Appendix C – Infiltration Test Results

C/o Matt Bartram
Barwood Land
Grovelands Business Park
West Haddon Road
East Haddon
Northamptonshire
NN6 8FB

Date: 18th January 2024
Our ref: 18012024_CC-1187_CS_MB

Dear Matt,

Re: Mounton Road, Chepstow - Infiltration Assessment

On behalf of Barwood Development Securities Ltd (the 'client'), T&P Regeneration Ltd (T&P) is pleased to provide the results of a ground investigation undertaken at Mounton Road, Chepstow (the Site).

Background and Context

The site occupies an area of approximately 13 hectares (ha) and is located around the National Grid Reference (NGR): 352411, 193317 within Chepstow, Monmouthshire. The nearest postcode is NP16 5BJ. A site location plan is included in Appendix A.

At the time of issuing the report it was understood that the proposed development is intended to comprise the construction of residential dwellings, a hotel/commercial office spaces and a retirement/care home, each with associated areas of communal and private soft landscaping with hard landscaped access and parking. A development layout plan is included in Appendix A although this will likely be subject to change following completion of master planning.

Objectives

The purposed of this letter is to summarise the findings of the recent ground investigation and infiltration assessment completed at the site.

Geological setting

Geological mapping published by the British Geological Survey indicates that Superficial Deposits are absent across the investigation area.

The entire site is indicated to be underlain by limestone of the Black Rock Limestone Subgroup formed during the Carboniferous Period.

Scope of work

A ground investigation was carried out by T&P between 10th and 13th January 2024 and comprised the following:

- Excavation of 6No. trial pits using a tracked 8 tonne excavator to a maximum depth of 1.80m below ground level (bgl);
- Infiltration testing within 6No trial pits in accordance with BRE 365 guidance; and,
- Logging of holes by an experienced engineer in general accordance with BS5930.

An exploratory hole location plan is included within Appendix A, a selection of photographs from the ground investigation are included within Appendix B with exploratory hole logs in Appendix C.

Ground conditions

The results of the ground investigation confirmed the published geology. The geological sequence encountered during this supplementary ground investigation is summarised in Table 1.

Table 1: Summary of Ground Conditions

Stratum	Top depth range (mbgl)	Base depth range (mbgl)	Exploratory holes	Area of site	General description/comments
Topsoil	0.00	0.20	All holes	General	Silty CLAY / slightly sandy slightly gravelly CLAY with frequent rootlets.
Black Rock Limestone Subgroup	0.2	0.4	TP01	North	Firm slightly sandy slightly gravelly CLAY.
	0.2	0.9 – 1.50	TP03 & TP05	North and Central	Soft to firm silty CLAY.
	0.2 – 1.50	>0.90 - >1.80	All holes	General	Extremely weak (medium strong at base) LIMESTONE

Topsoil

Topsoil was encountered within all exploratory holes with a typical thickness of 0.20-0.40m, comprised brown silty clay and slightly sandy slightly gravelly clay with frequent rootlets.

Black Rock Limestone Subgroup

Beneath the topsoil, the weathered Black Rock Limestone Subgroup was encountered within all exploratory holes. This predominantly comprised extremely weak light grey limestone was encountered recovered as slightly clayey, slightly sandy limestone gravel with a medium - high cobble content. This graded into medium strong limestone with depth. All exploratory holes were terminated within this strata due to effective refusal.

Within 3N° exploratory hole locations (TP01, TP03 and TP05) a soft to firm slightly sandy slightly gravelly silty clay was encountered to a maximum thickness of 1.30m overlaying the limestone bedrock.

Infiltration testing

Summary of Field Testing

Infiltration testing was undertaken within the 6N° exploratory hole locations across the site to a maximum depths ranging from 0.90 – 1.80mgbl. Three repeat tests were conducted within all exploratory hole locations.

Graphical representations of the data are contained within Appendix D.

The infiltration testing and subsequent calculation of soil infiltration rates were carried out in general accordance with the methodologies detailed within BRE 365[1].

Soil Infiltration Rate Calculations

A summary of the results of the infiltration tests and calculated infiltration rates is provided in Table 2.

Table 2: Summary of Calculated Infiltration Rates

Exploratory Location	Date	Total Measured water level change (m)	Time Period (mins)	Calculated infiltration rate (m/s)	Design infiltration rate (m/s)
TP01 (Test 1)	10/01/2024	0.87	134	3.76E-05	**3.13E-05**
TP01 (Test 2)	11/01/2024	0.76	158	3.20E-05	
TP01 (Test 3)	12/01/2024	0.66	121	3.13E-05	
TP02 (Test 1)	11/01/2024	0.45	13	3.25E-04	**1.15E-04**
TP02 (Test 2)	11/01/2024	0.51	37	1.15E-04	
TP02 (Test 3)	12/01/2024	0.55	22	1.89E-04	
TP03 (Test 1)	11/01/2024	0.94	720	5.94E-06	**5.18E-06**
TP03 (Test 2)	11/01/2024	0.96	870	5.18E-06	
TP03 (Test 3)	12/01/2024	0.75	400	1.13E-05	
TP04 (Test 1)	11/01/2024	0.49	54	7.74E-05	**3.70E-05**
TP04 (Test 2)	11/01/2024	0.59	108	4.06E-05	
TP04 (Test 3)	12/01/2024	0.65	125	3.70E-05	
TP05 (Test 1)	10/01/2024	0.56	43	1.02E-04	**9.40E-05**
TP05 (Test 2)	11/01/2024	0.66	63	1.22E-04	

[1] *Soakaway Design BRE Digest DG-365 (2016).*

Exploratory Location	Date	Total Measured water level change (m)	Time Period (mins)	Calculated infiltration rate (m/s)	Design infiltration rate (m/s)
TP05 (Test 3)	12/01/2024	0.7	62	9.40E-05	
TP06 (Test 1)	10/01/2024	0.63	1230	2.51E-06	**2.51E-06**
TP06 (Test 2)	11/01/2024	0.6	311	1.23E-05	
TP06 (Test 3)	12/01/2024	0.51	326	1.24E-05	

Due to the relatively quick infiltration rates observed while filling the trial pits using a 1000l ICB, TP02 and TP03 in particular were unable to fill completely before starting the test.

Discussion

The calculated infiltration rates indicate the strata beneath the site have relatively good infiltration characteristics which is reflective of the fractured limestone encountered. Based upon the test results and site observations it is considered that traditional soakaways or infiltration basins are likely to offer a viable solution for surface water discharge. Further assessment may, however, be required by the regulators to demonstrate that long-term groundwater levels are present at an acceptable depth below proposed new drainage once formation levels have been established.

We trust these details are acceptable and sufficient for your purposes. However, if you have any queries or would like to discuss any of the details above then please feel free to contact us.

Yours sincerely,

Calum Stewart

For ***T&P Regeneration Ltd***

Appendix A – Drawings
Appendix B – Photographs
Appendix C – Exploratory hole logs
Appendix D – Infiltration results

Appendix A – Drawings

Site Boundary

Base Map
Company: Bing Maps Autodesk Licence
DWG Title: -
DWG Number: -
Date: -

-	-	-	-	-
Drawn	Checked	Amendment	Date	Rev.

Client: Barwood Development Securities Ltd

Project: Mounton Road, Chepstow

Title: Site Location Plan

T&P Regen
Unit 5, Septimus, Hawkfield Business Park, Bristol, BS14 0BN
Tel: 0117 927 7756
Email:Info@TP-regen.co.uk

Scale	Date	Drawn by	Check by	Rev.	Drawing No.
1:10000@A4	06/12/23	HL	CS	-	P1058-01-001

0 500 1000
1:10000
m

Site Boundary

T&P Investigation

Trial Pit Locations
(TP01 - TP06)

Base Map
Company: Bing Maps Autodesk Licence
DWG Title: -
DWG Number: -
Date: -

-	-	-	-	-
Drawn	Checked	Amendment	Date	Rev.

Client: Barwood Development Securities Ltd

Project: Mounton Road, Chepstow

Title: Exploratory Hole Location Plan

Scale	Date	Drawn by	Check by	Rev.	Drawing No.
1:2500@A3	15/01/24	HL	CS	-	P1058-01-003

T&P Regen
Unit 5, Septimus, Hawkfield Business Park, Bristol, BS14 0BN
Tel: 0117 927 7756
Email:Info@TP-regen.co.uk

0 100 200 m
1:2500

The scaling of this drawing cannot be assured

Revision	Date	Drn	Chd
-	-	-	-

LEGEND

N

- Site Boundary
- Residential Development
- Community Hub
- Hotel/Commercial Office Space
- Retirement/Care Home
- Main Access
- Pedestrian/Cycle Access
- Secondary Access
- Public Right of Way
- St Lawrence Lane
- National Cycle Route (4)
- Local Equipped Areas of Play
- Natural Play
- Indicative Roadside Swale
- Indicative Roadside Underdrained Swale
- Indicative Infiltration Basin

Project
Mountain Road,
Chepstow

Drawing Title
Concept Masterplan - Hybrid Option

Date	Scale	Drawn by	Check by
08.06.23	1:2500@A3	LP	AT

Project No	Drawing No	Revision
31133	BL-M-09	-

0 40 80 160m

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Appendix B – Photographs

	
PLATE 01 – Trial Pit Excavation – TP01.	**PLATE 02 – Trial Pit Spoil – TP01.**
	
PLATE 03 – Trial Pit Excavation – TP02.	**PLATE 04 – Trial Pit Spoil – TP02.**

	
PLATE 05 – Trial Pit Excavation – TP03.	**PLATE 06 – Trial Pit Spoil – TP03.**
	
PLATE 07 – Trial Pit Excavation – TP04.	**PLATE 08 – Trial Pit Spoil – TP04.**

PLATE 09 – Trial Pit Excavation – TP05.

PLATE 10 – Trial Pit Spoil – TP05.

PLATE 11 – Trial Pit Excavation – TP06.

PLATE 12 – Trial Pit Spoil – TP06.

Appendix C – Exploratory Hole Logs

T&P Regen

www.tandpregeneration.co.uk

Contract Name:		Client:			Trial Pit ID:
Mounton Road, Chepstow		Barwood Development Securities Ltd			TP01
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
P1058 / CC-1187	10/01/2024	CS	TC	FINAL	
Trial Pit Log	Easting: 352458.85	Northing: 193420.38	Ground Level: 93.22mOD	Plant Used: 8 Tonne Excavator	Scale: 1:25
Weather: Clear	Termination: Effective Refusal		Stability: Stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			93.02	0.20		Brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular fine to coarse of limestone and flint. (TOPSOIL)		
			92.82	0.40		Firm brown mottled grey slightly sandy slightly gravelly CLAY with a low cobble content. Gravel is subangular fine to coarse of limestone. Cobbles are subangular of limestone. (BLACK ROCK LIMESTONE SUBGROUP)		
				(0.80)		Extremely weak light grey LIMESTONE. Recovered as slightly clayey angular fine to coarse limestone GRAVEL with a high cobble content. Cobbles are angular of limestone. (BLACK ROCK LIMESTONE SUBGROUP)		
			92.02	1.20		End of Trial Pit at 1.20m		

1 2 3 4 5

Sample Key: B = Bulk Disturbed D = Small Disturbed U = Undisturbed Open-Drive W = Water G = Gas ES = Environmental Soil EW = Environmental Water

Remarks:

Groundwater not encountered. Effective refusal on medium strong Limestone.

Dimensions:

Length: 1.60m

Width: 0.70m

Orientation: °

Groundwater Details

Depth encountered (m)	Remarks

T&P Regen

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Contract Name:		Client:			Trial Pit ID:
Mounton Road, Chepstow		Barwood Development Securities Ltd			TP02
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
P1058 / CC-1187	10/01/2024	CS	TC	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Scale:
	352285.05	193381.31	93.26mOD	8 Tonne Excavator	1:25
Weather: Clear	Termination: Effective Refusal		Stability: Stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			93.06	0.20		Brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular (TOPSOIL)		
				(0.80)		Extremely weak light grey LIMESTONE. Recovered as slightly clayey slightly sandy angular fine to coarse limestone GRAVEL and COBBLES. Cobbles are angular of limestone. (BLACK ROCK LIMESTONE SUBGROUP)		
			92.26	1.00		End of Trial Pit at 1.00m		

1 2 3 4 5

Sample Key: B = Bulk Disturbed D = Small Disturbed U = Undisturbed Open-Drive W = Water G = Gas ES = Environmental Soil EW = Environmental Water

Remarks:

Groundwater not encountered. Effective refusal on medium strong Limestone.

Dimensions:

Length: 1.80m

Width: 0.70m

Orientation: °

Groundwater Details

Depth encountered (m)	Remarks

T&P Regen www.tandpregeneration.co.uk	Contract Name: Mounton Road, Chepstow		Client: Barwood Development Securities Ltd		Trial Pit ID: TP03 Sheet 1 of 1
	Contract Number: P1058 / CC-1187	Date Started: 10/01/2024	Logged By: CS	Checked By: TC	Status: FINAL
Trial Pit Log	Easting: 352152.12	Northing: 193327.39	Ground Level: 84.66mOD	Plant Used: 8 Tonne Excavator	Scale: 1:25
Weather: Clear		Termination: Effective Refusal		Stability: Stable	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			84.46	0.20		Brown silty CLAY with frequent rootlets. (TOPSOIL)		
				(0.70)		Soft reddish brown silty friable CLAY. (BLACK ROCK LIMESTONE SUBGROUP)		
			83.76	0.90		Extremely weak light grey LIMESTONE. Recovered as slightly clayey slightly sandy angular fine to coarse limestone GRAVEL and COBBLES. Cobbles are angular of limestone. (BLACK ROCK LIMESTONE SUBGROUP)		
				(0.70)				
			83.06	1.60		End of Trial Pit at 1.60m		

1 2 3 4 5

Sample Key: B = Bulk Disturbed D = Small Disturbed U = Undisturbed Open-Drive W = Water G = Gas ES = Environmental Soil EW = Environmental Water

Remarks:

Groundwater not encountered. Effective refusal on medium strong Limestone.

Dimensions:

Length: 1.70m

Width: 0.60m

Orientation: °

Groundwater Details

Depth encountered (m)	Remarks

T&P Regen

www.tandpregeneration.co.uk

Contract Name:		Client:			Trial Pit ID:
Mounton Road, Chepstow		Barwood Development Securities Ltd			TP04
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
P1058 / CC-1187	10/01/2024	CS	TC	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Scale:
	352377.73	193312.85	87.87mOD	8 Tonne Excavator	1:25
Weather: Clear	Termination: Effective Refusal		Stability: Stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			87.67	0.20		Brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular (TOPSOIL)		
				(0.70)		Extremely weak light grey LIMESTONE. Recovered as slightly clayey slightly sandy angular fine to coarse limestone GRAVEL and COBBLES. Cobbles are angular of limestone. (BLACK ROCK LIMESTONE SUBGROUP)		
			86.97	0.90		End of Trial Pit at 0.90m		

1 2 3 4 5

Sample Key: B = Bulk Disturbed D = Small Disturbed U = Undisturbed Open-Drive W = Water G = Gas ES = Environmental Soil EW = Environmental Water

Remarks:

Groundwater not encountered. Effective refusal on medium strong Limestone.

Dimensions:

Length: 2.20m

Width: 0.70m

Orientation: °

Groundwater Details

Depth encountered (m)	Remarks

T&P Regen

www.tandpregeneration.co.uk

Contract Name:		Client:			Trial Pit ID:
Mounton Road, Chepstow		Barwood Development Securities Ltd			TP05
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
P1058 / CC-1187	10/01/2024	CS	TC	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Scale:
	352486.45	193253.41	83.70mOD	8 Tonne Excavator	1:25
Weather: Clear	Termination: Effective Refusal		Stability: Stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			83.50	0.20		Brown silty CLAY with frequent rootlets. (TOPSOIL)		
				(1.30)		Soft reddish brown silty friable CLAY. (BLACK ROCK LIMESTONE SUBGROUP) *At 0.70mbgl: Becomes firm.*		
			82.20	1.50		Extremely weak light grey LIMESTONE. Recovered as slightly clayey slightly sandy angular fine to coarse limestone GRAVEL with a medium cobble content. Cobbles are angular of limestone. (BLACK ROCK LIMESTONE SUBGROUP)		
				(0.30)				
			81.90	1.80		End of Trial Pit at 1.80m		

1 2 3 4 5

Sample Key: B = Bulk Disturbed D = Small Disturbed U = Undisturbed Open-Drive W = Water G = Gas ES = Environmental Soil EW = Environmental Water

Remarks:

Groundwater not encountered. Effective refusal on medium strong Limestone.

Dimensions:

Length: 2.30m

Width: 0.60m

Orientation: °

Groundwater Details

Depth encountered (m)	Remarks

T&P Regen

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Contract Name:		Client:			Trial Pit ID:
Mounton Road, Chepstow		Barwood Development Securities Ltd			TP06
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
P1058 / CC-1187	10/01/2024	CS	TC	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Scale:
	352545.85	193149.74	79.03mOD	8 Tonne Excavator	1:25
Weather: Clear	Termination: Effective Refusal		Stability: Stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			78.83	0.20		Brown silty CLAY with frequent rootlets. (TOPSOIL)		
				(0.80)		Extremely weak light grey LIMESTONE. Recovered as slightly clayey slightly sandy angular fine to coarse limestone GRAVEL and COBBLES. Cobbles are angular of limestone. (BLACK ROCK LIMESTONE SUBGROUP)		
			78.03	1.00		End of Trial Pit at 1.00m		

1 2 3 4 5

Sample Key: B = Bulk Disturbed D = Small Disturbed U = Undisturbed Open-Drive W = Water G = Gas ES = Environmental Soil EW = Environmental Water

Remarks:

Groundwater encountered at base. Effective refusal on medium strong Limestone.

Dimensions:

Length: 1.60m

Width: 0.60m

Orientation: °

Groundwater Details

Depth encountered (m)	Remarks
1.00	Slight seepage.

Appendix D – Infiltration Results

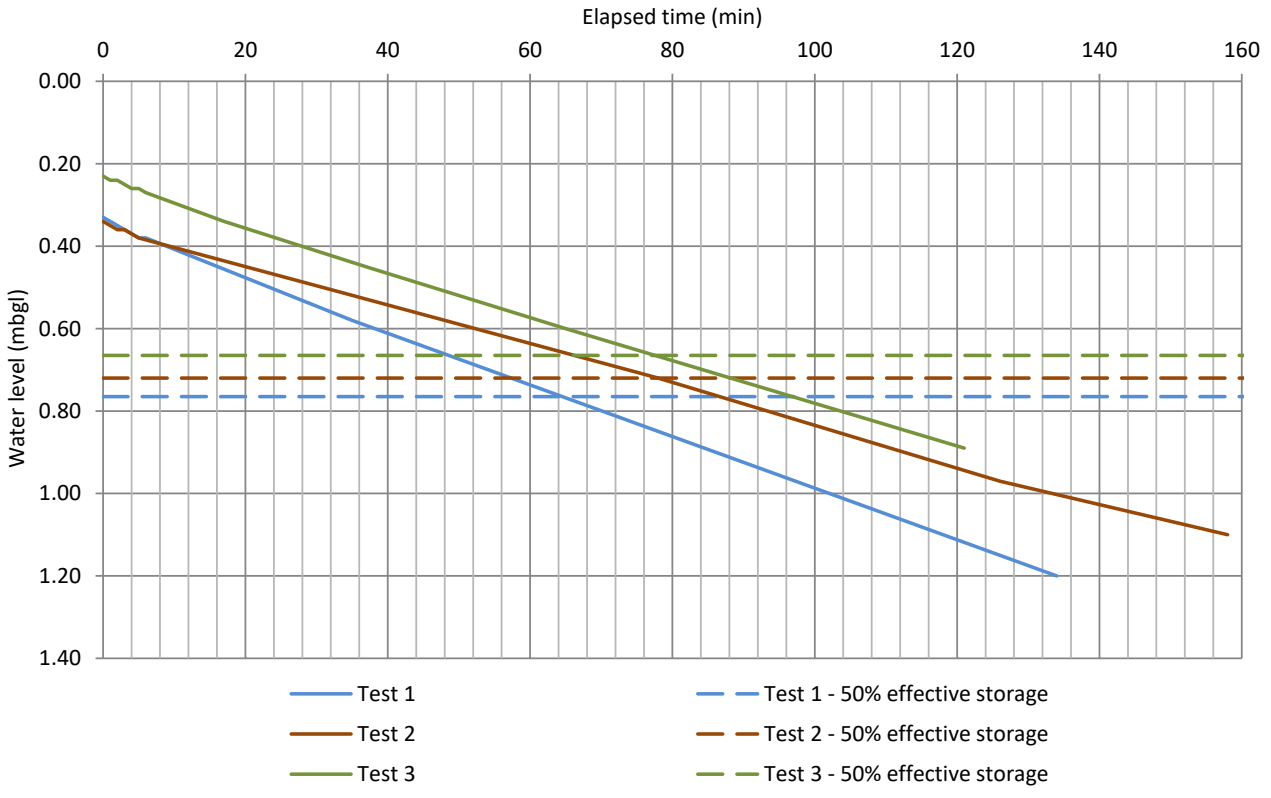
Infiltration Test Results in Accordance with BRE Digest 365:2016

Project Name:	Land off Mounton Road, Chepstow	Project ID:	P1058
Client:	Barwood Development Securities Ltd		
Hole ID:	TP01	Test Date: 10/01/2024	Logged: CS / Checked: JD

Test 1		Test 2		Test 3	
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	0.33	0	0.34	0	0.23
1	0.34	1	0.35	1	0.24
2	0.35	2	0.36	2	0.24
3	0.36	3	0.36	3	0.25
4	0.37	4	0.37	4	0.26
5	0.38	5	0.38	5	0.26
6	0.38	33	0.51	6	0.27
35	0.58	78	0.72	17	0.34
134	1.20	126	0.97	37	0.45
		158	1.10	65	0.60
				121	0.89

Soakaway Dimensions:	
Length (m)	1.60
Width (m)	0.70
Test 1 - Depth (m)	1.20
Test 2 - Depth (m)	1.10
Test 3 - Depth (m)	1.10

	Test 1	Test 2	Test 3
Depth to water at start of test (m)	0.33	0.34	0.23
Depth to water at end of test (m)	1.20	1.10	0.89
Total head drop (m)	0.87	0.76	0.66
Depth to water at 75% level (m)	0.55	0.53	0.45
Depth to water at 50% level (m)	0.77	0.72	0.67
Depth to water at 25% level (m)	0.98	0.91	0.88
Base area of pit (m^2)	1.12	1.12	1.12
Computed Internal Surface Area A_{p50} (m^2)	3.12	2.87	3.12
Effective Storage Volume V_{p75-25} (m^3)	0.49	0.43	0.49
Elapsed time at 75% level (mins)	30	37	37
Elapsed time at 25% level (mins)	99	114	120
Total discharge during test	100%	100%	76%
50% discharge in 24 Hours	Yes	Yes	Yes
Soil infiltration rate *f* (m/s)	3.76E-05	3.20E-05	3.13E-05
Design soil infiltration rate *f* (m/s)	**3.13E-05**		



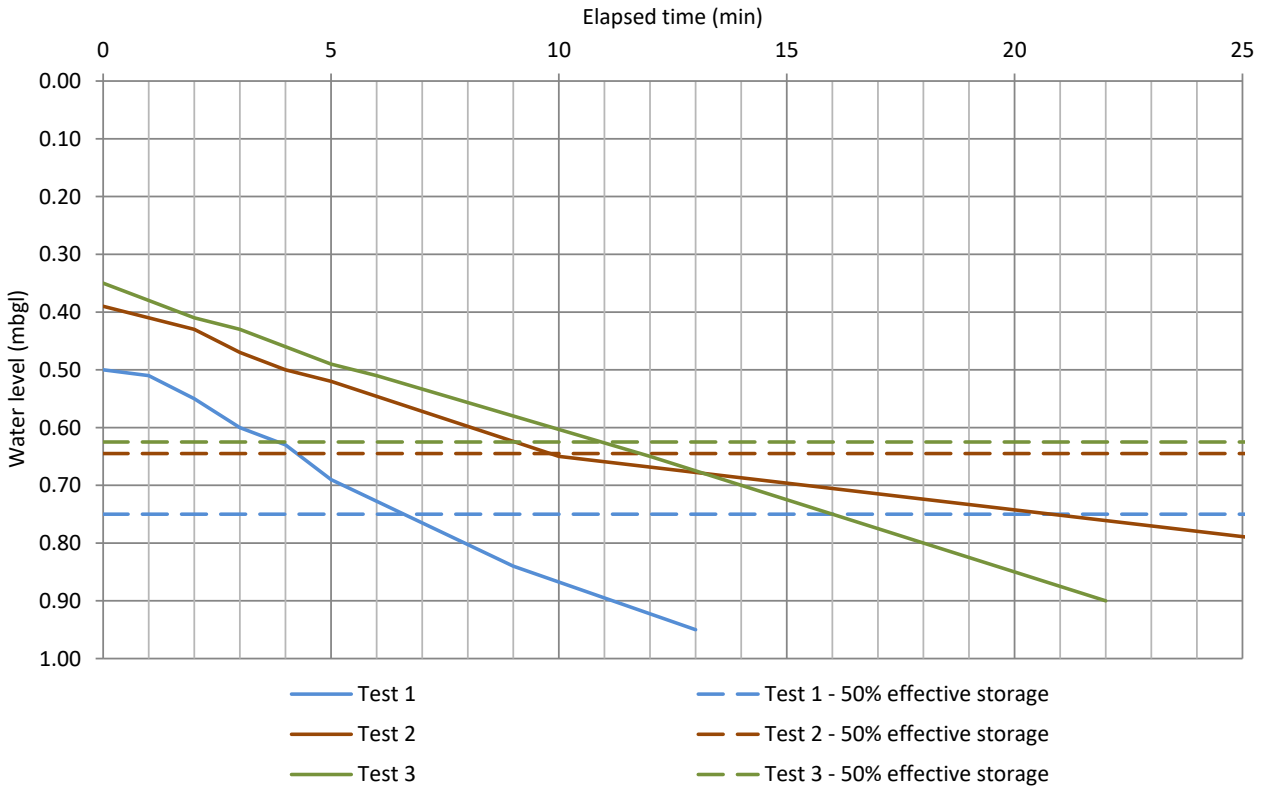
Infiltration Test Results in Accordance with BRE Digest 365:2016

Project Name:	Land off Mounton Road, Chepstow	Project ID:	P1058
Client:	Barwood Development Securities Ltd		
Hole ID:	TP02	Test Date: 10/01/2024	Logged: CS / Checked: JD

Test 1		Test 2		Test 3	
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	0.50	0	0.39	0	0.35
1	0.51	1	0.41	1	0.38
2	0.55	2	0.43	2	0.41
3	0.60	3	0.47	3	0.43
4	0.63	4	0.50	4	0.46
5	0.69	5	0.52	5	0.49
9	0.84	10	0.65	6	0.51
13	0.95	37	0.90	12	0.65
				22	0.90

Soakaway Dimensions:	
Length (m)	1.80
Width (m)	0.70
Test 1 - Depth (m)	1.00
Test 2 - Depth (m)	0.90
Test 3 - Depth (m)	0.90

	Test 1	Test 2	Test 3
Depth to water at start of test (m)	0.50	0.39	0.35
Depth to water at end of test (m)	0.95	0.90	0.90
Total head drop (m)	0.45	0.51	0.55
Depth to water at 75% level (m)	0.63	0.52	0.49
Depth to water at 50% level (m)	0.75	0.65	0.63
Depth to water at 25% level (m)	0.88	0.77	0.76
Base area of pit (m^2)	1.26	1.26	1.26
Computed Internal Surface Area A_{p50} (m^2)	2.51	2.54	2.64
Effective Storage Volume V_{p75-25} (m^3)	0.32	0.32	0.35
Elapsed time at 75% level (mins)	4	5	5
Elapsed time at 25% level (mins)	10	23	16
Total discharge during test	90%	100%	100%
50% discharge in 24 Hours	Yes	Yes	Yes
Soil infiltration rate *f* (m/s)	3.25E-04	1.15E-04	1.89E-04
Design soil infiltration rate *f* (m/s)	**1.15E-04**		



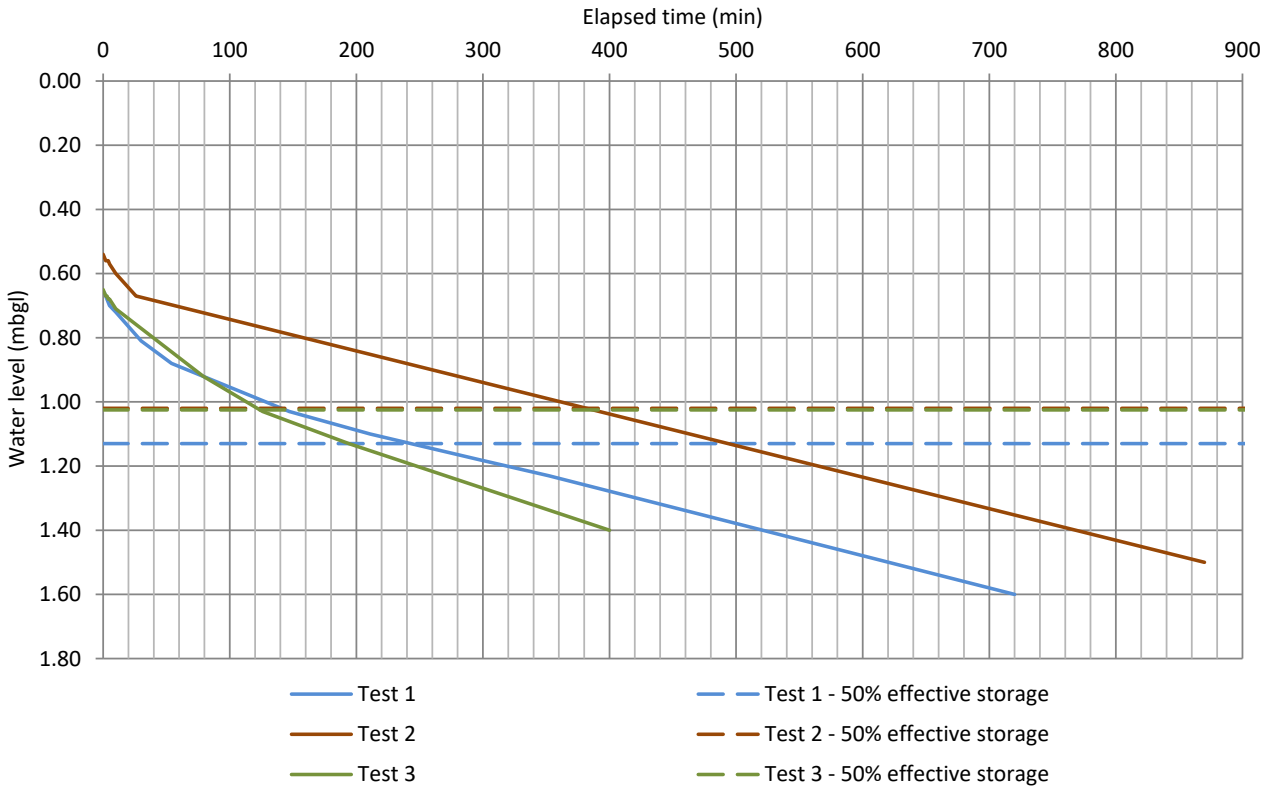
Infiltration Test Results in Accordance with BRE Digest 365:2016

Project Name:	Land off Mounton Road, Chepstow	Project ID:	P1058
Client:	Barwood Development Securities Ltd		
Hole ID:	TP03	Test Date: 10/01/2024	Logged: CS / Checked: JD

Test 1		Test 2		Test 3	
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	0.66	0	0.54	0	0.65
1	0.66	1	0.55	1	0.66
2	0.67	2	0.56	2	0.67
3	0.68	3	0.56	3	0.67
4	0.69	4	0.56	4	0.68
5	0.70	5	0.57	5	0.68
10	0.72	10	0.60	10	0.71
30	0.81	26	0.67	79	0.92
54	0.88	870	1.50	126	1.03
147	1.03			194	1.13
211	1.10			400	1.40
297	1.18				
352	1.23				
720	1.60				

Soakaway Dimensions:	Length (m)		1.70
	Width (m)		0.60
	Test 1 - Depth (m)		1.60
	Test 2 - Depth (m)		1.50
	Test 3 - Depth (m)		1.40

	Test 1	Test 2	Test 3
Depth to water at start of test (m)	0.66	0.54	0.65
Depth to water at end of test (m)	1.60	1.50	1.40
Total head drop (m)	0.94	0.96	0.75
Depth to water at 75% level (m)	0.90	0.78	0.84
Depth to water at 50% level (m)	1.13	1.02	1.03
Depth to water at 25% level (m)	1.37	1.26	1.21
Base area of pit (m^2)	1.02	1.02	1.02
Computed Internal Surface Area A_{p50} (m^2)	3.18	3.23	2.75
Effective Storage Volume V_{p75-25} (m^3)	0.48	0.49	0.38
Elapsed time at 75% level (mins)	63	138	52
Elapsed time at 25% level (mins)	486	626	257
Total discharge during test	100%	100%	100%
50% discharge in 24 Hours	Yes	Yes	Yes
Soil infiltration rate *f* (m/s)	5.94E-06	5.18E-06	1.13E-05
Design soil infiltration rate *f* (m/s)	**5.18E-06**		



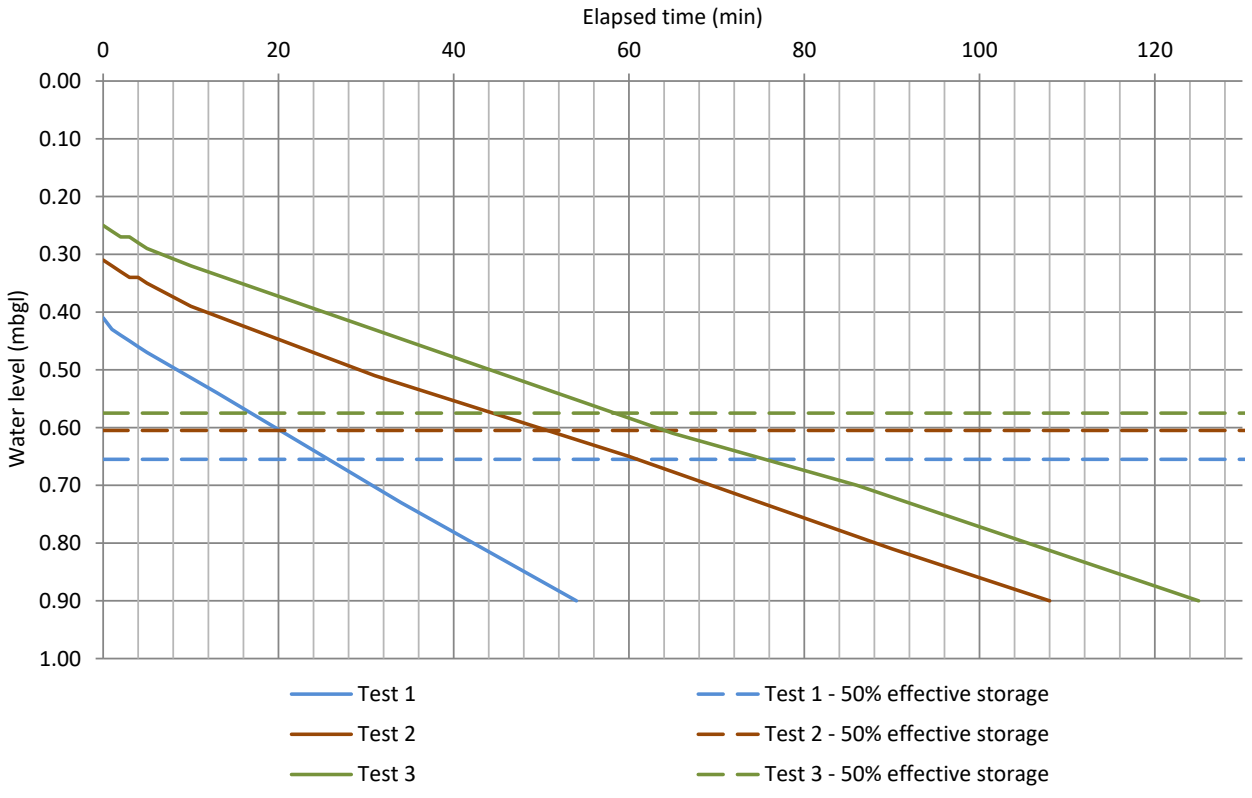
Infiltration Test Results in Accordance with BRE Digest 365:2016

Project Name:	Land off Mounton Road, Chepstow	Project ID:	P1058
Client:	Barwood Development Securities Ltd		
Hole ID:	TP04	Test Date: 10/01/2024	Logged: CS / Checked: JD

Test 1		Test 2		Test 3	
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	0.41	0	0.31	0	0.25
1	0.43	1	0.32	1	0.26
2	0.44	2	0.33	2	0.27
3	0.45	3	0.34	3	0.27
4	0.46	4	0.34	4	0.28
5	0.47	5	0.35	5	0.29
13	0.54	10	0.39	10	0.32
34	0.73	31	0.51	29	0.42
54	0.90	60	0.65	65	0.61
		90	0.81	86	0.70
		108	0.90	125	0.90

Soakaway Dimensions:	
Length (m)	2.20
Width (m)	0.70
Test 1 - Depth (m)	0.90
Test 2 - Depth (m)	0.90
Test 3 - Depth (m)	0.90

	Test 1	Test 2	Test 3
Depth to water at start of test (m)	0.41	0.31	0.25
Depth to water at end of test (m)	0.90	0.90	0.90
Total head drop (m)	0.49	0.59	0.65
Depth to water at 75% level (m)	0.53	0.46	0.41
Depth to water at 50% level (m)	0.66	0.61	0.58
Depth to water at 25% level (m)	0.78	0.75	0.74
Base area of pit (m^2)	1.54	1.54	1.54
Computed Internal Surface Area A_{p50} (m^2)	2.96	3.25	3.43
Effective Storage Volume V_{p75-25} (m^3)	0.38	0.45	0.50
Elapsed time at 75% level (mins)	12	22	28
Elapsed time at 25% level (mins)	40	79	93
Total discharge during test	100%	100%	100%
50% discharge in 24 Hours	Yes	Yes	Yes
Soil infiltration rate *f* (m/s)	7.74E-05	4.06E-05	3.70E-05
Design soil infiltration rate *f* (m/s)	**3.70E-05**		



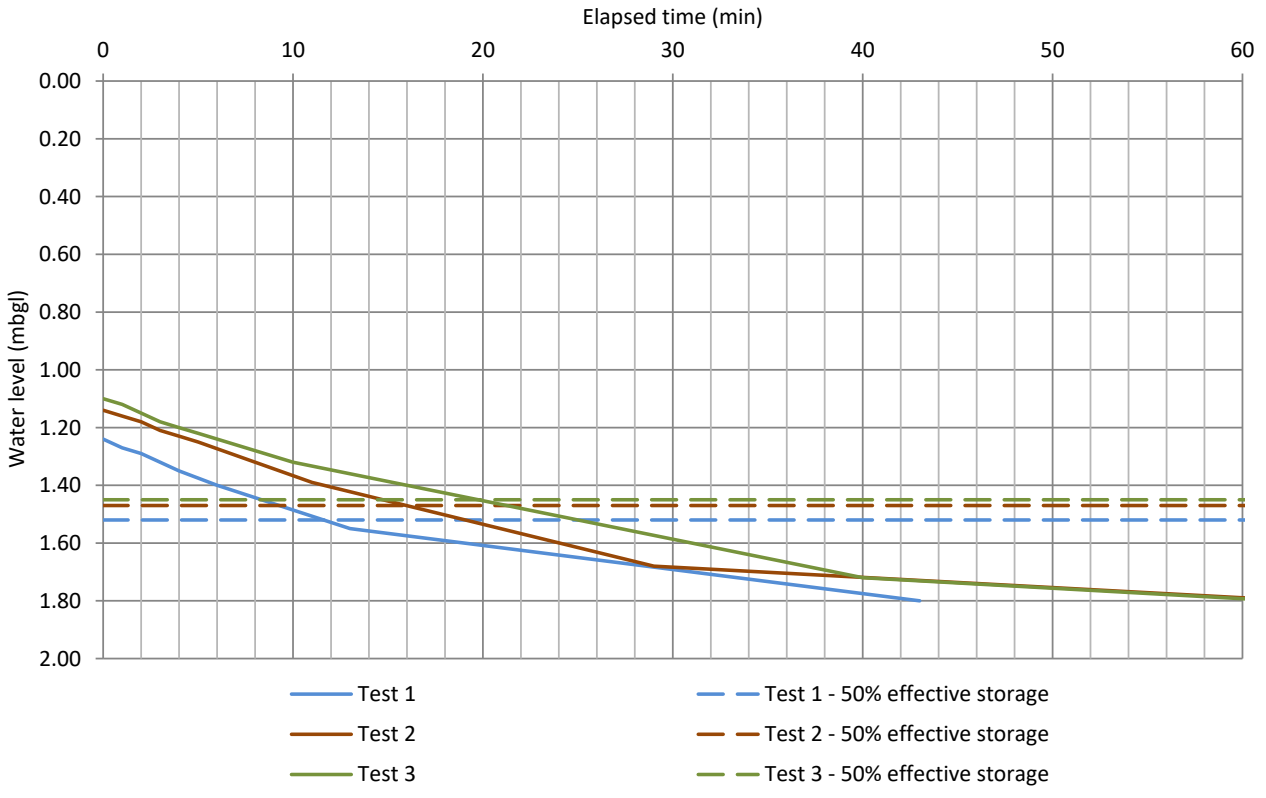
Infiltration Test Results in Accordance with BRE Digest 365:2016

Project Name:	Land off Mounton Road, Chepstow	Project ID:	P1058
Client:	Barwood Development Securities Ltd		
Hole ID:	TP05	Test Date: 10/01/2024	Logged: CS / Checked: JD

Test 1		Test 2		Test 3	
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	1.24	0	1.14	0	1.10
1	1.27	1	1.16	1	1.12
2	1.29	2	1.18	2	1.15
3	1.32	3	1.21	3	1.18
4	1.35	4	1.23	4	1.20
6	1.40	5	1.25	5	1.22
13	1.55	11	1.39	10	1.32
43	1.80	29	1.68	40	1.72
		63	1.80	62	1.80

Soakaway Dimensions:	
Length (m)	2.30
Width (m)	0.60
Test 1 - Depth (m)	1.80
Test 2 - Depth (m)	1.80
Test 3 - Depth (m)	1.80

	Test 1	Test 2	Test 3
Depth to water at start of test (m)	1.24	1.14	1.10
Depth to water at end of test (m)	1.80	1.80	1.80
Total head drop (m)	0.56	0.66	0.70
Depth to water at 75% level (m)	1.38	1.31	1.28
Depth to water at 50% level (m)	1.52	1.47	1.45
Depth to water at 25% level (m)	1.66	1.64	1.63
Base area of pit (m^2)	1.38	1.38	1.38
Computed Internal Surface Area A_{p50} (m^2)	3.00	3.29	3.41
Effective Storage Volume V_{p75-25} (m^3)	0.39	0.46	0.48
Elapsed time at 75% level (mins)	5	7	8
Elapsed time at 25% level (mins)	26	26	33
Total discharge during test	100%	100%	100%
50% discharge in 24 Hours	Yes	Yes	Yes
Soil infiltration rate *f* (m/s)	1.02E-04	1.22E-04	9.40E-05
Design soil infiltration rate *f* (m/s)	**9.40E-05**		



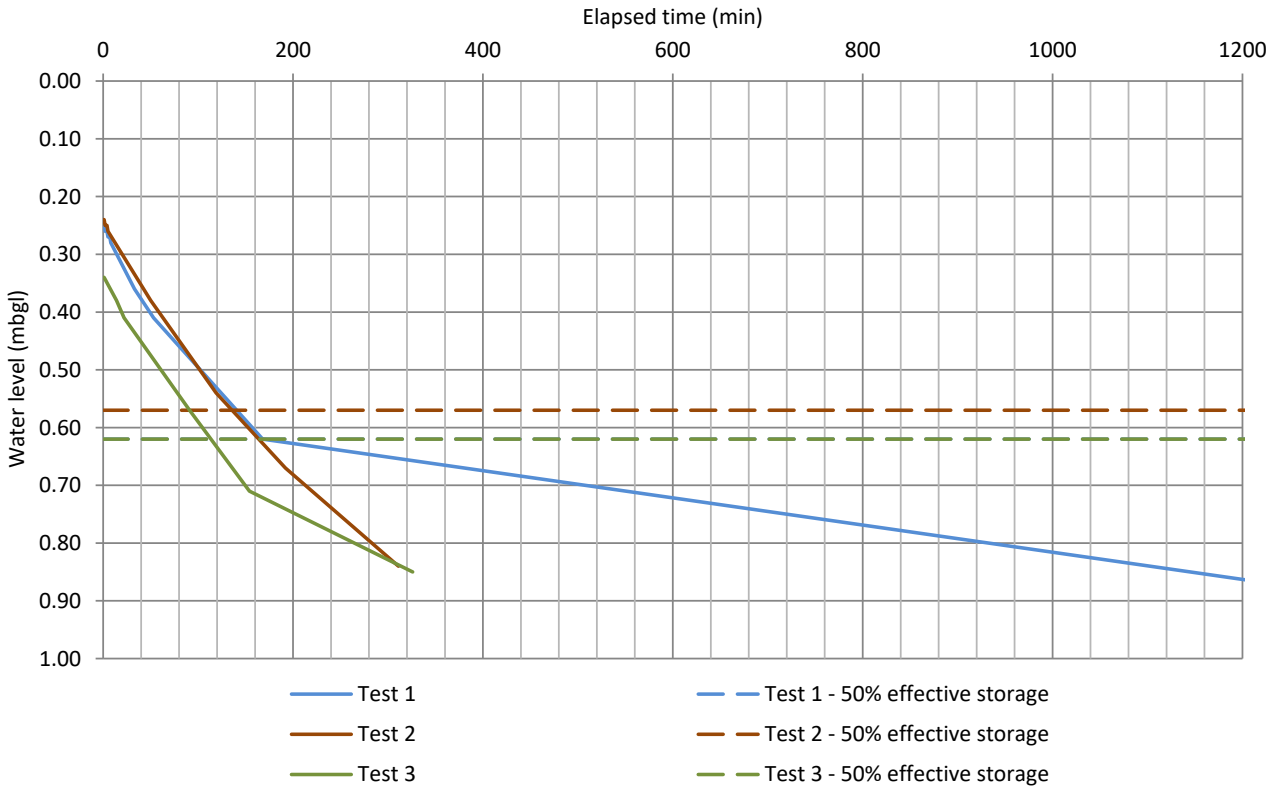
Infiltration Test Results in Accordance with BRE Digest 365:2016

Project Name:	Land off Mounton Road, Chepstow	Project ID:	P1058
Client:	Barwood Development Securities Ltd		
Hole ID:	TP06	Test Date: 10/01/2024	Logged: CS / Checked: JD

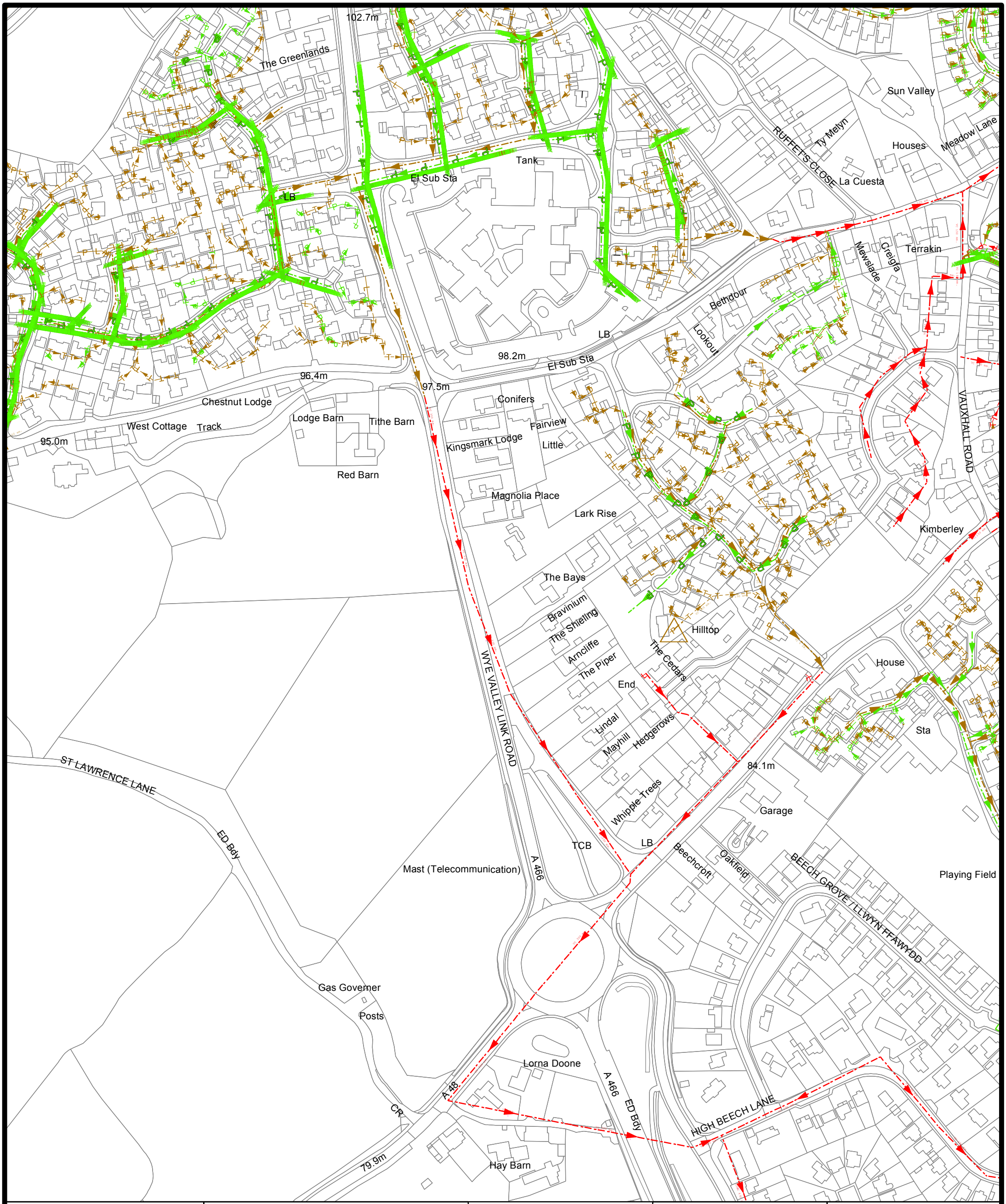
Test 1		Test 2		Test 3	
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	0.24	0	0.24	0	0.34
1	0.25	1	0.24	1	0.34
2	0.26	2	0.25	14	0.38
3	0.26	3	0.25	22	0.41
4	0.26	4	0.25	91	0.57
5	0.27	5	0.26	154	0.71
6	0.27	50	0.38	326	0.85
7	0.27	119	0.54		
8	0.28	192	0.67		
33	0.36	311	0.84		
53	0.41				
168	0.62				
1230	0.87				

Soakaway Dimensions:	
Length (m)	1.50
Width (m)	0.60
Test 1 - Depth (m)	1.00
Test 2 - Depth (m)	0.90
Test 3 - Depth (m)	0.90

	Test 1	Test 2	Test 3
Depth to water at start of test (m)	0.24	0.24	0.34
Depth to water at end of test (m)	0.87	0.84	0.85
Total head drop (m)	0.63	0.60	0.51
Depth to water at 75% level (m)	0.43	0.41	0.48
Depth to water at 50% level (m)	0.62	0.57	0.62
Depth to water at 25% level (m)	0.81	0.74	0.76
Base area of pit (m^2)	0.90	0.90	0.90
Computed Internal Surface Area A_{p50} (m^2)	2.50	2.29	2.08
Effective Storage Volume V_{p75-25} (m^3)	0.34	0.30	0.25
Elapsed time at 75% level (mins)	64	61	52
Elapsed time at 25% level (mins)	975	238	215
Total discharge during test	83%	91%	91%
50% discharge in 24 Hours	Yes	Yes	Yes
Soil infiltration rate *f* (m/s)	2.51E-06	1.23E-05	1.24E-05
Design soil infiltration rate *f* (m/s)	**2.51E-06**		

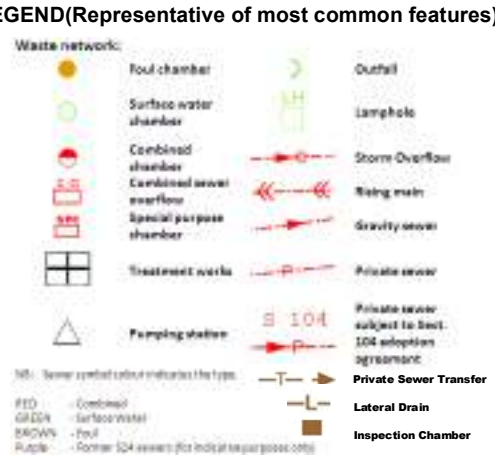


Appendix D – Sewer Records



Dŵr Cymru Welsh Water

LEGEND(Representative of most common features)



Notes:

Dwr Cymru Cyf gives this information as to the position of its underground apparatus by way of general guidance only on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the Company's apparatus and any onus of locating the apparatus before carrying out any excavations rests entirely on you. It must be understood that the furnishing of the information is entirely without prejudice to the provision of the New Roads and Streetworks Act 1991 and of the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

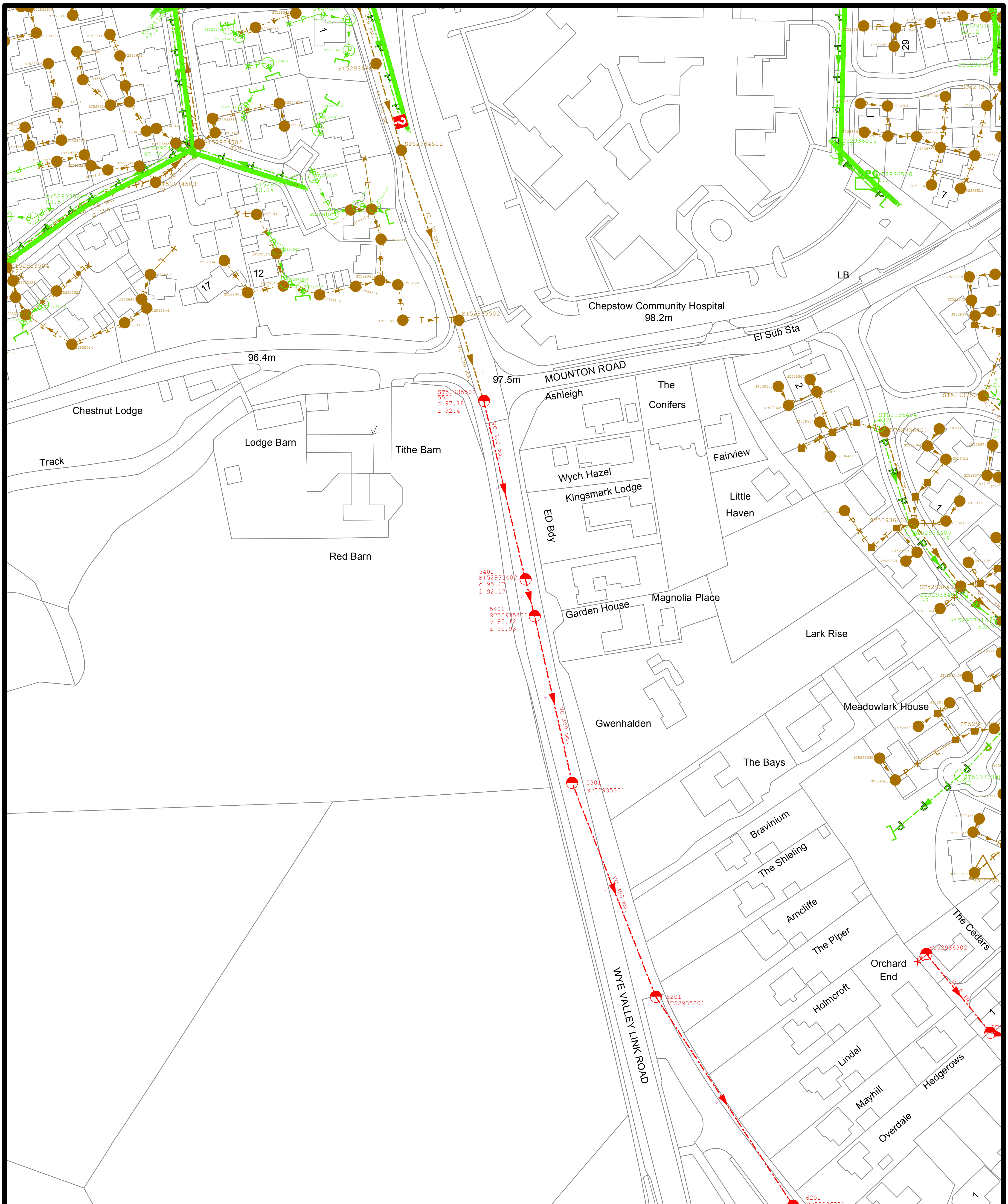
N W E S

Map Ref:

Map scale: 1:2,500

Printed by:

Printed on:



LEGEND(Representative of most common features)

Waste network:

- Foul chamber
- Surface water chamber
- Combined chamber
- Combined sewer overflow
- Special purpose chamber
- Treatment works
- Pumping station
- Outfall
- Lamphole
- Storm Overflow
- Rising main
- Gravity sewer
- Private sewer
- S 104 Private sewer subject to Sect. 104 adoption agreement
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

NB: Sewer symbol colour indicates the type.

RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former S24 sewers (for indicative purposes only)

Notes:

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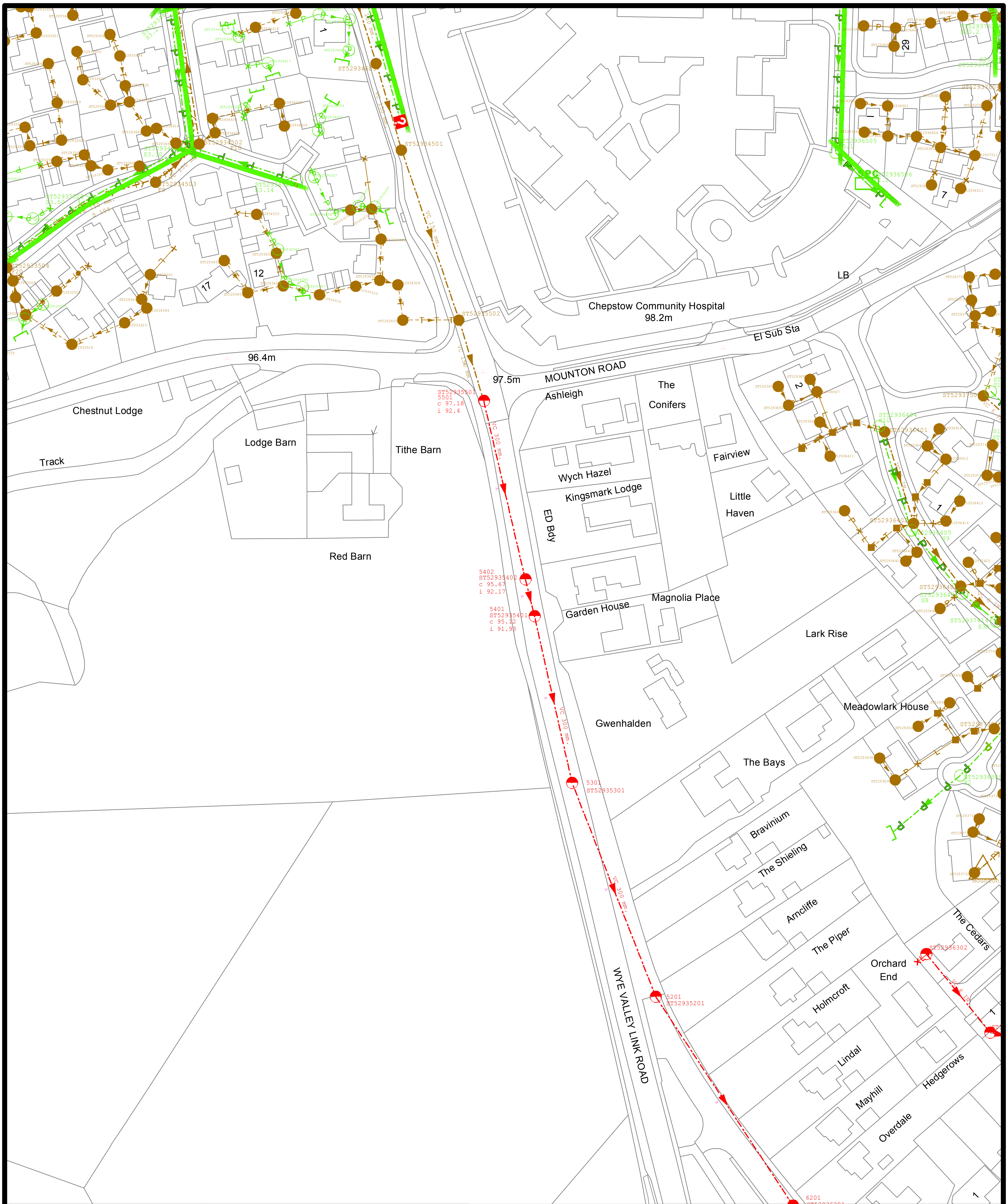
EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

N W E S

Map Ref:
Map scale: 1:1,250
Printed by:
Printed on:



LEGEND(Representative of most common features)

Waste network:

Foul chamber		Outfall	
Surface water chamber		Lamphole	
Combined chamber		Storm Overflow	
Combined sewer overflow		Rising main	
Special purpose chamber		Gravity sewer	
Treatment works		Private sewer	
Pumping station	S 104	Private sewer subject to Sect. 104 adoption agreement	
	—T—	Private Sewer Transfer	
	—L—	Lateral Drain	
		Inspection Chamber	

NB: Sewer symbol colour indicates the type.

RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former S24 sewers (for indicative purposes only)

Notes:

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Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref:
Map scale: 1:1,250
Printed by:
Printed on: