

ARDENT

CONSULTING ENGINEERS

AN EMPLOYEE OWNED COMPANY

CROSS HOMES (SUSSEX) Ltd

ROCKY LANE, HAYWARDS HEATH

**ROCKY LANE, HAYWARDS HEATH, WEST SUSSEX,
RH16**

DRAINAGE STRATEGY BRIEFING NOTE

REPORT REF.

196240_A-ACE-XX-00-RP-C-0001

June 2025

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Document Control Sheet

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
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Distribution

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1. Introduction

Ardent Consulting Engineers (ACE) has been commissioned by Cross Homes (Sussex) Ltd to assist with the planning application for 6 flats on Land South of Old Rocky Lane, Haywards Heath, West Sussex.

This note relates specifically to the proposed drainage strategy for the site for both foul and surface water systems.

This briefing note is to be read in conjunction with Ardent Consulting Engineers' drawing 196240_A-ACE-XX-XX-DR-C-0200 (Surface and Foul Water Drainage Strategy).

2. Proposed Surface Water Drainage Strategy

It is the intention to discharge all surface water runoff associated with the development via infiltration at source, in line with the strategy of the adjacent existing site.

The block of flats is to discharge via a conventional pipe network to a geo-cellular storage unit which will sit beneath the permeable paving. The tanks are also intended to discharge via infiltration using a filtration membrane to manufacturer's specifications. The tanks have been located a minimum 5m from all structural elements in accordance with best practice guidance.

As the levels at the site inherently fall towards the proposed residential units it is the intention to utilise full height kerbs within the car park to encourage any residual surface water runoff to be contained within the area of permeable paving.

All drainage features within the site have been designed to accommodate runoff for all storm events up to and including the 1 in 100 year storm event + 45% allowance for climate change.

Infiltration rates have been based upon soakaway testing undertaken by Geo-Environmental in July 2017 (report ref: GE16665-SLRv1JK170725 – see Appendix A). Three soil infiltration rate tests were undertaken in accessible areas of the site with rates ranging from 5.7×10^{-6} m/s to 5.3×10^{-5} m/s. The furthest west of these tests, and therefore that most representative of the soils beneath the car park and the proposed infiltration tank is TP101. This trial pit had an average infiltration rate of 1.2×10^{-5} m/s and has been used to size the infiltration tank shown in calculations within Appendix B.

3. SuDS Maintenance Proposals

The proposed drainage strategy utilises sustainable drainage techniques to ensure that the site can accommodate all storm events up to and including the 1 in 100-year storm event with allowances for future climate change.

It is the intention that all Sustainable Urban Drainage Systems (SUDS) features (permeable paving and geo-cellular storage tanks) are to be maintained by a private management company. The tables below outline the typical maintenance requirements of the SuDS components throughout the drainage strategy. These have been informed by the guidance outlined within CIRIA C753. The following information would be supplemented by manufacturer’s specifications and be obviously dependent on the type of system involved

MAINTENANCE SCHEDULE	REQUIRED ACTION	FREQUENCY
Regular Maintenance	Cleaning of gutters and any filters on downpipes	Annually
	Remove any root ingress	As required
Occasional Maintenance	CCTV survey of drains to check alignment, cracking and joint displacement	10 year intervals

Maintenance Regime for Drainage Pipes

MAINTENANCE SCHEDULE	REQUIRED ACTION	FREQUENCY
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance).	Monthly
	Removed Sediment from pre-treatment structures.	Annually or as required
Remedial Actions	Repair/rehabilitation of inlets, outlet, overflows and vents.	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms

Maintenance Regime for Geo-cellular Crates

4. Proposed Foul Water Drainage Strategy

In accordance with Design and Construction Guidance Appendix C Version 2.3, the anticipated foul water discharge rate to be generated by the 6 flats is 0.28l/s (based upon 4000l/unit/day). This will discharge by means of gravity to the existing public sewer manhole.

Appendix A - Soakaway Testing Results

25th July 2017

Our ref: GE16665 – SLRv1JK170725



Guy Nightingale
Cross Construction Limited
23 East Street
Lewes
East Sussex
BN7 2LJ

By Email Only

Dear Guy,

RE: LAND AT ROCKY LANE, HAYWARDS HEATH – SOAKAGE TESTING

Geo-Environmental Services Ltd were instructed by Cross Construction Limited to undertake full scale soakage testing at land adjacent to Rocky Lane, Haywards Heath, West Sussex (see Figure 1). Please find to follow details of the full scale soakage testing undertaken on site.

The trial pitting and soakage testing was undertaken during July 2017. A total of three trial pits (referenced TP101 to TP103) were excavated. The pits were positioned by the ground workers and were situated immediately adjacent to the locations of the proposed soakaways. TP101, TP102 and TP103 located adjacent to Tank 1, Tank 2 and Tank 3 respectively. The final depths of the trial pits were dictated by the levels of the proposed soakaways.

Encountered Conditions

The investigation confirmed the anticipated geological formation of the Cuckfield Stone Beds beneath limited thicknesses of Topsoil and/or Made Ground. A summary of the encountered conditions is presented in the following table:

Top (m bgl)	Base (m bgl)	Geology	Position
0.00	0.20	Topsoil: Dark brown silty sand with frequent rootlets.	TP103
0.00	0.35	Made Ground: Greyish brown sandy silt with frequent rootlets and roots.	TP101
0.00 - 0.35	1.15 - 1.80	Cuckfield Stone Member: Orangish brown, dark grey and orange silty fine to medium SAND, clayey sandy SILT and SANDSTONE with frequent sandstone inclusions and occasional rootlets and roots.	All

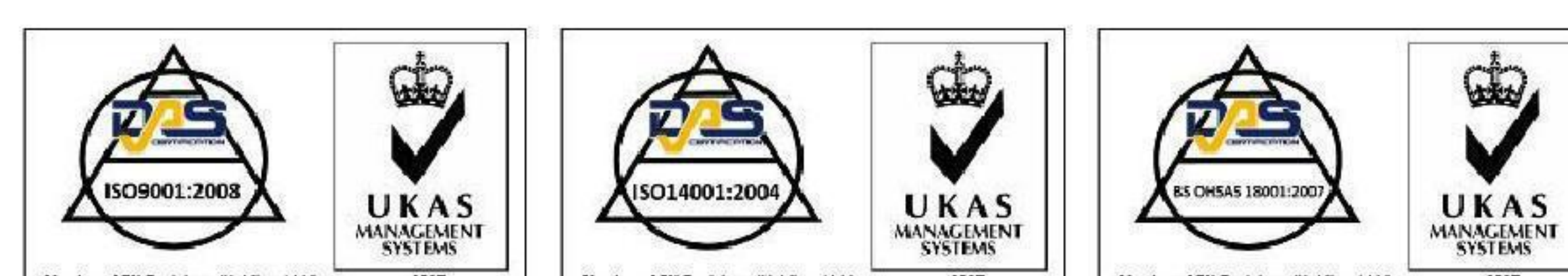
For further details of the encountered conditions, reference should be made to the engineer's logs appended.

Groundwater was not encountered during the intrusive investigation. However, changes in groundwater levels do occur for a number of reasons including effects and variations in drainage. Such fluctuations may only be recorded by the measurement of the groundwater level within a standpipe or piezometer installed within appropriate response zones. Changes in groundwater level can have a direct effect on excavation stability and the more cohesive soils can soften under rising or high groundwater levels.

Geo-Environmental Services Ltd
Unit 7 Danworth Farm, Cuckfield Road, Hurstpierpoint, West Sussex BN6 9GL
+44(0)1273 832972 www.gesl.net

Environmental Consultants | Geotechnical Engineers | Site Investigations

Geo-Environmental Services Ltd incorporated in England number 3214980 VAT number 679544479



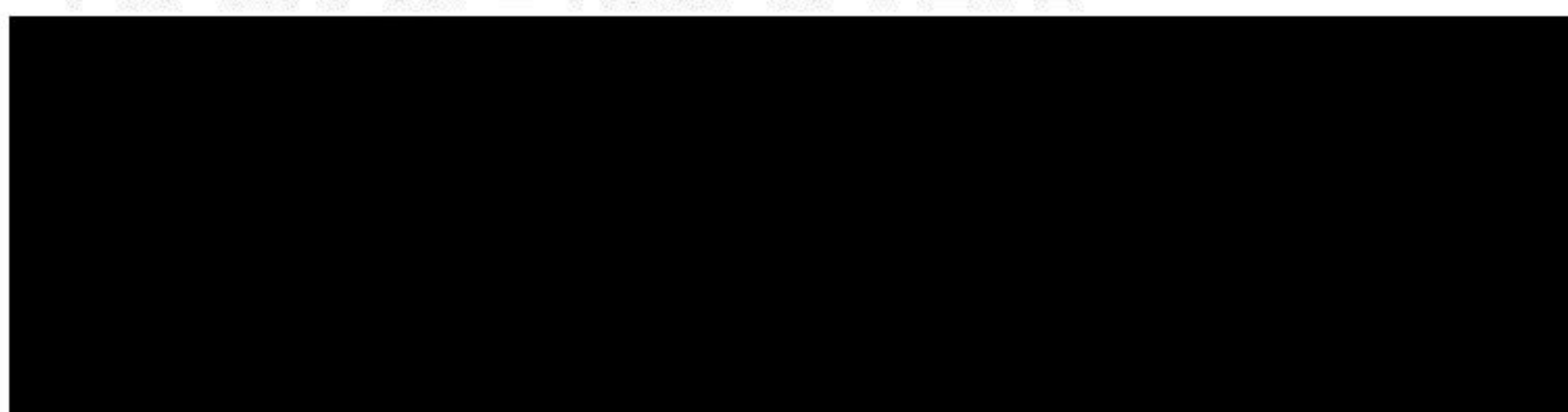
Soakage Testing

Full scale soakage testing was undertaken broadly in accordance with BRE365 with all three trial pits. Three soakage tests were undertaken in TP101 and TP102, with the infiltration rates calculated from the final test undertaken in each. Only a single soakage test was undertaken in TP103 due to slower infiltration. The following infiltration rates were calculated from the results of the tests:

TP101 $1.2 \times 10^{-5} \text{m/s}$
TP102 $5.3 \times 10^{-5} \text{m/s}$
TP103 $5.7 \times 10^{-6} \text{m/s}$

We trust that we have interpreted your instructions correctly, and please do not hesitate to contact us should you have any queries.

Yours sincerely
For and on Behalf of GESL



JASON KANELIS BSc (Hons) MSc FGS MEnvSc
Senior Consulting Engineer
Email: jason.kanellis@gesl.net

Enc Site Location Plan
 Intrusive Location Plan
 Engineer's Logs

Caveat

The data collected from the investigations have been used to provide an interpretation of the environmental conditions pertaining to the site. The recommendations and opinions expressed in this report are based on the data obtained. Geo-Environmental takes no responsibility for conditions that either have not been revealed in the available records, or that occurs between or under points of physical investigation. Whilst every effort has been made to interpret the conditions, such information is only indicative and liability cannot be accepted for its accuracy.

It should be noted that in particular the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained may therefore only be representative of the conditions at the time of sampling. This report should not be taken as any guarantee that a site is free of hazardous or potentially contaminative materials.

Information contained in this report is intended for the use of the Client, and Geo-Environmental can take no responsibility for the use of this information by any party for uses other than that described in this report. Geo-Environmental makes no warranty or representation whatsoever express or implied with respect to the use of this information by any third party. Geo-Environmental does not indemnify the Client or any third parties against any dispute or claim arising from any finding or other result of this investigation report or any consequential losses.



 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net			Trial Pit Log			TrialPit No TP101 Sheet 1 of 1		
Project Name: Rocky Lane			Project No. GE16665		Co-ords: - Level:		Date	
Location: Haywards Heath, West Sussex					Dimensions (m):		Scale 1:25	
Client: Cross Construction Ltd					Depth 1.15		Logged JK	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.35			Greyish brown sandy silt with frequent rootlets and roots (1-5mm) MADE GROUND	
							Orangish brown silty fine to medium SAND with abundant sandstone lenses CUCKFIELD STONE BEDS	
							Dark grey and orange mottled SANDSTONE CUCKFIELD STONE BEDS	
						End of Pit at 1.15m		
				1.15				
Water Strikes			Remarks					
Depth Strike								
Rose to (mbgl)			Stability					





www.gesl.net

Trial Pit Log

TP102

Sheet 1 of 1

Project Name: Rocky Lane

Project No.
GE16665

Co-ords: -
Level:

Date _____

Location: Haywards Heath, West Sussex

Dimensions
(m):

1.50

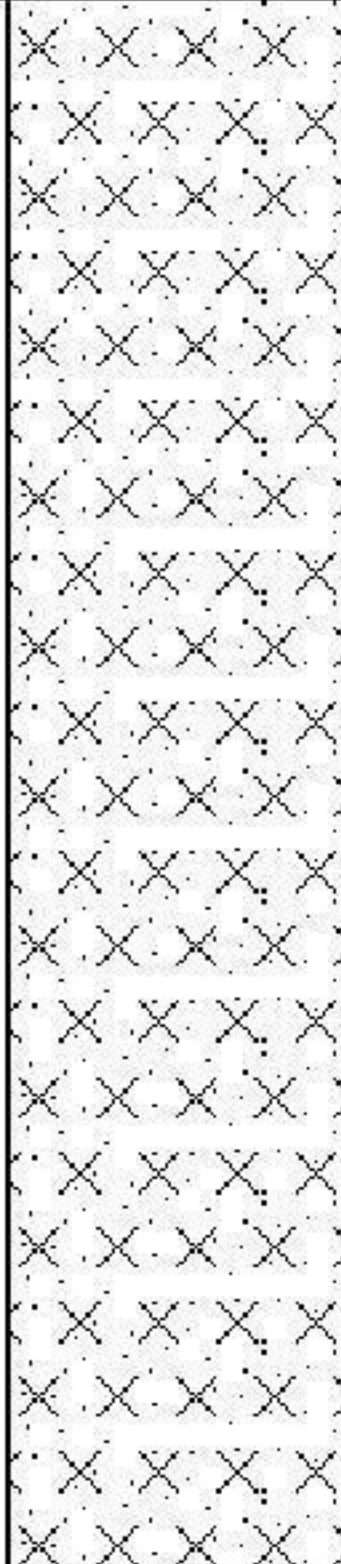
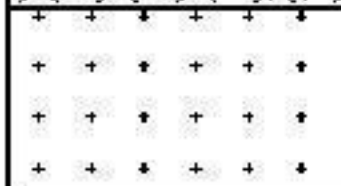
Depth
1.40

0.60

Scale
1:25

Logged
JK

Client: Cross Construction Ltd

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
						 Orangish brown clayey sandy SILT with abundant sandstone lenses and frequent rootlets and roots (1-6mm) CUCKFIELD STONE BEDS	1 -
				1.25		 Orangish brown and dark orangish brown mottled SANDSTONE CUCKFIELD STONE BEDS	2 -
				1.40		End of Pit at 1.40m	3 -
							4 -
							5 -

	Water Strikes
--	---------------

Depth Strike

| trikes | Rose to (mbal) |

Remarks

Stability



Project Name: Rocky Lane

Project No.
GE16665

Co-ords: -
Level:

Date _____

Location: Haywards Heath, West Sussex

Dimensions

200

Scale
1:25

Client: Cross Construction Ltd

Depth
1.80

0.60

Logged
JK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.20			Dark brown silty sand with frequent rootlets TOPSOIL	
				1.70			Orangish brown silty fine to medium SAND with occasional sandstone inclusions CUCKFIELD STONE BEDS	1 -
				1.80			Orangish brown silty fine to medium SAND with frequent sandstone inclusions CUCKFIELD STONE BEDS	2 -
							End of Pit at 1.80m	3 -
								4 -
								5 -

Water Strikes	
Depth Strike	Rose to (mbgl)

Remarks

Stability

Appendix B - Surface Water Drainage Calculations

Ardent Consulting Engineers				Page 1	
3rd Fl, The Hallmark Building 52-56 Leadenhall Street London, EC3M sJE		Land at Rocky Lane Surface Water Calculations Tank 3			
Date 22/05/2025 16:33 File Infiltration Tank.SRCX		Designed by N. Thompson Checked by JC			
Innovyze		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+45%)</u>					
Half Drain Time : 1140 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	0.244	0.244	0.1	6.5	O K
30 min Summer	0.328	0.328	0.1	8.7	O K
60 min Summer	0.417	0.417	0.1	11.1	O K
120 min Summer	0.506	0.506	0.1	13.5	O K
180 min Summer	0.553	0.553	0.1	14.7	O K
240 min Summer	0.582	0.582	0.1	15.5	O K
360 min Summer	0.618	0.618	0.2	16.5	O K
480 min Summer	0.638	0.638	0.2	17.0	O K
600 min Summer	0.648	0.648	0.2	17.2	O K
720 min Summer	0.652	0.652	0.2	17.3	O K
960 min Summer	0.650	0.650	0.2	17.3	O K
1440 min Summer	0.640	0.640	0.2	17.0	O K
2160 min Summer	0.615	0.615	0.2	16.4	O K
2880 min Summer	0.587	0.587	0.2	15.6	O K
4320 min Summer	0.533	0.533	0.1	14.2	O K
5760 min Summer	0.484	0.484	0.1	12.9	O K
7200 min Summer	0.440	0.440	0.1	11.7	O K
8640 min Summer	0.400	0.400	0.1	10.6	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	135.042	0.0	19		
30 min Summer	91.206	0.0	34		
60 min Summer	58.739	0.0	64		
120 min Summer	36.442	0.0	124		
180 min Summer	27.104	0.0	182		
240 min Summer	21.833	0.0	242		
360 min Summer	16.113	0.0	362		
480 min Summer	12.965	0.0	482		
600 min Summer	10.944	0.0	600		
720 min Summer	9.523	0.0	720		
960 min Summer	7.639	0.0	854		
1440 min Summer	5.588	0.0	1096		
2160 min Summer	4.078	0.0	1492		
2880 min Summer	3.256	0.0	1904		
4320 min Summer	2.367	0.0	2728		
5760 min Summer	1.886	0.0	3568		
7200 min Summer	1.583	0.0	4328		
8640 min Summer	1.373	0.0	5104		
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Ardent Consulting Engineers				Page 2	
3rd Fl, The Hallmark Building		Land at Rocky Lane			
52-56 Leadenhall Street		Surface Water Calculations			
London, EC3M sJE		Tank 3			
Date 22/05/2025 16:33		Designed by N. Thompson			
File Infiltration Tank.SRCX		Checked by JC			
Innovyze		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+45%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
10080 min Summer	0.363	0.363	0.1	9.7	O K
15 min Winter	0.274	0.274	0.1	7.3	O K
30 min Winter	0.368	0.368	0.1	9.8	O K
60 min Winter	0.468	0.468	0.1	12.5	O K
120 min Winter	0.570	0.570	0.1	15.2	O K
180 min Winter	0.623	0.623	0.2	16.6	O K
240 min Winter	0.657	0.657	0.2	17.5	O K
360 min Winter	0.701	0.701	0.2	18.7	Flood Risk
480 min Winter	0.726	0.726	0.2	19.3	Flood Risk
600 min Winter	0.741	0.741	0.2	19.7	Flood Risk
720 min Winter	0.748	0.748	0.2	19.9	Flood Risk
960 min Winter	0.751	0.751	0.2	20.0	Flood Risk
1440 min Winter	0.735	0.735	0.2	19.6	Flood Risk
2160 min Winter	0.704	0.704	0.2	18.7	Flood Risk
2880 min Winter	0.664	0.664	0.2	17.7	O K
4320 min Winter	0.585	0.585	0.1	15.6	O K
5760 min Winter	0.512	0.512	0.1	13.6	O K
7200 min Winter	0.448	0.448	0.1	11.9	O K
8640 min Winter	0.391	0.391	0.1	10.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
10080 min Summer	1.216	0.0	5856		
15 min Winter	135.042	0.0	19		
30 min Winter	91.206	0.0	33		
60 min Winter	58.739	0.0	62		
120 min Winter	36.442	0.0	122		
180 min Winter	27.104	0.0	180		
240 min Winter	21.833	0.0	238		
360 min Winter	16.113	0.0	354		
480 min Winter	12.965	0.0	470		
600 min Winter	10.944	0.0	584		
720 min Winter	9.523	0.0	694		
960 min Winter	7.639	0.0	908		
1440 min Winter	5.588	0.0	1142		
2160 min Winter	4.078	0.0	1604		
2880 min Winter	3.256	0.0	2072		
4320 min Winter	2.367	0.0	2944		
5760 min Winter	1.886	0.0	3808		
7200 min Winter	1.583	0.0	4616		
8640 min Winter	1.373	0.0	5448		
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Ardent Consulting Engineers				Page 3	
3rd Fl, The Hallmark Building 52-56 Leadenhall Street London, EC3M sJE		Land at Rocky Lane Surface Water Calculations Tank 3			
Date 22/05/2025 16:33 File Infiltration Tank.SRCX		Designed by N. Thompson Checked by JC			
Innovyze		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+45%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
10080 min Winter	0.340	0.340	0.1	9.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
10080 min Winter	1.216	0.0	6248		
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Ardent Consulting Engineers		Page 4												
3rd Fl, The Hallmark Building 52-56 Leadenhall Street London, EC3M sJE	Land at Rocky Lane Surface Water Calculations Tank 3													
Date 22/05/2025 16:33 File Infiltration Tank.SRCX	Designed by N. Thompson Checked by JC													
Innovyze														
Source Control 2020.1.3														
Model Details Storage is Online Cover Level (m) 1.000 Infiltration Basin Structure Invert Level (m) 0.000 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.02160 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.04320 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr><tr><td>0.000</td><td>28.0</td><td>0.800</td><td>28.0</td><td>0.801</td><td>0.1</td></tr></table>			Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	28.0	0.800	28.0	0.801	0.1
Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)									
0.000	28.0	0.800	28.0	0.801	0.1									
©1982-2020 Innovyze														