARY

P1	09.06.26	PRELIMINARY ISSUE
rev:	date	description
HEMSLEY CONSULTING LIMITED		
■ CONSULTING STRUCTURAL & CIVIL ENGINEERS ■		
Unit 18, Park Farm, Hundred Acre Lane Wivelsfield Green, West Sussex, RH17 7RU Tel. 01273 891738. E. Mail: mail@hemsleyconsulting.com		
client: THE CRAWLEY DOWN VILLAGE HALL MANAGEMENT COMMITTEE		
project: CRAWLEY DOWN VILLAGE HALL HOPHURST LANE, CRAWLEY DOWN		
title: CRAWLEY DOWN VILLAGE HALL EXCEEDANCE PLAN		
date:	JUNE-2026	scale: 1:100 @ A1
drawn by:	SJP	checked: PT
project no:	6522	drawing no: 6522 / 003
		sheet size: A1
		rev: P1

Appendix F - Hydraulic modelling outputs

Design Settings

Rainfall Methodology	FEH-22	Time of Entry (mins)	5.00	Connection Type	Level Soffits	Enforce best practice design rules	x
Return Period (years)	1	Maximum Time of Concentration (mins)	30.00	Minimum Backdrop Height (m)	0.200		
Additional Flow (%)	0	Maximum Rainfall (mm/hr)	50.0	Preferred Cover Depth (m)	0.600		
CV	1.000	Minimum Velocity (m/s)	0.80	Include Intermediate Ground	✓		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
1	0.008	5.00	126.450		-4.297	12.616	0.187	126.263
J6	0.019		126.300		7.970	-0.091	0.977	125.323
J5		5.00	126.300		14.148	18.161	0.800	125.500
IC10	0.009	5.00	126.450	600	-27.229	18.109	0.700	125.750
IC11	0.009	5.00	126.400	600	-9.830	24.859	0.852	125.548
J3	0.016	5.00	126.450		-15.479	-9.541	0.187	126.263
J4	0.008	5.00	126.400		1.970	-2.541	0.187	126.213
J7	0.020		126.300		0.470	14.259	0.977	125.323
J8	0.018		126.300		-4.980	26.559	0.977	125.323
2			126.300	600	16.732	19.299	1.000	125.300

Links

Name	US Node	DS Node	Length (m)	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
3.000	1	J7	5.042	126.263	126.113	0.150	33.6	165
2.000	IC10	IC11	18.662	125.750	125.548	0.202	92.4	100
2.001	IC11	J8	5.139	125.548	125.492	0.056	91.8	100
1.000	J3	J4	18.801	126.263	126.213	0.050	376.0	165
1.001	J4	J6	6.481	126.213	126.113	0.100	64.8	165
4.000	J5	2	2.823	125.500	125.300	0.200	14.1	100

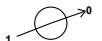
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
3.000	2.145	42.6	1.0	0.022	0.022	0.008	0.0	23	0.868
2.000	0.800	6.3	1.2	0.600	0.752	0.009	0.0	29	0.612
2.001	0.803	6.3	2.3	0.752	0.708	0.018	0.0	42	0.740
1.000	0.641	12.7	2.1	0.022	0.022	0.016	0.0	60	0.425
1.001	1.545	30.7	3.1	0.022	0.022	0.024	0.0	47	0.907
4.000	2.067	16.2	0.0	0.700	0.900	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.000	5.042	33.6	165	ACO MultiDrain M150D 0.0	126.450	126.263	0.022	126.300	126.113	0.022
2.000	18.662	92.4	100	Circular	126.450	125.750	0.600	126.400	125.548	0.752
2.001	5.139	91.8	100	Circular	126.400	125.548	0.752	126.300	125.492	0.708
1.000	18.801	376.0	165	ACO MultiDrain M150D 0.0	126.450	126.263	0.022	126.400	126.213	0.022
1.001	6.481	64.8	165	ACO MultiDrain M150D 0.0	126.400	126.213	0.022	126.300	126.113	0.022
4.000	2.823	14.1	100	Circular	126.300	125.500	0.700	126.300	125.300	0.900

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.000	1		Junction		J7		Junction	
2.000	IC10	600	Manhole	Adoptable	IC11	600	Manhole	Adoptable
2.001	IC11	600	Manhole	Adoptable	J8		Junction	
1.000	J3		Junction		J4		Junction	
1.001	J4		Junction		J6		Junction	
4.000	J5		Junction		2	600	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	-4.297	12.616	126.450	0.187					
						0	3.000	126.263	165
J6	7.970	-0.091	126.300	0.977			1	1.001	126.113
									165
J5	14.148	18.161	126.300	0.800					
						0	4.000	125.500	100
IC10	-27.229	18.109	126.450	0.700	600				
						0	2.000	125.750	100
IC11	-9.830	24.859	126.400	0.852	600		1	2.001	125.548
									100
						0	2.001	125.548	100

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
J3	-15.479	-9.541	126.450	0.187					
						0	1.000	126.263	165
J4	1.970	-2.541	126.400	0.187			1	1.000	126.213
						0	1.001	126.213	165
J7	0.470	14.259	126.300	0.977			1	3.000	126.113
									165
J8	-4.980	26.559	126.300	0.977			1	2.001	125.492
									100
2	16.732	19.299	126.300	1.000	600		1	4.000	125.300
									100

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	800	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	30	35	0	0	100	45	0	0

Node J5 Online Weir Control

Flap Valve	x	Replaces Downstream Link	✓	Width (m)	0.200
Downstream Link	4.000	Invert Level (m)	126.170	Discharge Coefficient	0.590

Node J5 Porous Paving Storage Structure

Underdrain Link Type	Circular	Underdrain Length (m)	25.000	Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	52
Underdrain Diameter (mm)	100	Underdrain Slope (1:X)	9000.0	Safety Factor	1.5		
Underdrain Velocity	Colebrook-White	Underdrain Height above base (m)	0.050	Porosity	0.30		
Underdrain ks (mm) / n	0.600	Base Inf Coefficient (m/hr)	0.07200	Invert Level (m)	125.320		

Inlets

J8 | J6 | J7

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	40.0	570.0	0.400	40.0	570.0	0.401	570.0	570.0	0.800	570.0	570.0	0.801	0.0	570.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.14%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	11	126.290	0.027	1.4	0.0000	0.0000	OK
15 minute summer	J6	14	125.544	0.221	7.9	0.0000	0.0000	OK
15 minute summer	J5	14	125.536	0.036	8.2	3.2863	0.0000	OK
15 minute summer	IC10	10	125.785	0.035	1.7	0.0100	0.0000	OK
15 minute summer	IC11	10	125.601	0.053	3.3	0.0149	0.0000	OK
15 minute summer	J3	10	126.337	0.074	3.0	0.0000	0.0000	OK
15 minute summer	J4	10	126.270	0.057	4.4	0.0000	0.0000	OK
15 minute summer	J7	14	125.543	0.220	5.1	0.0000	0.0000	OK
15 minute summer	J8	14	125.544	0.221	6.6	0.0000	0.0000	OK
15 minute summer	2	1	125.300	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	3.000	J7	1.4	0.926	0.033	0.0076	
15 minute summer	J6	Porous Paving	J5	1.0	0.130	1.696		
15 minute summer	J5	Weir	2	0.0				0.0
15 minute summer	J5	Infiltration		7.6				
15 minute summer	IC10	2.000	IC11	1.7	0.507	0.267	0.0619	
15 minute summer	IC11	2.001	J8	3.2	0.790	0.509	0.0209	
15 minute summer	J3	1.000	J4	2.9	0.536	0.231	0.1040	
15 minute summer	J4	1.001	J6	4.4	0.980	0.143	0.0290	
15 minute summer	J7	Porous Paving	J5	1.0	0.130	1.696		
15 minute summer	J8	Porous Paving	J5	1.0	0.130	1.696		



Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.81%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	126.314	0.051	5.0	0.0000	0.0000	OK
60 minute summer	J6	46	125.809	0.486	19.1	0.0000	0.0000	OK
60 minute summer	J5	48	125.798	0.298	21.4	26.1694	0.0000	SURCHARGED
15 minute summer	IC10	12	126.060	0.310	5.8	0.0877	0.0000	SURCHARGED
15 minute summer	IC11	12	125.917	0.369	10.1	0.1045	0.0000	SURCHARGED
15 minute summer	J3	10	126.402	0.139	10.3	0.0000	0.0000	OK
15 minute summer	J4	10	126.322	0.109	15.3	0.0000	0.0000	OK
60 minute summer	J7	46	125.807	0.485	12.3	0.0000	0.0000	OK
60 minute summer	J8	46	125.808	0.485	15.5	0.0000	0.0000	OK
15 minute summer	2	1	125.300	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	3.000	J7	5.0	1.295	0.117	0.0194	
60 minute summer	J6	Porous Paving	J5	1.4	0.177	2.404		
60 minute summer	J5	Weir	2	0.0				0.0
60 minute summer	J5	Infiltration		7.6				
15 minute summer	IC10	2.000	IC11	4.9	0.628	0.782	0.1460	
15 minute summer	IC11	2.001	J8	9.6	1.233	1.530	0.0402	
15 minute summer	J3	1.000	J4	10.2	0.741	0.802	0.2594	
15 minute summer	J4	1.001	J6	15.2	1.319	0.495	0.0747	
60 minute summer	J7	Porous Paving	J5	1.4	0.177	2.404		
60 minute summer	J8	Porous Paving	J5	1.4	0.177	2.404		

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	126.323	0.060	6.8	0.0000	0.0000	OK
60 minute winter	J6	57	125.906	0.584	19.0	0.0000	0.0000	OK
60 minute winter	J5	59	125.895	0.395	21.4	42.8817	0.0000	SURCHARGED
15 minute summer	IC10	12	126.324	0.574	7.9	0.1623	0.0000	FLOOD RISK
15 minute summer	IC11	12	126.079	0.531	13.4	0.1502	0.0000	SURCHARGED
15 minute summer	J3	10	126.431	0.168	14.1	0.0000	0.0000	FLOOD RISK
15 minute summer	J4	10	126.343	0.130	20.8	0.0000	0.0000	OK
60 minute winter	J7	57	125.905	0.582	12.3	0.0000	0.0000	OK
60 minute winter	J8	57	125.906	0.583	15.5	0.0000	0.0000	OK
15 minute summer	2	1	125.300	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	3.000	J7	6.8	1.397	0.159	0.0244	
60 minute winter	J6	Porous Paving	J5	1.4	0.179	2.434		
60 minute winter	J5	Weir	2	0.0				0.0
60 minute winter	J5	Infiltration		7.6				
15 minute summer	IC10	2.000	IC11	6.4	0.821	1.022	0.1460	
15 minute summer	IC11	2.001	J8	12.6	1.613	2.001	0.0402	
15 minute summer	J3	1.000	J4	13.9	0.805	1.091	0.3250	
15 minute summer	J4	1.001	J6	20.7	1.410	0.673	0.0950	
60 minute winter	J7	Porous Paving	J5	1.4	0.179	2.434		
60 minute winter	J8	Porous Paving	J5	1.4	0.179	2.434		