From: Peter Barnett
Sent: 30 October 2013 10:01
To: David Seaman
Cc: 'Tony Patterson'
Subject: FW: AWDM/1242/12 - Former Willows School
Attachments: Irene Avenue Soakaway Calculations.pdf; AB146-502 P3-Enlarged External Works Layout Sht 1.pdf; AB146-504 P2-External Works Legend and Schedules.pdf; AB146-503 P3-Enlarged External Works Layout Sht 2.pdf

Importance: High

Dear David

I write with reference to your emails of 7 October and 23 October and the enclosed drainage information.

I can now confirm that both Southern Water and the Council's Engineer are happy with the submitted details which are approved in accordance with Conditions 11 and 12 of AWDM/1242/12.

You are reminded that Condition 12 requires that none of the dwellings shall be occupied until a) the off-site sewers or improvements to existing sewers required to facilitate the proposed development have been completed; and b) on site works for the disposal of sewage have been provided to serve the development in accordance with the approved details.

Regards

Peter

Peter Barnett - Principal Planning Officer, Development Management | Adur & Worthing Council Services
Location: Portland House, 44 Richmond Road, Worthing, West Sussex, BN11 1HS
Internal: 1310 | External: 01903 221310 | E-mail: peter.barnett@adur-worthing.gov.uk
Follow us on Facebook and Twitter - or search Adur and Worthing

Please think before you print this and save paper

From: David Seaman [mailto:tsp@the-seaman-partnership.co.uk]
Sent: 07 October 2013 15:10
To: Peter Barnett
Cc: Tony Patterson

Subject: FW: AWDM/1242/12 - Former Willows School
Importance: High

Peter,

Further to your e-mail to Myles Waterman today, please find enclosed the drainage information as requested.

Grateful if you would confirm receipt & formally discharge the condition in due course.

Please note that Myles is unfortunately on long term sick leave @ present having had a motorcycle accident & that therefore I am your point of contact in future.

Kind regards,

David Seaman.

RUSHBY BREWSTER
CONSULTING CIVIL & STRUCTURAL ENGINEERS

CALCUALTIONS FOR SURFACE WATER DRAINAGE SOAKAWAYS

FOR

Proposed Residential Development
Former Willows County First School Site
Irene Avenue
Lancing
West Sussex

Client:
Austin Builders
Unit D1
Fareham Heights
Standard Way
Fareham
Hants
PO16 8XT

Architect:
The Seaman Partnership Ltd
Unit 2
Martins Barn
Birdham Road
Chichester
PO20 7BX

Issue		A	B
Issued By	Allen Rushby		
Date	Sept 2013		
Purpose	Issued for Approval		
Approved By			

Project No. AB 146

The Town House, St George's Square, Bishops Waltham, Southampton SO32 1AF
T: 01489 890004 F: 01489 890005
E: admin@rushbybrewster.co.uk W: www.rushbybrewster.co.uk

ORIGINAL.

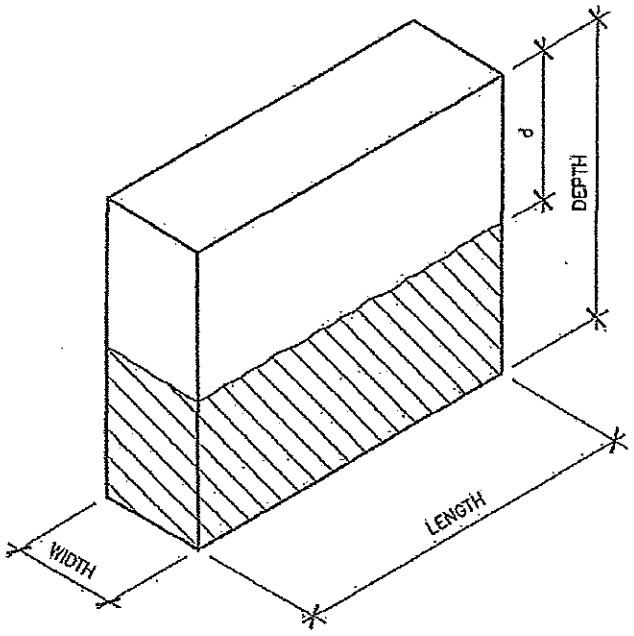
RUSHBY BREWSTER
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E: admin@rushbybrewster.co.uk W: www.rushbybrewster.co.uk

Project Title: IRENE AVENUE, LANCING. Project No: AB146

SOAKWAY TEST

1. Excavate hole and record dimensions
2. Fill rapidly with water
3. Record d at times shown in results table
4. Send this sheet to Rushby Brewster

SOAKAWAY (1)
(LOCATED NEAR NO PLOT 2).



Excavation Size	
Width	300
Length	1900
Depth	1700

Test Results	
Time (min)	d
0	500
5	750
10	840
15	920
20	980
25	1020
30	1045
1 Hr	1170
2 Hr	1310
3 Hr.	1430

Test Results	
Time (min)	d
4 Hr.	1540

ORIGINAL.

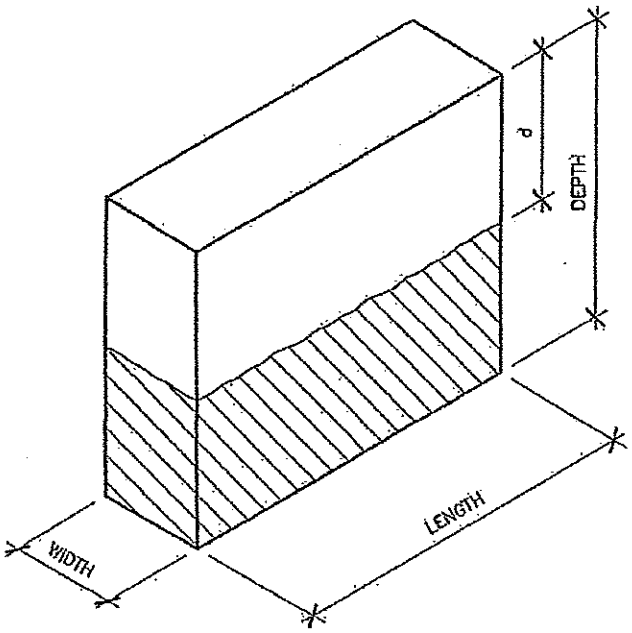
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T: 01489 890004 F: 01489 890005
E: admin@rushbybrewster.co.uk W: www.rushbybrewster.co.uk

Project Title: IRENE AVENUE LANDING. Project No: AS1146

SOAKWAY TEST

1. Excavate hole and record dimensions
2. Fill rapidly with water
3. Record d at times shown in results table
4. Send this sheet to Rushby Brewster

SOAKAWAY (2)
(LOCATED BEHIND PLOT 16).



Excavation Size	
Width	300
Length	2200
Depth	1700.

Test Results	
Time (min)	d
0	770
5	890
10	960
15	1040
20	1100
25	1140
30	1180
1Hr	1300
2 Hr	1410
3 Hr.	1540

Test Results	
Time (min)	d

CALCULATIONS

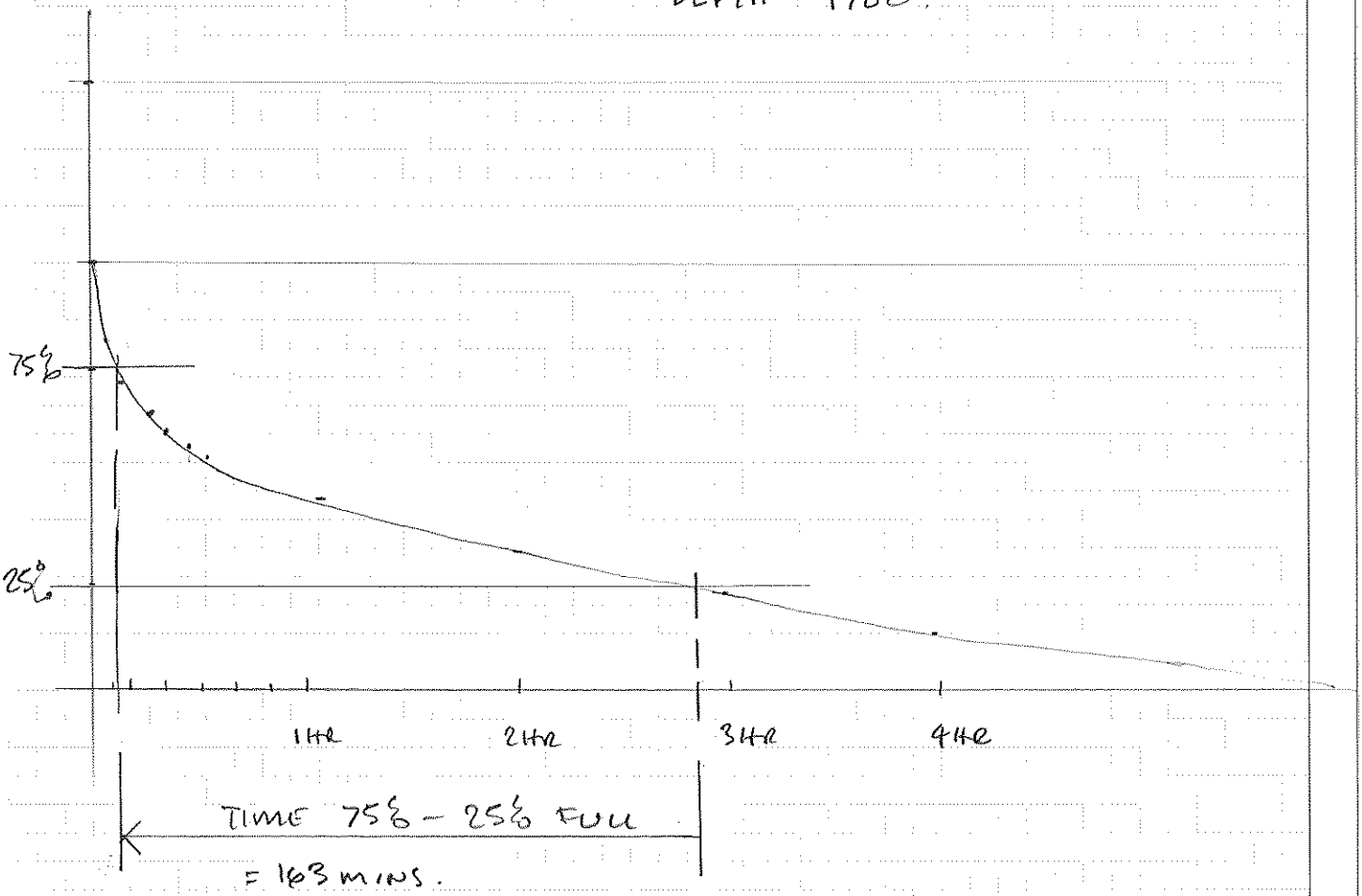
RUSHBY | BREWSTER
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

The Town House
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Bishops Waltham
Southampton SO32 1AF
T: 01489 890004
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Job Title	Job No.	Sht. No.	
IRENE AVENUE LANCING	AB 146		
Element	**Prepared**	**Date**	**Checked** / **Date**
SOAKAWAYS.	PR	SEPT '13	

SOAKAGE TEST 1.

PIT WIDTH 300
LENGTH 1500
DEPTH 1700.



INFILTRATION RATE 10.3×10^{-6}.

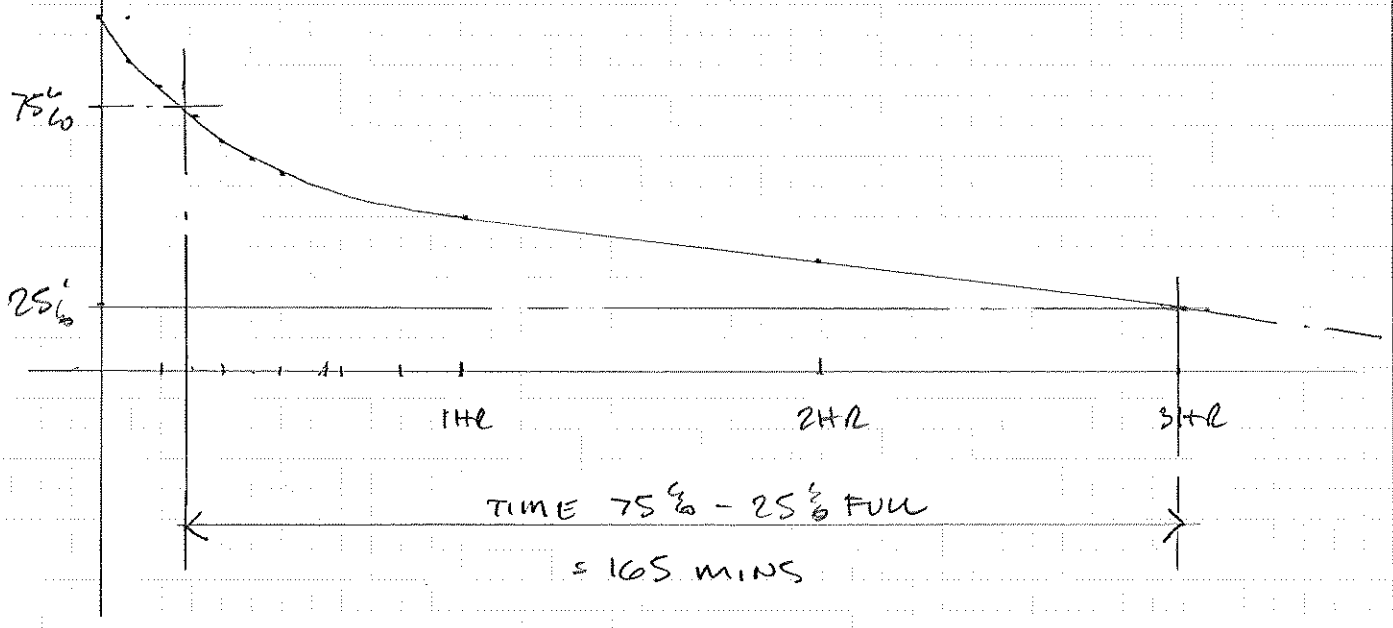
CALCULATIONS

RUSHBY | BREWSTER
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

The Town House
St George's Square
Bishops Waltham
Southampton SO32 1AF
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F: 01489 890005

Job Title	Job No.		Sht. No.	
IRENE AVENUE LANCING	AB 1466			
Element	**Prepared**	**Date**	**Checked**	**Date**
SOAKAWAYS.	PR	SEP 13		

SOAKAGE TEST 2 PIT. WIDTH 300
LENGTH 2200
DEPTH 1700.



INFILTRATION RATE 10.4×10^{-6}

RUSHBY BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
	Calcs for Soakaway Plots 1-6				Start page no./Revision 1	
	Calcs by AWR	Calcs date 10/09/2013	Checked by	Checked date	Approved by	Approved date

SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **57.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1200** mm
Width of pit	w = **1000** mm
Length of pit	l = **3000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	$d_{75} = (d_{trial} \times 0.75)$ = **697.50** mm
50% depth of pit	$d_{50} = (d_{trial} \times 0.50)$ = **465.00** mm
25% depth of pit	$d_{25} = (d_{trial} \times 0.25)$ = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{lg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	$V_{p75_25} = (l_{trial} \times b_{trial} \times (d_{75} - d_{25})) \times V_{trial}$ = **0.31** m^3
Internal surface area to 50% depth	$a_{p50} = ((l_{trial} \times b_{trial}) + (l_{trial} + b_{trial}) \times 2 \times d_{50})$ = **2.99** m^2
Surface area of soakaway to 50% storage depth	$A_{s50} = 2 \times (l_{trial} + b_{trial}) \times d_{trial} / 2$ = **2.325** m^2
Soil infiltration rate	$f = V_{p75_25} / (a_{p50} \times t_{lg})$ = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	$a_{s50} = l \times d + w \times d$ = **4800000** mm^2

Table equations

Inflow	$I = M100 \times A$
Outflow	$O = a_{s50} \times f \times D$
Storage	$S = I - O$

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	0.94	0.01	0.93
10	0.51	12.5	1.95	24.4	1.39	0.03	1.36
15	0.62	15.2	1.99	30.3	1.73	0.04	1.68

RUSHBY | BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
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	Calcs by AWR	Calcs date 10/09/2013	Checked by	Checked date	Approved by	Approved date

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	2.24	0.09	2.15
60	1.00	24.7	2.01	49.7	2.83	0.18	2.65
120	1.22	30.2	1.97	59.5	3.39	0.36	3.03
240	1.50	37.0	1.91	70.8	4.03	0.72	3.32
360	1.69	41.7	1.88	78.3	4.46	1.08	3.39
600	1.95	48.1	1.83	87.8	5.00	1.79	3.21
1440	2.48	61.3	1.73	106.2	6.05	4.31	1.75

Required storage volume S_{req} = **3.39** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **3.42** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 9hr 26min 13s

PASS - Soakaway discharge time less than or equal to 24 hours

RUSHBY BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
	Calcs for Soakaway Plots 7-10				Start page no./Revision 1	
	Calcs by AWR	Calcs date 10/09/2013	Checked by	Checked date	Approved by	Approved date

SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **48.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1200** mm
Width of pit	w = **1000** mm
Length of pit	l = **3000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	d_{75} = (d_{trial} × 0.75) = **697.50** mm
50% depth of pit	d_{50} = (d_{trial} × 0.50) = **465.00** mm
25% depth of pit	d_{25} = (d_{trial} × 0.25) = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{lg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	V_{p75_25} = (l_{trial} × b_{trial} × (d_{75} - d_{25})) × V_{trial} = **0.31** m^3
Internal surface area to 50% depth	a_{p50} = ((l_{trial} × b_{trial}) + (l_{trial} + b_{trial}) × 2 × d_{50}) = **2.99** m^2
Surface area of soakaway to 50% storage depth	A_{s50} = 2 × (l_{trial} + b_{trial}) × d_{trial} / 2 = **2.325** m^2
Soil infiltration rate	f = V_{p75_25} / (a_{p50} × t_{lg}) = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	a_{s50} = l × d + w × d = **4800000** mm^2

Table equations

Inflow	I = M100 × A
Outflow	O = a_{s50} × f × D
Storage	S = I - O

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	0.80	0.01	0.78
10	0.51	12.5	1.95	24.4	1.17	0.03	1.14
15	0.62	15.2	1.99	30.3	1.46	0.04	1.41

RUSHBY BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
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	Calcs by AWR	Calcs date 10/09/2013	Checked by	Checked date	Approved by	Approved date

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	1.89	0.09	1.80
60	1.00	24.7	2.01	49.7	2.38	0.18	2.21
120	1.22	30.2	1.97	59.5	2.85	0.36	2.50
240	1.50	37.0	1.91	70.8	3.40	0.72	2.68
360	1.69	41.7	1.88	78.3	3.76	1.08	2.68
600	1.95	48.1	1.83	87.8	4.21	1.79	2.42
1440	2.48	61.3	1.73	106.2	5.10	4.31	0.79

Required storage volume S_{req} = **2.68** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **3.42** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 7hr 28min 24s

PASS - Soakaway discharge time less than or equal to 24 hours

RUSHBY BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
	Calcs for Soakaway Plots 11-13				Start page no./Revision 1	
	Calcs by AWR	Calcs date 10/09/2013	Checked by	Checked date	Approved by	Approved date

SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **80.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1200** mm
Width of pit	w = **1000** mm
Length of pit	l = **5000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	d_{75} = (d_{trial} × 0.75) = **697.50** mm
50% depth of pit	d_{50} = (d_{trial} × 0.50) = **465.00** mm
25% depth of pit	d_{25} = (d_{trial} × 0.25) = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{lg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	V_{p75_25} = (l_{trial} × b_{trial} × (d_{75} - d_{25})) × V_{trial} = **0.31** m^3
Internal surface area to 50% depth	a_{p50} = ((l_{trial} × b_{trial}) + (l_{trial} + b_{trial}) × 2 × d_{50}) = **2.99** m^2
Surface area of soakaway to 50% storage depth	A_{s50} = 2 × (l_{trial} + b_{trial}) × d_{trial} / 2 = **2.325** m^2
Soil infiltration rate	f = V_{p75_25} / (a_{p50} × t_{lg}) = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	a_{s50} = l × d + w × d = **7200000** mm^2

Table equations

Inflow	I = M100 × A
Outflow	O = a_{s50} × f × D
Storage	S = I - O

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	1.33	0.02	1.30
10	0.51	12.5	1.95	24.4	1.95	0.04	1.91
15	0.62	15.2	1.99	30.3	2.43	0.07	2.36

RUSHBY BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
	Calcs for Soakaway Plots 11-13				Start page no./Revision 2	
	Calcs by AWR	Calcs date 10/09/2013	Checked by	Checked date	Approved by	Approved date

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	3.15	0.13	3.01
60	1.00	24.7	2.01	49.7	3.97	0.27	3.70
120	1.22	30.2	1.97	59.5	4.76	0.54	4.22
240	1.50	37.0	1.91	70.8	5.66	1.08	4.58
360	1.69	41.7	1.88	78.3	6.26	1.62	4.65
600	1.95	48.1	1.83	87.8	7.02	2.69	4.33
1440	2.48	61.3	1.73	106.2	8.49	6.46	2.03

Required storage volume S_{req} = **4.65** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **5.70** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 8hr 38min 13s

PASS - Soakaway discharge time less than or equal to 24 hours

RUSHBY BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
	Calcs for Soakaway Plots 14-16				Start page no./Revision 1	
	Calcs by AWR	Calcs date 13/09/2013	Checked by	Checked date	Approved by	Approved date

SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **90.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1200** mm
Width of pit	w = **1000** mm
Length of pit	l = **5000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	$d_{75} = (d_{trial} \times 0.75)$ = **697.50** mm
50% depth of pit	$d_{50} = (d_{trial} \times 0.50)$ = **465.00** mm
25% depth of pit	$d_{25} = (d_{trial} \times 0.25)$ = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{lg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	$V_{p75_25} = (l_{trial} \times b_{trial} \times (d_{75} - d_{25})) \times V_{trial}$ = **0.31** m^3
Internal surface area to 50% depth	$a_{p50} = ((l_{trial} \times b_{trial}) + (l_{trial} + b_{trial}) \times 2 \times d_{50})$ = **2.99** m^2
Surface area of soakaway to 50% storage depth	$A_{s50} = 2 \times (l_{trial} + b_{trial}) \times d_{trial} / 2$ = **2.325** m^2
Soil infiltration rate	$f = V_{p75_25} / (a_{p50} \times t_{lg})$ = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	$a_{s50} = l \times d + w \times d$ = **7200000** mm^2

Table equations

Inflow	I = M100 × A
Outflow	$O = a_{s50} \times f \times D$
Storage	S = I - O

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	1.49	0.02	1.47
10	0.51	12.5	1.95	24.4	2.20	0.04	2.15
15	0.62	15.2	1.99	30.3	2.73	0.07	2.66

RUSHBY | BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
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	Calcs by AWR	Calcs date 13/09/2013	Checked by	Checked date	Approved by	Approved date

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	3.54	0.13	3.41
60	1.00	24.7	2.01	49.7	4.47	0.27	4.20
120	1.22	30.2	1.97	59.5	5.35	0.54	4.81
240	1.50	37.0	1.91	70.8	6.37	1.08	5.29
360	1.69	41.7	1.88	78.3	7.05	1.62	5.43
600	1.95	48.1	1.83	87.8	7.90	2.69	5.21
1440	2.48	61.3	1.73	106.2	9.56	6.46	3.10

Required storage volume S_{req} = **5.43** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **5.70** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 10hr 5min 30s

PASS - Soakaway discharge time less than or equal to 24 hours

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SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **90.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1600** mm
Width of pit	w = **1000** mm
Length of pit	l = **4000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	d_{75} = (d_{trial} × 0.75) = **697.50** mm
50% depth of pit	d_{50} = (d_{trial} × 0.50) = **465.00** mm
25% depth of pit	d_{25} = (d_{trial} × 0.25) = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{tg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	V_{p75_25} = (l_{trial} × b_{trial} × (d_{75} - d_{25})) × V_{trial} = **0.31** m^3
Internal surface area to 50% depth	a_{p50} = ((l_{trial} × b_{trial}) + (l_{trial} + b_{trial}) × 2 × d_{50}) = **2.99** m^2
Surface area of soakaway to 50% storage depth	A_{s50} = 2 × (l_{trial} + b_{trial}) × d_{trial} / 2 = **2.325** m^2
Soil infiltration rate	f = V_{p75_25} / (a_{p50} × t_{tg}) = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	a_{s50} = l × d + w × d = **8000000** mm^2

Table equations

Inflow	I = M100 × A
Outflow	O = a_{s50} × f × D
Storage	S = I - O

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	1.49	0.02	1.47
10	0.51	12.5	1.95	24.4	2.20	0.05	2.15
15	0.62	15.2	1.99	30.3	2.73	0.07	2.66

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Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	3.54	0.15	3.39
60	1.00	24.7	2.01	49.7	4.47	0.30	4.17
120	1.22	30.2	1.97	59.5	5.35	0.60	4.75
240	1.50	37.0	1.91	70.8	6.37	1.20	5.17
360	1.69	41.7	1.88	78.3	7.05	1.79	5.25
600	1.95	48.1	1.83	87.8	7.90	2.99	4.91
1440	2.48	61.3	1.73	106.2	9.56	7.18	2.38

Required storage volume S_{req} = **5.25** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **6.08** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 8hr 46min 57s

PASS - Soakaway discharge time less than or equal to 24 hours

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SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **170.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1600** mm
Width of pit	w = **2000** mm
Length of pit	l = **4000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	d_{75} = (d_{trial} × 0.75) = **697.50** mm
50% depth of pit	d_{50} = (d_{trial} × 0.50) = **465.00** mm
25% depth of pit	d_{25} = (d_{trial} × 0.25) = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{lg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	V_{p75_25} = (l_{trial} × b_{trial} × (d_{75} - d_{25})) × V_{trial} = **0.31** m^3
Internal surface area to 50% depth	a_{p50} = ((l_{trial} × b_{trial}) + (l_{trial} + b_{trial}) × 2 × d_{50}) = **2.99** m^2
Surface area of soakaway to 50% storage depth	A_{s50} = 2 × (l_{trial} + b_{trial}) × d_{trial} / 2 = **2.325** m^2
Soil infiltration rate	f = V_{p75_25} / (a_{p50} × t_{lg}) = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	a_{s50} = l × d + w × d = **9600000** mm^2

Table equations

Inflow	I = M100 × A
Outflow	O = a_{s50} × f × D
Storage	S = I - O

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	2.82	0.03	2.79
10	0.51	12.5	1.95	24.4	4.15	0.06	4.09
15	0.62	15.2	1.99	30.3	5.16	0.09	5.07

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Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	6.69	0.18	6.51
60	1.00	24.7	2.01	49.7	8.45	0.36	8.09
120	1.22	30.2	1.97	59.5	10.11	0.72	9.39
240	1.50	37.0	1.91	70.8	12.03	1.44	10.59
360	1.69	41.7	1.88	78.3	13.31	2.15	11.16
600	1.95	48.1	1.83	87.8	14.92	3.59	11.33
1440	2.48	61.3	1.73	106.2	18.05	8.61	9.44

Required storage volume S_{req} = **11.33** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **12.16** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 15hr 47min 8s

PASS - Soakaway discharge time less than or equal to 24 hours

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SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **124.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1600** mm
Width of pit	w = **1000** mm
Length of pit	l = **5000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	$d_{75} = (d_{trial} \times 0.75)$ = **697.50** mm
50% depth of pit	$d_{50} = (d_{trial} \times 0.50)$ = **465.00** mm
25% depth of pit	$d_{25} = (d_{trial} \times 0.25)$ = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{lg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	$V_{p75_25} = (l_{trial} \times b_{trial} \times (d_{75} - d_{25})) \times V_{trial}$ = **0.31** m^3
Internal surface area to 50% depth	$a_{p50} = ((l_{trial} \times b_{trial}) + (l_{trial} + b_{trial}) \times 2 \times d_{50})$ = **2.99** m^2
Surface area of soakaway to 50% storage depth	$A_{s50} = 2 \times (l_{trial} + b_{trial}) \times d_{trial} / 2$ = **2.325** m^2
Soil infiltration rate	$f = V_{p75_25} / (a_{p50} \times t_{lg})$ = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	$a_{s50} = l \times d + w \times d$ = **9600000** mm^2

Table equations

Inflow	I = M100 × A
Outflow	$O = a_{s50} \times f \times D$
Storage	S = I - O

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	2.06	0.03	2.03
10	0.51	12.5	1.95	24.4	3.03	0.06	2.97
15	0.62	15.2	1.99	30.3	3.76	0.09	3.67

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Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	4.88	0.18	4.70
60	1.00	24.7	2.01	49.7	6.16	0.36	5.80
120	1.22	30.2	1.97	59.5	7.37	0.72	6.66
240	1.50	37.0	1.91	70.8	8.77	1.44	7.34
360	1.69	41.7	1.88	78.3	9.71	2.15	7.56
600	1.95	48.1	1.83	87.8	10.88	3.59	7.29
1440	2.48	61.3	1.73	106.2	13.17	8.61	4.55

Required storage volume S_{req} = **7.56** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **7.60** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 10hr 31min 41s

PASS - Soakaway discharge time less than or equal to 24 hours

RUSHBY BREWSTER CONSULTING CIVIL AND STRUCTURAL ENGINEERS Rushby Brewster	Project Irene Avenue Lancing				Job no. AB146	
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SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **300.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **2000** mm
Width of pit	w = **1000** mm
Length of pit	l = **10000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	$d_{75} = (d_{trial} \times 0.75)$ = **697.50** mm
50% depth of pit	$d_{50} = (d_{trial} \times 0.50)$ = **465.00** mm
25% depth of pit	$d_{25} = (d_{trial} \times 0.25)$ = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{lg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	$V_{p75_25} = (l_{trial} \times b_{trial} \times (d_{75} - d_{25})) \times V_{trial}$ = **0.31** m^3
Internal surface area to 50% depth	$a_{p50} = ((l_{trial} \times b_{trial}) + (l_{trial} + b_{trial}) \times 2 \times d_{50})$ = **2.99** m^2
Surface area of soakaway to 50% storage depth	$A_{s50} = 2 \times (l_{trial} + b_{trial}) \times d_{trial} / 2$ = **2.325** m^2
Soil infiltration rate	$f = V_{p75_25} / (a_{p50} \times t_{lg})$ = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	$a_{s50} = l \times d + w \times d$ = **22000000** mm^2

Table equations

Inflow	$I = M100 \times A$
Outflow	$O = a_{s50} \times f \times D$
Storage	$S = I - O$

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	4.97	0.07	4.90
10	0.51	12.5	1.95	24.4	7.32	0.14	7.18
15	0.62	15.2	1.99	30.3	9.10	0.21	8.90

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Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	11.81	0.41	11.40
60	1.00	24.7	2.01	49.7	14.90	0.82	14.08
120	1.22	30.2	1.97	59.5	17.84	1.65	16.20
240	1.50	37.0	1.91	70.8	21.23	3.29	17.94
360	1.69	41.7	1.88	78.3	23.49	4.94	18.56
600	1.95	48.1	1.83	87.8	26.33	8.23	18.11
1440	2.48	61.3	1.73	106.2	31.86	19.74	12.12

Required storage volume S_{req} = **18.56** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **19.00** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 11hr 16min 54s

PASS - Soakaway discharge time less than or equal to 24 hours

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SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Other
Impermeable area drained to the system	A = **300.0** m^2
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1600** mm
Width of pit	w = **2000** mm
Length of pit	l = **7000** mm
Percentage free volume	V_{free} = **95** %

Soil infiltration rate (BRE digest 365)

Length of trial pit	l_{trial} = **2200** mm
Width of trial pit	b_{trial} = **300** mm
Depth of trial pit (below invert)	d_{trial} = **930** mm
Free volume (if fill used)	V_{trial} = **100** %
75% depth of pit	$d_{75} = (d_{trial} \times 0.75)$ = **697.50** mm
50% depth of pit	$d_{50} = (d_{trial} \times 0.50)$ = **465.00** mm
25% depth of pit	$d_{25} = (d_{trial} \times 0.25)$ = **232.50** mm
Test 1 - time to fall from 75% depth to 25% depth	T1 = **165** min
Test 2 - time to fall from 75% depth to 25% depth	T2 = **165** min
Test 3 - time to fall from 75% depth to 25% depth	T3 = **165** min
Longest time to fall from 75% depth to 25% depth	t_{lg} = max(T1, T2, T3) = **165** min
Storage volume from 75% to 25% depth	$V_{p75_25} = (l_{trial} \times b_{trial} \times (d_{75} - d_{25})) \times V_{trial}$ = **0.31** m^3
Internal surface area to 50% depth	$a_{p50} = ((l_{trial} \times b_{trial}) + (l_{trial} + b_{trial}) \times 2 \times d_{50})$ = **2.99** m^2
Surface area of soakaway to 50% storage depth	$A_{s50} = 2 \times (l_{trial} + b_{trial}) \times d_{trial} / 2$ = **2.325** m^2
Soil infiltration rate	$f = V_{p75_25} / (a_{p50} \times t_{lg})$ = **10.4×10^{-6}** m/s
Wetted area of pit 50% full	$a_{s50} = l \times d + w \times d$ = **14400000** mm^2

Table equations

Inflow	$I = M100 \times A$
Outflow	$O = a_{s50} \times f \times D$
Storage	$S = I - O$

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36	8.8	1.88	16.6	4.97	0.04	4.93
10	0.51	12.5	1.95	24.4	7.32	0.09	7.23
15	0.62	15.2	1.99	30.3	9.10	0.13	8.97

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Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	100 year rainfall, M100 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
30	0.79	19.4	2.03	39.4	11.81	0.27	11.54
60	1.00	24.7	2.01	49.7	14.90	0.54	14.36
120	1.22	30.2	1.97	59.5	17.84	1.08	16.77
240	1.50	37.0	1.91	70.8	21.23	2.15	19.08
360	1.69	41.7	1.88	78.3	23.49	3.23	20.26
600	1.95	48.1	1.83	87.8	26.33	5.38	20.95
1440	2.48	61.3	1.73	106.2	31.86	12.92	18.93

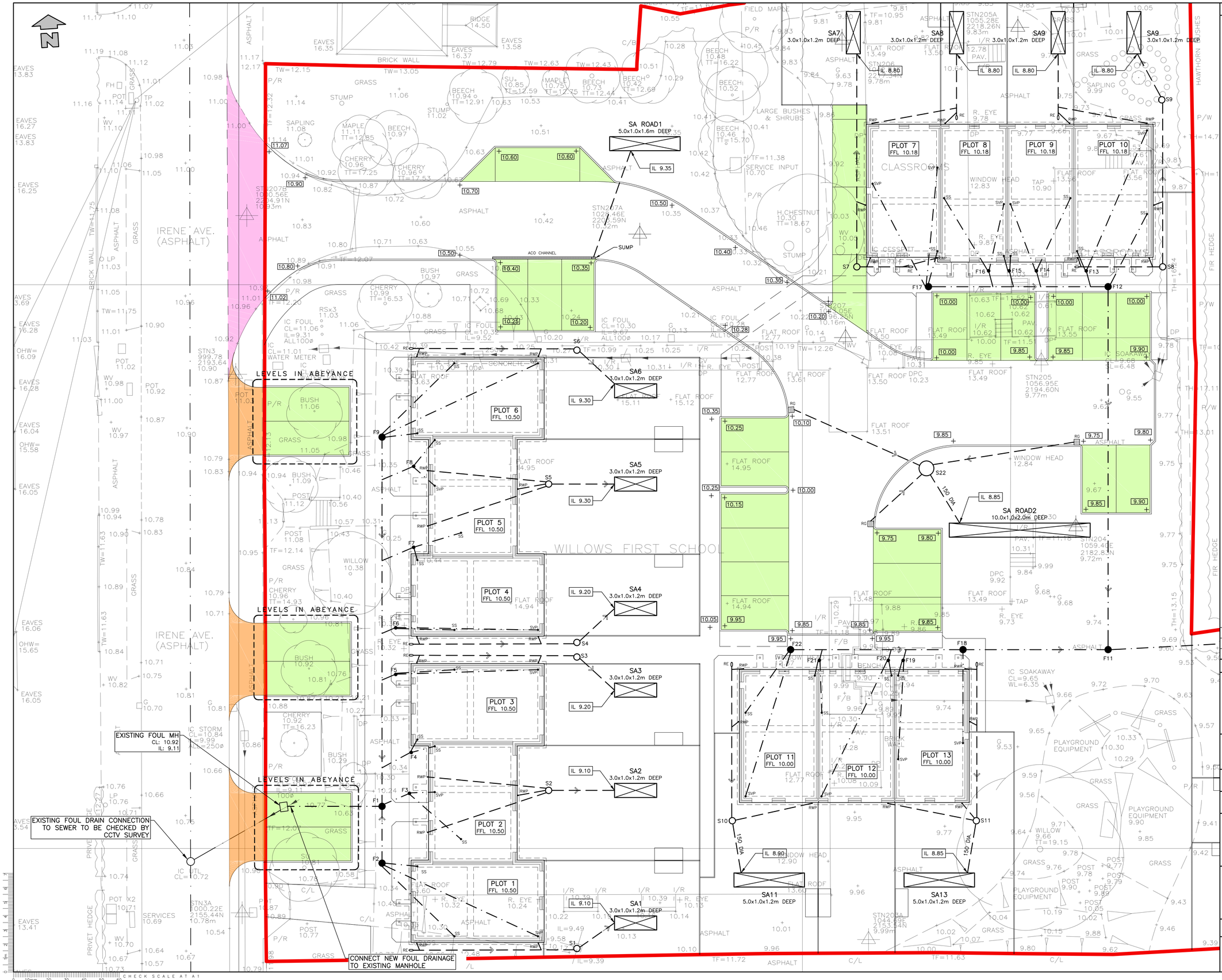
Required storage volume S_{req} = **20.95** m^3

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free}$ = **21.28** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f)$ = 19hr 27min 13s

PASS - Soakaway discharge time less than or equal to 24 hours



NOTES

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6. MAIN CONTRACTOR TO PROVIDE AND FIX SUITABLE BRACING AND PROPPING FOR ALL ELEMENTS IN THE TEMPORARY CONDITION DURING CONSTRUCTION STAGE, SUCH AS TO ENSURE STRUCTURE STABILITY AT ALL TIMES.
7. IT IS THE CONTRACTORS SOLE RESPONSIBILITY FOR ASCERTAINING SAFE DISPOSAL OF ANY OFF-SITE EXCAVATED SPOIL. NO CLAIM RESULTING FROM ABNORMAL TIP REQUIREMENTS WILL BE ENTERTAINED.

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2. ALL MATERIALS AND WORKMANSHIP TO COMPLY WITH BS EN 752-1: 1996
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6. REFER TO MANHOLE SCHEDULE FOR SIZES, COVERS ETC.
7. ALL MATERIALS TO COMPLY WITH THE RELEVANT BS-EN, LATEST EDITION, FOR PIPEWORK AND FITTINGS.
8. UPON COMPLETION, ALL WORKS TO BE THOROUGHLY CLEANED BY FLUSHING.

HIGHWAYS

1. ALL WORKS TO TO COMPLY WITH RELEVANT COUNTY COUNCIL OR LOCAL AUTHORITY SPECIFICATION, AS REQUIRED.
2. ALL DRAINAGE WORKS IN ADOPTABLE AREAS TO BE IN ACCORDANCE WITH WATER AUTHORITY ASSOCIATION 'SEWERS FOR ADOPTION' – 7th EDITION.

ALL RWP AND FOUL CONNECTION LOCATIONS TO BE CHECKED AGAINST ARCHITECTS DRAWINGS

1. SEE DRAWING 504 FOR LEGEND AND MANHOLE SCHEDULES

COLOURED DRAWING
REQUEST A COLOURED COPY IF THIS STAMP IS NOT RED

Mk.	Date	Revision	By
P3	13.09.13	SOAKAWAY SIZES AMENDED.	JMB
P2	12.06.13	RWPs TO PLOTS 11-13 REVISED	MjL
P1	23.05.13	PRELIMINARY ISSUE FOR COMMENT	MjL

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Cert: Q50166

Client: AUSTINS

Architect: THE SEAMAN PARTNERSHIP LTD

Project Title: FORMER WILLOWS FIRST SCHOOL
IRENE AVENUE
LANCING
WEST SUSSEX

Drawing Title: ENLARGED EXTERNAL WORKS LAYOUT SHEET 1

Scale	Paper Size	Date	Drawn by	Chkd. by
1:125	A1	MAY 2012	MjL	AWR

Project No.	Drawing No.	Rev.
AB146	502	P3

FOUL WATER MANHOLE SCHEDULE

REF	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH TO INVERT (m)	SIZE (mm)	TYPE	COVER (mm)	COMMENTS
F1	10.45	9.20	1.25	450ø	TYPE 3	A15 350ø	RESTRICTED ACCESS
F2	10.40	9.40	1.00	450ø	TYPE 3	A15 450sq	
F3	10.40	9.50	0.90	450ø	TYPE 3	A15 450sq	
F4	10.35	9.50	0.85	450ø	TYPE 3	A15 450sq	
F5	10.40	9.50	0.90	450ø	TYPE 3	A15 450sq	
F6	10.40	9.60	0.80	450ø	TYPE 3	A15 450sq	
F7	10.35	9.70	0.65	450ø	TYPE 3	A15 450sq	
F8	10.35	9.70	0.65	450ø	TYPE 3	A15 450sq	P2
F9	10.35	9.54	0.81	450ø	TYPE 3	A15 450sq	
F10	9.35	8.00	1.35	450ø	TYPE 3	A15 350ø	RESTRICTED ACCESS
F11	9.74	8.80	0.94	450ø	TYPE 3	A15 450sq	
F12	10.10	9.23	0.87	450ø	TYPE 3	A15 450sq	
F13	10.03	9.35	0.68	450ø	TYPE 3	A15 450sq	
F14	10.03	9.40	0.63	450ø	TYPE 3	A15 450sq	
F15	10.03	9.40	0.63	450ø	TYPE 3	A15 450sq	
F16	10.03	9.45	0.58	450ø	TYPE 3	A15 450sq	P2
F17	10.10	9.40	0.70	450ø	TYPE 3	A15 450sq	
F18	9.95	9.00	0.95	450ø	TYPE 3	A15 450sq	
F19	9.85	9.15	0.70	450ø	TYPE 3	A15 450sq	
F20	9.85	9.15	0.70	450ø	TYPE 3	A15 450sq	
F21	9.85	9.20	0.65	450ø	TYPE 3	A15 450sq	P2
F22	9.90	9.20	0.70	450ø	TYPE 3	A15 450sq	
F23	9.05	8.15	0.90	450ø	TYPE 3	A15 450sq	
F24	9.10	8.35	0.75	450ø	TYPE 3	A15 450sq	
F25	9.10	8.35	0.75	450ø	TYPE 3	A15 450sq	P2
F26	9.10	8.40	0.70	450ø	TYPE 3	A15 450sq	
F27	9.12	TBC	–	450ø	TYPE 3	C250 450sq	OVER EXISTING FOUL SEWER
F28	9.00	8.20	0.80	450ø	TYPE 3	A15 450sq	
F29	9.10	8.20	0.90	450ø	TYPE 3	A15 450sq	P2
F30	9.00	8.04	0.96	450ø	TYPE 3	A15 450sq	
F31	9.00	8.11	0.89	450ø	TYPE 3	A15 450sq	
F32	9.00	8.18	0.82	450ø	TYPE 3	A15 450sq	
F33	8.90	8.30	0.60	450ø	TYPE 3	A15 450sq	

STORM WATER MANHOLE SCHEDULE

REF	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH TO INVERT (m)	SIZE (mm)	TYPE	COVER (mm)	COMMENTS
S1	10.35	9.55	0.80	450ø	TYPE 3	A15 450sq	
S2	10.35	9.55	0.80	450ø	TYPE 3	A15 450sq	
S3	10.35	9.55	0.80	450ø	TYPE 3	A15 450sq	
S4	10.35	9.55	0.80	450ø	TYPE 3	A15 450sq	
S5	10.35	9.55	0.80	450ø	TYPE 3	A15 450sq	
S6	10.30	9.55	0.75	450ø	TYPE 3	A15 450sq	
S7	10.15	9.30	0.85	450ø	TYPE 3	A15 450sq	
S8	10.03	9.20	0.83	450ø	TYPE 3	A15 450sq	
S9	9.85	9.05	0.80	450ø	TYPE 3	A15 450sq	
S10	9.85	9.05	0.80	450ø	TYPE 3	A15 450sq	
S11	9.80	9.00	0.80	450ø	TYPE 3	A15 450sq	
S12	9.05	8.25	0.80	450ø	TYPE 3	A15 450sq	
S13	9.10	8.48	0.62	450ø	TYPE 3	A15 450sq	
S14	9.05	8.25	0.80	450ø	TYPE 3	A15 450sq	
S15	9.00	8.15	0.85	450ø	TYPE 3	A15 450sq	
S17	8.85	8.00	0.85	450ø	TYPE 3	A15 450sq	
S18	8.82	7.85	0.97	1200ø	–	C250 600sq	CATCH PIT
S19	8.95	7.70	1.25	450ø	TYPE 3	A15 350 Dia	
S20	9.00	7.80	1.20	450ø	TYPE 3	A15 350 Dia	
S21	9.10	7.80	1.30	450ø	TYPE 3	A15 350 Dia	
S22 P2	9.90	9.00	0.90	1200ø	–	A15 600sq	CATCH PIT

P2

LEGEND

- S1 — SURFACE WATER MANHOLE / INSPECTION CHAMBER / ACCESS CHAMBER (SEE SCHEDULE FOR DETAILS)
- 100mm Dia. PVCu. SN4 STORM WATER DRAIN (U.N.O.)
- RWP — RAIN WATER DOWNPIPE WITH TRAPPED GULLY (LOCATION AS ARCHITECTS DRGS)
- RG — ROAD GULLY (DEEP SEAL TRAP)
- RE — RODDING EYE
- SA1 — SOAKAWAY (SEE SCHEDULE FOR DETAILS)
- ACO S — ACO DRAIN / SUMP DEEP SILT TRAP TYPE
- F1 — FOUL WATER MANHOLE / INSPECTION CHAMBER / ACCESS CHAMBER (SEE SCHEDULE FOR DETAILS)
- 100mm Dia. PVCu. SN4 FOUL WATER DRAIN (U.N.O.)
- SVP/SS — SOIL VENT PIPE / STUB STACK (LOCATION AS ARCHITECTS DRGS)
- FGu BIG — FOUL WATER FLOOR GULLY (RODDABLE) WITH AIR–TIGHT SEAL
- + 116.69 — PROPOSED LEVEL
- + 116.69 — EXISTING GROUND LEVEL
- AREAS OF POROUS PAVING
- NEW ACCESS / CROSSOVER TO HIGHWAY AUTHORITY APPROVAL
- EXISTING ACCESS TO BE RETAINED

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COLOURED DRAWING
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Mk.	Date	Revision	By
P2	13.09.13	AMENDMENTS AS CLOUDED.	JMB
P1	23.05.13	PRELIMINARY ISSUE FOR COMMENT	MjL

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Cert: Q50166

Client: AUSTINS

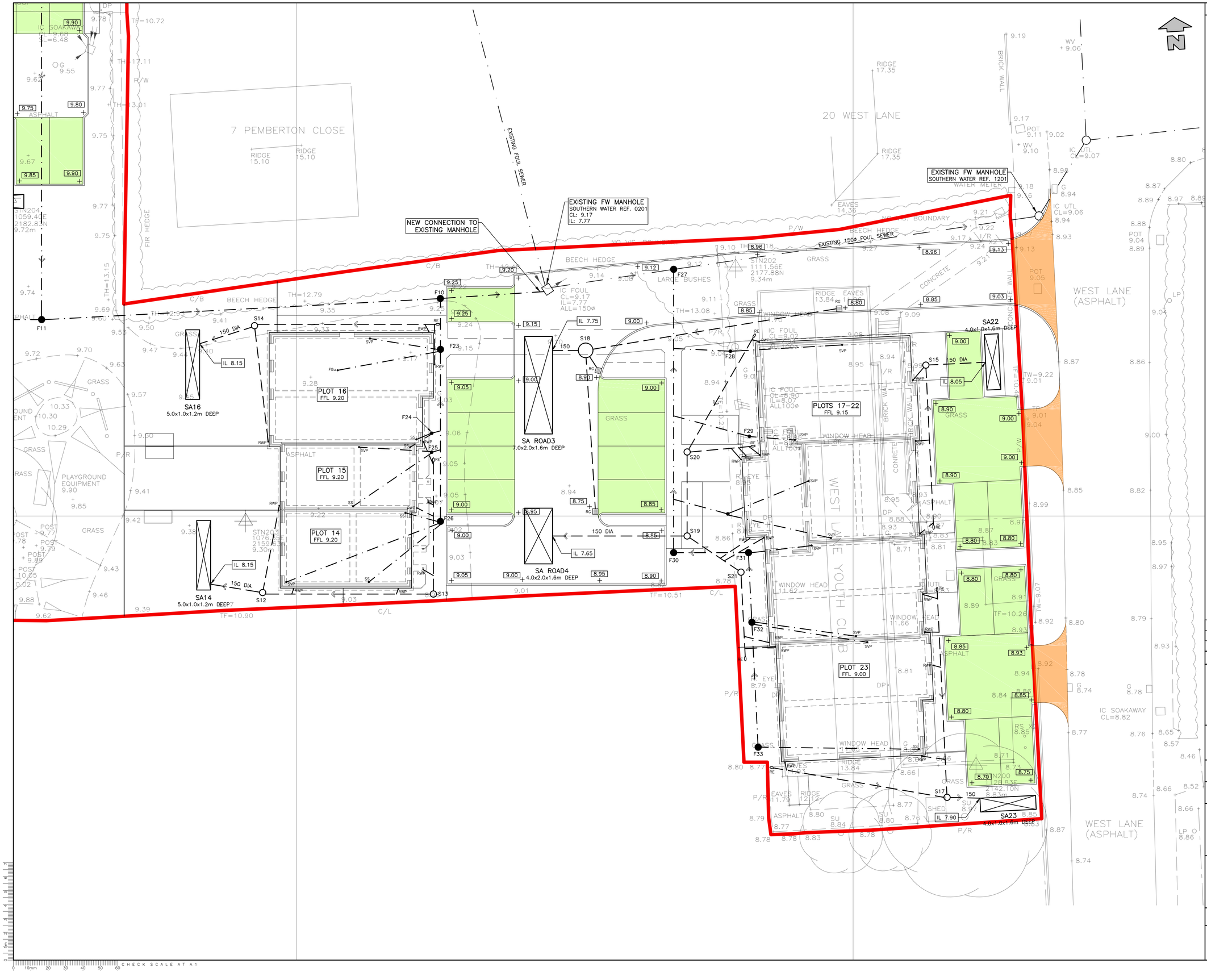
Architect: THE SEAMAN PARTNERSHIP LTD

Project Title: FORMER WILLOWS FIRST SCHOOL
IRENE AVENUE
LANCING
WEST SUSSEX

Drawing Title: EXTERNAL WORKS LEGEND AND DRAINAGE SCHEDULES

Scale	Paper Size	Date	Drawn by	Chkd. by
N.T.S	A1	MAY 2012	MjL	AWR

Project No.	Drawing No.	Rev.
AB146	504	P2



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Mk.	Date	Revision	By
P3	13.09.13	SOAKAWAY SIZES AMENDED.	JMB
P2	12.06.13	LAYOUT OF PLOT 23 REVISED	MJL
P1	23.05.13	PRELIMINARY ISSUE FOR COMMENT	MJL

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SGS Cert: 050166

Client: AUSTINS

Architect: THE SEAMAN PARTNERSHIP LTD

Project Title: FORMER WILLOWS FIRST SCHOOL
IRENE AVENUE
LANCING
WEST SUSSEX

Drawing Title: ENLARGED EXTERNAL WORKS LAYOUT SHEET 2

Scale	Paper Size	Date	Drawn by	Chkd. by
1:125	A1	MAY 2012	MJL	AWR

Project No.	Drawing No.	Rev.
AB146	503	P3