

Job Title The Farmers Stores, Gatehouse Lane, Goddards Green, Hassocks, BN6 9LE.		Date 01/10/2024
Item Gatehouse Hub 2 Drainage Statement	Job No. E9427	Report No. RE001 A



Introduction

This drainage statement has been produced by Stephen Wilson Partnership Ltd (SWP) under appointment by Bedford Park Developments Ltd. The aim of the drainage statement is to provide a description of the surface and foul drainage proposals for a recently acquired parcel of land adjacent to The Farmers Stores redevelopment, approved under planning application Ref: DM/23/1051 with Mid-Sussex District Council (MSDC).

- The Development already approved under ref: DM/23/1053 will be referred to as **Gatehouse 1**
- The new land parcel will be referred to as **Gatehouse 2**

This document should be read in conjunction with the drainage drawings 9427-SWP-ZZ-XX-DP-C-1100 & 1101 P01.

Location

The development site (Gatehouse 2) is a greenfield site adjacent to the northwest boundary of The Farmers Stores Site (Gatehouse 1) and to the rear of Gothards, Gatehouse Lane.

The figure below shows the address in its current context.



Site Location – Development Site, Gatehouse 2, boundary in red

The centre of the site can be located using the National Grid Reference 528893, 119904.

Proposals

It is proposed to extend the existing planning approved Gatehouse 1 development listed as follows.

MSDC Ref: DM/23/1051 - Proposed mixed used commercial park including a wellness centre class E(D) and 19 units for class E(G), B2 or B8 uses.



Existing Planning Approved Layout - Gatehouse 1

Foul Water Drainage System

Gatehouse 2 will have a new foul drainage system designed to connect via gravity into the foul water network already installed to serve Gatehouse 1. This system connects to a wastewater treatment plant (WWTP) in the southeast corner of the Gatehouse 1.

For all details including the receiving foul drainage system please refer to Section 3.2: - Foul & SuDS Drainage Statement report Ref:1837; produced by Haworth McCall Consulting 12th April 2024, and is included in Appendix 1.0.

The increase in volumes resulting from the addition of Gatehouse 2 in to the WWTP will be subject to further design by the specialist manufacturer.

The foul water drainage for the site will not be offered for adoption to the statutory sewerage undertaker.

Surface Water Drainage System (SuDS)

To compliment the SuDS design philosophy already implemented and approved for Gatehouse 1, Gatehouse 2 will adopt the same design principle, which are as follows.

The hard standing areas subject to vehicular traffic (parking bays, access roads and circulation areas) will be constructed with sub-bases of coarse granular fill (0.33 voids ratio), which will fulfil the attenuation requirements for Gatehouse 2.

The parking bays will have porous paved surface finishes, and the roads and circulation areas will be constructed with an impermeable macadam finish; these impermeable areas have been designed such that flows from these areas are directed to the porous paving – or to trapped gullies/channels and into the voided sub-base material.

For all information regarding the surface water drainage strategy please refer to Section 3.1: - Foul & SuDS Drainage Statement report Ref:1837; produced by Haworth McCall Consulting 12th April 2024, see Appendix 1.0.

The surface water system for Gatehouse 2 will function independently of Gatehouse 1 and the surface water runoff created by Gatehouse 2 will then be discharged at restricted rate to an existing ditch on the western boundary of the Site via a concrete bagwork headwall, similar to Gatehouse 1. Refer to Appendix 2.0 for drainage layout drawings

The Gatehouse 2 Development is on land designated as greenfield, and in accordance with Mid-Sussex District Council Guidelines the runoff rate post development must match the pre-development Qbar rate of 3.3l/s. This restricted rate of 3.3 l/s is achieved using orifice plates and includes all storms up to and including the 1:100 year event including a 45% climate change allowance.

The Drainage design has been divided into three separate catchments each with it's own attenuation, voided sub-base material, and orifice plate to restrict discharge from each area. The areas are divided as follows.

- Area A – Wellness centre and adjacent parking, catchment area 1,770m², discharge restricted to 1.0l/s using a 24mmØ orifice plate.
- Area B – Units 2 – 9 and adjacent Parking, catchment area 1,740m², discharge restricted to 1.0l/s using a 23mmØ orifice plate.
- Area C – Units 10–13 & 17-19 and adjacent parking, catchment area 2,020m², discharge restricted to 1.3l/s using a 26mmØ orifice plate.

All three areas connect to headwall and discharge at 3.3l/s (Qbar).

Please refer to Appendix 3.0 For Calculations

The surface water drainage for the site will not be offered for adoption to the statutory sewerage undertaker.

Site Area Gatehouse 1 vs Gatehouse 2

As highlighted above the introduction of Gatehouse 2 and subsequent relocation of The Wellness Centre has required an amendment to the catchment area for each Gatehouse Phase.

The original Gatehouse 1 & 2 Site areas can be seen in the first set of images with the amended catchment boundaries, developed to maintain the same catchment areas for the drainage design.



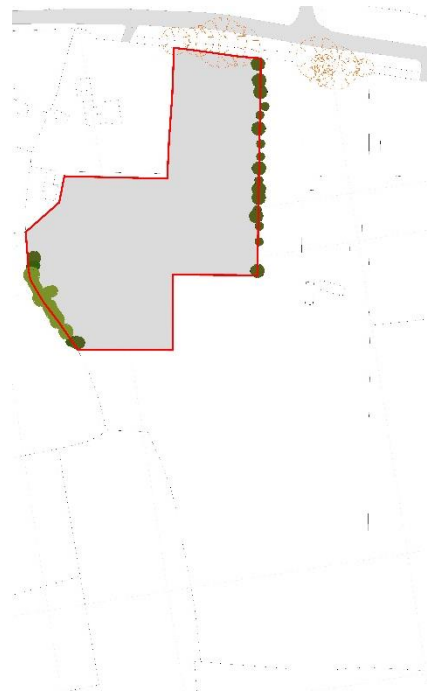
Gatehouse 1 Original Site Area



Gatehouse 2 Original Site Area



Gatehouse 1 Site Area amended in accordance with drainage design



Gatehouse 2 Site Area amended in accordance with drainage design

The contributing areas remain the same for Gatehouse 1 & 2.

Prepared By	Seen By	Date
James Maddin Civil Engineer	Dean Giles Managing Director (SWP Ltd)	01/10/2024
Copy to	Mr Ben Ellis – Bedford Park Developments Ltd	

Appendix 1.0

Foul & SuDS Drainage Statement
by Haworth McCall Consulting

Foul & SuDS Drainage Statement Gatehouse Lane Development



Project	Gatehouse Lane Development
Project No.	1837
Client	Bedford Park Developments
Date	12 April 2024
Prepared by	Haworth McCall Consulting

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1 Introduction & Planning Background

This Statement has been prepared for Bedford Park Developments in relation to build a mixed-use commercial park including a wellness centre E(d) and 19 units for Class E(g), B2 or B8 uses, at the existing Farmers Stores site, Gatehouse Lane, Goddards Green, Hassocks, West Sussex BN6 9LE.

This statement is prepared to support the discharge of planning condition #3 of the Decision Notice relating to planning ref DM/23/1051, which reads as follows:

The development hereby permitted shall not commence unless and until details of the proposed foul and surface water drainage and means of disposal have been submitted to and approved in writing by the local planning authority. No building shall be occupied until all the approved drainage works have been carried out in accordance with the approved details. The details shall include a timetable for its implementation and a management and maintenance plan for the lifetime of the development which shall include arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime. Maintenance and management during the lifetime of the development should be in accordance with the approved details.

Reason: To ensure that the proposal is satisfactorily drained and to accord with the NPPF requirements, and Policy DP41 of the Mid Sussex District Plan (2014 - 2031).

Haworth McCall was appointed by Bedford Park Developments to provide a Foul & Surface Water (SuDS) Drainage Statement to assist with the discharge of the above condition. No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.

2 Existing Site

The application site lies in Goddards Green, approximately 2.5km west of Burgess Hill town centre. The area is administered by Mid Sussex District Council (MSDC).

The site comprises a shingle/concrete parking area with agricultural/industrial storage units, skips and sheds. Access is from Gatehouse Lane to the north. A site location map and aerial view of the site are shown in Appendix A.

Topography: a topographic survey is shown in Appendix B. Topographical levels broadly slope from northwest to southeast, with site levels measuring between 30.74m AOD in the Gatehouse Lane entrance and 24.58m AOD in the southeast corner. A site survey is included in Appendix B.

Hydrology: two ditch watercourses from northeast and southeast of the site converge approximately 140m to the south to form the westbound Pook Bourne, a tributary of Herrings Stream. A pond (formerly known as Jackson's pit) lies 80m east of the site.

Geology: The BGS's online geology map shows the soil type is Weald Clay Formation (mudstone), with no superficial deposits overlying this solid bedrock.

Public Sewers: Southern Water confirms that there are no public assets in this vicinity.

3 Proposed Development Drainage Design

The proposal is to build a mixed-use commercial park including a Wellness Centre and 19 industrial units.

3.1 Surface Water Design

The NPPF states that SuDS should be utilised unless there are practical reasons for not doing so. The SuDS hierarchy has been applied, with infiltration features at the top of this list.

The Drainage Strategy that supported the Planning Application (prepared by Herringtons) stated that the Weald Clay is unlikely to be suitable for infiltration. This was accepted by the LLFA with Planning Permission granted subsequently. BRE365 testing was conducted at one location on site, with the tests abandoned after 24 hours as the water level failed to drop. Percolation tests have also been conducted at two other locations on site, confirming a low rate (10^{-6} m/s). The test results are included in Appendix B.

Rainwater will be routed to and discharged into the adjacent watercourse to the south via gravity. The offsite flow rate of 44l/s was set out by Herringtons in the FRA; and agreed with the LLFA.

The hard standing parking bays will have porous paved surfaces, with sub-bases of coarse granular fill (0.3 voids ratio). Those at higher elevations will have orifice plates to restrict the flow rate into the main network. The orifices diameters vary between 50 and 100mm. The drainage layout is shown in Appendix C. The roads and circulation areas will be impermeable (tarmac); these have been designed such that flows are directed to the porous pavings – or to trapped gullies/channels.

In addition to the porous pavings there is an SDS (or similar) attenuation tank. This is fitted with a 300mm dia perforated pipe along its length. This augments the porous pavings' treatment strategy.

CIRA's tables 26.2 and 26.3 set out the pollution and mitigation indices for discharge to surface waters. The pollution indices for a commercial yard (medium) are 0.7, 0.6 and 0.7 respectively. The corresponding mitigation indices for permeable pavings are the same, ie 0.7, 0.6 and 0.7.

It must be stressed that this level of treatment provides a significant betterment compared to the existing brownfield setup: the runoff currently has no treatment before it is discharged into the watercourse.

Causeway Flow calculations in Appendix D show the network calculation sheets for this design. These show all the storage nodes and controls throughout the network. The impermeable catchments are illustrated in Appendix C.

Exceedance flows: if the surface water system were to 'fail', ie get silted up – or in an extreme storm event, the resulting flow would go south - southeast into the watercourse. See the exceedance flows layout drawing in Appendix C.

Phasing of Construction Works: the network shall be formed upstream, with outfall and control manholes in place first. The pavings shall be built last and the roofs' drainage connected to the network only at the end. In this way there shall be minimal impact on the watercourse. The drainage network will be flushed of construction silts into a silt bag prior to first operation. Silt fences / straw bales will be set up to protect the watercourse during the works.

Ordinary Watercourse Consent will be sought for the proposed outfall headwall. Drainage details are set out in Appendix C.

3.2 Foul Water Design

As part of the approved planning consent, it was determined that foul drainage will be by means of a packaged sewerage treatment plant, the principle of which was accepted by the Council's Flood Risk and Drainage Team.

The packaged sewerage treatment plant has been specifically designed to deal with the loadings of the proposals adopting a robust position. It is intended that an application seeking a variation to a historical consent to discharge or an application for a new Environmental Permit from the EA will be submitted.

Given the strategy is to improve the existing site conditions generally there is not anticipated to be any issue for the Environment Agency to Grant a volume increase even if it means treating to a higher final effluent quality. Should it be the case that no record of an old consent to discharge exists then it has been confirmed by the chosen supplier of the packaged treatment plant (BioBubble) that there should be no issue securing a new permit as the proposed plant will be capable of exceeding any legal final effluent quality likely to be set within a New Environmental Permit. This accords with EA Guidelines and addresses the guidance note criteria.

The proposed foul drainage network is shown on the drainage layout in Appendix C. The specified package sewage treatment plant is a BioBubble unit capable of processing at least 11.1cu.m./day. This provides the following effluent quality: BOD 10mg/l, SS 20mg/l, Ammonia <1mg/l. The BioBubble design information are included in Appendix F.

3.3 Maintenance

The Applicant (developer) shall be responsible for the drainage networks. They are likely to contract out the responsibility for the ongoing maintenance of the drainage components, i.e. pipes, manholes, pavings and soakaways to an Estate Management Company. A Drainage Maintenance Plan has been set up in line with industry best practice – as set out in The SuDS Manual (CIRIA C753, 2015) - and the susdrain website (www.susdrain.org). Refer to Appendix E.

It is contended that this development's SuDS design is fully compliant with the PPG/NPPF. All the items listed in the relevant drainage condition have been addressed in full.

- End of Statement -

Appendix A - Site Location Map & Aerial View





Appendix 2.0

Proposed Gatehouse 2
Drainage Layout

Drawing Legend

Surface Water Drainage

Phase 1 drainage

Proposed surface water drainage

Proposed Backdrop Connection

Type A-B precast concrete ring manhole

Type B-C inspection chamber Rigid Construction - Rectangular

Type D inspection chamber Flexible Construction

RWP

Rainwater pipe position

RE

Rodding eye

Tanked porous paving, Permeable surface finish to Clients preference.

Tanked porous paving subbase only, Sealed macadam surface finish.

Perforated pipe in permeable sub-base

ST4 Concrete baffle

To be installed at 5m centres across width of permeable paving should gradient of formation exceed 1 in 20. 100mmØ pipe through baffle, locations tbc.

CP

Proposed catchpit location

OP

Proposed orifice plate location

Concrete filled bag headwall

Existing ditch to be cleared, repaired and re-profiled where necessary.

Foul Water Drainage

Phase 1 foul sewer

Proposed foul water drainage

Proposed Backdrop Connection

Type A-B inspection chamber Rigid Construction - Circular

Type B-C inspection chamber Rigid Construction - Rectangular

Type D inspection chamber Flexible Construction

Miscellaneous

Phase 1 Catchment Area, Surface and foul drainage for this area has been approved under planning ref: DM/23/1051

NOTES:

1. This drawing is to be read in conjunction with all other SWP drawings, and with all relevant architect's and engineer's drawings and specification and any discrepancies found are to be reported immediately to the engineer.

2. No dimensions are to be scaled from this drawing, unless noted otherwise all dimensions are in millimeters and all levels are in metres from the site datum.

3. All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.

4. The electronic information from this drawing can not be guaranteed as dimensionally drawn exact, figured dimensions must be used for setting out and detailing. swp logos and company information must be removed from copies if information is re-used.

5. The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.

6. The main contractor is responsible for all occurrences of ground water during the construction period.

7. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care and attention whilst undertaking the works.

8. The contractor must comply with all current legislation relating to health & safety.

9. All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any swp drawings, the manufacturers instructions must be used.

P01

30.09.2024

PRELIMINARY ISSUE

REV.

DATE

DESCRIPTION

PRELIMINARY

SWP

STEPHEN WILSON PARTNERSHIP LTD

Chalvington Barn, Dittons Business Park, Dittons Road, POLEGATE, BN26 6HY Telephone: 01323 412020 E-mail: info@swpeast.co.uk • Website: www.swpeast.co.uk

CUSTOMER

BEDFORD PARK DEVELOPMENTS

ARCHITECT

THE ORANGERY

JOB TITLE

GATEHOUSE LANE DEVELOPMENT, GODDARDS GREEN, BN6 9LE

DRAWING TITLE

PHASE 2 DRAINAGE LAYOUT SHEET 1

SCALE AT A1

DATE

SEPT 24

DRAWN

JWM

1:200

ENG.

JWM

CHECKED

DMG

REVISION

STATUS

STAGE3 - SPATIAL COORDINATION

DRAWING

STATUS

S3

DRAWING

SUITABILITY

REVIEW AND COMMENT

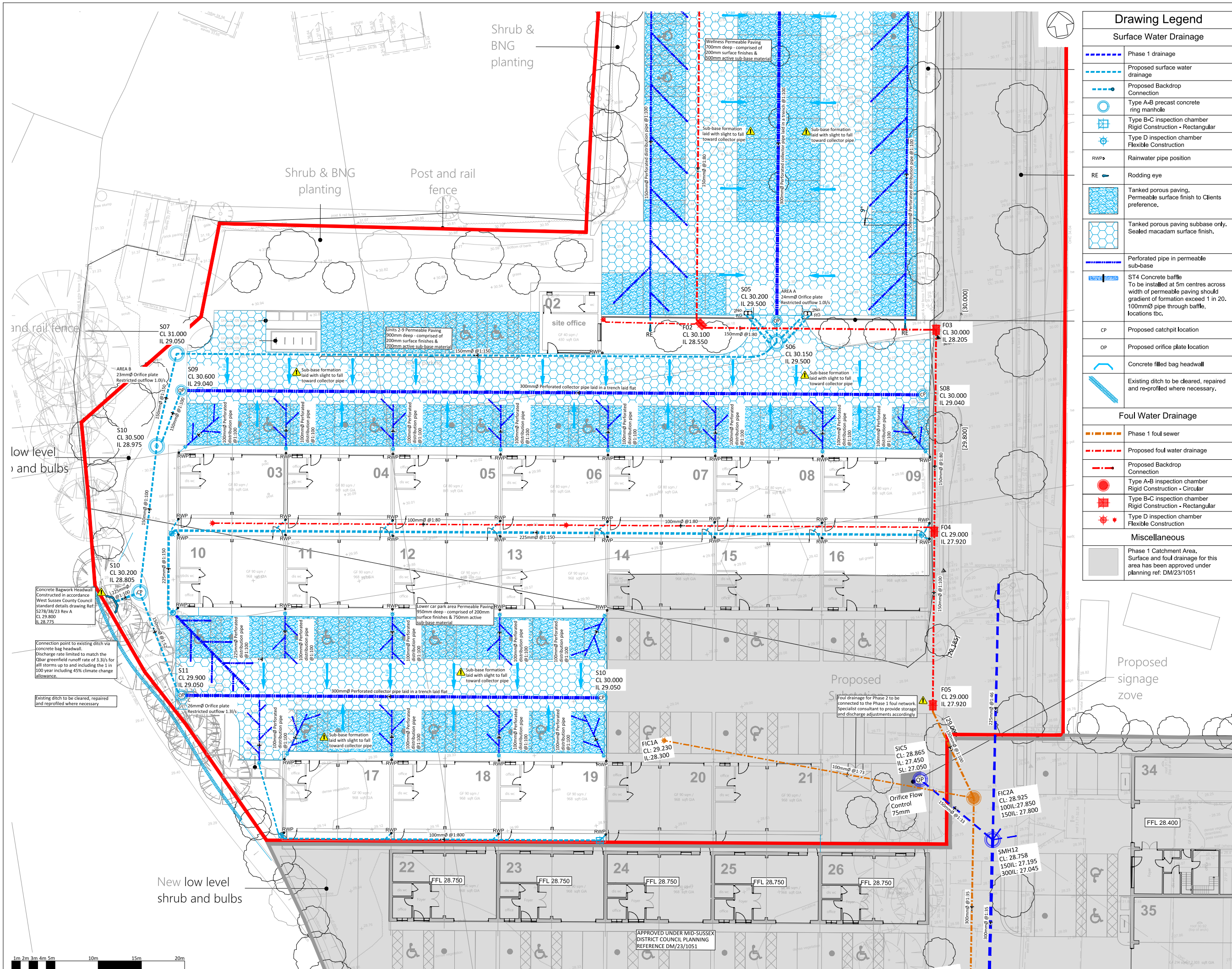
JOB No.

9427-SWP-ZX-XX-DP-C-1100

DRAWING No.

REV.

P01



Drawing Legend	
Surface Water Drainage	
	Phase 1 drainage
	Proposed surface water drainage
	Proposed Backdrop Connection
	Type A-B precast concrete ring manhole
	Type B-C inspection chamber Rigid Construction - Rectangular
	Type D inspection chamber Flexible Construction
	Rainwater pipe position
	Rodding eye
	Tanked porous paving, Permeable surface finish to Clients preference.
	Tanked porous paving subbase only, Sealed macadam surface finish.
	Perforated pipe in permeable sub-base
	ST4 Concrete baffle To be installed at 5m centres across width of permeable paving should gradient of formation exceed 1 in 20. 100mmØ pipe through baffle, locations tbc.
	Proposed catchpit location
	Proposed orifice plate location
	Concrete filled bag headwall
	Existing ditch to be cleared, repaired and re-profiled where necessary.
Foul Water Drainage	
	Phase 1 foul sewer
	Proposed foul water drainage
	Proposed Backdrop Connection
	Type A-B inspection chamber Rigid Construction - Circular
	Type B-C inspection chamber Rigid Construction - Rectangular
	Type D inspection chamber Flexible Construction
Miscellaneous	
	Phase 1 Catchment Area. Surface and foul drainage for this area has been approved under planning ref: DM/23/1051

- NOTES:
- This drawing is to be read in conjunction with all other SWP drawings, and with all relevant architect's and engineer's drawings and specification and any discrepancies found are to be reported immediately to the engineer.
 - No dimensions are to be scaled from this drawing, unless noted otherwise all dimensions are in millimeters and all levels are in metres from the site datum.
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P01	30.09.2024	PRELIMINARY ISSUE
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STEPHEN WILSON PARTNERSHIP LTD Chalvington Barn, Dittons Business Park, Dittons Road, POLEGATE, BN26 6HY Telephone: 01323 412020 E-mail: info@swpeast.co.uk • Website: www.swpeast.co.uk		
CUSTOMER	BEDFORD PARK DEVELOPMENTS	
ARCHITECT	THE ORANGERY	
JOB TITLE	GATEHOUSE LANE DEVELOPMENT, GODDARDS GREEN, BN6 9LE	
DRAWING TITLE	PHASE 2 DRAINAGE LAYOUT SHEET 2	
SCALE AT A1	DATE	DRAWN
1:200	SEPT 24	JWM
STATUS	ENG.	CHECKED
S3	JWM	DMG
REVISION	REVIEW AND COMMENT	
JOB No.	DRAWING No.	
E9427	9427-SWP-ZX-XX-DP-C-1101	
REV.	P01	

Appendix 3.0

Calculations

Title	Farmers Stores, Goddards Green, BN6 9LE	Job No:	E9427
Description :	Surface Water Storage Calculations	By:	JWM
	Gatehouse 2 Development Site	Date:	Oct-24
		Sheet No:	1

Design Data

M5-60(mm) = 20.000

Ratio R = 0.350

Design Criteria

Design Storm = 100Yr + 45% Climate Change

Discharge Point

Surface Water ditch on south-western boundary of Gatehouse 2 area

Design Discharge Rate

Restricted to 3.3l/s Qbar (for all storms up to and including the 1:100yr event = 45% climate change allowance) using orifice flow restriction devices

Total Impermeable Area = 5,530m² or 0.553Ha

Results

Development Site has been split in to 3No. Catchment Areas each with it's own flow restriction device and attenuation within the voided sub-base of hard paved areas.

Discharge to existing ditch via new headwall on the existing ditch

Development Site catchments are as follows.

Catchment Area	Contributing Area (m ²)	Discharge Rate (l/s)	Permeable Paving Depth	Sub-Base Depth	Orifice Diameter
Catchment A:	1,770	1.0	700mm	500mm	24mm
Catchment B:	1,740	1.0	900mm	700mm	23mm
Catchment C:	2,020	1.3	950mm	750mm	26mm
Total	5,530	3.3			

Please refer to attached sheets

Calculated by:	James Maddin
Site name:	Gatehouse 2
Site location:	Goddards Green

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	50.96394° N
Longitude:	0.16639° W
Reference:	3894378053
Date:	Oct 01 2024 14:16

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	.553
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Methodology

Q _{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

Hydrological characteristics

	Default	Edited
SAAR (mm):	821	821
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

Default

Edited

Q_{BAR} (l/s):	3.32	3.32
1 in 1 year (l/s):	2.73	2.73
1 in 30 years (l/s):	7.4	7.4
1 in 100 year (l/s):	10.26	10.26
1 in 200 years (l/s):	12.03	12.03

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Stephen Wilson Partnership Ltd

Page 1

99 South Street
Eastbourne
BN20 4LU

E9427 Farmers Stores
Goddards Green, BN6 9LE
Area A 1:100 +45%CC @1.0l/s

Date 01/10/2024 15:57
File WELLNESS PP ORP 1.0LS.SRCX

Designed by SWP Ltd
Checked by SWP Ltd

Micro Drainage

Source Control 2020.1.3

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1270 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	29.639	0.339	0.0	0.7	0.7	38.3	O K
30 min Summer	29.701	0.401	0.0	0.7	0.7	53.3	Flood Risk
60 min Summer	29.757	0.457	0.0	0.8	0.8	69.3	Flood Risk
120 min Summer	29.807	0.507	0.0	0.8	0.8	85.3	Flood Risk
180 min Summer	29.832	0.532	0.0	0.9	0.9	93.9	Flood Risk
240 min Summer	29.848	0.548	0.0	0.9	0.9	99.1	Flood Risk
360 min Summer	29.869	0.569	0.0	0.9	0.9	106.2	Flood Risk
480 min Summer	29.881	0.581	0.0	0.9	0.9	110.2	Flood Risk
600 min Summer	29.888	0.588	0.0	0.9	0.9	112.5	Flood Risk
720 min Summer	29.891	0.591	0.0	0.9	0.9	113.6	Flood Risk
960 min Summer	29.892	0.592	0.0	0.9	0.9	113.9	Flood Risk
1440 min Summer	29.888	0.588	0.0	0.9	0.9	112.5	Flood Risk
2160 min Summer	29.877	0.577	0.0	0.9	0.9	108.8	Flood Risk
2880 min Summer	29.863	0.563	0.0	0.9	0.9	104.1	Flood Risk
4320 min Summer	29.833	0.533	0.0	0.9	0.9	94.2	Flood Risk
5760 min Summer	29.806	0.506	0.0	0.8	0.8	85.0	Flood Risk
7200 min Summer	29.781	0.481	0.0	0.8	0.8	76.8	Flood Risk
8640 min Summer	29.757	0.457	0.0	0.8	0.8	69.5	Flood Risk
10080 min Summer	29.735	0.435	0.0	0.8	0.8	62.9	Flood Risk
15 min Winter	29.662	0.362	0.0	0.7	0.7	43.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	136.560	0.0	38.8	23
30 min Summer	91.729	0.0	51.1	37
60 min Summer	58.739	0.0	71.4	68
120 min Summer	36.254	0.0	89.5	126
180 min Summer	26.900	0.0	100.2	186
240 min Summer	21.623	0.0	107.7	246
360 min Summer	15.914	0.0	117.0	364
480 min Summer	12.782	0.0	121.2	482
600 min Summer	10.774	0.0	123.7	602
720 min Summer	9.365	0.0	125.1	722
960 min Summer	7.499	0.0	126.2	914
1440 min Summer	5.473	0.0	124.5	1140
2160 min Summer	3.985	0.0	178.2	1520
2880 min Summer	3.178	0.0	188.3	1936
4320 min Summer	2.306	0.0	200.0	2768
5760 min Summer	1.834	0.0	211.8	3576
7200 min Summer	1.536	0.0	219.0	4328
8640 min Summer	1.330	0.0	224.7	5104
10080 min Summer	1.178	0.0	229.2	5856
15 min Winter	136.560	0.0	44.2	23

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BN20 4LU

E9427 Farmers Stores
Goddards Green, BN6 9LE
Area A 1:100 +45%CC @1.0l/s

Date 01/10/2024 15:57
File WELLNESS PP ORP 1.0LS.SRCX

Designed by SWP Ltd
Checked by SWP Ltd

Micro Drainage

Source Control 2020.1.3

Micro Drainage

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	29.727	0.427	0.0	0.8	0.8	60.6	Flood Risk
60 min Winter	29.786	0.486	0.0	0.8	0.8	78.6	Flood Risk
120 min Winter	29.841	0.541	0.0	0.9	0.9	96.8	Flood Risk
180 min Winter	29.870	0.570	0.0	0.9	0.9	106.5	Flood Risk
240 min Winter	29.889	0.589	0.0	0.9	0.9	112.6	Flood Risk
360 min Winter	29.914	0.614	0.0	0.9	0.9	121.0	Flood Risk
480 min Winter	29.928	0.628	0.0	0.9	0.9	125.9	Flood Risk
600 min Winter	29.938	0.638	0.0	1.0	1.0	129.0	Flood Risk
720 min Winter	29.943	0.643	0.0	1.0	1.0	130.8	Flood Risk
960 min Winter	29.947	0.647	0.0	1.0	1.0	132.1	Flood Risk
1440 min Winter	29.940	0.640	0.0	1.0	1.0	129.8	Flood Risk
2160 min Winter	29.925	0.625	0.0	0.9	0.9	125.0	Flood Risk
2880 min Winter	29.906	0.606	0.0	0.9	0.9	118.4	Flood Risk
4320 min Winter	29.863	0.563	0.0	0.9	0.9	104.2	Flood Risk
5760 min Winter	29.822	0.522	0.0	0.9	0.9	90.6	Flood Risk
7200 min Winter	29.786	0.486	0.0	0.8	0.8	78.6	Flood Risk
8640 min Winter	29.753	0.453	0.0	0.8	0.8	68.1	Flood Risk
10080 min Winter	29.721	0.421	0.0	0.8	0.8	58.9	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	91.729	0.0	54.6	37
60 min Winter	58.739	0.0	80.7	66
120 min Winter	36.254	0.0	101.0	124
180 min Winter	26.900	0.0	113.0	182
240 min Winter	21.623	0.0	119.3	242
360 min Winter	15.914	0.0	125.9	358
480 min Winter	12.782	0.0	129.4	474
600 min Winter	10.774	0.0	131.5	588
720 min Winter	9.365	0.0	132.7	700
960 min Winter	7.499	0.0	133.5	920
1440 min Winter	5.473	0.0	131.4	1300
2160 min Winter	3.985	0.0	201.1	1644
2880 min Winter	3.178	0.0	212.7	2104
4320 min Winter	2.306	0.0	218.0	2984
5760 min Winter	1.834	0.0	240.0	3856
7200 min Winter	1.536	0.0	248.6	4680
8640 min Winter	1.330	0.0	255.5	5448
10080 min Winter	1.178	0.0	261.1	6248

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99 South Street Eastbourne BN20 4LU	E9427 Farmers Stores Goddards Green, BN6 9LE Area A 1:100 +45%CC @1.0l/s	
Date 01/10/2024 15:57 File WELLNESS PP ORP 1.0LS.SRCX	Designed by SWP Ltd Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.177

Time (mins) Area			Time (mins) Area		
From:	To:	(ha)	From:	To:	(ha)
0	4	0.089	4	8	0.088

Stephen Wilson Partnership Ltd		Page 4																								
99 South Street Eastbourne BN20 4LU	E9427 Farmers Stores Goddards Green, BN6 9LE Area A 1:100 +45%CC @1.0l/s																									
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<u>Model Details</u> Storage is Online Cover Level (m) 30.000 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00000</td> <td>Width (m)</td> <td>31.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>41.5</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>357.4</td> <td>Slope (1:X)</td> <td>65.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.33</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>29.300</td> <td>Cap Volume Depth (m)</td> <td>0.500</td> </tr> </table> <u>Orifice Outflow Control</u> Diameter (m) 0.024 Discharge Coefficient 0.600 Invert Level (m) 29.300			Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	31.0	Membrane Percolation (mm/hr)	1000	Length (m)	41.5	Max Percolation (l/s)	357.4	Slope (1:X)	65.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.33	Evaporation (mm/day)	3	Invert Level (m)	29.300	Cap Volume Depth (m)	0.500
Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	31.0																							
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Max Percolation (l/s)	357.4	Slope (1:X)	65.0																							
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Invert Level (m)	29.300	Cap Volume Depth (m)	0.500																							
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99 South Street
Eastbourne
BN20 4LU

E9427 Farmers Stores
Goddards Green, BN6 9LE
Area B 1:100 +45%CC @ 1.0l/s

Date 01/10/2024 15:55
File 2-9.SRCX

Designed by SWP Ltd
Checked by SWP Ltd

Micro Drainage

Source Control 2020.1.3

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1182 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	29.539	0.439	0.0	0.7	0.7	38.2	O K
30 min Summer	29.617	0.517	0.0	0.8	0.8	53.0	O K
60 min Summer	29.689	0.589	0.0	0.8	0.8	68.6	O K
120 min Summer	29.752	0.652	0.0	0.9	0.9	84.2	Flood Risk
180 min Summer	29.783	0.683	0.0	0.9	0.9	92.4	Flood Risk
240 min Summer	29.802	0.702	0.0	0.9	0.9	97.5	Flood Risk
360 min Summer	29.826	0.726	0.0	0.9	0.9	104.1	Flood Risk
480 min Summer	29.839	0.739	0.0	0.9	0.9	107.8	Flood Risk
600 min Summer	29.846	0.746	0.0	0.9	0.9	109.8	Flood Risk
720 min Summer	29.849	0.749	0.0	0.9	0.9	110.6	Flood Risk
960 min Summer	29.849	0.749	0.0	0.9	0.9	110.5	Flood Risk
1440 min Summer	29.843	0.743	0.0	0.9	0.9	108.9	Flood Risk
2160 min Summer	29.828	0.728	0.0	0.9	0.9	104.8	Flood Risk
2880 min Summer	29.810	0.710	0.0	0.9	0.9	99.7	Flood Risk
4320 min Summer	29.773	0.673	0.0	0.9	0.9	89.6	Flood Risk
5760 min Summer	29.737	0.637	0.0	0.9	0.9	80.3	Flood Risk
7200 min Summer	29.704	0.604	0.0	0.8	0.8	72.1	Flood Risk
8640 min Summer	29.672	0.572	0.0	0.8	0.8	64.9	O K
10080 min Summer	29.643	0.543	0.0	0.8	0.8	58.4	O K
15 min Winter	29.569	0.469	0.0	0.7	0.7	43.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	136.560	0.0	38.8	23
30 min Summer	91.729	0.0	52.4	37
60 min Summer	58.739	0.0	70.8	68
120 min Summer	36.254	0.0	88.6	126
180 min Summer	26.900	0.0	99.1	186
240 min Summer	21.623	0.0	106.6	244
360 min Summer	15.914	0.0	118.0	364
480 min Summer	12.782	0.0	123.7	482
600 min Summer	10.774	0.0	126.7	602
720 min Summer	9.365	0.0	128.5	720
960 min Summer	7.499	0.0	130.1	878
1440 min Summer	5.473	0.0	128.8	1114
2160 min Summer	3.985	0.0	176.3	1512
2880 min Summer	3.178	0.0	186.5	1928
4320 min Summer	2.306	0.0	200.6	2728
5760 min Summer	1.834	0.0	210.3	3528
7200 min Summer	1.536	0.0	217.7	4328
8640 min Summer	1.330	0.0	223.6	5104
10080 min Summer	1.178	0.0	228.4	5848
15 min Winter	136.560	0.0	44.1	23

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Date 01/10/2024 15:55 File 2-9.SRCX	Designed by SWP Ltd Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.174

Time (mins) Area			Time (mins) Area		
From:	To:	(ha)	From:	To:	(ha)
0	4	0.087	4	8	0.087

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99 South Street Eastbourne BN20 4LU	E9427 Farmers Stores Goddards Green, BN6 9LE Area B 1:100 +45%CC @ 1.0l/s	
Date 01/10/2024 15:55 File 2-9.SRCX	Designed by SWP Ltd Checked by SWP Ltd	
Micro Drainage Source Control 2020.1.3		

Model Details

Storage is Online Cover Level (m) 30.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	12.0
Membrane Percolation (mm/hr)	1000	Length (m)	95.5
Max Percolation (l/s)	318.3	Slope (1:X)	100.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.33	Evaporation (mm/day)	3
Invert Level (m)	29.100	Cap Volume Depth (m)	0.700

Orifice Outflow Control

Diameter (m) 0.023 Discharge Coefficient 0.600 Invert Level (m) 29.100

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99 South Street Eastbourne BN20 4LU			E9427 Farmers Stores Goddards Green BN6 9LE Area C 1:100 +45%CC @1.31/s																																																																																																																																																																																																																																																																																					
Date 01/10/2024 15:53 File LOWER PLUS.SRCX			Designed by SWP Ltd Checked by SWP Ltd																																																																																																																																																																																																																																																																																					
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<u>Summary of Results for 100 year Return Period (+45%)</u> Half Drain Time : 1068 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Control (l/s)</th><th>Max E Outflow (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>29.477</td><td>0.427</td><td>0.0</td><td>0.9</td><td>0.9</td><td>47.0</td><td>O K</td></tr><tr><td>30 min Summer</td><td>29.550</td><td>0.500</td><td>0.0</td><td>1.0</td><td>1.0</td><td>64.1</td><td>O K</td></tr><tr><td>60 min Summer</td><td>29.623</td><td>0.573</td><td>0.0</td><td>1.1</td><td>1.1</td><td>82.2</td><td>O K</td></tr><tr><td>120 min Summer</td><td>29.695</td><td>0.645</td><td>0.0</td><td>1.1</td><td>1.1</td><td>100.0</td><td>O K</td></tr><tr><td>180 min Summer</td><td>29.732</td><td>0.682</td><td>0.0</td><td>1.2</td><td>1.2</td><td>109.3</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>29.755</td><td>0.705</td><td>0.0</td><td>1.2</td><td>1.2</td><td>114.8</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>29.784</td><td>0.734</td><td>0.0</td><td>1.2</td><td>1.2</td><td>122.0</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>29.799</td><td>0.749</td><td>0.0</td><td>1.2</td><td>1.2</td><td>125.7</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>29.806</td><td>0.756</td><td>0.0</td><td>1.2</td><td>1.2</td><td>127.5</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>29.808</td><td>0.758</td><td>0.0</td><td>1.2</td><td>1.2</td><td>127.9</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>29.806</td><td>0.756</td><td>0.0</td><td>1.2</td><td>1.2</td><td>127.4</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>29.796</td><td>0.746</td><td>0.0</td><td>1.2</td><td>1.2</td><td>125.0</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>29.774</td><td>0.724</td><td>0.0</td><td>1.2</td><td>1.2</td><td>119.5</td><td>Flood Risk</td></tr><tr><td>2880 min Summer</td><td>29.748</td><td>0.698</td><td>0.0</td><td>1.2</td><td>1.2</td><td>113.2</td><td>Flood Risk</td></tr><tr><td>4320 min Summer</td><td>29.699</td><td>0.649</td><td>0.0</td><td>1.1</td><td>1.1</td><td>101.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>29.656</td><td>0.606</td><td>0.0</td><td>1.1</td><td>1.1</td><td>90.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>29.617</td><td>0.567</td><td>0.0</td><td>1.1</td><td>1.1</td><td>80.8</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>29.583</td><td>0.533</td><td>0.0</td><td>1.0</td><td>1.0</td><td>72.4</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>29.553</td><td>0.503</td><td>0.0</td><td>1.0</td><td>1.0</td><td>64.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>29.505</td><td>0.455</td><td>0.0</td><td>0.9</td><td>0.9</td><td>53.2</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>136.560</td><td>0.0</td><td>47.9</td><td>26</td></tr><tr><td>30 min Summer</td><td>91.729</td><td>0.0</td><td>64.6</td><td>41</td></tr><tr><td>60 min Summer</td><td>58.739</td><td>0.0</td><td>85.1</td><td>70</td></tr><tr><td>120 min Summer</td><td>36.254</td><td>0.0</td><td>105.9</td><td>130</td></tr><tr><td>180 min Summer</td><td>26.900</td><td>0.0</td><td>118.2</td><td>188</td></tr><tr><td>240 min Summer</td><td>21.623</td><td>0.0</td><td>126.9</td><td>248</td></tr><tr><td>360 min Summer</td><td>15.914</td><td>0.0</td><td>140.3</td><td>366</td></tr><tr><td>480 min Summer</td><td>12.782</td><td>0.0</td><td>150.2</td><td>484</td></tr><tr><td>600 min Summer</td><td>10.774</td><td>0.0</td><td>155.5</td><td>602</td></tr><tr><td>720 min Summer</td><td>9.365</td><td>0.0</td><td>158.6</td><td>720</td></tr><tr><td>960 min Summer</td><td>7.499</td><td>0.0</td><td>161.7</td><td>834</td></tr><tr><td>1440 min Summer</td><td>5.473</td><td>0.0</td><td>161.6</td><td>1082</td></tr><tr><td>2160 min Summer</td><td>3.985</td><td>0.0</td><td>210.2</td><td>1480</td></tr><tr><td>2880 min Summer</td><td>3.178</td><td>0.0</td><td>222.8</td><td>1904</td></tr><tr><td>4320 min Summer</td><td>2.306</td><td>0.0</td><td>241.0</td><td>2724</td></tr><tr><td>5760 min Summer</td><td>1.834</td><td>0.0</td><td>254.0</td><td>3520</td></tr><tr><td>7200 min Summer</td><td>1.536</td><td>0.0</td><td>264.3</td><td>4320</td></tr><tr><td>8640 min Summer</td><td>1.330</td><td>0.0</td><td>273.0</td><td>5096</td></tr><tr><td>10080 min Summer</td><td>1.178</td><td>0.0</td><td>280.3</td><td>5848</td></tr><tr><td>15 min Winter</td><td>136.560</td><td>0.0</td><td>54.1</td><td>26</td></tr></table>								Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status	15 min Summer	29.477	0.427	0.0	0.9	0.9	47.0	O K	30 min Summer	29.550	0.500	0.0	1.0	1.0	64.1	O K	60 min Summer	29.623	0.573	0.0	1.1	1.1	82.2	O K	120 min Summer	29.695	0.645	0.0	1.1	1.1	100.0	O K	180 min Summer	29.732	0.682	0.0	1.2	1.2	109.3	Flood Risk	240 min Summer	29.755	0.705	0.0	1.2	1.2	114.8	Flood Risk	360 min Summer	29.784	0.734	0.0	1.2	1.2	122.0	Flood Risk	480 min Summer	29.799	0.749	0.0	1.2	1.2	125.7	Flood Risk	600 min Summer	29.806	0.756	0.0	1.2	1.2	127.5	Flood Risk	720 min Summer	29.808	0.758	0.0	1.2	1.2	127.9	Flood Risk	960 min Summer	29.806	0.756	0.0	1.2	1.2	127.4	Flood Risk	1440 min Summer	29.796	0.746	0.0	1.2	1.2	125.0	Flood Risk	2160 min Summer	29.774	0.724	0.0	1.2	1.2	119.5	Flood Risk	2880 min Summer	29.748	0.698	0.0	1.2	1.2	113.2	Flood Risk	4320 min Summer	29.699	0.649	0.0	1.1	1.1	101.2	O K	5760 min Summer	29.656	0.606	0.0	1.1	1.1	90.3	O K	7200 min Summer	29.617	0.567	0.0	1.1	1.1	80.8	O K	8640 min Summer	29.583	0.533	0.0	1.0	1.0	72.4	O K	10080 min Summer	29.553	0.503	0.0	1.0	1.0	64.9	O K	15 min Winter	29.505	0.455	0.0	0.9	0.9	53.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	136.560	0.0	47.9	26	30 min Summer	91.729	0.0	64.6	41	60 min Summer	58.739	0.0	85.1	70	120 min Summer	36.254	0.0	105.9	130	180 min Summer	26.900	0.0	118.2	188	240 min Summer	21.623	0.0	126.9	248	360 min Summer	15.914	0.0	140.3	366	480 min Summer	12.782	0.0	150.2	484	600 min Summer	10.774	0.0	155.5	602	720 min Summer	9.365	0.0	158.6	720	960 min Summer	7.499	0.0	161.7	834	1440 min Summer	5.473	0.0	161.6	1082	2160 min Summer	3.985	0.0	210.2	1480	2880 min Summer	3.178	0.0	222.8	1904	4320 min Summer	2.306	0.0	241.0	2724	5760 min Summer	1.834	0.0	254.0	3520	7200 min Summer	1.536	0.0	264.3	4320	8640 min Summer	1.330	0.0	273.0	5096	10080 min Summer	1.178	0.0	280.3	5848	15 min Winter	136.560	0.0	54.1	26
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																																																																																	
15 min Summer	29.477	0.427	0.0	0.9	0.9	47.0	O K																																																																																																																																																																																																																																																																																	
30 min Summer	29.550	0.500	0.0	1.0	1.0	64.1	O K																																																																																																																																																																																																																																																																																	
60 min Summer	29.623	0.573	0.0	1.1	1.1	82.2	O K																																																																																																																																																																																																																																																																																	
120 min Summer	29.695	0.645	0.0	1.1	1.1	100.0	O K																																																																																																																																																																																																																																																																																	
180 min Summer	29.732	0.682	0.0	1.2	1.2	109.3	Flood Risk																																																																																																																																																																																																																																																																																	
240 min Summer	29.755	0.705	0.0	1.2	1.2	114.8	Flood Risk																																																																																																																																																																																																																																																																																	
360 min Summer	29.784	0.734	0.0	1.2	1.2	122.0	Flood Risk																																																																																																																																																																																																																																																																																	
480 min Summer	29.799	0.749	0.0	1.2	1.2	125.7	Flood Risk																																																																																																																																																																																																																																																																																	
600 min Summer	29.806	0.756	0.0	1.2	1.2	127.5	Flood Risk																																																																																																																																																																																																																																																																																	
720 min Summer	29.808	0.758	0.0	1.2	1.2	127.9	Flood Risk																																																																																																																																																																																																																																																																																	
960 min Summer	29.806	0.756	0.0	1.2	1.2	127.4	Flood Risk																																																																																																																																																																																																																																																																																	
1440 min Summer	29.796	0.746	0.0	1.2	1.2	125.0	Flood Risk																																																																																																																																																																																																																																																																																	
2160 min Summer	29.774	0.724	0.0	1.2	1.2	119.5	Flood Risk																																																																																																																																																																																																																																																																																	
2880 min Summer	29.748	0.698	0.0	1.2	1.2	113.2	Flood Risk																																																																																																																																																																																																																																																																																	
4320 min Summer	29.699	0.649	0.0	1.1	1.1	101.2	O K																																																																																																																																																																																																																																																																																	
5760 min Summer	29.656	0.606	0.0	1.1	1.1	90.3	O K																																																																																																																																																																																																																																																																																	
7200 min Summer	29.617	0.567	0.0	1.1	1.1	80.8	O K																																																																																																																																																																																																																																																																																	
8640 min Summer	29.583	0.533	0.0	1.0	1.0	72.4	O K																																																																																																																																																																																																																																																																																	
10080 min Summer	29.553	0.503	0.0	1.0	1.0	64.9	O K																																																																																																																																																																																																																																																																																	
15 min Winter	29.505	0.455	0.0	0.9	0.9	53.2	O K																																																																																																																																																																																																																																																																																	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																																																																																				
15 min Summer	136.560	0.0	47.9	26																																																																																																																																																																																																																																																																																				
30 min Summer	91.729	0.0	64.6	41																																																																																																																																																																																																																																																																																				
60 min Summer	58.739	0.0	85.1	70																																																																																																																																																																																																																																																																																				
120 min Summer	36.254	0.0	105.9	130																																																																																																																																																																																																																																																																																				
180 min Summer	26.900	0.0	118.2	188																																																																																																																																																																																																																																																																																				
240 min Summer	21.623	0.0	126.9	248																																																																																																																																																																																																																																																																																				
360 min Summer	15.914	0.0	140.3	366																																																																																																																																																																																																																																																																																				
480 min Summer	12.782	0.0	150.2	484																																																																																																																																																																																																																																																																																				
600 min Summer	10.774	0.0	155.5	602																																																																																																																																																																																																																																																																																				
720 min Summer	9.365	0.0	158.6	720																																																																																																																																																																																																																																																																																				
960 min Summer	7.499	0.0	161.7	834																																																																																																																																																																																																																																																																																				
1440 min Summer	5.473	0.0	161.6	1082																																																																																																																																																																																																																																																																																				
2160 min Summer	3.985	0.0	210.2	1480																																																																																																																																																																																																																																																																																				
2880 min Summer	3.178	0.0	222.8	1904																																																																																																																																																																																																																																																																																				
4320 min Summer	2.306	0.0	241.0	2724																																																																																																																																																																																																																																																																																				
5760 min Summer	1.834	0.0	254.0	3520																																																																																																																																																																																																																																																																																				
7200 min Summer	1.536	0.0	264.3	4320																																																																																																																																																																																																																																																																																				
8640 min Summer	1.330	0.0	273.0	5096																																																																																																																																																																																																																																																																																				
10080 min Summer	1.178	0.0	280.3	5848																																																																																																																																																																																																																																																																																				
15 min Winter	136.560	0.0	54.1	26																																																																																																																																																																																																																																																																																				
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Stephen Wilson Partnership Ltd

99 South Street
Eastbourne
BN20 4LU

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File LOWER PLUS.SRCX

Micro Drainage

E9427 Farmers Stores
Goddards Green BN6 9LE
Area C 1:100 +45%CC @1.31/s

Designed by SWP Ltd
Checked by SWP Ltd

Source Control 2020.1.3

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	29.583	0.533	0.0	1.0	1.0	72.4	O K
60 min Winter	29.665	0.615	0.0	1.1	1.1	92.8	O K
120 min Winter	29.747	0.697	0.0	1.2	1.2	113.0	Flood Risk
180 min Winter	29.791	0.741	0.0	1.2	1.2	123.7	Flood Risk
240 min Winter	29.818	0.768	0.0	1.2	1.2	130.3	Flood Risk
360 min Winter	29.855	0.805	0.0	1.3	1.3	138.9	Flood Risk
480 min Winter	29.878	0.828	0.0	1.3	1.3	143.7	Flood Risk
600 min Winter	29.890	0.840	0.0	1.3	1.3	146.3	Flood Risk
720 min Winter	29.897	0.847	0.0	1.3	1.3	147.6	Flood Risk
960 min Winter	29.896	0.846	0.0	1.3	1.3	147.5	Flood Risk
1440 min Winter	29.878	0.828	0.0	1.3	1.3	143.9	Flood Risk
2160 min Winter	29.845	0.795	0.0	1.2	1.2	136.7	Flood Risk
2880 min Winter	29.807	0.757	0.0	1.2	1.2	127.9	Flood Risk
4320 min Winter	29.736	0.686	0.0	1.2	1.2	110.1	Flood Risk
5760 min Winter	29.671	0.621	0.0	1.1	1.1	94.2	O K
7200 min Winter	29.616	0.566	0.0	1.0	1.0	80.6	O K
8640 min Winter	29.568	0.518	0.0	1.0	1.0	68.8	O K
10080 min Winter	29.527	0.477	0.0	1.0	1.0	58.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	91.729	0.0	69.5	41
60 min Winter	58.739	0.0	95.8	70
120 min Winter	36.254	0.0	119.1	128
180 min Winter	26.900	0.0	132.9	184
240 min Winter	21.623	0.0	142.6	242
360 min Winter	15.914	0.0	156.7	358
480 min Winter	12.782	0.0	163.3	474
600 min Winter	10.774	0.0	167.3	586
720 min Winter	9.365	0.0	169.8	698
960 min Winter	7.499	0.0	172.2	910
1440 min Winter	5.473	0.0	171.5	1140
2160 min Winter	3.985	0.0	236.3	1604
2880 min Winter	3.178	0.0	250.6	2052
4320 min Winter	2.306	0.0	271.0	2940
5760 min Winter	1.834	0.0	286.0	3760
7200 min Winter	1.536	0.0	297.9	4552
8640 min Winter	1.330	0.0	307.9	5360
10080 min Winter	1.178	0.0	316.3	6144

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99 South Street Eastbourne BN20 4LU	E9427 Farmers Stores Goddards Green BN6 9LE Area C 1:100 +45%CC @1.3l/s	
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Micro Drainage		Source Control 2020.1.3

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.202

Time (mins) Area			Time (mins) Area			Time (mins) Area		
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.068	4	8	0.067	8	12	0.067

Stephen Wilson Partnership Ltd		Page 4																								
99 South Street Eastbourne BN20 4LU	E9427 Farmers Stores Goddards Green BN6 9LE Area C 1:100 +45%CC @1.3l/s																									
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Micro Drainage		Source Control 2020.1.3																								
Model Details Storage is Online Cover Level (m) 30.000 Porous Car Park Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.00000</td><td>Width (m)</td><td>15.6</td></tr><tr><td>Membrane Percolation (mm/hr)</td><td>1000</td><td>Length (m)</td><td>48.0</td></tr><tr><td>Max Percolation (l/s)</td><td>208.0</td><td>Slope (1:X)</td><td>100.0</td></tr><tr><td>Safety Factor</td><td>2.0</td><td>Depression Storage (mm)</td><td>5</td></tr><tr><td>Porosity</td><td>0.33</td><td>Evaporation (mm/day)</td><td>3</td></tr><tr><td>Invert Level (m)</td><td>29.050</td><td>Cap Volume Depth (m)</td><td>0.750</td></tr></table> Orifice Outflow Control Diameter (m) 0.026 Discharge Coefficient 0.600 Invert Level (m) 29.050			Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	15.6	Membrane Percolation (mm/hr)	1000	Length (m)	48.0	Max Percolation (l/s)	208.0	Slope (1:X)	100.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.33	Evaporation (mm/day)	3	Invert Level (m)	29.050	Cap Volume Depth (m)	0.750
Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	15.6																							
Membrane Percolation (mm/hr)	1000	Length (m)	48.0																							
Max Percolation (l/s)	208.0	Slope (1:X)	100.0																							
Safety Factor	2.0	Depression Storage (mm)	5																							
Porosity	0.33	Evaporation (mm/day)	3																							
Invert Level (m)	29.050	Cap Volume Depth (m)	0.750																							
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