



**Proposed Residential Development at
Ryefields Farmhouse, Oak Tree Lane, Woodgate (Site).
March 2022**

**FOUL AND SURFACE WATER DRAINAGE STATEMENT
(Including Lidsey Foul Water – Environmental Assessment Statement)**

Glossary:

Page 1-2: Foul and Surface Water Drainage Statement

Page 3: Drainage Strategy

Page 4: Drained Areas

Page 5: Micro Drainage Results

Page 6: Capacity check with Southern Water

1. Background:

- 1.1 This report has been drafted to specifically address the issues around both foul and surface water run-off from the proposed Site.
- 1.2 Owing to a high-water table and poor infiltration an approach was made to Southern Water to dispose of surface water through the foul water network. By way of a letter dated 8 July 2021 Southern Water confirmed their satisfaction that surface water could be discharged into the foul network, but Arun District Council drainage officers have requested that surface water is discharged by gravity to the adjacent 180-unti Woodgate site.

2. Ground Conditions:

- 2.1 Reference to the British Geological Survey (BGS) data indicates the site to overlie superficial geology of Head Deposits (sand and sandy clay with gravel) and River Terrace

Deposits (sandy silt and clay). Beneath these strata is found Bedrock deposits of London Clay comprising blue grey silty clay.

3. **Foul Water Drainage:**

3.1 It is proposed that all foul water for the new development will be drained by gravity to the adjacent 180-unit Woodgate site as shown on the Drainage Strategy Plan.

4. **Surface Water Drainage:**

4.1 As requested by Arun District Council it is proposed that all surface water drainage from buildings will be discharged by gravity to the adjacent 180-unit Woodgate site as shown on the Drainage Strategy Plan.

5. **Lidsey Foul Water – Environmental Assessment Statement:**

5.1 A foul water Environment Assessment Statement is required if the proposed development is not connecting to a public sewerage network. In this case the proposed Site is connecting to the existing public network, as confirmed on page 3 (Drainage Strategy).

5.2 Southern Water have confirmed that there is capacity within the local network to accommodate the proposed development, and this confirmation is shown at page 6.



Surface Water Drainage Strategy

- [illegible]

Foul Water Drainage Strategy:

1. The nearest public foul sewer is situated 55 metres west of the site in Oak Tree Lane. Due to the level differences between the site and the nearest manhole Ref 9202 it is not possible to provide a gravity discharge from the site to the public sewer.
2. Agreement has been reached with Pye Homes that the foul water discharge from the development can discharge into the foul sewer system serving their adjacent development.

Legend:

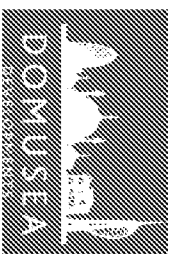
- | | | | | | | | | | |
|---|---|--|--|---|--|--|--|--|---|
|  <p>Hydro Brake Inlining Discharge</p> |  <p>Domestic Surface Water Gravity Sewer</p> |  <p>Domestic Cold Water Gravity Sewer</p> |  <p>Type 3 Manhole - 450D</p> |  <p>Type 4 Inspection Chamber - 288D</p> |  <p>Silt Trap Inspection Chamber - 450D</p> |  <p>Surface Water Attenuation Storage</p> |  <p>Proposed Finished Floor Level</p> |  <p>Garden Mews</p> |  <p>Flood Flow Route</p> |
|---|---|--|--|---|--|--|--|--|---|

Rev.	Date	Details	Initials
E	22.03.22	Layout revised	KN
D	23.11.21	Drainage levels added	KN
C	10.11.21	Paving amended	KN
B	08.11.21	Foul & surface water drainage systems amended to gravity discharges	KN
A	12.05.21	Initial issue	KN

PRELIMINARY FOR PLANNING

Project
**RYEFIELD FARMHOUSE
WOODGATE**

Client



**KAZYS NARBUTAS
CONSULTING**

Civil Engineering Consultant

Unit 58, Tamara Court, Tamara Lane, Port W. Sydney, Newsway, NSW 1505
Telephone: 01 794 521860. Email: kazy@nbc.net.au

Engineering Details

Drawing Category				
Drawing	Checked	Scales	Paper Size	Date
KN		1:500	A1	05.21
Job No.	Drawing No.		Revision	
KNKC2107	602-01		E	

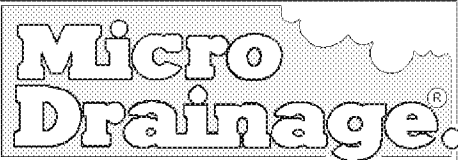
Escher Silverman		Page 1
Lone Barn Studios	Ryefield Farm House	
Stanbridge Lane	Woodgate	
Romsey SO51 0HE	Gravity Discharge Attenu	
Date March 2022	Designed By KN	
File Gravity Surface Water Attenuati...	Checked By	
Micro Drainage	Source Control W.11.2	

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

Half Drain Time : 194 minutes

Storm Duration (mins)	Maximum Control (l/s)	Maximum Filtration (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m³)	Status
15 Summer	1.5	0.0	1.5	8.5257	0.3757	19.3	O K
30 Summer	1.6	0.0	1.6	8.6392	0.4892	25.1	O K
60 Summer	1.8	0.0	1.8	8.7407	0.5908	30.3	O K
120 Summer	1.9	0.0	1.9	8.8018	0.6518	33.4	O K
180 Summer	1.9	0.0	1.9	8.8063	0.6563	33.7	O K
240 Summer	1.9	0.0	1.9	8.7988	0.6488	33.3	O K
360 Summer	1.8	0.0	1.8	8.7768	0.6268	32.1	O K
480 Summer	1.8	0.0	1.8	8.7508	0.6008	30.8	O K
600 Summer	1.8	0.0	1.8	8.7248	0.5747	29.5	O K
720 Summer	1.7	0.0	1.7	8.6982	0.5482	28.1	O K
960 Summer	1.7	0.0	1.7	8.6482	0.4982	25.6	O K
1440 Summer	1.5	0.0	1.5	8.5557	0.4057	20.8	O K
15 Winter	1.6	0.0	1.6	8.5732	0.4232	21.7	O K
30 Winter	1.7	0.0	1.7	8.7032	0.5532	28.4	O K
60 Winter	1.9	0.0	1.9	8.8213	0.6713	34.4	O K
120 Winter	2.0	0.0	2.0	8.9008	0.7508	38.5	O K
180 Winter	2.0	0.0	2.0	8.9098	0.7598	39.0	O K
240 Winter	2.0	0.0	2.0	8.8988	0.7488	38.4	O K
360 Winter	2.0	0.0	2.0	8.8693	0.7193	36.9	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	126.07	22
30 Summer	84.75	37
60 Summer	54.37	66
120 Summer	33.67	124
180 Summer	25.06	158
240 Summer	20.18	188
360 Summer	14.84	256
480 Summer	11.92	326
600 Summer	10.05	394
720 Summer	8.74	464
960 Summer	7.00	600
1440 Summer	5.11	870
15 Winter	126.07	22
30 Winter	84.75	36
60 Winter	54.37	64
120 Winter	33.67	122
180 Winter	25.06	174
240 Winter	20.18	196
360 Winter	14.84	274

Escher Silverman		Page 2
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Ryefield Farm House Woodgate Gravity Discharge Attenu	
Date March 2022 File Gravity Surface Water Attenuati...	Designed By KN Checked By	
Micro Drainage	Source Control W.11.2	

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

Storm Duration (mins)	Maximum Control (l/s)	Maximum Filtration (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m³)	Status
480 Winter	1.9	0.0	1.9	8.8318	0.6818	35.0	O K
600 Winter	1.9	0.0	1.9	8.7923	0.6423	32.9	O K
720 Winter	1.8	0.0	1.8	8.7528	0.6028	30.9	O K
960 Winter	1.7	0.0	1.7	8.6772	0.5272	27.0	O K
1440 Winter	1.5	0.0	1.5	8.5412	0.3912	20.1	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
480 Winter	11.92	352
600 Winter	10.05	426
720 Winter	8.74	502
960 Winter	7.00	646
1440 Winter	5.11	926

Escher Silverman		Page 3
Lone Barn Studios	Ryefield Farm House	
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Rainfall Details

Region	ENG+WAL	Shortest Storm (mins)	15
Return Period (years)	100	Longest Storm (mins)	1440
M5-60 (mm)	19.200	Summer Storms	Yes
Ratio-R	0.350	Winter Storms	Yes
Cv (Summer)	0.750	Climate Change %	+40
Cv (Winter)	0.840		

Time / Area Diagram

Total Area (ha) = 0.087

Time from:	(mins) to:	Area (ha)	Time from:	(mins) to:	Area (ha)
0	4	0.000	4	8	0.087

Escher Silverman		Page 4
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Cellular Storage Details

Infil Coef - Base (m/hr) 0.000000 Porosity 0.95
 Infil Coef - Sides (m/hr) 0.000000 Invert Level (m) 8.150
 Safety Factor 2.0 Ground Level (m) 8.950

Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)
0.00	54.0	54.0	1.40	54.0	54.0	2.80	54.0	54.0	4.20	54.0	54.0
0.20	54.0	54.0	1.60	54.0	54.0	3.00	54.0	54.0	4.40	54.0	54.0
0.40	54.0	54.0	1.80	54.0	54.0	3.20	54.0	54.0	4.60	54.0	54.0
0.60	54.0	54.0	2.00	54.0	54.0	3.40	54.0	54.0	4.80	54.0	54.0
0.80	54.0	54.0	2.20	54.0	54.0	3.60	54.0	54.0	5.00	54.0	54.0
1.00	54.0	54.0	2.40	54.0	54.0	3.80	54.0	54.0			
1.20	54.0	54.0	2.60	54.0	54.0	4.00	54.0	54.0			

Hydro-Brake Outflow Control

Design Head (m) 0.800 Hydro-Brake Type MD6 Invert Level (m) 8.120
 Design Flow (l/s) 2.0 Diameter (mm) 63

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.10	1.4	0.80	2.0	2.00	3.2	4.00	4.5	7.00	6.0
0.20	1.4	1.00	2.3	2.20	3.4	4.50	4.8	7.50	6.2
0.30	1.4	1.20	2.5	2.40	3.5	5.00	5.1	8.00	6.4
0.40	1.5	1.40	2.7	2.60	3.7	5.50	5.3	8.50	6.6
0.50	1.6	1.60	2.9	3.00	3.9	6.00	5.6	9.00	6.8
0.60	1.8	1.80	3.0	3.50	4.3	6.50	5.8	9.50	7.0



from
**Southern
Water**

Kazys Narbutas
Kazys Narbutas Consulting
Unit 5B Tanners Court
Tanners Lane
East Wellow
Romsey
Hampshire
SO51 6DP

Your ref

Our ref
DS_CC_PPE-155001

Date
08 July 2021

Dear Mr Narbutas,

Level 1 Capacity Check Enquiry: Ryefield Farm House, Oak Tree Lane, Woodgate, West Sussex, PO20 3GU.

We have completed the capacity check for the above development site and the results are as follows:

Foul Water

There is currently adequate capacity in the local sewerage network to accommodate a foul flow of 0.05 l/s for the above development at manhole reference SU93049202. Please note that no surface water flows (existing or proposed) can be accommodated within the existing foul sewerage system unless agreed by the Lead Local Flood Authority in consultation with Southern Water, after the hierarchy Part H3 of Building Regulations has been complied with.

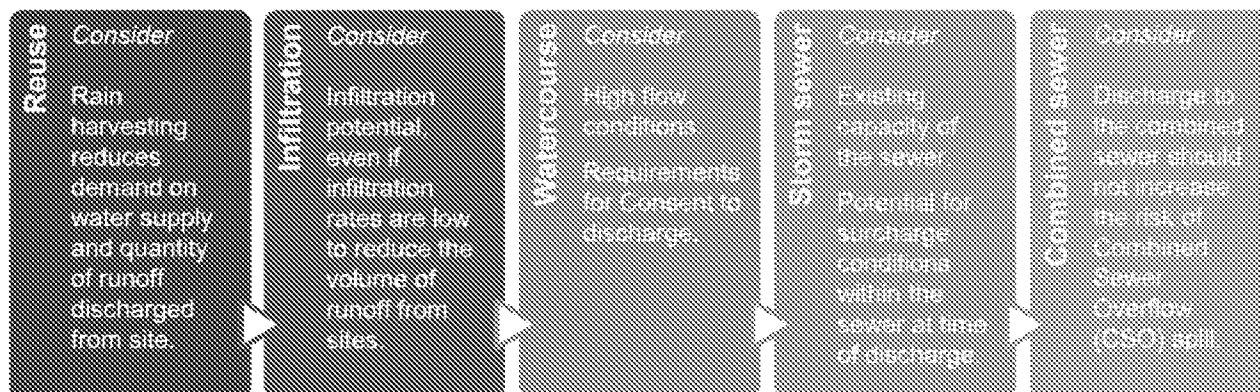
Surface Water

There is currently adequate capacity in the local foul sewerage network to accommodate a surface water flow of 1 l/s for the above development at manhole reference SU93049202.

Southern Water, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX
southernwater.co.uk

Southern Water Services Ltd, Registered Office: Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX Registered in England No. 2366670

Although capacity in the surface water network has been identified, in all situations where surface water is being considered for discharge to our network, we require the below hierarchy for surface water to be followed which is reflected in part H3 of the Building Regulations. Whilst reuse does not strictly form part of this hierarchy, Southern Water would encourage the consideration of reuse for new developments.



Guidance on Building Regulations is here: gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h

We would welcome the opportunity to engage with you on the design for disposal of surface water, with a particular focus on the potential for incorporating Sustainable Drainage Systems (SuDS), for this development at the earliest opportunity and we recommend that civil engineers and landscape architects work together and with Southern Water.

Where a surface water connection to the foul or combined sewer is being considered, this should be agreed by the Lead Local Flood Authority, in consultation with Southern Water.

It should be noted that although the above assessment indicates that there is capacity available for your proposed surface water flows the LLFA (Local Lead Flood Authority) may impose/request that a lower flow is discharged to the public surface water sewer.

If the excess surface water flows are to be attenuated on site, it could have a significant effect on any proposed Sewer Adoption (S104) Agreements. Any attenuation proposals should be agreed before any works are implemented on site. Where capacity is limited/restricted, agreement should be sought if you are to include any highway drainage within your proposals as Southern Water is not obligated to accept highway flows.

Connecting to our network

It should be noted that this information is only a hydraulic assessment of the existing sewerage network and does not grant approval for a connection to the public sewerage system. A formal Sewer Connection (S106) application is required to be completed and approved by Southern Water Services. To make an application visit: [Developer Services Portal \(southernwater.co.uk\)](http://Developer.Services.Portal.southernwater.co.uk)

Please note the information provided above does not grant approval for any designs/drawings submitted for the capacity analysis. The results quoted above are only valid for 12 months from the date of issue of this letter.

Should it be necessary to contact us please quote our above reference number relating to this application by email 

Yours sincerely,

Growth Planning Team
Business Channels

southernwater.co.uk/developing-building/planning-your-development