



**Former Landfill site, Brockhampton West,
Harts Farm Way, Havant**

Drainage Strategy

for

Clowes Developments (UK) Ltd

Ref: 21048-BGL-XX-XX-RP-D-0001

Version 2

Date 01.06.21

DOCUMENT CONTROL SHEET

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Client: Clowes Developments (UK) Ltd

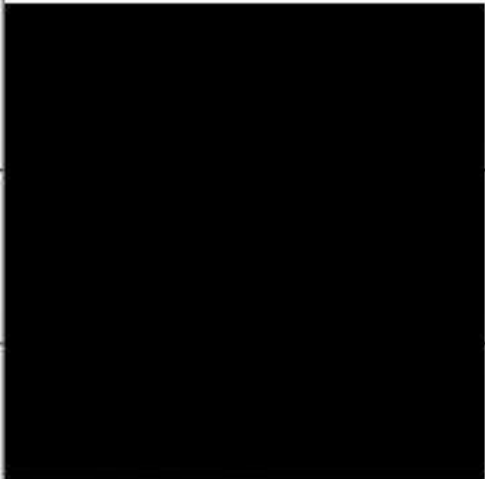
Project: Former Landfill Site, Brockhampton West, Harts Farm Way Havant

Title: Drainage Strategy

Status: First Issue

Date: 28/05/2021

Document Production Record

Issue Number:	01	Name	Signature
Prepared		Roque Menezes	
Checked		Jack Williams	
Approved		Mark Graham	

Document Revision Record

Issue number	Date	Revision Details
01	28/05/2021	First Issue
02	01/06/2021	Second Issue – revised to comments

Burrows Graham Limited has prepared this report in accordance with the instructions of the above named Client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

1. Introduction

- The planning application is an outline application for the development of new employment units on an 8.3ha site to provide up to 29,000 sq m (gross internal area) for flexible use across use classes E (light industrial), B2 & B8 with ancillary offices, car parking, service yards, drainage works, landscaping and associated works to prepare the site for development. Refer to Site Location Plan and illustrative Architect Site Layout Plan in Appendix A. The drainage strategy detailed is for illustrative purposes only to demonstrate that a suitable drainage approach can be accommodated at the site using principles of sustainable drainage, significant level difference across the site and discharge to a tidal stream.
- The discharge to the Hermitage Stream will be via a tumble manhole, as shown on drawing 21048-BGL-XX-X-DR-C-0250 Rev P1 in Appendix B so that discharge can occur from the site at all times and during high tides.
- The surface water discharge from the site will be via a culvert with shallow falls and a 300mm stilling basin to minimise discharge velocities to below 1.2m/s.
- The route and location of the outfall and details of the headwall will be as illustrated on drawing 21048-BGL-XX-X-DR-C-0250 Rev P1 but will be confirmed in due course for approval.

2. Drainage Details

- Site Location at 470201 E, 105706 N between Harts Farm Way & A27
- The Surface water discharge will be directed through a culvert headwall into the Hermitage Stream before discharging into the Solent basin.
- The drainage has been designed for 1:30 year events with no flooding and for 1:100-year events + 40% Climate change using FEH 2013 rainfall figures.
- Proposed Foul water discharge is to be via a duty/assist foul water packaged pump station that will discharge via a 63mm rising main, installed along the public footpath as agreed with Hants CC Highways under a S50 enabling license, at a maximum rate of 1.75 litres per second into Southern Waters Foul Water Sewer at Manhole 6801 on Harts Farm Way. This is approximately 450m east of the new site. Access as approved by Southern Water letter ref DS_CC_PPE-153788 dated 21st April. Copy of sewer map & approval letter provided in Appendix C
- Discharge and surface water drainage is to be agreed with Southern Water Authority.
- The underlying soil strata is made ground with contaminated landfill material therefore infiltration will not be allowed.
- At present the existing and proposed site levels are between 11.000-14.000 AOD (subject to final detailed design) which is approx. 8M above the stream level and therefore is not prone to any fluvial flooding from rivers, lakes or any other water courses.

- There are 2 levels of treatment incorporated to the SUDS treatment train (Sediment Sumps and Class 1 Interceptors)
- Microdrainage Simulation Calculations for the pipe network in Appendix D
- Tumble manholes to be utilised to prevent high water levels in Hermitage Stream restricting discharge.

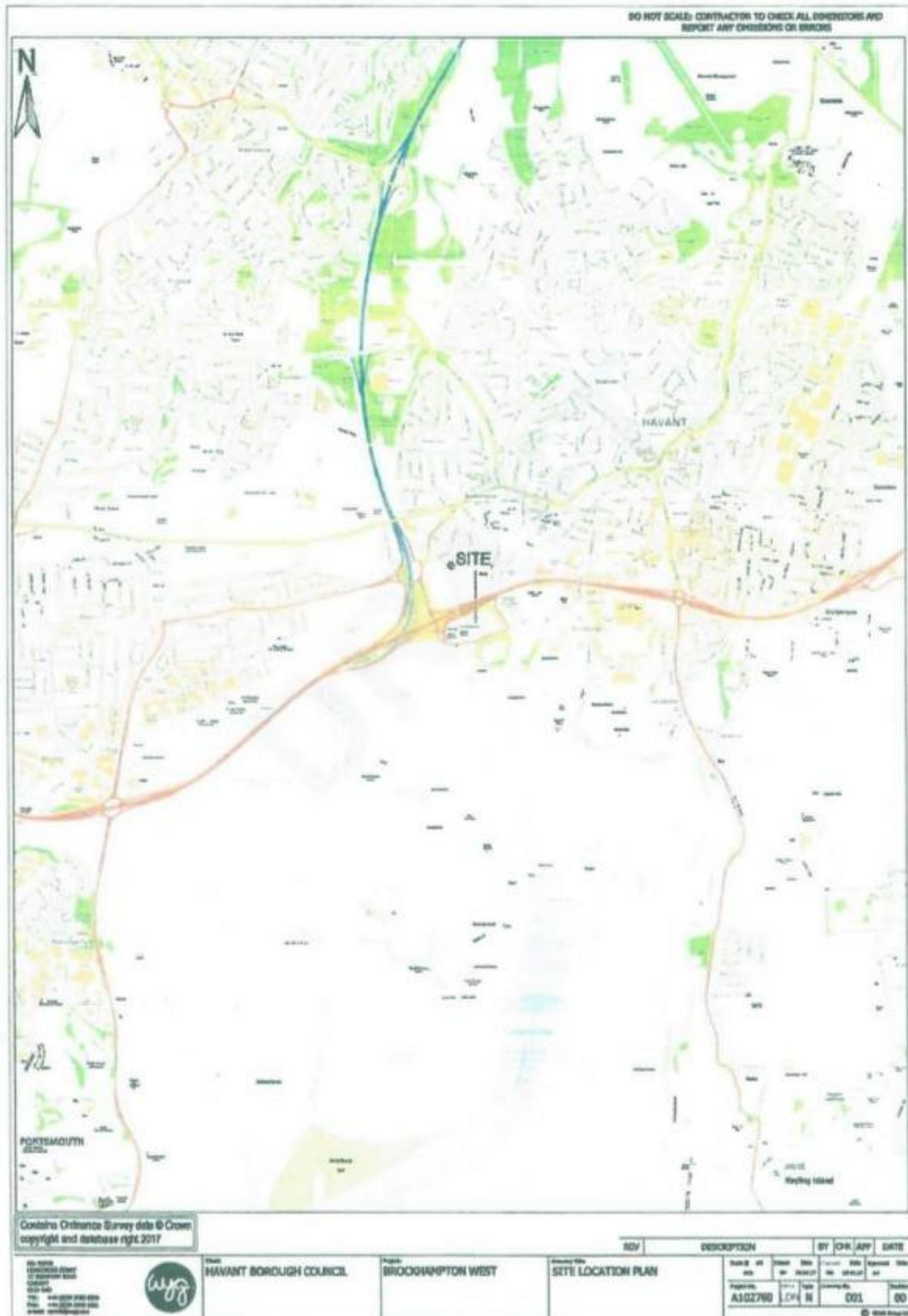
Appendix A – Site Location & Layout Plan

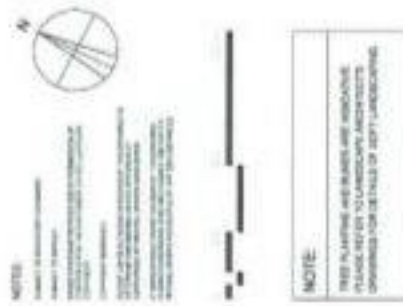
Appendix B – Site Drainage Plan

Appendix C – Southern Water Foul Water Discharge Approval

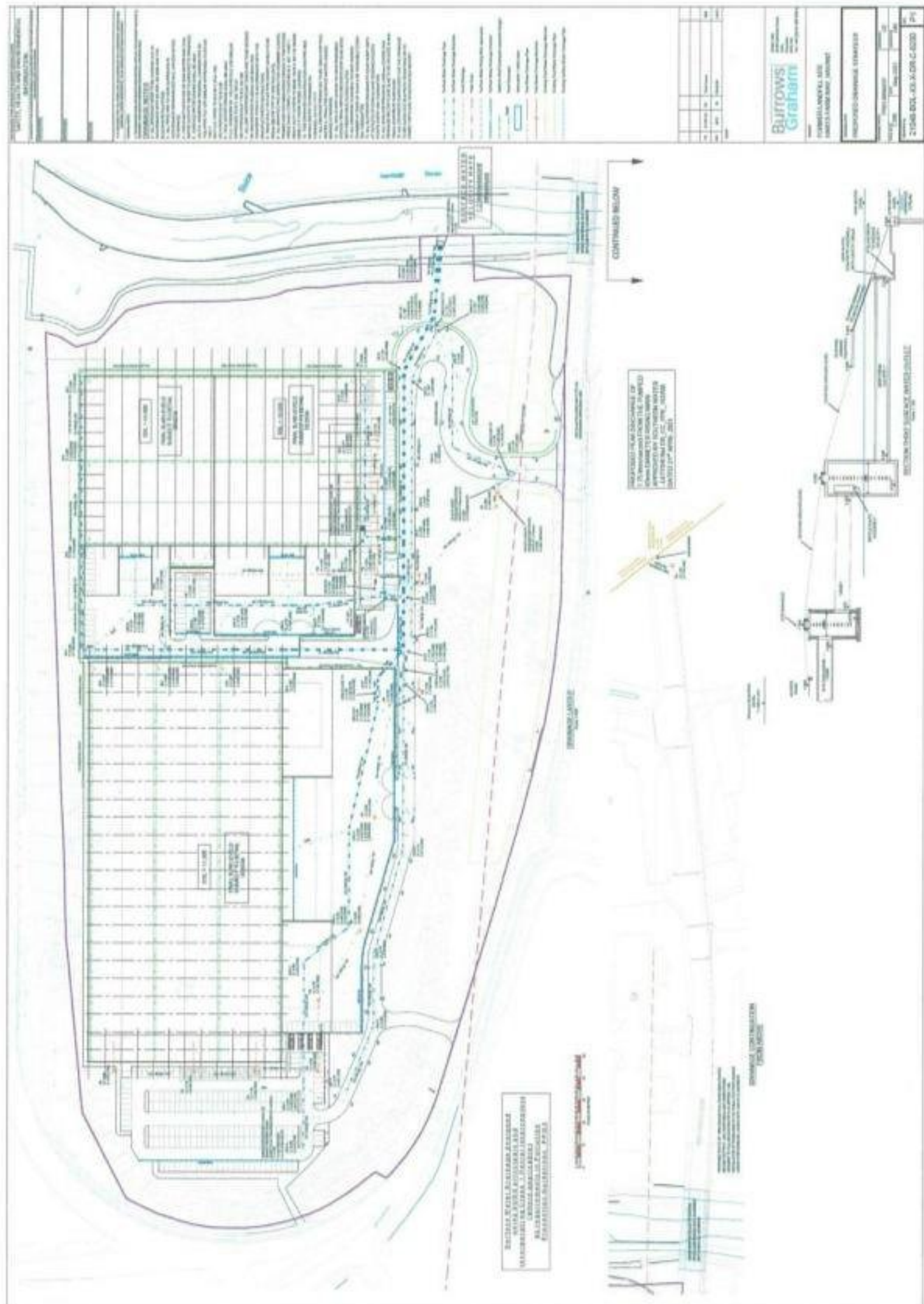
Appendix D – Surface Water Drainage Calculations

Appendix A





Appendix B



Appendix C



from
**Southern
Water** 

Roque Menezes
Burrows Graham Ltd
Arden Hall
66 Brooklands Road
Sale
Cheshire
M33 3SJ

Your ref

Our ref
DS_CC_PPE-153788

Date
21 April 2021

Contact
Tel 0330 303 0119

Dear Mr Menezes,

Level 1 Capacity Check Enquiry: Harts Farm Way, Former Landfill Site, Brockhampton West, Farm Way, Havant, Hampshire, PO9 1HS.

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 **1.41 l/s** for the above development at manhole reference **SU70056801**. 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.

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 \(southernwater.co.uk\)](https://southernwater.co.uk/developer-services-portal)

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.

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. 2366070

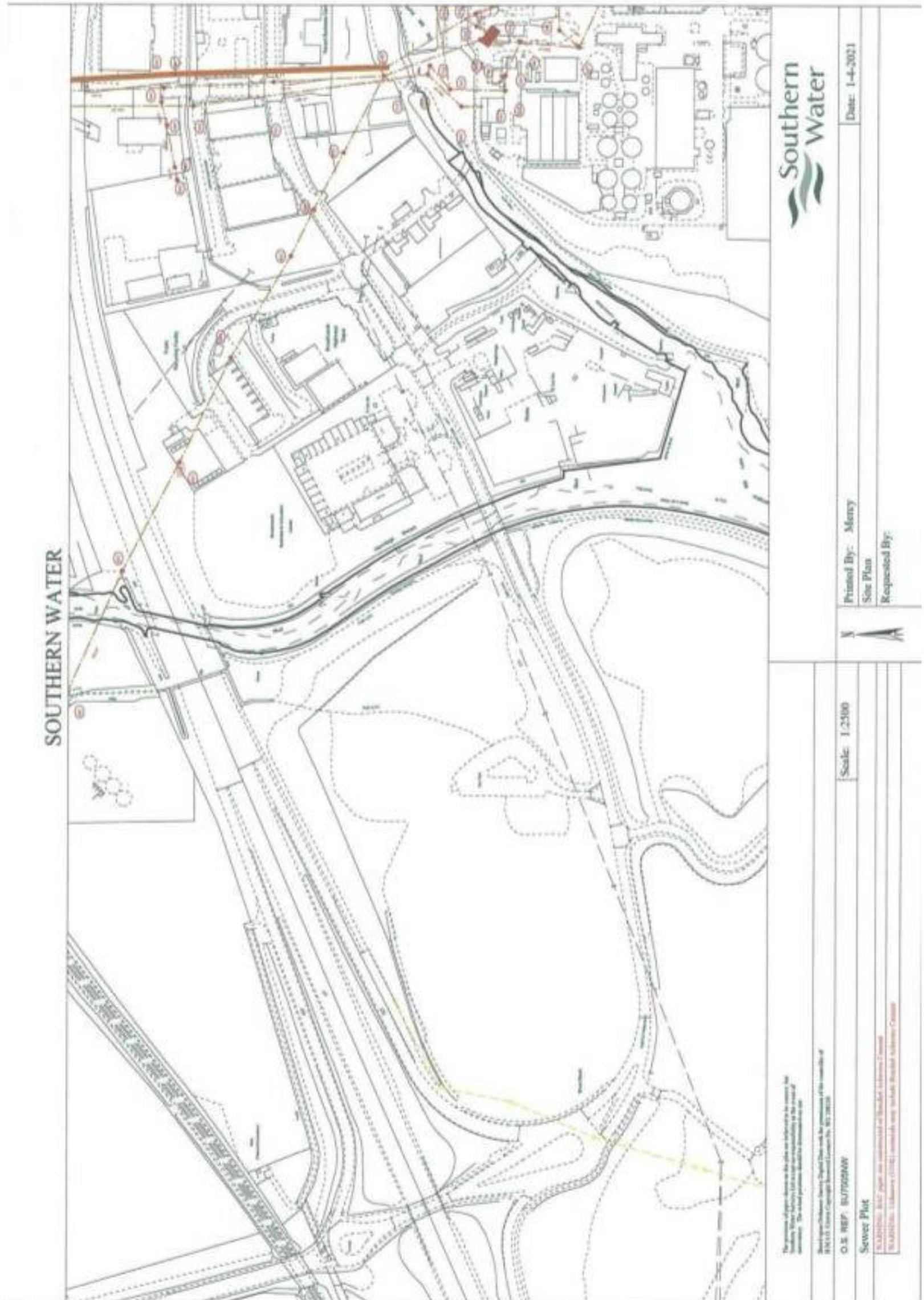


Should it be necessary to contact us please quote our above reference number relating to this application by email at southernwaterplanning@southernwater.co.uk

Yours sincerely,

Growth Planning Team
Business Channels

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



Appendix D

Burrows Graham Associates

Arden Hall,
66 Brooklands Road,
Sale, Cheshire M33 3SJ

Date 10/02/2021 15:30
File 4199.MDX

Micro Drainage

Broadmarsh Development
Havant
PO9 1HS

Designed by CE
Checked by RM

Network 2020.1

Page 1



STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)

30

FEH Rainfall Version

2013

Site Location

GB 470201-105706 SU 70201 05706

Data Type

Point

Maximum Rainfall (mm/hr)

75

Maximum Time of Concentration (mins)

30

Foul Sewage (l/s/ha)

0.000

Volumetric Runoff Coeff.

0.750

PIMP (%)

100

Add Flow / Climate Change (%)

0

Minimum Backdrop Height (m)

0.200

Maximum Backdrop Height (m)

1.500

Min Design Depth for Optimisation (m)

1.200

Min Vel for Auto Design only (m/s)

1.00

Min Slope for Optimisation (1:X)

500

Designed with Level Soffits

Network Design Table for Storm

- Indicates pipe length does not match coordinates

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto
1.000	37.757	0.185	204.1	0.114	5.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	39.277	0.190	206.7	0.223	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.002	44.161	0.725	60.9	0.114	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.003	8.868	0.175	50.7	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.004	28.751	0.160	179.7	0.265	0.00	0.0	0.600	o	600	Pipe/Conduit	
2.000	36.367	1.135	32.0	0.021	5.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	75.00	5.57	12.750	0.114	0.0	0.0	0.0	1.10	77.5	23.2
1.001	75.00	6.04	12.415	0.337	0.0	0.0	0.0	1.41	224.3	68.5
1.002	75.00	6.32	12.225	0.451	0.0	0.0	0.0	2.61	414.8	91.6
1.003	75.00	6.37	11.500	0.451	0.0	0.0	0.0	2.86	455.1	91.6
1.004	75.00	6.64	11.325	0.716	0.0	0.0	0.0	1.81	512.8	145.4
2.000	75.00	5.34	12.600	0.021	0.0	0.0	0.0	1.78	31.5	4.3

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Cheshire M33 3SJ

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Page 2



Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto
1.005	28.752	0.135	213.0	0.516	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.006	26.790	0.125	214.3	0.516	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.007	51.221	3.215	15.9	0.265	0.00	0.0	0.600	o	900	Pipe/Conduit	
3.000	28.577	0.270	105.8	0.435	5.00	0.0	0.600	o	375	Pipe/Conduit	
3.001	55.303	0.270	204.8	0.000	0.00	2.0	0.600	o	375	Pipe/Conduit	
3.002	25.571	0.120	213.1	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
3.003	43.152	0.210	205.5	0.294	0.00	0.0	0.600	o	525	Pipe/Conduit	
3.004	57.680	0.285	202.4	0.143	0.00	0.0	0.600	o	600	Pipe/Conduit	
3.005	12.381	0.150	82.5	0.294	0.00	0.0	0.600	o	750	Pipe/Conduit	
3.006	16.769	0.075	223.6	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
4.000	32.355	0.165	196.1	0.035	5.00	0.0	0.600	o	300	Pipe/Conduit	
4.001	31.701	0.150	211.3	0.035	0.00	0.0	0.600	o	300	Pipe/Conduit	
4.002	48.816	0.240	203.4	0.035	0.00	0.0	0.600	o	300	Pipe/Conduit	
4.003	75.204	0.370	203.3	0.035	0.00	0.0	0.600	o	300	Pipe/Conduit	
4.004	14.229	0.520	27.4	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.008	25.947	0.125	207.6	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
5.000	26.230	0.140	187.4	0.337	5.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.005	75.00	6.89	10.065	1.253	0.0	0.0	0.0	1.91	845.4	254.5
1.006	75.00	7.10	10.580	1.769	0.0	0.0	0.0	2.14	1359.1	359.3
1.007	75.00	7.20	10.455	2.034	0.0	0.0	0.0	7.87	5007.0	413.1
3.000	75.00	5.27	9.145	0.435	0.0	0.0	0.0	1.76	194.5	88.4
3.001	75.00	6.00	8.875	0.435	2.0	0.0	0.0	1.26	139.4	90.4
3.002	75.00	6.35	8.605	0.435	2.0	0.0	0.0	1.24	136.7	90.4
3.003	75.00	6.81	8.335	0.729	2.0	0.0	0.0	1.56	337.4	150.1
3.004	75.00	7.37	8.050	0.872	2.0	0.0	0.0	1.71	483.0	179.1
3.005	75.00	7.44	7.615	1.166	2.0	0.0	0.0	3.08	1361.5	238.8
3.006	75.00	7.59	7.465	1.166	2.0	0.0	0.0	1.87	825.0	238.8
4.000	75.00	5.48	9.285	0.035	0.0	0.0	0.0	1.12	79.1	7.1
4.001	75.00	5.97	9.120	0.070	0.0	0.0	0.0	1.08	76.2	14.2
4.002	75.00	6.71	8.970	0.105	0.0	0.0	0.0	1.10	77.7	21.3
4.003	75.00	7.85	8.730	0.140	0.0	0.0	0.0	1.10	77.7	28.4
4.004	75.00	7.93	8.360	0.140	0.0	0.0	0.0	3.02	213.3	28.4
1.008	75.00	8.10	6.940	3.340	2.0	0.0	0.0	2.59	2932.7	680.4
5.000	75.00	5.33	11.510	0.337	0.0	0.0	0.0	1.32	145.8	68.5

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Micro Drainage

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Page 3



Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto
5.001	18.237	0.085	214.6	0.000	0.00	2.0	0.600	o	375	Pipe/Conduit	
5.002	24.619	0.120	205.2	0.246	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.003	10.745	0.050	214.9	0.037	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.004	29.348	3.175	9.2	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.005	11.728	0.300	39.1	0.317	0.00	2.0	0.600	o	600	Pipe/Conduit	
1.009	24.789	0.125	198.3	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
6.000	32.699	0.950	34.4	0.123	5.00	0.0	0.600	o	300	Pipe/Conduit	
6.001	35.518	1.030	34.5	0.234	0.00	0.0	0.600	o	450	Pipe/Conduit	
6.002	17.455	2.880	6.1	0.123	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.010	74.393	1.390	53.5	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
1.011	28.509	0.300	95.0	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	
7.000	60.000	1.700	35.3	0.064	5.00	0.0	0.600	o	300	Pipe/Conduit	
7.001	56.587	1.800	31.4	0.064	0.00	0.0	0.600	o	300	Pipe/Conduit	
7.002	22.771	0.500	45.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
7.003	8.420	0.200	42.1	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
8.000	43.225	1.100	39.3	0.065	5.00	0.0	0.600	o	300	Pipe/Conduit	
8.001	30.8058	0.700	44.0	0.065	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
5.001	75.00	5.58	11.370	0.337	2.0	0.0	0.0	1.23	136.2	70.5
5.002	75.00	5.87	11.210	0.583	2.0	0.0	0.0	1.42	225.1	120.4
5.003	75.00	6.00	11.090	0.620	2.0	0.0	0.0	1.38	219.9	127.9
5.004	75.00	6.07	11.040	0.620	2.0	0.0	0.0	6.72	1068.3	127.9
5.005	75.00	6.12	7.710	0.937	4.0	0.0	0.0	3.90	1103.5	194.3
1.009	75.00	8.25	6.815	4.277	6.0	0.0	0.0	2.65	3000.7	874.7
6.000	75.00	5.20	12.480	0.123	0.0	0.0	0.0	2.69	190.1	25.0
6.001	75.00	5.37	11.350	0.357	0.0	0.0	0.0	3.47	552.1	72.5
6.002	75.00	5.41	10.320	0.480	0.0	0.0	0.0	8.30	1319.8	97.5
1.010	75.00	8.50	6.690	4.757	6.0	0.0	0.0	5.12	5789.8	972.2
1.011	75.00	8.62	5.300	4.757	6.0	0.0	0.0	3.84	4341.3	972.2
7.000	75.00	5.38	10.100	0.064	0.0	0.0	0.0	2.66	187.7	13.0
7.001	75.00	5.71	8.400	0.128	0.0	0.0	0.0	2.81	198.9	26.0
7.002	75.00	5.87	6.600	0.128	0.0	0.0	0.0	2.34	165.1	26.0
7.003	75.00	5.92	6.025	0.128	0.0	0.0	0.0	2.80	309.2	26.0
8.000	75.00	5.29	5.700	0.065	0.0	0.0	0.0	2.52	177.8	13.2
8.001	75.00	5.50	4.600	0.130	0.0	0.0	0.0	2.39	168.0	26.4

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Micro Drainage					Network 2020.1						
<u>Network Design Table for Storm</u>											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
8.002	5.000	0.200	25.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	0
8.003	7.218	0.200	36.1	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	0
1.012	13.268	0.110	120.6	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	0
1.013	17.686	0.020	884.3	0.000	0.00	0.0	0.600	[]	10	Pipe/Conduit	0
<u>Network Results Table</u>											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
8.002	75.00	5.53	3.900	0.130	0.0	0.0	0.0	3.16	223.2	26.4	
8.003	75.00	5.57	3.700	0.130	0.0	0.0	0.0	2.63	185.6	26.4	
1.012	75.00	8.68	3.475	5.015	6.0	0.0	0.0	3.41	3851.8	1024.6	
1.013	75.00	8.91	0.235	5.015	6.0	0.0	0.0	1.34	2327.0	1024.6	
<u>Free Flowing Outfall Details for Storm</u>											
Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)					
1.013	S	3.500	0.215	0.000	0	2400					
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Arden Hall,

66 Brooklands Road, Sale,

Cheshire M33 3SJ

Broadmarsh Development

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Micro Drainage

Network 2020.1

Page 5

Micro Drainage

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000

Hot Start (mins) 0

Hot Start Level (mm) 0

Manhole Headloss Coeff (Global) 0.500

Foul Sewage per hectare (l/s) 0.000

Additional Flow - % of Total Flow 0.000

MADD Factor * 10m²/ha Storage 2.000

Inlet Coefficient 0.800

Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0

Number of Storage Structures 0

Number of Online Controls 0

Number of Time/Area Diagrams 0

Number of Offline Controls 0

Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model

FEH Rainfall Version

Site Location GB 470201 105706 SU 70201 05706

Data Type

Cv (Summer)

Cv (Winter)

FEH

2013

Point

0.750

0.840

Margin for Flood Risk Warning (mm) 100.0

Analysis Timestep

DTS Status

DVD Status OFF

Fine Inertia Status OFF

ON

Profile(s)

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440

Return Period(s) (years)

Climate Change (%)

Winter

2, 30, 100

0, 0, 40

PN

US/MH Name

Storm

Return Period

Climate Change

First (X) Surge

First (Y) Flood

First (Z) Overflow

Overflow Act.

1.000

SSW 1

15 Winter

100

+40%

1.001

SSW 2

15 Winter

100

+40%

1.002

SSW 3

15 Winter

100

+40%

1.003

SSW 4

15 Winter

100

+40%

100/15 Winter

1.004

SSW 5

15 Winter

100

+40%

2.000

SSW 6

15 Winter

100

+40%

1.005

SSW 7

15 Winter

100

+40%

100/15 Winter

1.006

SSW 8

15 Winter

100

+40%

1.007

SSW 9

15 Winter

100

+40%

3.000

SDSW 10

15 Winter

100

+40%

100/15 Winter

100/15 Winter

3.001

SDSW 11

15 Winter

100

+40%

30/15 Winter

3.002

SDSW 12

15 Winter

100

+40%

30/15 Winter

3.003

SDSW 13

15 Winter

100

+40%

100/15 Winter

3.004

SDSW 14

15 Winter

100

+40%

3.005

SDSW 15

15 Winter

100

+40%

3.006

SSW 16

15 Winter

100

+40%

100/15 Winter

4.000

SDSW 17

15 Winter

100

+40%

4.001

SDSW 18

15 Winter

100

+40%

4.002

SDSW 19

15 Winter

100

+40%

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Burrows Graham Associates

Arden Hall,

66 Brooklands Road, Sale,

Cheshire M33 3BJ

Date 10/02/2021 15:30

File 4199.MDX

Broadmarsh Development

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Page 6



Micro Drainage

Network 2020.1

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MI Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	SSW 1	13.015	-0.035	0.000	0.95		67.9	OK
1.001	SSW 2	12.851	-0.014	0.000	1.00		198.8	OK
1.002	SSW 3	12.512	-0.163	0.000	0.72		267.4	OK
1.003	SSW 4	12.135	0.185	0.000	1.16		274.3	SURCHARGED
1.004	SSW 5	11.925	0.000	0.000	1.00		401.8	OK
2.000	SSW 6	12.669	-0.081	0.000	0.42		12.8	OK
1.005	SSW 7	11.630	0.015	0.000	1.10		665.0	SURCHARGED
1.006	SSW 8	11.288	-0.192	0.000	0.96		919.6	OK
1.007	SSW 9	10.769	-0.586	0.000	0.26		1040.5	OK
3.000	SDSW 10	10.486	0.966	0.944	1.29		219.8	FLOOD
3.001	SDSW 11	10.068	0.818	0.000	1.67		217.1	SURCHARGED
3.002	SDSW 12	9.307	0.327	0.000	1.83		217.3	SURCHARGED
3.003	SDSW 13	8.933	0.073	0.000	1.16		342.6	SURCHARGED
3.004	SDSW 14	8.548	-0.102	0.000	0.92		397.0	OK
3.005	SDSW 15	8.308	-0.057	0.000	0.85		517.4	OK
3.006	SSW 16	8.251	0.036	0.000	0.94		523.3	SURCHARGED
4.000	SDSW 17	9.397	-0.188	0.000	0.29		21.1	OK
4.001	SDSW 18	9.294	-0.126	0.000	0.61		42.7	OK
4.002	SDSW 19	9.188	-0.082	0.000	0.84		61.3	OK

PN	US/MI Name	Level Exceeded
1.000	SSW 1	
1.001	SSW 2	
1.002	SSW 3	
1.003	SSW 4	
1.004	SSW 5	
2.000	SSW 6	
1.005	SSW 7	
1.006	SSW 8	
1.007	SSW 9	
3.000	SDSW 10	1
3.001	SDSW 11	
3.002	SDSW 12	
3.003	SDSW 13	
3.004	SDSW 14	
3.005	SDSW 15	
3.006	SSW 16	
4.000	SDSW 17	
4.001	SDSW 18	
4.002	SDSW 19	

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Micro Drainage				Network 2020.1					
<u>Summary of Critical Results by Maximum Level (Rank 1) for Storm</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Water Level (m)	
4.003	SDSW 20	15 Winter	100	+40%				9.010	
4.004	SDSW 21	15 Winter	100	+40%				8.495	
1.008	SSW 22	15 Winter	100	+40%	100/15 Winter			8.187	
5.000	SDSW 23	15 Winter	100	+40%	30/15 Winter			12.777	
5.001	SDSW 24	15 Winter	100	+40%	30/15 Winter			12.454	
5.002	SDSW 25	15 Winter	100	+40%	30/15 Winter			12.205	
5.003	SDSW 26	15 Winter	100	+40%	30/15 Winter			11.843	
5.004	SDSW 27	15 Winter	100	+40%				11.230	
5.005	SDSW 28	15 Winter	100	+40%	100/15 Winter			8.363	
1.009	SSW 29	15 Winter	100	+40%	100/15 Winter			8.097	
6.000	SSW 30	15 Winter	100	+40%				12.589	
6.001	SSW 31	15 Winter	100	+40%				11.569	
6.002	SSW 32	15 Winter	100	+40%				10.496	
1.010	SSW 33	15 Winter	100	+40%				7.276	
1.011	SSW 34	15 Winter	100	+40%				6.411	
7.000	SDSW 35	15 Winter	100	+40%				10.196	
7.001	SDSW 36	15 Winter	100	+40%				8.538	
7.002	SDSW 37	15 Winter	100	+40%				6.760	
7.003	SDSW 38	15 Winter	100	+40%				6.204	
8.000	SDSW 39	15 Winter	100	+40%				5.800	
8.001	SDSW 40	15 Winter	100	+40%	100/15 Winter			5.113	
8.002	SDSW 41	15 Winter	100	+40%	30/15 Winter			4.978	
8.003	SPump	15 Winter	100	+40%	30/15 Winter			4.909	
1.012	SSW 42	15 Winter	100	+40%	100/15 Winter			4.844	
1.013	SSW 43	30 Winter	100	+40%				1.235	
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
4.003	SDSW 20	-0.020	0.000	0.98			73.4	OK	
4.004	SDSW 21	-0.165	0.000	0.41			73.0	OK	
1.008	SSW 22	0.047	0.000	0.83			1584.8	SURCHARGED	
5.000	SDSW 23	0.892	0.000	1.49			189.0	SURCHARGED	
5.001	SDSW 24	0.709	0.000	1.73			195.0	SURCHARGED	
5.002	SDSW 25	0.545	0.000	1.71			321.2	SURCHARGED	
5.003	SDSW 26	0.303	0.000	2.18			340.5	SURCHARGED	
5.004	SDSW 27	-0.260	0.000	0.37			338.5	OK	
5.005	SDSW 28	0.048	0.000	0.93			509.9	SURCHARGED	
1.009	SSW 29	0.082	0.000	1.07			2058.3	SURCHARGED	
6.000	SSW 30	-0.161	0.000	0.44			75.8	OK	
6.001	SSW 31	-0.231	0.000	0.47			229.3	OK	
6.002	SSW 32	-0.274	0.000	0.32			309.8	OK	
1.010	SSW 33	-0.614	0.000	0.48			2274.0	OK	
1.011	SSW 34	-0.089	0.000	1.00			2195.4	OK	
7.000	SDSW 35	-0.204	0.000	0.22			38.7	OK	
7.001	SDSW 36	-0.162	0.000	0.42			79.6	OK	
7.002	SDSW 37	-0.140	0.000	0.54			78.8	OK	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for Storm</u>									
	US/MH	Surcharged	Flooded		Half Drain	Pipe			
PN	Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
7.003	SDSW 38	-0.196	0.000	0.45			79.5	OK	
8.000	SDSW 39	-0.200	0.000	0.24			39.7	OK	
8.001	SDSW 40	0.213	0.000	0.50			76.1	SURCHARGED	
8.002	SDSW 41	0.778	0.000	0.58			64.8	SURCHARGED	
8.003	SPump	0.909	0.000	0.58			64.5	SURCHARGED	
1.012	SSW 42	0.169	0.000	1.18			2331.4	SURCHARGED	
1.013	SSW 43	0.000	0.000	2.74			2212.7	OK	
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