

## **Project:** Lucas Lane, Whittle-le-Woods: Drainage

## **Client: Fellows Homes Ltd**

1.1.1.1.1.1.01

July 2022 Date:

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The Institution of Structural Engineers

## Hydraulic Calculations

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		Schedule of Revision
Revision	Date	Details
1.0	July 2022	First Issue
1.1	November 2023	Updated to site revised hydraulic design





## **Introduction**

The following calculations describe the hydraulic simulations undertaken and show the pipe network analysis for the proposed site. This report should be read with the current revisions of the associated drainage and external works arrangement drawings.

Infiltration testing has shown that soakaways are not feasible due to the ground conditions. The drainage strategy therefore adopts partial infiltration in the form of paths and driveways laid to falls to the soft landscaping, with the main run-offs directed to watercourse. Discharge is restricted to 2 l/s.

Foul water is directed to a packaged treatment facility, with the clean outfall directed to watercourse.





Hydraulic Calculations

	Mic	
File SN1 Rev C.MDX	Checked by	inage
XP Solutions	Network 2020.1.3	
	by the Modified Rational Method	
Design (	Criteria for SN1.SWS	
Pipe Sizes	es SN1 Manhole Sizes UU MH	
	ll Model - England and Wales	1.0.0
Return Period (years) M5-60 (mm)		100 0
Ratio R	R 0.348 Minimum Backdrop Height (m) (	0.000
Maximum Rainfall (mm/hr) Maximum Time of Concentration (mins)	, <u> </u>	
Foul Sewage (l/s/ha)		1.00
Volumetric Runoff Coeff.	. 0.750 Min Slope for Optimisation (1:X)	400
Design	ned with Level Soffits	
-		
<u>Network De</u>	esign Table for SN1.SWS	
5 1	.E. Base k HYD DIA Section Type A ins) Flow (l/s) (mm) SECT (mm) De	Auto esign
1.000 17.100 0.311 55.0 0.025 5	5.00 0.0 0.600 o 150 Pipe/Conduit	ð
	0.00 0.0 0.600 o 150 Pipe/Conduit	ď
	0.00 0.0 0.600 o 1500 Pipe/Conduit 0.00 0.0 0.600 o 1500 Pipe/Conduit	d,
	0.00 0.0 0.600 0 1500 Pipe/Conduit 0.00 0.0 0.600 0 150 Pipe/Conduit	б б
1.005 15.840 0.264 60.0 0.000 0	0.00 0.0 0.600 o 150 Pipe/Conduit	<b>.</b>
Netwo	work Results Table	
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		.0
		1.0 5.5
		2.8
		2.0
1.005 56.46 5.90 84.870 0.0	.000 2.0 0.0 0.0 1.30 23.0 2	2.0
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ile SN1	Rev C.	MDX		C	hecked	l by				Digitig
XP Solut	ions			N	etwork	2020	.1.3			
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		Rainfa	ll Model Region		nd and	FSR Wales	Ratio Cv (Summe	o R 0.3 er) 0.7		
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	Marc	in for Flo	od Risk	Warnin	a (mm)				300.	. 0
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					Status					ON
			_		Status				OH	
			lr	lertia	Status				OI	έ.Ε.
	Retu	ırn Period		is) 15, is)	30, 60	0, 120,	240, 36	0, 480,	and Winte 960, 144 2, 30, 10 0, 0, 4	40 00
	5/мн	De	turn Cli		First	(11)	Timet (	V) Time	t (Z) Ov	Water erflow Level
			riod Ch		Surch		Flood			Act. (m)
1.000	1 15	Winter	2	+0% 1	.00/240	Winter				89.677
1.000		Winter	2		.00/240					89.365
		Winter	2		00/120					88.110
1.002	4 240	Winter	2	+0% 1	.00/120	Winter				88.111
1.002 1.003	1 2 10	Mintor	2	+0%	2/15	Summer				88.111
	5 240	WILLCEL		+0%						84.891
1.003	5 240	Summer	2							
1.003 1.004	5 240 6 15	Summer				Цэ	lf Drain	Pine		
1.003 1.004	5 240 6 15	Summer Surcharged	Flooded		/ Overf		lf Drain Time	-		Level
1.003 1.004	5 240 6 15	Summer			/ Overf (1/s	low	lf Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.003 1.004 1.005 <b>PN</b>	5 240 6 15 US/MH Name	Summer Surcharged Depth (m)	Flooded Volume (m³)	Flow , Cap.	(1/s	low	Time	Flow (1/s)		Exceeded
1.003 1.004 1.005 <b>PN</b> 1.000	5 240 6 15 US/MH Name 1	Summer Surcharged Depth (m) -0.107	Flooded Volume (m <sup>3</sup> ) 0.000	Flow Cap.	<b>(1/</b> ±	low	Time	Flow (1/s) 3.9	C	<b>Exceeded</b>
1.003 1.004 1.005 <b>PN</b>	5 240 6 15 US/MH Name 1 2	Summer Surcharged Depth (m)	Flooded Volume (m³)	Flow , Cap.	(1/s 8 7	low	Time	Flow (1/s)	C	Exceeded

File SN1 Rev C.MDX	Checked by	Micro Drainage
XP Solutions	Network 2020.1.3	
2 year Return Period Summary of C	ritical Results by Maximum Level ( <u>SN1.SWS</u>	(Rank 1) for
Surcharged Flooded	Half Drain Pipe	

PN	US/MH Name	Depth (m)	Volume (m³)	•	Overflow (l/s)	Time (mins)	Flow (1/s)	Status	Level Exceeded
1.003	4	-0.905	0.000	0.00			4.5	OK	
1.004	5	0.505	0.000	0.05			1.0	SURCHARGED	
1.005	6	-0.129	0.000	0.05			1.0	OK	

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File SN1	Rev C.	MDX		Ch	lecked by				Diamay
KP Soluti	ions			Ne	twork 2020	.1.3			
<u>30 year</u>	Retur	n Period	Summar	-	ritical Res or SN1.SWS	sults by	y Maxi	mum Leve	el (Rank 1)
F	hole Hea oul Sewa	Hot St Hot Start adloss Coe: age per heo	cart (mir Level (n Ef (Globa ctare (l/	cor 1.0 ns) nm) al) 0.5 (s) 0.0	00 Flow per H	nal Flow ) Factor I Person pe	* 10m³/ nlet Cc r Day (	'ha Storag peffiecien 1/per/day	e 2.000 t 0.800 ) 0.000
Number	of Onlin	ne Controls	s 1 Numbe	er of S	torage Struct	ures 0 N	umber o	of Real Ti	me Controls
		Rainfa	ll Model		Rainfall De FSR And and Wales	Ratio	o R 0.3 er) 0.7		
		М5	-60 (mm)	-	18.700	Cv (Winte	er) 0.8	40	
	-	jin for Flo	Analy	sis Tim DTS S DVD S	nestep 2.5 Se Status Status	cond Inci	rement	(Extended) ON OFF	1
			In	ertia S	Status			OFE	?
	Retu		Profile( (s) (min s) (year	s) s) 15, s)	30, 60, 120,		), 480,	and Winter	- ) )
	з/мн	Duration arn Period( Climate <b>Re</b>	Profile( .(s) (min s) (year Change ( <b>turn Cli</b>	s) s) 15, s) %) mate	30, 60, 120, First (X)	240, 360 First (2	), 480, Y) Firs	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Ove	Water rflow Level
	з/мн	Duration arn Period( Climate <b>Re</b>	Profile( .(s) (min s) (year Change (	s) s) 15, s) %) mate	30, 60, 120,	240, 360	), 480, Y) Firs	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Ove	Water rflow Level ct. (m)
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<b>PN N</b> 1.000 1.001	<b>3/MH</b> ame \$ 1 15 2 15	Duration arn Period( Climate <b>Re</b> Storm Pe Winter Winter	Profile( (s) (min s) (year Change ( turn Cli riod Cha 30 30	s) s) 15, s) %) mate ange +0% 10 +0% 10	30, 60, 120, <b>First (X)</b> <b>Surcharge</b> 00/240 Winter 00/240 Winter	240, 360 First ( Flood	), 480, Y) Firs	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Ove	Water rflow Level ct. (m) 89.694 89.383
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<b>PN N</b> 1.000 1.001 1.002 1.003	<b>5/MH</b> <b>ame \$</b> 1 15 2 15 3 360 4 360	Duration Irn Period ( Climate Re Storm Pe Winter Winter Winter Winter Winter	Profile( (s) (min s) (year Change ( turn Cli riod Cha 30 30 30 30 30	s) s) 15, s) %) mate ange +0% 10 +0% 10 +0% 10 +0% 10	30, 60, 120, <b>First (X)</b> <b>Surcharge</b> 00/240 Winter 00/240 Winter 00/120 Winter 00/120 Winter	240, 360 First ( Flood	), 480, Y) Firs	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Ove	Water rflow Level ct. (m) 89.694 89.383 88.492 88.492
<b>PN N</b> 1.000 1.001 1.002	<b>5/MH</b> <b>ame \$</b> 1 15 2 15 3 360 4 360 5 360	Duration arn Period( Climate <b>Re</b> Storm Pe Winter Winter Winter Winter	Profile( (s) (min s) (year Change ( turn Cli riod Cha 30 30 30	s) s) 15, s) %) mate ange +0% 10 +0% 10 +0% 10	30, 60, 120, <b>First (X)</b> <b>Surcharge</b> 00/240 Winter 00/240 Winter 00/120 Winter	240, 360 First ( Flood	), 480, Y) Firs	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Ove	Water rflow Level ct. (m) 89.694 89.383 88.492 88.492 88.492 88.492
<b>PN N</b> : 1.000 1.001 1.002 1.003 1.004	<b>5/MH</b> <b>ame \$</b> 1 15 2 15 3 360 4 360 5 360	Duration Irn Period( Climate Re Storm Pe Winter Winter Winter Winter Winter Winter Winter Winter	Profile( (s) (min s) (year Change ( turn Cli riod Cha 30 30 30 30 30 30	s) s) 15, s) %) mate ange +0% 10 +0% 10 +0% 10 +0% 10 +0% 10	30, 60, 120, <b>First (X)</b> <b>Surcharge</b> 00/240 Winter 00/240 Winter 00/120 Winter 00/120 Winter	240, 360 First ( Flood	), 480, Y) Firs	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Ove	Water rflow Level ct. (m) 89.694 89.383 88.492
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PN     N       1.000     .       1.001     .       1.002     .       1.003     .       1.004     .	S/MH ame \$ 1 15 2 15 3 360 4 360 5 360 6 360 6 360 8 US/MH	Duration Irn Period ( Climate Re Storm Pe Winter Winter Winter Winter Winter Winter Winter Surcharged Depth	Profile( (s) (min s) (year Change ( turn Cli riod Cha 30 30 30 30 30 30 30 30 5100ded Volume	s) s) 15, s) %) mate ange +0% 10 +0% 10 +0% 10 +0% 10 +0% +0% Flow /	30, 60, 120, <b>First (X)</b> <b>Surcharge</b> 00/240 Winter 00/240 Winter 00/120 Winter 2/15 Summer Hai Overflow	240, 360 First ( Flood	Y) Firs Over Pipe Flow	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Ove rflow A	Water rflow Level ct. (m) 89.694 89.383 88.492 88.492 88.492 88.492 84.893 Level
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PN     Na       1.000     .001       1.002     .003       1.004     .005	5/MH ame \$ 1 15 2 15 3 360 4 360 5 360 6 360 6 360 8 US/MH Name	Duration Inn Period ( Climate Re Storm Pe Winter Winter Winter Winter Winter Winter Surcharged Depth (m)	Profile( (s) (min s) (year Change ( turn Cli riod Cha 30 30 30 30 30 30 30 5100ded Volume (m <sup>3</sup> )	s) s) 15, s) %) mate ange +0% 10 +0% 10 +0% 10 +0% 10 +0% 10 Flow / Cap.	30, 60, 120, <b>First (X)</b> <b>Surcharge</b> 00/240 Winter 00/240 Winter 00/120 Winter 2/15 Summer Hai Overflow	240, 360 First ( Flood	Y) Firs Over Pipe Flow (1/s)	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Over cflow A	Water rflow Level ct. (m) 89.694 89.383 88.492 88.492 88.492 84.893 Level Exceeded
PN     N       1.000     .001       1.002     .003       1.004     .005	S/MH ame \$ 1 15 2 15 3 360 4 360 5 360 6 360 6 360 8 US/MH	Duration Irn Period ( Climate Re Storm Pe Winter Winter Winter Winter Winter Winter Winter Surcharged Depth	Profile( (s) (min s) (year Change ( turn Cli riod Cha 30 30 30 30 30 30 30 30 5100ded Volume	s) s) 15, s) %) mate ange +0% 10 +0% 10 +0% 10 +0% 10 +0% +0% Flow /	30, 60, 120, First (X) Surcharge 00/240 Winter 00/240 Winter 00/120 Winter 0/120 Winter 2/15 Summer Hal Overflow (1/s)	240, 360 First ( Flood	Y) Firs Over Pipe Flow	and Winter 960, 1440 2, 30, 100 0, 0, 40 t (Z) Ove rflow A	Water rflow Level ct. (m) 89.694 89.383 88.492 88.492 88.492 84.893 Level Exceeded

	Rev C.	.MDX			ecked by				Micro Drainag
Solut	ions			Ne	twork 20	20.1.3			
0	Dotur	n Domiod	C		witi aa l	Dogulto	Mou	inum Torro	l (Dople 1
U year	r Retur	n Perioa	Summar		ritical r SN1.SW		y Max.	imum Level	I (Rank I
				10	T DNT.DW				
	S/MH	Surcharged			Overflow	Half Drain Time	Pipe Flow		Level
PN	Name	Depth (m)	(m <sup>3</sup> )	Cap.				Status	
	Italic	(,	(	oup.	(1) 5)	(1112110)	(1) 5)	blacab	Inoceaca
1.003		-0.524						OK	
1.004		0.886						SURCHARGED	
1.005	6	-0.127	0.000	0.06			1.2	OK	

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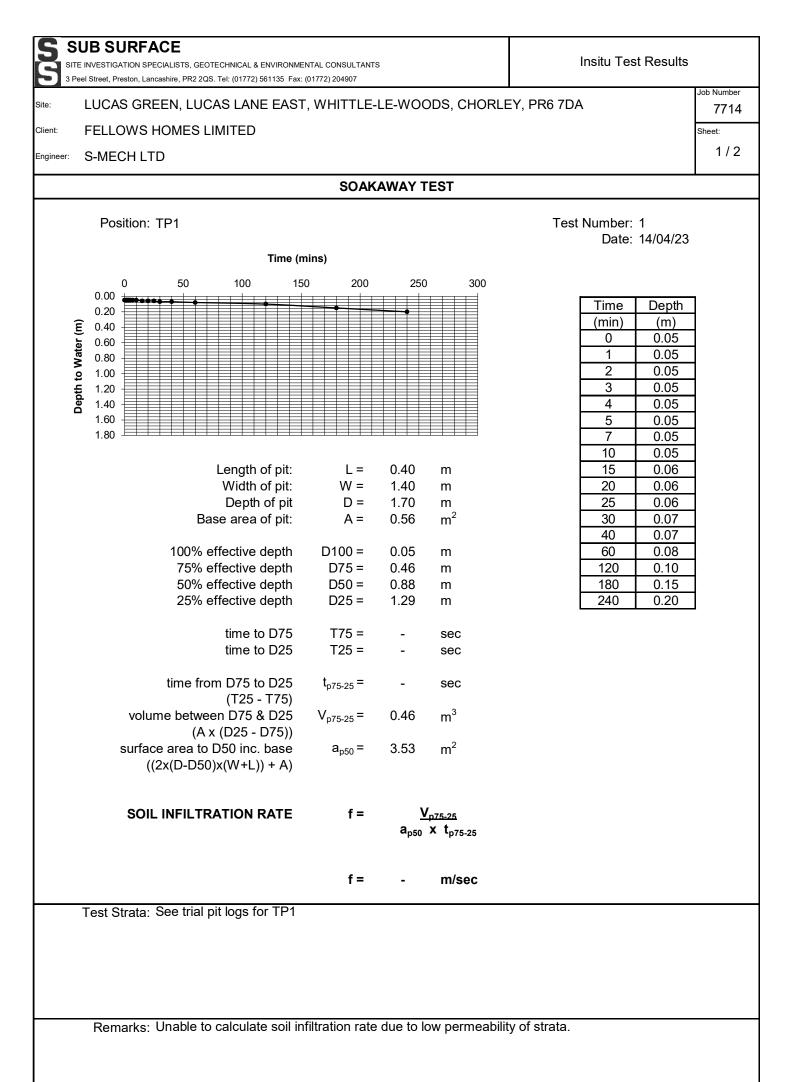
									Micro
ile SN1	Rev C.	MDX		Ch	ecked by				Drainag
XP Solut	ions			Ne	twork 2020	.1.3			
<u>100 yea</u>	<u>r Retu</u>	rn Perioc	l Summar		Critical R or SN1.SWS	esults k	у Мах	imum Leve	el (Rank 1)
E	nhole Hea Foul Sewa	Hot S Hot Start adloss Coe age per he	tart (mir Level (n ff (Globa ctare (l/	cor 1.0 ns) nm) al) 0.5 (s) 0.0	00 Flow per 00	nal Flow D Factor 1 Person pe	* 10m³ inlet C er Day	/ha Storag Coeffiecien (l/per/day	e 2.000 t 0.800
Number	of Onlir	ne Control	s 1 Numbe	er of S	torage Struc	tures 0 1	Jumber	of Real Ti	me Controls
					c Rainfall De				
		Rainfa	all Model		FSR nd and Wales				
		M	5-60 (mm)	-		Cv (Wint			
	Mana	nin fam El.	and Dial	Manaiar	. (			300.0	N
	Marg	gin for Flo		-	g (mm) nestep 2.5 Se	econd Inc	rement		
					Status			(ON	
				DVD S	Status			OFF	1
			In	ertia S	Status			OFF	1
	Retu	ırn Period	. , .	s) 15, s)	30, 60, 120			and Winter , 960, 1440 2, 30, 100 0, 0, 40	)
									Water
	) /h/T	D			Dimet (N)	Dimet (	V) 174	-+ (7) 0	
	S/MH Iame S		eturn Cli eriod Cha		First (X) Surcharge	First ( Flood		st (Z) Ove: erflow A	rflow Level ct. (m)
PN N	lame S	Storm Pe	eriod Cha	ange	Surcharge	Flood			ct. (m)
	1 480		eriod Cha	<b>ange</b> +40% 10		Flood			
<b>PN N</b> 1.000	1 480 2 480	Storm Pe	<b>100</b> 100	<b>ange</b> +40% 10 +40% 10	Surcharge	Flood			ct. (m) 90.275
<b>PN N</b> 1.000 1.001	1 480 2 480 3 480 4 480	Storm Pe Winter Winter Winter Winter	100 100 100	+40% 10 +40% 10 +40% 10	Surcharge	Flood			ct. (m) 90.275 90.280
PN N 1.000 1.001 1.002 1.003 1.004	1 480 2 480 3 480 4 480 5 480	Storm Pe Winter Winter Winter Winter Winter	<b>Priod Cha</b> 100 100 100 100 100	+40% 10 +40% 10 +40% 10 +40% 10 +40% 10	Surcharge 00/240 Winte: 00/240 Winte: 00/120 Winte:	Flood			ct. (m) 90.275 90.280 90.284 90.283 90.284
<b>PN N</b> 1.000 1.001 1.002 1.003	1 480 2 480 3 480 4 480 5 480	Storm Pe Winter Winter Winter Winter	<b>Priod Cha</b> 100 100 100 100 100	+40% 10 +40% 10 +40% 10 +40% 10	Surcharge 00/240 Winte: 00/240 Winte: 00/120 Winte: 00/120 Winte:	Flood			ct. (m) 90.275 90.280 90.284 90.283 90.284
PN     N       1.000     .001       1.002     .003       1.004     .004	1     480       2     480       3     480       4     480       5     480       6     480	Storm Pe Winter Winter Winter Winter Winter	<b>Priod Cha</b> 100 100 100 100 100 100	+40% 10 +40% 10 +40% 10 +40% 10 +40% 10	Surcharge 00/240 Winte: 00/240 Winte: 00/120 Winte: 00/120 Winte: 2/15 Summe:	Flood	Ove		ct. (m) 90.275 90.280 90.284 90.283
PN     N       1.000     .001       1.002     .003       1.004     .004	Image     S       1     480       2     480       3     480       4     480       5     480       6     480	Storm Pe Winter Winter Winter Winter Winter Surcharged	<b>Flooded</b> Cha	+40% 10 +40% 10 +40% 10 +40% 10 +40% +40%	Surcharge 00/240 Winte: 00/240 Winte: 00/120 Winte: 2/15 Summe: Ha	Flood	Ove		ct. (m) 90.275 90.280 90.284 90.283 90.284 84.900
PN     N       1.000     1.001       1.002     1.003       1.004     1.004	1     480       2     480       3     480       4     480       5     480       6     480	Storm Pe Winter Winter Winter Winter Winter	<b>Flooded</b> Cha	+40% 10 +40% 10 +40% 10 +40% 10 +40% +40%	Surcharge 00/240 Winte: 00/240 Winte: 00/120 Winte: 00/120 Winte: 2/15 Summe:	Flood	Ove		ct. (m) 90.275 90.280 90.284 90.283 90.284
PN N   1.000 1.001   1.002 1.003   1.004 1.005   PN	Imme     S       1     480       2     480       3     480       4     480       5     480       6     480       US/MH     Name	Storm Pe Winter Winter Winter Winter Winter Surcharged Depth (m)	Flooded (m <sup>3</sup> )	+40% 1( +40% 1( +40% 1( +40% 1( +40% +40% Flow / Cap.	Surcharge 00/240 Winte: 00/240 Winte: 00/120 Winte: 2/15 Summe: Ha Overflow	Flood	Ove Pipe Flow (1/s)	erflow A	ct. (m) 90.275 90.280 90.284 90.283 90.284 84.900 Level Exceeded
PN     N       1.000     1.001       1.002     1.003       1.004     1.005       PN     1.000	imme     S       1     480       2     480       3     480       4     480       5     480       6     480       S       US/MH       Name     1	Storm Pe Winter Winter Winter Winter Winter Surcharged Depth (m) 0.491	Flooded (m <sup>3</sup> ) 0.000	+40% 10 +40% 10 +40% 10 +40% 10 +40% +40% Flow / Cap. 0.08	Surcharge 00/240 Winte: 00/240 Winte: 00/120 Winte: 2/15 Summe: Ha Overflow	Flood	Ove Pipe Flow (1/s) 1.8	Status	ct. (m) 90.275 90.280 90.284 90.283 90.284 84.900 Level Exceeded
PN N   1.000 1.001   1.002 1.003   1.004 1.005   PN	imme     S       1     480       2     480       3     480       4     480       5     480       6     480       S       US/MH       Name     1       2     2	Storm Pe Winter Winter Winter Winter Winter Surcharged Depth (m)	Flooded (m <sup>3</sup> ) 0.000 0.000	+40% 1( +40% 1( +40% 1( +40% 1( +40% +40% Flow / Cap.	Surcharge 00/240 Winte: 00/240 Winte: 00/120 Winte: 2/15 Summe: Ha Overflow	Flood	Ove Pipe Flow (1/s) 1.8 1.8	erflow A	ct. (m) 90.275 90.280 90.284 90.283 90.284 84.900 Level Exceeded

									Micro Drainag
le SN1		.MDX			ecked by				
? Soluti	ons			Ne	twork 20	20.1.3			
100 yea:	r Retu	rn Period	Summar		ritical r SN1.SW		oy Max	imum Leve	el (Rank 1)
PN	US/MH Name	Surcharged Depth (m)		Flow / Cap.	Overflow (1/s)	Half Drain Time (mins)	Flow	Status	Level Exceeded
					(1/5)	(mins)			
1.003 1.004	4 5	1.267	0.000 0.000	0.00 0.08				SURCHARGED SURCHARGED	
1.004			0.000				1.9		



Infiltration Testing





3 P	eel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax:	(01772) 204907				
te:	LUCAS GREEN, LUCAS LANE EAST	, WHITTLE	-LE-WOC	DDS, CHORLE	EY, PR6 7DA	Job Number 7714
ient:	FELLOWS HOMES LIMITED					Sheet:
ngineer:	S-MECH LTD					2/2
		5044	AWAY T	EST		
		JUAN		231		
	Position: TP2				Test Number: 1	
	Time (n	nins)			Date: 14/04/23	
	0 50 100 15		250	300		
	0.00				Time Depth	7
1	0.20 <b>E</b> 0.40	•	•		(min) (m)	-
	0.40				0 0.19	1
	0.80				1 0.19	4
	<b>2</b> 1.00				2 0.19 3 0.19	4
11-11-11-11-11-11-11-11-11-11-11-11-11-	<b>5</b> 1.20 <b>1</b> .40 <b>1</b> .40				<u>3</u> 0.19 4 0.19	-
C					5 0.19	4
	1.80				7 0.19	1
					10 0.19	4
	Length of pit:	L = W =	0.40 1.40	m	<u>15</u> 0.19 200.19	4
	Width of pit: Depth of pit	vv – D =	1.40	m m	20 0.19	-
	Base area of pit:	A =	0.56	m <sup>2</sup>	30 0.20	4
					40 0.20	1
	100% effective depth	D100 =	0.19	m	60 0.20	4
	75% effective depth 50% effective depth	D75 = D50 =	0.57 0.95	m	120 0.20 180 0.20	-
	25% effective depth	D30 = D25 =	1.32	m m	<u>180 0.20</u> 240 0.20	-
	time to D75	T75 =	-	sec		
	time to D25	T25 =	-	sec		
	time from D75 to D25	t <sub>p75-25</sub> =	-	sec		
	(T25 - T75) volume between D75 & D25	V <sub>p75-25</sub> =	0.42	m <sup>3</sup>		
	(A x (D25 - D75))					
	surface area to D50 inc. base	<b>a</b> <sub>p50</sub> =	3.28	m <sup>2</sup>		
	((2x(D-D50)x(W+L)) + A)					
	SOIL INFILTRATION RATE	f =	v	p75-25		
		. –		x t <sub>p75-25</sub>		
		f =	-	m/sec		
	Test Strata: See trial pit logs for TP2					

<b>3</b> Pee	INVESTIGATION SPEC	ashire, PR2	2QS. Tel: (0	CAL & ENVIRC 1772) 561135	Fax: (01772) 2049	07		LUCAS GREEN, LUCAS WHITTLE-LE-WOODS, C	LANE EAST, CHORLEY	TP1
xcavation	Method AL EXCAVATOR	Dimensi 0.40m x			Ground	Level	(mOD)	Client FELLOWS HOMES LIMIT	ſED	Job Numbo 7714
		Locatio	n Plan		Dates	4/04/20	)23	Engineer S-MECH LTD		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Fie	eld Records	Level (mOD)	De ( (Thic	epth m) kness)	[	Description	Legend
.00-0.20	В					-	(0.50)	Dark brown slightly grave subangular fine to coarse occasional roots and root	lly sandy clayey SILT. Gravel is sandstone and quartz with lets.	×.•·×/. ×
50-0.70	В						0.50	slightly gravelly slightly sa pockets of sand and occa	n and occasional grey mottled andy silty CLAY with occasional isional rootlets. Gravel is d fine to coarse sandstone,	
00-1.20	В					- - - - - - - - -	(1.20)			
.50-1.70	В		14/04/202	3:DRY			1.70	Complete at 1.70m		
Plan .		•	•		•	•	•	Remarks		I
								Pit sides remained vertical No groundwater encounter On completion backfilled wi	ed.	
	· ·			· ·						
								cale (approx)	Logged By F	igure No.

	INVESTIGATION SPEC	ashire, PR2	2QS. Tel: (01	772) 561135	Fax: (01772) 2049	07	LUCAS GREEN, LUCAS LANE EAST, WHITTLE-LE-WOODS, CHORLEY	TP2
Excavation	Method AL EXCAVATOR	Dimensi 0.40m x			Ground	l Level (mOD)	Client FELLOWS HOMES LIMITED	Job Numbe 7714
		Location AS	ו PLAN		Dates 1	4/04/2023	Engineer S-MECH LTD	<b>Sheet</b> 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Fiel	d Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
0.00-0.20	В					- (0.50)	Dark brown slightly gravelly slightly sandy clayey SILT with occasional roots and rootlets. Gravel is subangular to subrounded fine to coarse sandstone and quartz.	×. • • × / ×
0.50-0.70	В					0.50	Stiff reddish brown and occasional grey mottled slightly gravelly slightly sandy silty CLAY with occasional pockets sand. Gravel is subangular to subrounded fine to coarse sandstone, siltstone and quartz.	of
						 (1.20) 		
1.50-1.70	В		14/04/2023	B:DRY		  1.70	Complete at 1.70m	x • • • • • • • • • • • • • • • • • • •
Plan .						   I	Remarks	
							Pit sides remained vertical and stable. No groundwater encountered. On completion backfilled with arisings.	

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