PROPOSED PHASE 2 RESIDENTIAL DEVELOPMENT AT FORMER BAGULEYS GARDEN CENTRE, MIDGELAND ROAD, BLACKPOOL.

DRAINAGE STRATEGY REPORT HAMILTON TECHNICAL SERVICES 1 CHILTERN AVE, EUXTON, CHORLEY, LANCS, PR7 6NU

ISSUE 2 2/8/2024 C-0995

## **Document Control Sheet**

Proposed Phase 2 Residential Development on land at former Baguley's Garden centre, Midgeland road, Blackpool. FY4 5HE.

Copy

**Drainage Strategy Report** 

Job	Date	Issue	
C0995	06 <sup>TH</sup> Jan 2022	1	
C0995	08 <sup>th</sup> Feb 2024	2	
Originator	G Hamilton		
Checker	G Hamilton		
Approver	G Hamilton		

© Hamilton Technical Services. All rights reserved.

No part of this report may be copied or reproduced by any means without prior written permission from Hamilton Technical Services. If you have received this report in error, please destroy all copies in your possession or control and notify Hamilton Technical Services.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Hamilton Technical Services, no other party may use, make use of or rely on contents of the report. No liability is accepted by Hamilton Technical Services for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of Hamilton Technical Services using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted that and it is expressly stated that no independent verification of any of the documents or information supplied to Hamilton Technical Services has been made.

# Contents

- 1.0 Introduction
- 2.0 Description of existing site
- 3.0 Proposals for Development
- 4.0 Maintenance
- 5.0 Conclusions

**Figures and Plans** 

# 1. Introduction

- 1.1. Hamilton Technical Services have been commissioned by Mr Dennis Mackay of Denmac Holdings Ltd., to prepare a drainage report and design for Phase 2 of a residential development on land off Midgeland Road, Blackpool. The site is on land formerly known as Baguley's Garden centre.
- 1.2. The site comprises an area of land on the east side of Midgeland Road and to the west side of Stockydale Road. The site is presently set to rough ground, brambles and grass with some old concrete footings and with hedges to the southern and eastern boundaries.
- 1.3. The national grid reference for the site is 333434E, 432811N. A location plan is attached as **Figure 1** of this report.

## 2. Description of the existing site.

- 2.1. The site is bounded to the east by Stockydale Road beyond which lies residential land. To the north the site is bounded by further residential land part of which is a section of Phase 1 of the development. To the west the site is bounded by the remainder of Phase 1 of the development and older residential properties leading to Midgeland road. The southern boundary is to more residential properties and a southerly section of Stockydale Road.
- 2.2. Consultation of the extensive site investigations carried out as part of the Phase 1 planning application indicate the site to be underlain by clay soils and to be naturally wet with impeded drainage. Further site investigation was been undertaken by means of a set of three boreholes and site walkover. That appraisal confirms the findings that exclude infiltration as a means of surface water disposal for the development of Phase 1. A copy of the borehole logs is contained in **Appendix 3** of this report.
- 2.3. A watercourse exists close to the northwest corner of the development boundary; however this watercourse is shallow, overgrown and intermittent in places and is not suitable for the discharge of surface water run-off. As part of the planning application process for Phase 1 of the development, agreement was reached with United Utilities for the surface water run-off from the site to be discharged into the public surface water sewer in Midgeland Road.
- 2.4. As part of the site investigations for Phase 2 of the development two trial pits have been excavated to determine whether infiltration was an option for surface water disposal on this phase. The location of these pits is shown on Figure 2 of this report. The percolation tests were a failure as the water placed into the pits did not dissipate into the ground. A set of phots showing the pits before being filled with water and on the following morning are attached as Figures 3 6 of this report.
- 2.5. A copy of the percolation test results is also contained in Appendix 3 of this report.
- 2.6. Infiltration is not a viable option, there is no suitable watercourse within or adjacent to the site to which surface water can be discharged. The only viable option is to discharge run-off to the public surface water sewer in Midgeland Road, through the existing drainage serving Phase 1 of the development.

- 2.7. As part of the construction of Phase 1 of the development separate systems for foul and surface water drainage were installed. The surface water system included a large attenuation tank to which the run-off from Phase 2 was to be discharged when development commenced on Phase 2. A plan showing the drainage installed at Phase 1 is attached as Figure 2 of this report.
- 2.8. The foul drainage system installed for Phase 1 was designed to accept only the run-off from Phase 1. The foul water run-off from Phase 2 is to be discharged into the public combined sewer in Stockydale Road on the eastern site boundary.
- 2.9. Surface water from Phase 2 will be discharged to the attenuation system already installed and incorporating a reduced discharge through an orifice fitted in the manhole immediately downstream of the attenuation tank.

# 3. Proposals for Development

- 3.1. The development of the site will consist of the regrading of the site in many areas. The extension of the Phase 1 road system network. The construction of the new drainage works and the construction of five detached bungalows with garages drives and parking. The communal areas of the site will be landscaped. A plan showing the proposed site layout is attached as **Figure 7** of this report.
- 3.2. The surface water run-off from the developed site will drain into the existing attenuation tank from where it will outfall into the existing Phase 1 drainage system at a controlled rate. Foul water run-off will be discharged into the existing public sewer located just outside the site boundary in Stockydale Road at the existing UU MH 4801.
- 3.3. The outlet chamber from the attenuation system contains a flow restriction orifice of 50mm diameter to minimise the discharge rates from the new phase of development to the minimum practical flow rates. A plan showing the proposed drainage layout for Phase 2 is attached as Figure 8 of this report.
- 3.4. A series of flow simulation calculations has been completed using Micro Drainage software and these calculations show the maximum flow rates from Phase 2 will be limited as follows. The maximum flow rate during a 1 in 1 Yr storm will be 1.40 l/s; during a 1 in 2 Yr storm it will be 1.60 l/s; during a 1 in 30 Yr storm it will be 2.90 l/s and during a 1 in 100 Yr storm it will be 3.70 l/s.
- 3.5. These calculations include an allowance for climate change of 40% rainfall increase and an allowance of 10% for urban creep. A plan showing the catchment areas used in the calculations is attached as Figure 9 of this report and a selection of the calculations is contained in Appendix 1 of this report.
- 3.6. These calculations show that the attenuation and control system will not result in any surface flooding or exceedance flows and therefore will not increase any risk of flooding on or beyond the Phase 2 site boundaries.

- 3.7. The developer has also been giving consideration to the possibility of adding one further dwelling to the development at some time in the future. We have therefore taken this into consideration in the verification of the design of the surface water system serving Phase 2 of the development.
- 3.8. To this end, a further series of storm simulation calculations has been completed with the additional plot taken into account. A "provisional" drainage layout plan has been attached as Figure 10 of this report and also a SW catchment plan is attached as Figure 11.
- 3.9. This series of flow simulation calculations has been completed showing the maximum flow rates from Phase 2 will be limited as follows. The maximum flow rate during a 1 in 1 Yr storm will be 1.50 l/s; during a 1 in 2 Yr storm it will be 1.70 l/s; during a 1 in 30 Yr storm it will be 3.10 l/s and during a 1 in 100 Yr storm it will be 3.90 l/s.
- 3.10. Again, these calculations show that there will be no surface flooding or exceedance flows generated by the surface water system for Phase 2.

# 4. Maintenance

- 4.1. The maintenance and any necessary repairs to the roads, landscaping and drainage systems will be carried out by the site management company that looks after the Phase 1 development. The new dwellings will be signed up to this management company
- 4.2. The drainage systems will be inspected at six month intervals and any necessary cleaning or repair works will be carried out immediately.
- 4.3. The funding for the management company will be through an annual maintenance fee paid by each dwelling belonging to the scheme.

# 5. Conclusions

- 5.1. The development of the site can be completed in a safe and sustainable manner that will reduce the risk of flooding within and outside the site.
- 5.2. The surface water drainage serving the developed site has been designed to accommodate the predicted changes in rainfall due to climate change and urban creep for the 100 yr lifetime of the development.

# Figures;

- Figure 1 Site Location Plan
- Figure 2 Existing Site Drainage Plan
- Figure 3 Photo of T Pit 1 excavated
- Figure 4 Photo of T Pit 2 excavated
- Figure 5 Photo of T Pit 1 failure
- Figure 6 Photo of T Pit 2 failure
- Figure 7 Proposed Site Layout Plan
- Figure 8 Proposed Site Drainage Plan
- Figure 9 Surface Water Catchment Areas Plan
- Figure 10 Provisional Drainage Plan 6 Plots
- Figure 11 Provisional SW Catchment Areas Plan 6 Plots
- Appendix 1 Surface Water Storm Simulation Calcs. Ph 2.
- Appendix 2 SW Storm Calculations Ph 2 6 Plots
- Appendix 3 Borehole Logs and Percolation Test Results



B - Red	© Josep	without   Architec	portion c	on site.	are appr	Architec	Discrepa	This dra	
and blue line ded	h Boniface Arc	orior consent fro t <u>.</u>	it must not be	All information t	oximate and an	t immediately. /	incles are to be	wing must not k	
20/09/21	hitects Ltd	om the	reproduced	o be subjec	e to be cheo	All dimensio	reported to	e scaled.	
JB / A				tto	cked	SU	the		

Revision B	JBA363-PL-001
2/2019	Scale 1:1250 @ A3 Drawn By JB Date 20/0
	Status PLANNING
	Drawing Title Site Location Plan
	Client Mr. D. McKay
ne, ad,	Project New Residential Scher Land off Midgeland Ro Blackpool
.co.uk ool, FY1 3LA.	01253 280 485 bonifacearchitects.co.uk office@bonifacearchitects 62 Caunce Street, Blackpo
s Ltd	Joseph Boniface Architect
Architects Beard Beard Chartered Practice	Joseph Boniface Architects
Date By / Chk	Rev. Amendment
26/02/19 JB / AC	<ul> <li>Initial issue.</li> </ul>
20/09/21 JB / AC	A - Red and blue line amended.
20/09/21 JB / AC	<ul> <li>B - Red and blue line amended.</li> </ul>
ects Ltd	© Joseph Boniface Archi
n the	Architect.
be subject to , or any	on site. All information to site surveys. This drawing
scaled. eported to the dimensions	Architect immediately. All













This drawing must not be scaled. Discrepancies are to be reported to the Architect immediately. All dimensions are approximate and are to be checked on site. All information to be subject to site surveys. This drawing, or any portion of it must not be reproduced without prior consent from the Architect. © Joseph Boniface Architects Ltd

_	- Revision cloud removed.	10/01/22	JB / AC
D	- Unit removed. - POS amended. - Landscaping amended.	11/11/21	JB / AC
С	<ul> <li>Hedgerow position adjacent Stockydale Road amended.</li> </ul>	08/11/21	JB / AC
В	<ul> <li>Unit removed.</li> <li>POS enlarged.</li> <li>Rear gardens to units</li> <li>13-17 enlarged.</li> <li>Outline of Unit 8 added.</li> </ul>	04/11/21	JB / AC
A	<ul> <li>Garage positions amended.</li> </ul>	26/10/21	JB / AC
\	- Initial issue.	14/09/21	JB / AC
Rev.	Amendment	Date	By / Chk
	Joseph	Art	chitects aistration
	Joseph Boniface Architects	ALD BO RIBA Chartered P	and
Jose 012 boni offic 62 0	Joseph Boniface Architects eph Boniface Architects 53 280 485 facearchitects.co.uk re@bonifacearchitects. Caunce Street, Blackpo	Chartered P Chartered P s Ltd co.uk	orractice

- Garage position amended.

added.

H - Unit 17 added. - POS updated. G - Kerbline amended. - POS updated.

F - POS updated.

- Indicative drainage

04/12/23 JB

14/11/23 JB / LS

28/02/22 JB / AC

18/01/22 JB / AC

Client					
Mr. D. McKay					
Drawing Title					
Proposed Externa	al Materials				
Status					
PLANNING	PLANNING				
Scale					
1:500 @ A1					
Drawn By	Date				
JB	14/09/2021				

Revision

Drawing Number JBA363-PL-020

![](_page_17_Figure_0.jpeg)

![](_page_18_Figure_0.jpeg)

![](_page_19_Figure_0.jpeg)

![](_page_20_Figure_0.jpeg)

# Land at former Baguleys Garden centre, Midgeland Road, Blackpool.

# Appendix 1

SW Run-off Simulation Calculations – 5 Plots

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Time Area Diagram for Storm

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

Hamilton	Techni	cal Se	ervice	S							Pa	age 2
1 Chilter	n Ave				Midge	eland F	Rd Phi	2 (5E	PLOTS	)	ſ	
Euxton					Prop	Proposed SW Storm Calcs					Z	1.
Chorley	PR7 6N	U			1 in	1 Yr S	Storm	s			N	Airco
Date 08.0	2.2024				Desi	gned by	/ Geo:	ff Ha	milt	on		
File MIDG	ELAND	FINAL	SW.MD	Х	Chec	ked by						Jrainag
Micro Dra	inage				Netwo	ork 201	14.1					
	ST	ORM SE	WER D	ESIGN	by th	e Modi:	fied	Ratio	onal	Methc	d	
			Net	work l	Design	Table	for	Storr	<u>n</u>			
	PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Ba: Flow	se (l/s)	k (mm)	HYD SECT	DIA (mm)	
	1.000	39.560	0.270	146.5	0.112	4.00		0.0	0.600	) 0	225	
	1.001	16.690	0.140	119.2	0.036	0.00		0.0	0.600	) 0	225	
	1.002	6.000	0.330	18.2	0.000	0.00		0.0	0.600	) 0	225	
	1.003	3.200	0.300	10.7	0.000	0.00		0.0	0.600	) 0	150	
				Netw	ork Re	esults	Table	2				
PN	Rain (mm/hr)	T.C. (mins)	US/II (m)	LΣI.A (ha	Area X A) Flo	E Base ow (l/s)	Foul (1/s)	. Add ) (1	Flow /s)	Vel (m/s)	Cap (1/s)	Flow (l/s)
1.000	0.00	4.61	L 3.290	) 0.	.112	0.0	0.0	0	0.0	1.08	42.9	0.0
1.001	0.00	4.84	4 3.020	) O.	148	0.0	0.0	0	0.0	1.20	47.6	0.0
1.002	0.00	4.88	3 2.880	0.	.148	0.0	0.0	0	0.0	3.08	122.6	0.0
1.003	0.00	4.89	2.550	0.	.148	0.0	0.0	0	0.0	3.10	54.8	0.0
		Fr	oo Fl	owing	Outfa	11 Dot:	aile	for	Storm	1		
		<u>11</u>		Owing	Outra	II Dett	4115	101 .	JCOIN			
	0 Dán	utfall	Ou	tfall	C. Le	vel I. 1	Level	Mir T Io		),L 1	۹ ۱	
	Pip	e Numbe	r I	Name	(m)	, (	m)	т. це (m)	ver (i	шп) (п	un )	
		1 00	3 GW D	TOFITN	F /	250	2 250	2	250	225	0	
		1.00	J JW F		L 4.	200	2.230	۷.	230 .	223	0	
			Sir	nulati	on Cri	iteria	for S	Storm	L			
									-			
	Vol	umetric	Runof	f Coeff	0.840	Fou	ıl Sewa	age pe	er hec	tare (	1/s) (	0.000
	Are	eal Red <sup>:</sup>	uction Start	Factor	1.000	Additic	onal Fl	low -	% of 10m3/	Total	Flow (	2.000
	]	Hot Sta:	rt Leve	(miins) el (mm)	0	MAL	D Faci	LOI ~	Run T	ime (m	ins)	1440
Manh	ole Head	dloss C	oeff (0	Global)	0.500		Οι	utput	Inter	val (m	uins)	1
	Nur	ber of	Input f Opli	Hydrog:	raphs 0 trole 1	Number	of St	orage	Struc	ctures	1	
	Nu	mber of	Offli	ne Con	trols 0	Munnet	OT IT	₩⊂\ At	ca Dic	rgi allis	U	
					2 0							
			S	ynthe	tic Ra	infall	Deta	ils				
		Rainfal	l Mode	1		FSR		Pr	ofile	Туре	Winter	
	Return	Period	(years	)		1		С	v (Sur	nmer)	0.750	
			Regio	n Engl	and and	Wales		C	v (Wir	nter)	0.840	
		M5-	60 (mm	l) D		18.000	Storm	Durat	ion (r	nins)	15	
			ndi10	Γ		0.330						

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

Online Controls for Storm

## Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 2.550

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Storage Structures for Storm

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

## Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 5
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

### Summary of Results for 15 minute 1 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1 000	01	2 202	0 1 2 2	0 000	0.24	0 0	14 0	OV
1.000	51	3.382	-0.133	0.000	0.34	0.0	14.0	OK
1.001	S2	3.122	-0.123	0.000	0.41	0.0	17.6	OK
1.002	S3	2.951	-0.154	0.000	0.22	0.0	17.6	OK
1.003	S4	2.612	-0.088	0.000	0.03	0.0	0.9	OK

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Time Area Diagram for Storm

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

1 Chiltern Ave Euxton Chorley FR7 6NU Date 08.02.2024 File MIDGELAND FINAL SW.MDX Micro Drainage Network 2014.1 STORM SEWER DESIGN by the Modified Rational Method Network Design Table for Storm PN Length Fall Slope I.Area T.E. Base k HYD DIA (m) (m) (1:X) (ha) (mins) Flow (1/s) (mn) SECT (mn) 1.000 39.560 0.270 146.5 0.112 4.00 0.0 0.600 o 225 1.001 6.600 0.146 115, 2 0.036 0.00 0.00 0.00 0.225 1.002 6.000 0.330 18.2 0.000 0.00 0.0 0.600 o 225 1.003 3.200 0.300 10.7 0.000 0.00 0.0 0.600 o 225 1.003 3.200 0.300 10.7 0.000 0.00 0.0 0.600 o 150 Network Results Table PN Rain T.C. US/LL SI.Area S.Base Foul Add Flow Vel Cap Flow (mm/hr) (mins) (m) (ha) Flow (1/s) (1/s) (1/s) (1/s) (1/s) 1.000 0.00 4.61 3.290 0.112 0.0 0.0 0.0 1.08 42.9 0.0 1.001 0.00 4.83 0.200 0.148 0.0 0.0 0.0 0.10 3.81 22.6 0.0 1.002 0.00 4.88 2.500 0.148 0.0 0.0 0.0 0.10 3.81 22.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 0.0 3.10 54.8 0.0 Free Flowing Outfall Details for Storm Volumetric Runoff Coeff 0.840 Fou Story Volumetric Runoff Coeff 0.840 Fou Story Volumetric Runoff Coeff 0.840 Fou Story Volumetric Runoff Coeff 0.840 Fou Story (1/s) 0.000 Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000 Hot Start (mins) 0 MADD Factor * 1007/hA Storage 2.000 Hot Start (mins) 0 MADD Factor * 1007/hA Storage 2.000 Hot Start (mins) 0 MADD Factor * 1007/hA Storage 2.000 Hot Start (mins) 0 MADD Factor * 1007/hA Storage 2.000 Hot Start (mins) 0 MADD Factor * 1007/hA Storage 2.000 Hot Start (mins) 0 MADD Factor * 1007/hA Storage 2.000 Hot Start (mins) 0 MADD Factor * 1007/hA Storage 2.000 Hot Start (mins) 0 MADD Factor * 1007/hA Storage 2.000 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Online Controls 0 Synthetic Rainfall Details Synthetic Rainfall Model FSR Profile Type Ninter Return Period (veers) 1 C VOS	Hamilton Te	chni	cal Se	rvice	S							Pa	age 2
Euxton Proposed SW Storm Calcs Chorley PR7 6NU 1 in 1 Yr Storms Date 08.02.2024 File MIDGELAND FINAL SW.MDX Checked by Micro Drainage Network 2014.1 STORM SEWER DESIGN by the Modified Rational Method Network Design Table for Storm PN Length Fall Slope I.Area T.E. Base k HYD DIA (m) (m) (1:X) (ha) (mins) Flow (1/s) (ms) SECT (mm) 1.000 39,560 0.270 146.5 0.112 4.00 0.0 0.600 o 225 1.001 16.680 0.140 119.2 0.036 0.00 0.0 0.00 0.00 0.225 1.002 6.000 0.300 16.7 0.000 0.00 0.00 0.00 0.225 1.003 3.200 0.300 16.7 0.000 0.00 0.00 0.00 0.225 1.003 3.200 0.300 16.7 0.000 0.00 0.00 0.00 0.225 1.003 0.200 0.300 16.7 0.000 0.00 0.00 0.00 0.225 1.003 0.200 0.300 16.7 0.000 0.00 0.00 1.20 47.6 0.0 1.000 0.00 4.61 3.290 0.112 0.0 0.0 0.0 1.02 47.6 0.0 1.001 0.00 4.48 3.020 0.112 0.0 0.0 0.0 1.02 47.6 0.0 1.002 0.00 4.84 3.020 0.148 0.0 0.0 0.0 1.02 47.6 0.0 1.003 0.00 4.89 2.880 0.148 0.0 0.0 0.0 3.01 54.8 0.0 Free Flowing Outfall Details for Storm Outfall Outfall C. Level I. Level Min D.L W Pipe Number Name (m) (m) I. Level (mm) (mm) (m) Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (1/s) 0.000 Areal Reduction Factor 1.009 Additional Flow -* 0 of Total Flow 0.000 Hot Start (ms) 0 MDD Factor * 1007/ha Storage 2.000 Hot Start (ms) 0 MDD Factor * 1007/ha Storage 2.000 Hot Start (ms) 0 MDD Factor * 1007/ha Storage 2.000 Hot Start (ms) 0 MDD Factor * 1007/ha Storage 2.000 Hot Start (ms) 0 KMDF actor * 1007/ha Storage 2.000 Hot Start (ms) 0 KMDF actor * 1007/ha Storage 2.000 Hot Start (ms) 0 KMDF actor * 1007/ha Storage 2.000 Hot Start (ms) 1 KMDBer of Time/Area Diagrams 0 Number of Online Controls 1 Number of Storage Structures 1 Number of Online Controls 0 Synthetic Rainfall Model FSR Profile Type Winter Return Period (verse) 1 Verse	1 Chiltern	Ave				Midge	eland F	d Ph2	2 (5P	LOTS	)		
Chorley         PR7         6NU         1         in 1 Yr Storms         Designed by Geoff Hamilton           Date 08.02.2024         Designed by Geoff Hamilton         Checked by           Micro Drainage         Network 2014.1           STORM SEWER DESIGN by the Modified Rational Method           Metwork 2014.1           STORM SEWER DESIGN by the Modified Rational Method           Metwork 2014.1           STORM SEWER DESIGN by the Modified Rational Method           Metwork 2014.1           STORM SEWER DESIGN by the Modified Rational Method           Metwork 2014.1           Metwork 10.0           Network 10.0           Network 10.0           Not 0.00           Network Results Table           PN           Rain T.C. US/IL 2 LArea 2 Base Foul Add Flow Vel Cap Flow           Metwork 10/0           1.000         0.00           1.000         0.01           Detempt Pow Results Table           Network Results Table           Network Results Table           1         0.00 <t< td=""><td>Euxton</td><td></td><td></td><td></td><td></td><td>Propo</td><td>osed SW</td><td>I Stor</td><td>rm Ca</td><td>lcs</td><td></td><td>Z</td><td>L</td></t<>	Euxton					Propo	osed SW	I Stor	rm Ca	lcs		Z	L
Date 08.02.2024         Designed by Geoff Hamilton Checked by           File MIDGELAND FINAL SW.MDX         Network 2014.1           STORM SEWER DESIGN by the Modified Rational Method Network Design Table for Storm           FN Length Fall Slope I.Area T.E. Base k HYD DIA (m) (m) (1:X) (ha) (mins) Flow (1/s) (mn) SECT (mm)           1.000 39.560 0.270 146.5 0.112 4.00 0.0 0.0600 o 225 1.001 16.630 0.140 119.2 0.036 0.00 0.0 0.0600 o 225 1.003 3.200 0.330 10.7 0.000 0.00 0.00 0.00 0.225 1.003 3.200 0.330 10.7 0.000 0.00 0.00 0.00 0.600 o 225 1.003 3.200 0.300 10.7 0.000 0.00 0.00 0.00 0.600 o 225 1.003 0.200 0.300 10.7 0.000 0.00 0.00 0.00 0.600 o 225 1.003 0.200 0.300 10.7 0.000 0.00 0.00 0.00 0.600 o 225 1.003 0.200 0.48 2.000 0.00 0.00 0.00 0.00 0.00 0.00 0.	Chorley PR	R7 6NU	J			1 in	1 Yr S	Storms	5			N	Aicco
File MIDGELAND FINAL SW.MDX         Checked by           Micro Drainage         Network 2014.1           STORM SEWER DESIGN by the Modified Rational Method           Letwork 2014.1           STORM SEWER DESIGN by the Modified Rational Method           Letwork Design Table for Storm           Network 2014.1           Network 2014.1           Network 2014.1           Micro Drainage           Network 2014.1           Micro Drainage           Network 2014.1           Micro Drainage           Network 2014.1           Micro Drainage           Network Colspan="2">Add Plow (1/s) (mol SECT (mm)           Ning Store 1.40 119.2 0.036 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Date 08.02.	2024				Desig	ned by	v Geof	f Ha	milt	on		
Micro Drainage Network 2014.1 STORM SEWER DESIGN by the Modified Rational Method Network Design Table for Storm PN Length Fall Slope I.Area T.E. Base k HYD DIA (m) (m) (1:X) (ha) (mins) Flow (1/s) (mm) SECT (mm) 1.000 39.560 0.270 146.5 0.112 4.00 0.0 0.600 o 225 1.001 36.690 0.140 119.2 0.036 0.00 0.0 0.600 o 225 1.002 6.000 0.330 18.2 0.000 0.00 0.0 0.600 o 225 1.003 3.200 0.300 10.7 0.000 0.00 0.0 0.0 0.600 o 150 Network Results Table PN Rain T.C. US/IL E I.Area E Base Foul Add Flow Vel Cap Flow (mm/hr) (mins) (m) (ha) Flow (1/s) (1/s) (1/s) (1/s) (1/s) 1.000 0.00 4.61 3.290 0.112 0.0 0.0 0.0 1.08 42.9 0.0 1.001 0.00 4.64 3.020 0.148 0.0 0.0 0.0 1.08 42.9 0.0 1.002 0.00 4.88 2.880 0.148 0.0 0.0 0.0 3.08 122.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 3.10 54.8 0.0 Free Flowing Outfall Details for Storm Outfall Outfall C. Level I. Level Min D.L W Pipe Number Name (m) (m) I. Level (mm) (mm) (m) 1.003 SN FIFELINE 4.250 2.250 2.250 225 0 Simulation Criteria for Storm Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (1/s) 0.000 Areal Reduction Factor 1.000 Additional Flow * 6 of Total Flow 0.000 Not Start Level (mm) 0 MADD Factor * 10m <sup>3</sup> /ha Storage 2.000 Not Het Start (mins) 0 MADD Factor * 10m <sup>3</sup> /ha Storage 2.000 Not Bot Start Level (mm) 0 MADD Factor * 10m <sup>3</sup> /ha Storage 2.000 Number of Online Controls 0 Number of Storage Structures 1 Number of Online Controls 0 Synthetic Rainfall Details Rainfall Model FBR Profile Type Winter Raturn Period (years) 1 C. Store Profile Type Winter	File MIDGEL	AND I	FINAL	SW.MD	Х	Check	ed by						ldlidy
STORM SEWER DESIGN by the Modified Rational Method           Network Design Table for Storm           PN         Length Fall Slope I.Area T.E.         Base k         NTO DIA (mm)           1.000 39.560 0.270 146.5         0.112         4.00         0.0 0.600 or 225           1.001 16.690 0.140 119.2         0.036 0.00         0.0 0.600 or 225           1.002 6.600 0.330 10.7         0.000 0.00         0.0 0.600 or 225           1.003 3.200 0.300 10.7         0.000 0.00         0.0 0.600 or 225           1.003 3.200 0.300 10.7         0.000 0.00         0.0 0.600 or 225           1.003 3.200 0.300 10.7         0.000 0.00         0.0 0.600 or 225           1.003 3.200 0.300 10.7         0.000 0.00         0.0 0.600 or 225           1.003 0.00 4.61 3.290         0.112         0.0 0.00         0.0 0.00         0.600 or 225           1.001 0.00 4.61 3.290         0.112         0.0 0.0         0.0 1.08 42.9         0.0           1.001 0.00 4.63 3.290 0.112         0.0 0.0         0.0 1.08 42.9         0.0           1.001 0.00 4.64 3.020 0.148         0.0 0.0         0.0 1.08 42.9         0.0           1.003 0.00 4.69 2.550 0.148         0.0 0.0         0.0 3.81 22.6.0         0.0           1.003 0.00 4.89 2.550 0.148         0.0 0.0         0.0 3.08 122.6.0         0.0	Micro Drain	lage				Netwo	ork 201	4.1					
Network Design Table for Storm         PN       Length Fall Slope I.Area       T.E.       Base       k       HXD DIA         (m)       (n)       (1:X)       (ha)       (mins)       Flow (1/s)       (mm)         1.000       39.560       0.270       146.55       0.112       4.00       0.0       0.600       0       225         1.001       16.690       0.140       119.2       0.000       0.00       0.00       0.600       0       225         1.002       6.000       0.300       10.7       0.000       0.00       0.00       0.600       0       225         1.003       3.200       0.300       10.7       0.000       0.00       0.00       0.600       0       225         1.003       3.200       0.301       10.7       0.000       0.00       0.00       10.8       42.9       0.0         1.000       0.00       4.61       3.290       0.112       0.0       0.0       0.0       1.20       47.6       0.0         1.001       0.00       4.82       2.550       0.148       0.0       0.0       3.10       54.8       0.0         1.003       0.00       4.89       2.5		STO	ORM SE	WER D	ESIGN	by the	e Modif	fied H	Ratio	onal	Metho	d	
PN Length Fall Slope I.Area T.E. Base k HYD DIA (m) (m) (l:X) (ha) (mins) Flow (l/s) (mm) SECT (mm) 1.000 39.560 0.270 146.5 0.112 4.00 0.0 0.600 0 225 1.001 16.690 0.140 119.2 0.036 0.00 0.0 0.0 0.600 0 225 1.003 3.200 0.300 10.7 0.000 0.00 0.0 0.0 0.600 0 225 1.003 3.200 0.300 10.7 0.000 0.00 0.0 0.0 0.600 0 150 Network Results Table PN Rain T.C. US/IL E I.Area E Base Foul Add Flow Vel Cap Flow (mm/hr) (mins) (m) (ha) Flow (l/s) (l/s) (l/s) (l/s) (l/s) (l/s) 1.000 0.00 4.61 3.290 0.112 0.0 0.0 0.0 1.08 42.9 0.0 1.001 0.00 4.64 3.020 0.148 0.0 0.0 0.0 1.20 47.6 0.0 1.002 0.00 4.88 2.880 0.148 0.0 0.0 0.0 3.10 54.8 0.0 Free Flowing Outfall Details for Storm Outfall Outfall C. Level I. Level Min D, L V Pipe Number Name (m) (m) (m) (m) (m) 1.003 SW PIPELINE 4.250 2.250 2.250 225 0 Simulation Criteria for Storm Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (l/s) 0.000 Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000 Hot Start Level (mm) 0 MAD Factor * 10m <sup>3</sup> /ha Storage 2.000 Hot Start Level (mm) 0 MAD Factor * 10m <sup>3</sup> /ha Storage 2.000 Hot Start Level (mm) 0 MAD Factor * 10m <sup>3</sup> /ha Storage 2.000 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 1 Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 1 Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 1 Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 1				Net	work I	Design	Table	for S	Storn	<u>n</u>			
<pre> 1.000 39.560 0.270 146.5 0.112 4.00 0.0 0.600 c 225 1.001 16.690 0.140 119.2 0.036 0.00 0.0 0.0 0.600 c 225 1.003 3.200 0.300 10.7 0.000 0.00 0.0 0.00 c.0 0.600 c 150  Network Results Table  N Rain T.C. US/IL J LARCE J BASE Foul Add Flow Vel Cap Flow (mm/hr) (mins) (m) (ha) Flow (1/s) (1/s) (1/s) (m/s) (1/s) (1/s) 1.000 0.00 4.61 3.290 0.112 0.0 0.0 0.0 1.08 42.9 0.0 1.001 0.00 4.63 3.200 0.148 0.0 0.0 0.0 1.20 47.6 0.0 1.002 0.00 4.84 3.020 0.148 0.0 0.0 0.0 3.08 122.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 3.08 122.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 3.08 122.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 1.20 47.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 0.0 3.08 122.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 0.0 3.00 4.88 0.0  Free Flowing Outfall Details for Storm  Muber Name (m) (m) I. Level (min D, L W Pipe Number Name (m) (m) I. Level (mm) (mm) (m) 1.003 SW PIPELINE 4.250 2.250 2.250 0  Simulation Criteria for Storm  Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (1/s) 0.000 Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000 Hot Start Level (mm) 0 Run Time (mins) 1440 Manhole Headloss Coeff (Global) 0.500 Output Interval (mins) 1  Number of OININ CONTOLS 1 Number of Storage Structures 1 Number of Offline Controls 0  Synthetic Rainfall Details FSR Profile Type Winter Return Period (years) 1 C Y (Summer) 0.750 </pre>		PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Bas Flow (	se (1/s)	k (mm)	HYD SECT	DIA (mm)	
1.001 16.690 0.140 119.2 0.036 0.00 0.0 0.000 0.225 1.003 3.200 0.300 10.7 0.000 0.00 0.0 0.000 0.150 Network Results Table PN Rain T.C. US/IL 2 I.Area E Base Foul Add Flow Vel Cap Flow (mm/hr) (mins) (n) (ha) Flow (l/s) (l/s) (l/s) (m/s) (l/s) (l/s) 1.000 0.00 4.61 3.290 0.112 0.0 0.0 0.0 1.08 42.9 0.0 1.001 0.00 4.64 3.020 0.148 0.0 0.0 0.0 1.08 42.9 0.0 1.001 0.00 4.88 2.880 0.148 0.0 0.0 0.0 1.08 42.9 0.0 1.003 0.00 4.88 2.880 0.148 0.0 0.0 0.0 1.08 42.9 0.0 1.003 0.00 4.88 2.550 0.148 0.0 0.0 0.0 3.08 122.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 3.08 122.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 3.10 54.8 0.0 Free Flowing Outfall Details for Storm Outfall Outfall C. Level I. Level Min D.L W Pipe Number Name (m) (m) I. Level (mm) (mm) (m) 1.003 SW PIPELINE 4.250 2.250 2.250 225 0 Simulation Criteria for Storm Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (1/s) 0.000 Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000 Hot Start Level (mm) 0 MADD Factor * 10m³/ha Storage 2.000 Hot Start Level (mm) 0 MADD Factor * 10m³/ha Storage 2.000 Hot Start Level (mm) 1 Mumber of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 Synthetic Rainfall Details	1	.000	39.560	0.270	146.5	0.112	4.00		0.0	0.600	0	225	
1.002       6.000       0.300       18.2       0.000       0.00       0.0       0.00       1.03       0.00       0.00       1.00       0.00       1.00       0.00       1.00       1.00       0.00       1.00       1.00       0.00       1.00       1.00       0.00       1.00       1.00       1.00       1.00       0.00       1.00	1	.001	16.690	0.140	119.2	0.036	0.00		0.0	0.600	0	225	
Network Results Table         Network Results Table         PN Rain T.C. US/IL E I.Area E Base Foul Add Flow Vel Cap Flow (mm/hr) (mins) (m) (ha) Flow (1/s) (1/s) (1/s) (m/s) (1/s) (1/s)         1.000       0.00       4.61 3.290       0.112       0.0       0.0       1.01 (1/s) (1/s) (1/s) (1/s) (1/s) (1/s)         1.001       0.00       4.64 3.020       0.112       0.0       0.0       1.02 47.6       0.0         1.002       0.00       4.88 2.880       0.148       0.0       0.0       1.02 47.6       0.0         1.002       0.00       4.88 2.880       0.148       0.0       0.0       1.00 3.08 122.6       0.0         1.003       0.00       4.89 2.550       0.148       0.0       0.0       0.0       3.08 122.6       0.0         Free Flowing Outfall Details for Storm         Outfall Outfall C. Level I. Level Min D,L W         Pipe Number       Name       (m)       (m)       (m)       (m)         Interval         Outfall Outfall C. Level I. Level Min D,L W         Profile The Number         Outfall Outfall C. Level Min D,L W         Number Name       (m)       (m)       (m) <td< td=""><td>1</td><td>.002</td><td>6.000</td><td>0.330</td><td>18.2 10 7</td><td>0.000</td><td>0.00</td><td></td><td>0.0</td><td>0.600</td><td>0</td><td>225 150</td><td></td></td<>	1	.002	6.000	0.330	18.2 10 7	0.000	0.00		0.0	0.600	0	225 150	
Network Results Table           PN         Rain         T.C.         US/IL E I.Area         E Base         Foul         Add Flow         Vel         Cap         Flow           1.000         0.00         4.61         3.290         0.112         0.0         0.0         1.05         (1/s)	Ŧ	.005	5.200	0.000	10.7	0.000	0.00		0.0	0.000	0	100	
PN         Rain         T.C.         US/IL S I.Area (m)         E Base (ha)         Foul (1/s)         Add Flow (1/s)         Vel Cap (1/s)         Cap (1/s)         Flow (1/s)           1.000         0.00         4.61         3.290         0.112         0.0         0.0         1.08         42.9         0.0           1.001         0.00         4.84         3.020         0.148         0.0         0.0         1.20         47.6         0.0           1.002         0.00         4.88         2.880         0.148         0.0         0.0         0.0         3.08         122.6         0.0           1.003         0.00         4.89         2.550         0.148         0.0         0.0         0.0         3.08         122.6         0.0           Interval (min 0.148         0.0         0.0         0.0         3.10         54.8         0.0           Outfall Outfall C. Level I. Level Min D.L W           Pipe Number         Name         (m)         1.         Level (mm) (mm)         (m)           1.003         SW PIPELINE         4.250         2.250         2.250         0           Simulation Criteria for Storm           Volumetric Runoff Coeff 0.840					Netw	ork Re	sults	Table	-				
1.000       0.00       4.61       3.290       0.112       0.0       0.0       1.08       42.9       0.0         1.001       0.00       4.84       3.020       0.148       0.0       0.0       1.20       47.6       0.0         1.002       0.00       4.88       2.880       0.148       0.0       0.0       0.0       3.08       122.6       0.0         1.003       0.00       4.89       2.550       0.148       0.0       0.0       0.0       3.08       122.6       0.0         Intervalue of the start of the sta	PN 1 (n	Rain m/hr)	T.C. (mins)	US/11 (m)	ΣI.A (ha	rea Σ ) Flo	Base W (1/s)	Foul (1/s)	Add (1	Flow /s)	Vel (m/s)	Cap (1/s)	Flow (1/s)
1.001       0.00       4.84       3.020       0.148       0.0       0.0       1.20       47.6       0.0         1.002       0.00       4.88       2.880       0.148       0.0       0.0       0.0       3.08       122.6       0.0         1.003       0.00       4.89       2.550       0.148       0.0       0.0       0.0       3.08       122.6       0.0         Image: State of the	1.000	0.00	4.61	3.290	0.	112	0.0	0.0	)	0.0	1.08	42.9	0.0
1.002 0.00 4.88 2.880 0.148 0.0 0.0 0.0 3.08 122.6 0.0 1.003 0.00 4.89 2.550 0.148 0.0 0.0 0.0 3.10 54.8 0.0 Free Flowing Outfall Details for Storm Outfall Outfall C. Level I. Level Min D,L W Pipe Number Name (m) (m) I. Level (mm) (mm) (m) 1.003 SW PIPELINE 4.250 2.250 2.250 225 0 Simulation Criteria for Storm Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (1/s) 0.000 Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000 Hot Start (mins) 0 MADD Factor * 10m <sup>3</sup> /ha Storage 2.000 Hot Start Level (mm) 0 Run Time (mins) 1440 Manhole Headloss Coeff (Global) 0.500 Output Interval (mins) 1 Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 Synthetic Rainfall Details Rainfall Model FSR Profile Type Winter Return Period (years) 1 Cy (Summer) 0.750	1.001	0.00	4.84	1 3.020	0.	148	0.0	0.0	)	0.0	1.20	47.6	0.0
1.003       0.00       4.89       2.330       0.148       0.0       0.0       0.0       5.10       54.8       0.0         Free Flowing Outfall Details for Storm         Outfall Outfall C. Level Min D,L W         Pipe Number Name (m) (m) I. Level (mm) (mm) (mm) (m)         (m)         1.003 SW PIPELINE 4.250       2.250       2.250       2       0         Simulation Criteria for Storm         Volumetric Runoff Coeff 0.840       Foul Sewage per hectare (1/s) 0.000         Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000         Mathematication Factor 1.000 Additional Flow - % of Total Flow 0.000         Hot Start (mins)       0       MADD Factor * 10m³/ha Storage 2.000         Hot Start Level (mm)       0       Run Time (mins)       1         Mathematication Factor 1.000         Mathematication Factor * 10m³/ha Storage 2.000         Mathematicating for Storage Structures 1	1.002	0.00	4.88	3 2.880	) 0.	148	0.0	0.0	)	0.0	3.08	122.6	0.0
Free Flowing Outfall Details for Storm         Outfall       Outfall       C. Level I. Level       Min       D.L W         Pipe Number       Name       (m)       (m)       I. Level (mm) (mm)         1.003 SW PIPELINE       4.250       2.250       2.250       2         Simulation Criteria for Storm         Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (1/s) 0.000         Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000         Hot Start (mins)       0       MADD Factor * 10m³/ha Storage 2.000         Hot Start Level (mm)       0       Run Time (mins)       1440         Manhole Headloss Coeff (Global) 0.500       Output Interval (mins)       1         Number of Input Hydrographs 0 Number of Storage Structures 1       Number of Offline Controls 1       Number of Time/Area Diagrams 0         Number of Offline Controls 0       Interval (mins)       0       Interval (mins)       1	1.005	0.00	4.03	, 2.550	0.	140	0.0	0.0	)	0.0	3.10	54.0	0.0
Outfall       Outfall       C. Level I. Level       Min       D.L       W         Pipe Number       Name       (m)       (m)       1. Level (mm) (mm)         1.003 SW PIPELINE       4.250       2.250       2.250       225       0         Simulation Criteria for Storm         Volumetric Runoff Coeff       0.840       Foul Sewage per hectare (l/s)       0.000         Areal Reduction Factor       1.000 Additional Flow - % of Total Flow 0.000         Hot Start (mins)       0       MADD Factor * 10m³/ha Storage 2.000         Hot Start Level (mm)       0       Run Time (mins)       1440         Manhole Headloss Coeff (Global)       0.500       Output Interval (mins)       1         Number of Input Hydrographs       0       Number of Time/Area Diagrams       0         Number of Offline Controls       1       Number of Time/Area Diagrams       0         Synthetic Rainfall Details       Esturn Period (years)       1       Cy (Summer)       0.750			Fr	ee Fl	owing	Outfa	ll Deta	ails 1	for S	Storm			
Pipe Number       Name       (m)       (m)       1. Level (mm) (mm)         1.003 SW PIPELINE       4.250       2.250       2.250       225       0         Simulation Criteria for Storm         Volumetric Runoff Coeff 0.840       Foul Sewage per hectare (1/s) 0.000         Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000         Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000         Hot Start (mins)       0       MADD Factor * 10m³/ha Storage 2.000         Hot Start Level (mm)       0       Run Time (mins)       1440         Manhole Headloss Coeff (Global)       0.500       Output Interval (mins)       1         Number of Input Hydrographs 0 Number of Storage Structures 1       Number of Online Controls 1 Number of Time/Area Diagrams 0       Number of Offline Controls 0         Synthetic Rainfall Details         Rainfall Model       FSR       Profile Type Winter         Rainfall Model       FSR       Profile Type Winter         Return Period (years)       1       Cy (Summer)       0.750		01	utfall	Ou	tfall	C. Le	vel I. I	Level	Min	n D	,L V	۹ .	
1.003 SW PIPELINE       4.250       2.250       2.250       225       0         Simulation Criteria for Storm         Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (1/s) 0.000         Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000         Mareal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000         Hot Start (mins)       0       MADD Factor * 10m³/ha Storage 2.000         Hot Start Level (mm)       0       Run Time (mins)       1440         Manhole Headloss Coeff (Global) 0.500       Output Interval (mins)       1         Number of Input Hydrographs 0 Number of Storage Structures 1       Number of Online Controls 1 Number of Time/Area Diagrams 0         Number of Offline Controls 0       Synthetic Rainfall Details         Rainfall Model       FSR       Profile Type Winter         Return Period (years)       1       Cy (Summer)       0.750		Pipe	e Numbe	r I	lame	(m)	(:	m) .	I. Le <sup>.</sup> (m)	vel (r	nm) (m	m)	
Simulation Criteria for Storm         Volumetric Runoff Coeff 0.840       Foul Sewage per hectare (1/s) 0.000         Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000         Hot Start (mins)       0         MADD Factor * 10m³/ha Storage 2.000         Hot Start Level (mm)       0         Manhole Headloss Coeff (Global) 0.500       Output Interval (mins)         Number of Input Hydrographs 0 Number of Storage Structures 1         Number of Online Controls 1 Number of Time/Area Diagrams 0         Number of Offline Controls 0         Synthetic Rainfall Details         Rainfall Model       FSR       Profile Type Winter         Return Period (years)       1       Cy (Summer) 0.750			1.00	3 SW P	IPELINE	E 4.3	250 2	2.250	2.	250 2	225	0	
Volumetric Runoff Coeff 0.840 Foul Sewage per hectare (1/s) 0.000 Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000 Hot Start (mins) 0 MADD Factor * 10m <sup>3</sup> /ha Storage 2.000 Hot Start Level (mm) 0 Run Time (mins) 1440 Manhole Headloss Coeff (Global) 0.500 Output Interval (mins) 1 Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 Synthetic Rainfall Details Rainfall Model FSR Profile Type Winter Return Period (years) 1 Cy (Summer) 0.750				Sir	nulati	on Cri	teria	for S	torm				
Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 <u>Synthetic Rainfall Details</u> Rainfall Model FSR Profile Type Winter Return Period (years) 1 Cy (Summer) 0.750	Manhole	Volu Are Head	al Redu Hot Iot Stan	Runofi uction Start rt Leve peff ((	E Coeff Factor (mins) el (mm) Global)	0.840 1.000 0 0.500	Fou Additio MAD	l Sewa nal Fl D Fact Ou	ige pe .ow - .or * itput	er hec % of 10m³/3 Run T Inter	tare ( Total ha Sto ime (m val (m	l/s) 0 Flow 0 rage 2 ins) ins)	0.000 0.000 2.000 1440 1
Synthetic Rainfall Details         Rainfall Model       FSR       Profile Type Winter         Return Period (years)       1       Cy (Summer)       0.750		Numl Nu Nur	ber of umber o mber of	Input f Onli Offli	Hydrogr ne Cont ne Cont	raphs 0 crols 1 crols 0	Number Number	of Sto of Tir	orage me/Are	Struc ea Dia	tures grams	1 0	
Rainfall Model FSR Profile Type Winter Return Period (years) 1 Cy (Summer) 0.750				S	<u>ynth</u> et	<u>cic</u> Ra:	<u>infa</u> ll	Deta	ils				
Return Period (vears) 1 Cv (Summer) 0.750		I	Rainfal	l Mode	1		FSR		Pro	ofile	Type 1	Winter	
Region England and Wales Cv (Winter) 0.840 M5-60 (mm) 18.000 Storm Duration (mins) 30 Ratio R 0.350	Re	turn I	Period M5-	(years Regio 60 (mm Ratio	- ) n Engla ) R	and and	1 Wales 18.000 \$ 0.350	Storm I	C' C' Durat:	v (Sum v (Wir ion (m	mer) ter) its)	0.750 0.840 30	

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

Online Controls for Storm

## Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 2.550

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Storage Structures for Storm

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

## Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 5
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

### Summary of Results for 30 minute 1 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1.000	S1	3.369	-0.146	0.000	0.26	0.0	10.8	OK
1.001	S2	3.108	-0.137	0.000	0.33	0.0	13.9	OK
1.002	S3	2.942	-0.163	0.000	0.17	0.0	13.8	OK
1.003	S4	2.629	-0.071	0.000	0.04	0.0	1.2	OK

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Time Area Diagram for Storm

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

Hamilton	Techni	cal Se	ervice	S							Pa	age 2
1 Chilter	n Ave				Midge	eland F	Rd Ph	2 (5E	PLOTS	)	ſ	
Euxton					Prop	osed SV	V Sto	rm Ca	alcs		2	1.
Chorley	PR7 6N	U			l in	1 Yr S	Storm	S			N	Alicco
 Date 08.0	2.2024				Desi	gned by	y Geo:	ff Ha	milt	on		
File MIDG	ELAND	FINAL	SW.MD	Х	Checl	ked by	•					Jrainagi
Micro Dra	inage				Netwo	ork 201	14.1					
	ST	ORM SE	WER D	ESIGN	by th	e Modi:	fied	Ratio	onal	Methc	d	
			Net	work I	Desian	Table	for	Storr	n			
	DN	Tongth	<u></u>	Slope	T Amon		Pa		<u> </u>	UVD	DTA	
	PN	(m)	(m)	(1:X)	1.Area (ha)	T.E. (mins)	Ba: Flow	se (1/s)	(mm)	SECT	(mm)	
	1.000	39.560	0.270	146.5	0.112	4.00		0.0	0.600	) 0	225	
	1.001	16.690	0.140	119.2	0.036	0.00		0.0	0.600	) 0	225	
	1.002	6.000	0.330	18.2	0.000	0.00		0.0	0.600	) 0	225	
	1.003	3.200	0.300	10.7	0.000	0.00		0.0	0.600	) 0	150	
				Netw	ork Re	esults	Table	2				
PN	Rain (mm/hr)	T.C. (mins)	US/I] ) (m)	ΣI.A (ha	Area X A) Flo	E Base ow (l/s)	Foul (1/s)	Add) (1	Flow /s)	Vel (m/s)	Cap (1/s)	Flow (l/s)
1.000	0.00	4.61	1 3.290	0.	112	0.0	0.0	C	0.0	1.08	42.9	0.0
1.001	0.00	4.84	4 3.020	0.	148	0.0	0.0	C	0.0	1.20	47.6	0.0
1.002	0.00	4.88	3 2.880	0.	148	0.0	0.0	C	0.0	3.08	122.6	0.0
1.003	0.00	4.89	9 2.550	) 0.	148	0.0	0.0	)	0.0	3.10	54.8	0.0
		Fr	ee Fl	owing	Outfa	11 Deta	ails	for S	Storm			
	_		_						_		_	
	0 Pip	utfall e Numbe	r l	tfall Name	С. Le (m)	vel I. 1	Level (m)	Mir I. Le	n D vel (1	),L 1 mm) (m	w m)	
								(m)	)			
		1.00	3 SW P	IPELIN	E 4.	250 2	2.250	2.	250 2	225	0	
			Sir	nulati	on Cri	lteria	for S	Storm	<u>l</u>			
	77-7-		Deces		0 0 4 0		1 0			+ (	1 (-) 0	
	Are	al Red	uction	Factor	1.000	Additic	nal Fi	ige pe Low –	% of	Total	Flow C	0.000
		Hot	Start	(mins)	0	MAE	DD Fact	tor *	10m³/	ha Sto	rage 2	2.000
	]	Hot Sta	rt Leve	el (mm)	0				Run T	ime (m	ins)	1440
Manh	ole Head	dloss C	oeff (0	Global)	0.500		01	ıtput	Inter	val (m	uins)	1
	Nur	ber of	Input	Hydroq	raphs 0	Number	of St	orage	Struc	ctures	1	
	N	lumber c	of Onli	ne Cont	trols 1	Number	of Ti	me/Ar	ea Dia	agrams	0	
	Nu	mber of	Offli	ne Cont	trols 0							
			S	ynthet	tic Ra	infall	Deta	ils				
		Rainfal	.l Mode	1		FSR		Pr	ofile	Type	Winter	
	Return	Period	(years	)		1		C	v (Sun	nmer)	0.750	
			Regio	n Engl	and and	Wales		C	v (Wir	nter)	0.840	
		M5-	-60 (mm	.) D		18.000	Storm	Durat	ion (n	nins)	60	
			Nacio	17		0.000						

Hamilton Technical Services	Page 3		
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)		
Euxton	Proposed SW Storm Calcs	L'	
Chorley PR7 6NU	1 in 1 Yr Storms	Micco	
Date 08.02.2024	Designed by Geoff Hamilton		
File MIDGELAND FINAL SW.MDX	Checked by	Dialitacje	
Micro Drainage	Network 2014.1		

Online Controls for Storm

## Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 2.550

Hamilton Technical Services	Page 4		
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)		
Euxton	Proposed SW Storm Calcs	L'	
Chorley PR7 6NU	1 in 1 Yr Storms	Micro	
Date 08.02.2024	Designed by Geoff Hamilton		
File MIDGELAND FINAL SW.MDX	Checked by	Diamacje	
Micro Drainage	Network 2014.1		

### Storage Structures for Storm

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

## Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0
Hamilton Technical Services		Page 5			
-----------------------------	----------------------------	---------			
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)				
Euxton	Proposed SW Storm Calcs	L'			
Chorley PR7 6NU	1 in 1 Yr Storms	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye			
Micro Drainage	Network 2014.1				

## Summary of Results for 60 minute 1 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1.000	S1	3.354	-0.161	0.000	0.18	0.0	7.3	OK
1.001	S2	3.092	-0.153	0.000	0.23	0.0	9.6	OK
1.002	S3	2.931	-0.174	0.000	0.12	0.0	9.6	OK
1.003	S4	2.643	-0.057	0.000	0.04	0.0	1.4	OK

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)			
Euxton	Proposed SW Storm Calcs	4		
Chorley PR7 6NU	1 in 2 Yr Storms	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamage		
Micro Drainage	Network 2014.1			

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Out	fall	Outfall	с.	Level	I.	Level		Min	D,L	W
Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff 0.840Foul Sewage per hectare (1/s) 0.000Areal Reduction Factor 1.000Additional Flow - % of Total Flow 0.000Hot Start (mins)0Matheward Mathematical Mathematic

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		2		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duratio	n (mins)	15
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Summary of Results for 15 minute 2 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1.000	S1	3.396	-0.119	0.000	0.45	0.0	18.1	OK
1.001	S2	3.138	-0.107	0.000	0.54	0.0	22.7	OK
1.002	S3	2.961	-0.144	0.000	0.28	0.0	22.8	OK
1.003	S4	2.630	-0.070	0.000	0.04	0.0	1.2	OK

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)			
Euxton	Proposed SW Storm Calcs	4		
Chorley PR7 6NU	1 in 2 Yr Storms	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamage		
Micro Drainage	Network 2014.1			

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Out	fall	Outfall	с.	Level	I.	Level		Min	D,L	W
Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff 0.840Foul Sewage per hectare (1/s) 0.000Areal Reduction Factor 1.000Additional Flow - % of Total Flow 0.000Hot Start (mins)0Matheward Mathematical Mathematic

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		F	SR		Prof	ile	Туре	Winter
Return	Period	(years)			2		Cv	(Sum	mer)	0.750
		Region	England	and Wale	es		Cv	(Wir	nter)	0.840
	M5-	-60 (mm)		18.0	00	Storm	Duratio	n (m	nins)	30
		Ratio R		0.3	50					

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Summary of Results for 30 minute 2 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1 000	01	2 201	0 124	0 000	0.24	0.0	12 0	077
1.000	SI	3.381	-0.134	0.000	0.34	0.0	13.9	OK
1.001	S2	3.122	-0.123	0.000	0.42	0.0	17.9	OK
1.002	S3	2.952	-0.153	0.000	0.22	0.0	17.9	OK
1.003	S4	2.652	-0.048	0.000	0.04	0.0	1.4	OK

Hamilton Technical Services					
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)				
Euxton	Proposed SW Storm Calcs	4			
Chorley PR7 6NU	1 in 2 Yr Storms	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamage			
Micro Drainage	Network 2014.1				

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

### Free Flowing Outfall Details for Storm

Out	fall	Outfall	с.	Level	I.	Level		Min	D,L	W
Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage p	er hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow -	% of Total Flow	0.000
Hot Start (mins)	0	MADD Factor *	10m³/ha Storage	2.000
Hot Start Level (mm)	0		Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output	Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		I	FSR		Prof	ile	Туре	Winter
Return	Period	(years)			2		Cv	(Sum	mer)	0.750
		Region	England	and Wa	les		Cv	(Win	ter)	0.840
	M5-	-60 (mm)		18.0	000	Storm	Duratio	n (m	nins)	60
		Ratio R		0.3	350					

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Summary of Results for 60 minute 2 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1 000	S1	२ २६२	-0 152	0 000	0 23	0 0	94	OK
1.000	S1 S2	3.102	-0.143	0.000	0.29	0.0	12.2	OK
1.002	S3	2.938	-0.167	0.000	0.15	0.0	12.2	OK
1.003	S4	2.670	-0.030	0.000	0.05	0.0	1.6	OK

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

### Free Flowing Outfall Details for Storm

Outfall Out	tall C.	Level	Ι.	Level		Min	D,L	W
Pipe Number Na	ame	(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		30		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	60 (mm)		18.000	Storm	Duration	n (mins)	15
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Summary of Results for 15 minute 30 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.693	0.178	0.000	1.10	0.0	44.7	SURCHARGED
1.001	S2	3.355	0.110	0.000	1.35	0.0	57.0	SURCHARGED
1.002	S3	3.021	-0.084	0.000	0.71	0.0	57.1	OK
1.003	S4	2.765	0.065	0.000	0.07	0.0	2.3	SURCHARGED

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

### Free Flowing Outfall Details for Storm

Outfall	Outfall	C. Level	I.	Level		Min	D,L	W
Pipe Number	Name	(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		30		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	30
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	·

# Summary of Results for 30 minute 30 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.485	-0.030	0.000	0.89	0.0	36.3	OK
1.001	S2	3.270	0.025	0.000	1.12	0.0	47.3	SURCHARGED
1.002	S3	3.004	-0.101	0.000	0.58	0.0	47.3	OK
1.003	S4	2.828	0.128	0.000	0.08	0.0	2.6	SURCHARGED

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)			
Euxton	Proposed SW Storm Calcs	4		
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamage		
Micro Drainage	Network 2014.1			

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (m	Out	tfall	Outfall	С.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		30		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	60
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Summary of Results for 60 minute 30 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.418	-0.097	0.000	0.61	0.0	24.9	OK
1.001	S2	3.170	-0.075	0.000	0.78	0.0	32.9	OK
1.002	S3	2.980	-0.125	0.000	0.41	0.0	32.9	OK
1.003	S4	2.886	0.186	0.000	0.08	0.0	2.9	SURCHARGED

Hamilton Technical Services	Page 1	
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (m	Out	tfall	Outfall	С.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfall Model		FSR		Profile	e Type	Winter
Return	Period (years)		100		Cv (Sı	ummer)	0.750
	Region	England	and Wales		Cv (W	nter)	0.840
	M5-60 (mm)		18.000	Storm	Duration	(mins)	15
	Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Summary of Results for 15 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	4.034	0.519	0.000	1.37	0.0	55.7	SURCHARGED
1.001	S2	3.510	0.265	0.000	1.71	0.0	72.2	SURCHARGED
1.002	S3	3.047	-0.058	0.000	0.89	0.0	72.0	OK
1.003	S4	2.828	0.128	0.000	0.08	0.0	2.6	SURCHARGED

Hamilton Technical Services	Page 1	
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

### Free Flowing Outfall Details for Storm

Outfall	Outfall	C. Level I	. Level	Min	D,L	W
Pipe Number	Name	(m)	(m)	I. Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Profi	le Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	30
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Summary of Results for 30 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.731	0.216	0.000	1.13	0.0	45.9	SURCHARGED
1.001	S2	3.377	0.132	0.000	1.42	0.0	60.0	SURCHARGED
1.002	S3	3.025	-0.080	0.000	0.74	0.0	59.9	OK
1.003	S4	2.915	0.215	0.000	0.09	0.0	3.0	SURCHARGED

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (m	Out	tfall	Outfall	С.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfall Model		FSR		Profil	е Туре	Winter
Return	Period (years)		100		Cv (S	ummer)	0.750
	Region	England	and Wales		Cv (W	inter)	0.840
M5-60 (mm)		18.000	Storm	Duration	(mins)	60	
	Ratio R		0.350				

Hamilton Technical Services	Page 2		
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)		
Euxton	Proposed SW Storm Calcs	<u> </u>	
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco	
Date 08.02.2024	Designed by Geoff Hamilton		
File MIDGELAND FINAL SW.MDX	Checked by	Diamage	
Micro Drainage	Network 2014.1	•	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0
Hamilton Technical Services		Page 4			
-----------------------------	-----------------------------	---------			
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)				
Euxton	Proposed SW Storm Calcs	L'			
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye			
Micro Drainage	Network 2014.1	·			

#### Summary of Results for 60 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.444	-0.071	0.000	0.81	0.0	32.7	OK
1.001	S2	3.220	-0.025	0.000	1.00	0.0	42.3	OK
1.002	S3	2.998	-0.107	0.000	0.52	0.0	42.3	OK
1.003	S4	2.995	0.295	0.000	0.10	0.0	3.4	SURCHARGED

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)			
Euxton	Proposed SW Storm Calcs	<u> </u>		
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamage		
Micro Drainage	Network 2014.1			

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall Out	tall C.	Level	Ι.	Level		Min	D,L	W
Pipe Number Na	ame	(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	120
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	·

Summary of Results for 120 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.404	-0.111	0.000	0.51	0.0	20.7	OK
1.001	S2	3.152	-0.093	0.000	0.65	0.0	27.4	OK
1.002	S3	3.055	-0.050	0.000	0.34	0.0	27.4	OK
1.003	S4	3.051	0.351	0.000	0.10	0.0	3.6	SURCHARGED

Hamilton Technical Services	Page 1	
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (mm	Out	tfall	Outfall	с.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	240
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services					
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)				
Euxton	Proposed SW Storm Calcs	L'			
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye			
Micro Drainage	Network 2014.1	·			

Summary of Results for 240 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.376	-0.139	0.000	0.31	0.0	12.6	OK
1.001	S2	3.118	-0.127	0.000	0.39	0.0	16.7	OK
1.002	S3	3.070	-0.035	0.000	0.21	0.0	16.7	OK
1.003	S4	3.067	0.367	0.000	0.11	0.0	3.7	SURCHARGED

Hamilton Technical Services	Page 1	
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (m	Out	tfall	Outfall	С.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	300
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	·

Summary of Results for 300 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.368	-0.147	0.000	0.26	0.0	10.7	OK
1.001	S2	3.109	-0.136	0.000	0.33	0.0	14.1	OK
1.002	S3	3.065	-0.040	0.000	0.17	0.0	14.1	OK
1.003	S4	3.062	0.362	0.000	0.11	0.0	3.6	SURCHARGED

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall	Outfall	C. Level I	. Level	Min	D,L	W
Pipe Number	Name	(m)	(m)	I. Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	480
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	·

Summary of Results for 480 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.355	-0.160	0.000	0.18	0.0	7.5	OK
1.001	S2	3.093	-0.152	0.000	0.23	0.0	9.9	OK
1.002	S3	3.039	-0.066	0.000	0.12	0.0	9.9	OK
1.003	S4	3.036	0.336	0.000	0.10	0.0	3.5	SURCHARGED

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)			
Euxton	Proposed SW Storm Calcs	<u> </u>		
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamage		
Micro Drainage	Network 2014.1			

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.120	4-8	0.028

Total Area Contributing (ha) = 0.148

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (m	Out	tfall	Outfall	С.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	600
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (5PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	·

Summary of Results for 600 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.349	-0.166	0.000	0.15	0.0	6.3	OK
1.001	S2	3.087	-0.158	0.000	0.20	0.0	8.3	OK
1.002	S3	3.017	-0.088	0.000	0.10	0.0	8.3	OK
1.003	S4	3.014	0.314	0.000	0.10	0.0	3.5	SURCHARGED

# Land at former Baguleys Garden centre, Midgeland Road, Blackpool.

# Appendix 2

SW Run-off Simulation Calculations – 6 Plots

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

Hamilton Technical Services	Page 2				
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)				
Euxton	Proposed SW Storm Calcs				
Chorley PR7 6NU	1 in 1 Yr Storms				
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by Urainage				
Micro Drainage Network 2014.1					
STORM SEWER DESIGN	by the Modified Rational Method				
Network D	Desime Table for Charm				
Network D	Jesign lable for Storm				
PN Length Fall Slope : (m) (m) (1:X)	I.Area T.E. Base k HYD DIA (ha) (mins) Flow (l/s) (mm) SECT (mm)				
1 000 39 560 0 270 146 5					
1.001 16.690 0.140 119.2	0.036 0.00 0.0 0.600 o 225				
1.002 6.000 0.330 18.2	0.000 0.00 0.0 0.600 o 225				
1.003 3.200 0.300 10.7	0.000 0.00 0.0 0.600 o 150				
Netwo	ork Results Table				
PN Rain T.C. US/IL E I.A (mm/hr) (mins) (m) (ha)	rea Σ Base Foul Add Flow Vel Cap Flow ) Flow (l/s) (l/s) (l/s) (m/s) (l/s) (l/s)				
1.000 0.00 4.61 3.290 0.1	130 0.0 0.0 0.0 1.08 42.9 0.0				
1.001 0.00 4.84 3.020 0.1	166 0.0 0.0 0.0 1.20 47.6 0.0				
	166 0.0 0.0 3.08 122.6 0.0   166 0.0 0.0 3.10 54.8 0.0				
1.003 0.00 4.89 2.550 0.1	100 0.0 0.0 0.0 5.10 54.8 0.0				
Free Flowing	Outfall Details for Storm				
Outfall Outfall	C. Level I. Level Min D.L W				
Pipe Number Name	(m) (m) I. Level (mm) (mm)				
	(m)				
1.003 SW PIPELINE	£ 4.250 2.250 2.250 225 0				
Simulatio	on Criteria for Storm				
Volumetric Runoff Coeff Areal Reduction Factor	0.840 Foul Sewage per hectare (1/s) 0.000				
Hot Start (mins)	0 MADD Factor * 10m <sup>3</sup> /ha Storage 2.000				
Hot Start Level (mm)	0 Run Time (mins) 1440				
Manhole Headloss Coeff (Global)	0.500 Output Interval (mins) 1				
Number of Input Hydrogr	raphs 0 Number of Storage Structures 1				
Number of Online Cont	crols 1 Number of Time/Area Diagrams 0				
Number of Offline Cont	crols 0				
Synthet	cic Rainfall Details				
Rainfall Model	FSR Profile Type Winter				
Reaion Engla	and and Wales Cv (Summer) 0.750				
M5-60 (mm)	18.000 Storm Duration (mins) 15				
Ratio R	0.350				

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 5
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Summary of Results for 15 minute 1 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.390	-0.125	0.000	0.40	0.0	16.2	OK
1.001	S2	3.129	-0.116	0.000	0.47	0.0	19.8	OK
1.002	S3	2.955	-0.150	0.000	0.25	0.0	19.9	OK
1.003	S4	2.619	-0.081	0.000	0.03	0.0	1.1	OK

Hamilton Technical Services	Page 1	
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall Ou	utfall C.	Level	I.	Level		Min	D,L	W
Pipe Number	Name	(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage p	er hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow -	% of Total Flow	0.000
Hot Start (mins)	0	MADD Factor *	10m³/ha Storage	2.000
Hot Start Level (mm)	0		Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output	Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model			FSR		Prof	ile	Туре	Winter
Return	Period	(years)			1		Cv	(Sum	mer)	0.750
		Region	England	and V	Wales		Cv	(Wir	nter)	0.840
	M5-	-60 (mm)		18	8.000	Storm	Duratio	n (m	nins)	30
		Ratio R		(	0.350					

Hamilton Technical Services					
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)				
Euxton	Proposed SW Storm Calcs	L'			
Chorley PR7 6NU	1 in 1 Yr Storms	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye			
Micro Drainage	Network 2014.1	•			

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services	Page 3	
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services	Page 4	
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Summary of Results for 30 minute 1 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1.000	S1	3.376	-0.139	0.000	0.31	0.0	12.5	OK
1.001	S2	3.114	-0.131	0.000	0.37	0.0	15.6	OK
1.002	S3	2.947	-0.158	0.000	0.19	0.0	15.6	OK
1.003	S4	2.638	-0.062	0.000	0.04	0.0	1.3	OK

Hamilton Technical Services	Page 1	
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Out	fall	Outfall	с.	Level	I.	Level		Min	D,L	W
Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff 0.840Foul Sewage per hectare (1/s) 0.000Areal Reduction Factor 1.000Additional Flow - % of Total Flow 0.000Hot Start (mins)0Matheward Mathematical Mathematic

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		1		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	60 (mm)		18.000	Storm	Duration	n (mins)	60
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 1 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Summary of Results for 60 minute 1 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.360	-0.155	0.000	0.21	0.0	8.5	OK
1.001	S2	3.097	-0.148	0.000	0.25	0.0	10.8	OK
1.002	S3	2.934	-0.171	0.000	0.13	0.0	10.8	OK
1.003	S4	2.655	-0.045	0.000	0.04	0.0	1.5	OK

Hamilton Technical Services						
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)					
Euxton	Proposed SW Storm Calcs	4				
Chorley PR7 6NU	1 in 2 Yr Storms	Micco				
Date 08.02.2024	Designed by Geoff Hamilton					
File MIDGELAND FINAL SW.MDX	Checked by	Diamage				
Micro Drainage	Network 2014.1					

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Out	fall	Outfall	с.	Level	I.	Level		Min	D,L	W
Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage pe	er hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow -	% of Total Flow	0.000
Hot Start (mins)	0	MADD Factor *	10m³/ha Storage	2.000
Hot Start Level (mm)	0		Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output	Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfall	Model		FSR		Prof	ile Type	Winter
Return	Period (y	rears)		2		Cv	(Summer)	0.750
	R	legion	England	and Wales		Cv	(Winter)	0.840
	M5-60	(mm)		18.000	Storm	Duratio	n (mins)	15
	Ra	tio R		0.350				
Hamilton Technical Services		Page 2						
-----------------------------	----------------------------	---------						
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)							
Euxton	Proposed SW Storm Calcs	L'						
Chorley PR7 6NU	1 in 2 Yr Storms	Micco						
Date 08.02.2024	Designed by Geoff Hamilton							
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye						
Micro Drainage	Network 2014.1	•						

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	·

## Summary of Results for 15 minute 2 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.406	-0.109	0.000	0.52	0.0	21.0	OK
1.001	S2	3.147	-0.098	0.000	0.61	0.0	25.6	OK
1.002	S3	2.967	-0.138	0.000	0.32	0.0	25.7	OK
1.003	S4	2.640	-0.060	0.000	0.04	0.0	1.3	OK

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall Ou	utfall C.	Level	I.	Level		Min	D,L	W
Pipe Number	Name	(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage p	er hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow -	% of Total Flow	0.000
Hot Start (mins)	0	MADD Factor *	10m³/ha Storage	2.000
Hot Start Level (mm)	0		Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output	Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		F	SR		Prof	ile	Туре	Winter
Return	Period	(years)			2		Cv	(Sum	mer)	0.750
		Region	England	and Wale	es		Cv	(Wir	nter)	0.840
	M5-	-60 (mm)		18.0	00	Storm	Duratio	n (m	nins)	30
		Ratio R		0.3	50					

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Summary of Results for 30 minute 2 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1 000	01	2 200	0 100	0 000	0 40	0 0	1 ( 1	OV
1.000	51	3.389	-0.126	0.000	0.40	0.0	10.1	OK
1.001	S2	3.129	-0.116	0.000	0.48	0.0	20.1	OK
1.002	S3	2.956	-0.149	0.000	0.25	0.0	20.1	OK
1.003	S4	2.664	-0.036	0.000	0.05	0.0	1.6	OK

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall	Outfall	C. Level	I.	Level		Min	D,L	W
Pipe Number	Name	(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage pe	er hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow -	% of Total Flow	0.000
Hot Start (mins)	0	MADD Factor *	10m³/ha Storage	2.000
Hot Start Level (mm)	0		Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output	Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		I	FSR		Prof	ile	Туре	Winter
Return	Period	(years)			2		Cv	(Sum	mer)	0.750
		Region	England	and Wa	les		Cv	(Win	ter)	0.840
	M5-	-60 (mm)		18.0	000	Storm	Duratio	n (m	nins)	60
		Ratio R		0.3	350					

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	<u> </u>
Chorley PR7 6NU	1 in 2 Yr Storms	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 2 Yr Storms	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Summary of Results for 60 minute 2 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

		Water	Surcharged	Flooded			Pipe	
	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(1/s)	(l/s)	Status
1 000	91	3 369	-0 146	0 000	0 27	0 0	10 9	OK
1.000	S1 S2	3.108	-0.137	0.000	0.32	0.0	13.7	OK
1.002	S3	2.942	-0.163	0.000	0.17	0.0	13.8	OK
1.003	S4	2.685	-0.015	0.000	0.05	0.0	1.7	OK

Hamilton Technical Services			
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)		
Euxton	Proposed SW Storm Calcs	4	
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco	
Date 08.02.2024	Designed by Geoff Hamilton		
File MIDGELAND FINAL SW.MDX	Checked by	Diamage	
Micro Drainage	Network 2014.1	•	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall	Outfall	С.	Level	I.	Level		Min	D,L	W
Pipe Number	pe Number Name		(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (1/s) 0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 40.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm)	0	Run Time (mins) 1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins) 1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfall Model		FSR		Profile	Туре	Winter
Return	Period (years)		30		Cv (Su	mmer)	0.750
	Region	England	and Wales		Cv (Wi	nter)	0.840
	M5-60 (mm)		18.000	Storm	Duration (	mins)	15
	Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services					
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)				
Euxton	Proposed SW Storm Calcs	L'			
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye			
Micro Drainage	Network 2014.1	•			

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Summary of Results for 15 minute 30 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.840	0.325	0.000	1.25	0.0	50.8	SURCHARGED
1.001	S2	3.409	0.164	0.000	1.47	0.0	62.4	SURCHARGED
1.002	S3	3.030	-0.075	0.000	0.78	0.0	62.9	OK
1.003	S4	2.791	0.091	0.000	0.07	0.0	2.4	SURCHARGED

Hamilton Technical Services			
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)		
Euxton	Proposed SW Storm Calcs	4	
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco	
Date 08.02.2024	Designed by Geoff Hamilton		
File MIDGELAND FINAL SW.MDX	Checked by	Diamage	
Micro Drainage	Network 2014.1	•	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall	Outfall	С.	Level	I.	Level		Min	D,L	W
Pipe Number	Name		(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfall Model		FSR		Profile	е Туре	Winter
Return	Period (years)		30		Cv (Sı	ummer)	0.750
	Region	England	and Wales		Cv (W	nter)	0.840
	M5-60 (mm)		18.000	Storm	Duration	(mins)	30
	Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	•

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	·

# Summary of Results for 30 minute 30 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.589	0.074	0.000	1.01	0.0	41.2	SURCHARGED
1.001	S2	3.305	0.060	0.000	1.23	0.0	52.0	SURCHARGED
1.002	S3	3.011	-0.094	0.000	0.64	0.0	51.8	OK
1.003	S4	2.863	0.163	0.000	0.08	0.0	2.8	SURCHARGED

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	•

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall Out	tall C.	Level	Ι.	Level		Min	D,L	W
Pipe Number Na	ame	(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		30		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	60
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	•

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services					
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)				
Euxton	Proposed SW Storm Calcs	L'			
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye			
Micro Drainage	Network 2014.1	•			

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 30 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Summary of Results for 60 minute 30 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.431	-0.084	0.000	0.71	0.0	29.0	OK
1.001	S2	3.183	-0.062	0.000	0.87	0.0	36.9	OK
1.002	S3	2.986	-0.119	0.000	0.46	0.0	36.9	OK
1.003	S4	2.928	0.228	0.000	0.09	0.0	3.1	SURCHARGED

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)			
Euxton	Proposed SW Storm Calcs	4		
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamage		
Micro Drainage	Network 2014.1			

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (m	Out	tfall	Outfall	С.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfall Model		FSR		Profile	e Type	Winter
Return	Period (years)		100		Cv (Sı	ummer)	0.750
	Region	England	and Wales		Cv (W	nter)	0.840
	M5-60 (mm)		18.000	Storm	Duration	(mins)	15
	Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

## Summary of Results for 15 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	4.261	0.746	0.000	1.54	0.0	62.8	SURCHARGED
1.001	S2	3.599	0.354	0.000	1.87	0.0	79.3	SURCHARGED
1.002	S3	3.059	-0.046	0.000	0.98	0.0	79.1	OK
1.003	S4	2.863	0.163	0.000	0.08	0.0	2.8	SURCHARGED

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall	Outfall	С.	Level	I.	Level		Min	D,L	W
Pipe Number	Name		(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Profi	le Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	30
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Summary of Results for 30 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.903	0.388	0.000	1.29	0.0	52.6	SURCHARGED
1.001	S2	3.442	0.197	0.000	1.57	0.0	66.5	SURCHARGED
1.002	S3	3.036	-0.069	0.000	0.82	0.0	66.2	OK
1.003	S4	2.960	0.260	0.000	0.09	0.0	3.2	SURCHARGED

Hamilton Technical Services	Page 1	
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall	Outfall	С.	Level	I.	Level		Min	D,L	W
Pipe Number	Name		(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfal	l Model		FSR		Profi	le Type	Winter
Return	Period	(years)		100		Cv (	Summer)	0.750
		Region	England	and Wales		Cv (	Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	60
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

# Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

# Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

# Summary of Results for 60 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.501	-0.014	0.000	0.92	0.0	37.4	OK
1.001	S2	3.271	0.026	0.000	1.12	0.0	47.5	SURCHARGED
1.002	S3	3.054	-0.051	0.000	0.59	0.0	47.5	OK
1.003	S4	3.050	0.350	0.000	0.10	0.0	3.6	SURCHARGED

Hamilton Technical Services						
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)					
Euxton	Proposed SW Storm Calcs	4				
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco				
Date 08.02.2024	Designed by Geoff Hamilton					
File MIDGELAND FINAL SW.MDX	Checked by	Diamage				
Micro Drainage	Network 2014.1					

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (m	Out	tfall	Outfall	С.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

	Rainfall Model			FSR		Profile Type Winte			
Return	Period	(years)		100		Cv	(Summer)	0.750	
		Region	England	and Wales		Cv	(Winter)	0.840	
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	120	
		Ratio R		0.350					
Hamilton Technical Services		Page 2							
-----------------------------	------------------------------	---------							
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)								
Euxton	Proposed SW Storm Calcs	4							
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco							
Date 08.02.2024	Designed by Geoff Hamilton								
File MIDGELAND FINAL SW.MDX	Checked by	Diamage							
Micro Drainage	Network 2014.1								

### Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

Summary of Results for 120 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.415	-0.100	0.000	0.59	0.0	24.1	OK
1.001	S2	3.163	-0.082	0.000	0.73	0.0	30.7	OK
1.002	S3	3.119	0.014	0.000	0.38	0.0	30.7	SURCHARGED
1.003	S4	3.116	0.416	0.000	0.11	0.0	3.8	SURCHARGED

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

#### Time Area Diagram for Storm

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall Out	tall C.	Level	Ι.	Level		Min	D,L	W
Pipe Number Na	ame	(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

#### Synthetic Rainfall Details

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	180
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)			
Euxton	Proposed SW Storm Calcs	L'		
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye		
Micro Drainage	Network 2014.1			

Summary of Results for 180 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.395	-0.120	0.000	0.44	0.0	18.1	OK
1.001	S2	3.142	-0.103	0.000	0.55	0.0	23.1	OK
1.002	S3	3.135	0.030	0.000	0.29	0.0	23.1	SURCHARGED
1.003	S4	3.131	0.431	0.000	0.11	0.0	3.9	SURCHARGED

Hamilton Technical Services	Page 1	
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

#### Time Area Diagram for Storm

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall Out	tall C.	Level	Ι.	Level		Min	D,L	W
Pipe Number Na	ame	(m)		(m)	I.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

#### Synthetic Rainfall Details

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	240
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)			
Euxton	Proposed SW Storm Calcs	L'		
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye		
Micro Drainage	Network 2014.1			

Summary of Results for 240 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.383	-0.132	0.000	0.36	0.0	14.6	OK
1.001	S2	3.146	-0.099	0.000	0.44	0.0	18.7	OK
1.002	S3	3.138	0.033	0.000	0.23	0.0	18.7	SURCHARGED
1.003	S4	3.134	0.434	0.000	0.11	0.0	3.9	SURCHARGED

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)			
Euxton	Proposed SW Storm Calcs	4		
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamage		
Micro Drainage	Network 2014.1			

#### Time Area Diagram for Storm

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall	Outfall	C. Level I	. Level	Min	D,L	W
Pipe Number	e Number Name		(m)	I. Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

#### Synthetic Rainfall Details

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	360
		Ratio R		0.350				

Hamilton Technical Services				
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)			
Euxton	Proposed SW Storm Calcs	4		
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco		
Date 08.02.2024	Designed by Geoff Hamilton			
File MIDGELAND FINAL SW.MDX	Checked by	Diamage		
Micro Drainage	Network 2014.1			

### Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services					
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)				
Euxton	Proposed SW Storm Calcs	L'			
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye			
Micro Drainage	Network 2014.1				

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services					
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)				
Euxton	Proposed SW Storm Calcs	L'			
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye			
Micro Drainage	Network 2014.1				

Summary of Results for 360 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.368	-0.147	0.000	0.26	0.0	10.8	OK
1.001	S2	3.135	-0.110	0.000	0.32	0.0	13.8	OK
1.002	S3	3.127	0.022	0.000	0.17	0.0	13.7	SURCHARGED
1.003	S4	3.123	0.423	0.000	0.11	0.0	3.9	SURCHARGED

Hamilton Technical Services					
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)				
Euxton	Proposed SW Storm Calcs	4			
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco			
Date 08.02.2024	Designed by Geoff Hamilton				
File MIDGELAND FINAL SW.MDX	Checked by	Diamage			
Micro Drainage	Network 2014.1				

#### Time Area Diagram for Storm

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Outfall	Outfall	С.	Level	I.	Level		Min	D,L	W
Pipe Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

#### Synthetic Rainfall Details

	Rainfal	l Model		FSR		Prof	ile Type	Winter
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	480
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

Summary of Results for 480 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.360	-0.155	0.000	0.21	0.0	8.7	OK
1.001	S2	3.115	-0.130	0.000	0.26	0.0	11.1	OK
1.002	S3	3.108	0.003	0.000	0.14	0.0	11.1	SURCHARGED
1.003	S4	3.104	0.404	0.000	0.11	0.0	3.8	SURCHARGED

Hamilton Technical Services		Page 1
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

#### Time Area Diagram for Storm

Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
0-4	0.134	4-8	0.032

Total Area Contributing (ha) = 0.166

Total Pipe Volume  $(m^3) = 2.532$ 

#### Free Flowing Outfall Details for Storm

Pipe Number Name (m) (m) I. Level (mm) (m	Out	tfall	Outfall	С.	Level	I.	Level		Min	D,L	W
(m)	Pipe	Number	Name		(m)		(m)	Ι.	Level (m)	(mm)	(mm)

1.003 SW PIPELINE 4.250 2.250 2.250 0

#### Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow 4	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	1440
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0

#### Synthetic Rainfall Details

	Rainfal	l Model		FSR		Prof	Winter	
Return	Period	(years)		100		Cv	(Summer)	0.750
		Region	England	and Wales		Cv	(Winter)	0.840
	M5-	-60 (mm)		18.000	Storm	Duration	n (mins)	600
		Ratio R		0.350				

Hamilton Technical Services		Page 2
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	4
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamage
Micro Drainage	Network 2014.1	

### Orifice Manhole: S4, DS/PN: 1.003, Volume (m<sup>3</sup>): 2.2

Hamilton Technical Services		Page 3
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micro
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

#### Cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 2.550 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

#### Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>) Depth (m) Area (m<sup>2</sup>) Inf. Area (m<sup>2</sup>)

0.000	130.0	0.0	0.800	130.0	0.0
0.400	130.0	0.0	0.801	0.0	0.0

Hamilton Technical Services		Page 4
1 Chiltern Ave	Midgeland Rd Ph2 (6PLOTS)	
Euxton	Proposed SW Storm Calcs	L'
Chorley PR7 6NU	1 in 100 Yr Storms + CC + UC	Micco
Date 08.02.2024	Designed by Geoff Hamilton	
File MIDGELAND FINAL SW.MDX	Checked by	Diamaye
Micro Drainage	Network 2014.1	

Summary of Results for 600 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 200.0 DVD Status OFF Analysis Timestep Fine Inertia Status OFF DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S1	3.354	-0.161	0.000	0.18	0.0	7.3	OK
1.001	S2	3.092	-0.153	0.000	0.22	0.0	9.3	OK
1.002	S3	3.084	-0.021	0.000	0.12	0.0	9.3	OK
1.003	S4	3.081	0.381	0.000	0.11	0.0	3.7	SURCHARGED

# Land at former Baguleys Garden centre, Midgeland Road, Blackpool.

Appendix 3

Percolation Testing Results Borehole Logs

## SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

#### **Standard Penetration Test Results**

Job Number

Sheet

5949

: BAGUELYS GARDEN CENTRE, MIDGELAND ROAD, BLACKPOOL, LANCASHIRE Site

: DENNIS MACKAY HOUSE BUILDER Client

Engineer:									1/1						
Borehole	Base of	End of	End of Test		Seating	g Blows 75mm	Blows	for each 7	75mm per	netration	0	T			
Number	Borehole (m)	Seating Drive (m)	Test Drive (m)	Туре	1	2	1	2	3	4	Result	Comme	ents		
M1	1.00	1.15	1.45	SPT	0	0	0	0	2	3	N=5				
M1	2.00	2.15	2.45	SPT	3	4	4	6	6	6	N=22				
M1	3.00	3.15	3.45	SPT	2	3	5	4	5	7	N=21				
M1	4.00	4.15	4.45	SPT	2	3	4	6	6	7	N=23				
M1	5.00	5.15	5.45	SPT	2	3	4	5	5	4	N=18				
M2	1.00	1.15	1.45	SPT	2	2	2	3	3	4	N=12				
M2	2.00	2.15	2.45	SPT	3	3	4	5	6	8	N=23				
M2	3.00	3.15	3.45	SPT	4	3	5	5	5	7	N=22				
M2	4.00	4.15	4.45	SPT	2	4	4	5	6	8	N=23				
M2	5.00	5.15	5.45	SPT	2	4	4	4	5	5	N=18				
МЗ	1.00	1.15	1.45	SPT	2	2	2	3	3	5	N=13				
МЗ	2.00	2.15	2.45	SPT	4	4	4	5	5	5	N=19				
МЗ	3.00	3.15	3.45	SPT	3	2	3	4	5	7	N=19				
МЗ	4.00	4.15	4.45	SPT	2	3	3	4	5	6	N=18				
						1									
												20			
	×														

S	SUB SUR SITE INVESTIGATION, 3 Peel Street, Preston, F	FACE GEOTECH PR2 2QS. T	NICAL ANI el. (01772)	D ENVIRONMENTAL CC 561135 Fax (01772) 204		Site BAGUELYS GARDEN CENTRE, MIDGELAND ROA BLACKPOOL, LANCASHIRE	ND,	Borel Numb M'	hole ber 1		
Boring Me MINI PER	ethod CUSSIVE	Casing 72 52	Diamete 2mm to 2. 2mm to 5.	9 <b>r</b> 00m 00m	Ground	Level (n	nOD)	Client DENNIS MACKAY HOUSE BUILDER		Job Numt 594	o <b>er</b> 19
		Locatio AS	on S PLAN		Dates 10/11/2014			Engineer			t 2
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Level Depth (mOD) (m) (Thickness)		Description			р Water
0.00-1.00	В			Seepage(1) at 0.40m.			1.00)	Dark brown silty CLAY with roots and rootlets (TOPS	SOIL).	×	⊻1
1.00-1.45 1.00-1.45 1.00-2.00	SPT N=5 D C			0,0/0,0,2,3 1.00m to 2.00m - 100% recovery			1.00	Soft low strength becoming stiff high strength brown grey mottled slightly gravelly silty CLAY with plant and rootlet remains. Gravel is subangular to subrounded coarse sandstone, mudstone and siltstone.	and id d fine to	× × × × × × × × × × × × × × × × × × ×	
2.00-2.45 2.00-2.45 2.00-3.00	SPT N=22 D B			HV@1.60m, c=65kPa HV@1.80m, c=80kPa 3,4/4,6,6,6 HP@2.00m, c=100kPa			3.00)	at 1.60m : firm medium strength below 2.00m : stiff high strength and occasional sand lenses	l		
3.00-3.45 3.00-3.45 3.00-4.00	SPT N=21 D C			2,3/5,4,5,7 3.00m to 4.00m - 50% recovery					- - - - - - - - - - - - - - - - - - -		
4.00-4.45 4.00-4.45 4.00-5.00	SPT N=23 D C			2,3/4,6,6,7 4.00m to 5.00m - 50% recovery			4.00 -	Firm medium to high strength dark brown fine to coar slightly gravelly silty CLAY. Gravel is subangular to subrounded mudstone, quartz and sandstone.	rse		
5.00-5.45 Remarks	SPT N=18			2,3/4,5,5,4		Ē				× · · · · · · · · · · · · · · · · · · ·	
Hand dug i C = Plastic HV = Hand	nspection pit from GL lined core sample Shear Vane test Penetrometer test	to 1.00m t	to check f	for services - 1hr				(a	Scale approx)	Logg∉ By	be
Standing w Perched wa	ater at 0.20m ater at 0.40m							F	1:25 Figure No 594	MDS.8 o. 9.M1	3J

9	SUB SUR SITE INVESTIGATION, 3 Peel Street, Preston, F	FACE GEOTECHI PR2 2QS. TO	NICAL ANI 91. (01772)	D ENVIRONMENTAL CO 561135 Fax (01772) 204	<b>NSULTANT</b> 907	s	Site BAGUELYS GARDEN CENTRE, MIDGELAND ROA BLACKPOOL, LANCASHIRE	AD,	Borehole Number M1	
Boring Me MINI PER	ethod CUSSIVE	Casing 72 52	Diamete mm to 2. mm to 5.	00m 00m	Ground Level (mOD)		Client DENNIS MACKAY HOUSE BUILDER		Job Numbe 5949	r
		Locatio AS	n S PLAN		Dates 10/11/2014		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level Depth (mOD) (m) (Thickness)		Description		Legend	Water
5.00-5.45	D			10/11/2014:0.20m		- - - - - - - - - - - - - - - - - - -	Firm medium to high strength dark brown fine to coarse slightly gravelly silty CLAY. Gravel is subangular to subrounded mudstone, quartz and sandstone.		x • • • · · · · · · · · · · · · · · · ·	
Remarks										
Remarks							(8	Scale approx)	Logged By	
							-	1:25 Figure No	MDS.SJ	_
								594	9.M1	

S	SUB SUR SITE INVESTIGATION, 3 Peel Street, Preston, F	FACE GEOTECHI PR2 2QS. TE	NICAL ANI 1. (01772)	<b>D ENVIRONMENTAL CC</b> 561135 Fax (01772) 204	ONSULTANT	s	Site BAGUELYS GARDEN CENTRE, MIDGELAND ROAD, BLACKPOOL, LANCASHIRE	Borehole Number M2		
Boring Me MINI PER	ethod CUSSIVE	Casing 83 62 52	Diamete mm to 2.0 mm to 4.0 mm to 5.0	<b>r</b> 00m 00m 00m	Ground	Level (mOD)	Client DENNIS MACKAY HOUSE BUILDER	Job Numi 594	per 9	
		Locatio AS	n S PLAN		Dates 10	)/11/2014	Engineer	Sheet 1/2	t 2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legen	р Water	
0.00-0.30	В					- - - (0.30)	MADE GROUND: dark brown slightly gravelly slightly sandy silty clay with occasional silt lenses and occasional rootlets. Gravel sized fragments are subangular fine to coarse clinker, glass and stone.		_	
0.30-1.00	В			Seepage(1) at 0.30m.		- 0.30 	Soft light brown slightly gravelly silty CLAY. Gravel is subangular fine mudstone.	× ×	⊻1	
						- (0.70) -		× · · · · · · · · · · · · · · · · · · ·		
1.00-1.45 1.00-1.45 1.00-2.00	SPT N=12 D C			2,2/2,3,3,4 1.00m to 2.00m - 100% recovery		- 1.00 - 1.00 	Firm medium becoming high strength brown and occasional grey mottled slightly gravelly silty CLAY with occasional plant remains. Gravel is subangular to subrounded fine to medium mudstone and sandstone.	x		
				HV@1.60m, c=80kPa HV@1.80m, c=95kPa			below 1.60m : high strength	× · · · · · · · · · · · · · · · · · · ·		
2.00-2.45 2.00-2.45 2.00-3.00	D C			3,3/4,5,6,8 2.00m to 3.00m - 60% recovery				× × ×		
				HV@2.50m, c=80kPa				× • • • • • • • • • • • • • • • • • • •		
3.00-3.45 3.00-3.45 3.00-4.00	SPT N=22 D C			4,3/5,5,5,7 3.00m to 4.00m - 30% recovery			Firm high strength locally medium strength dark brown slightly gravelly silty CLAY with occasional bands of fine to coarse sand. Gravel is subangular to rounded fine to coarse sandstone, quartz and mudstone.	× · · · × × · · · ×		
4.00-4.45 4.00-4.45 4.00-5.00	SPT N=23 C			2,4/4,5,6,8				× × × ×		
				4.00m to 5.00m - 50% recovery		(2.45)				
5.00-5.45	SPT N=18			2,4/4,4,5,5		 - 		× • • • • • • • • • • • • • • • • • • •		
Remarks Hand dug in C = Plastic	nspection pit from GL lined core sample	to 1.00m t	o check f	for services - 1hr			Scale (approx)	Logge By	əd	
Perched was Standing w	ater at 0.30m						1:25 Figure 55	MDS/: No. 949.M2	SJ	

S	SUB SUR SITE INVESTIGATION, 3 Peel Street, Preston, I	FACE GEOTECH PR2 2QS. T	NICAL ANI el. (01772)	D ENVIRONMENTAL CO 561135 Fax (01772) 204	s	Site BAGUELYS GARDEN CENTRE, MIDGELAND ROAD, BLACKPOOL, LANCASHIRE	E	Borehole Number M2		
Boring Me MINI PERC	ethod CUSSIVE	Casing 83 62 52	Diamete mm to 2. mm to 4. mm to 5	r 00m 00m .00m	Ground	Level (mOD)	Client DENNIS MACKAY HOUSE BUILDER	í	Job Numbe 5949	r
		Locatio AS	in S PLAN		Dates 10	)/11/2014	Engineer	\$	Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Le	egend	Water
5.00-5.45	D			10/11/2014:0.30m		- 5.45	below 5.00m : medium strength Complete at 5.45m			
Remarks							(Sca (appri 1:2: Figu	le L ox) B 5 M ire No.	ogged y IDS/SJ	

S	SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907					Site BAGUELYS GARDEN CENTRE, MIDGELAND ROAD BLACKPOOL, LANCASHIRE	LYS GARDEN CENTRE, MIDGELAND ROAD, POOL, LANCASHIRE		
Boring Method MINI PERCUSSIVE		Casing Diameter 83mm to 3.00m 52mm to 4.00m			Ground Level (mOD)		Client DENNIS MACKAY HOUSE BUILDER	HOUSE BUILDER	
		Location AS PLAN			Dates 10/11/2014		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Kater V
0.20-1.00	в					- (0.10) - 0.10 - (0.10) - 0.20 - 0.20  	MADE GROUND: concrete surfacing (drillers descript MADE GROUND: gravel sized fragments of limestone (drillers description). Firm brown occasional grey mottled slightly gravelly si CLAY with occasional sand lenses. Gravel is subang subrounded fine to medium mudstone.	ion).	
1.00-1.45 1.00-1.45 1.00-2.00	SPT N=13 D C			2,2/2,3,3,5 1.00m to 2.00m - 100% recovery		(0.80)	Firm medium strength becoming stiff high strength bro and occasional grey mottled slightly gravelly silty CLA occasional rootlet remains and occasional sand lense Gravel is subangular to rounded fine to medium muds sandstone and quartz.	own Y with s. tone,	
2.00-2.45 2.00-2.45 2.00-3.00	SPT N=19 D C			HV@1.60m, c=130+kPa HV@1.80m, c=130+kPa 4,4/4,5,5,5 2.00m to 3.00m - 100% recovery		(2.00)	below 1.60m : stiff high strength		
3.00-3.45 3.00-3.45 3.00-4.00	SPT N=19 D C			HV@2.70m, c=125kPa 3,2/3,4,5,7 3.00m to 4.00m - 100% recovery			Firm high to medium strength brown silty CLAY with be and pockets of fine to medium sand.	ands	
4.00-4,45 4.00-4.45	SPT N=18 D			2,3/3,4,5,6 10/11/2014:3.50m		- (1.45) - (1.45) 	below 4.00m : medium strength slightly gravelly. Gravel is subrounded fine to medium quartz and mudstone. Complete at 4.45m		
Remarks								ogla	
Hand dug inspection pit from GL to 1.00m to check for services - 1hr C = Plastic lined core sample HV = Hand Shear Vane test Standing water at 3.50m								cale prox)	Logged By
<b>.</b>							Fi	gure No 5949	9.M3







### HAMILTON TECHNICAL SERVICES

1 Chiltern Avenue, Euxton, Nr Chorley, Lancs. PR7 6NU

Telephone :- 01257 278 938 Mobile :- 07977 680 913 Email :- hamiltontecsers@gmail.com

#### SURFACE WATER - PERCOLATION TEST RECORD SHEET Baguleys Garden centre, Midgeland Road, Blackpool.

Excavated trial holes, to following approximate dims; 1.0m long, 500mm wide, 1.2m deep. Measured and noted dimensions of holes, see below. The pits were filled to approximately 900mm deep. Left overnight and inspected the following morning.

#### TEST RECORDS Pre-test, trial pits filled to 1.00m deep and left overnight.

(Filled test hole to 1.0m deep. Time of completion of filling. (Start time) Time when the hole is approximately 25% emptied. Time when the hole is approximately 75% emptied. Time when the water has drained away. (Empty) Repeat test)

#### Pre-test, trial pits filled to 1.00m deep and left overnight.

Test pit filled to 1.0m deep on 13<sup>th</sup> March, evening.

#### Test Day.

DATE :- 1st October 2023 Weather :- Showers.

TEST 1, Trial Pit 1 2<sup>nd</sup> Oct 2023
Start 09.30 Water is still 1.0m deep in pit.
25% NO DROP in the water level. Test failure recorded.
75%
Empty

TEST 1, Trial Pit 2 2<sup>nd</sup> Oct 2023
Start 9.30 AM. Water is still 0.98m deep in pit.
25% NO DROP in the water level. Test failure recorded.
75%
Empty

DIMENSIONS T Pit 1	DIMENSIONS T Pit 2
L= 1.10m	L= 1.20m
W = 0.50m	W= 0.50m
D = 1.20m	D= 1.00m