Percolation Testing

Site Address
Silver Birches
Heath Ride
Finchampstead
Wokingham
RG40 3QJ

Client
Keen Partnership Ltd

Prepared By
STM Environmental Consultants Ltd

Date
15/05/2026

1 Document Control

PERCOLATION TEST

Site Address:	Silver Birches, Heath Ride, Finchampstead, Wokingham, RG40 3QJ
National Grid Reference:	480828 , 164618
STM Reference:	PT – 2026 - 00004
Version No:	1.0
Prepared for:	Keen Partnership Ltd
Date:	15/05/2026
Report Author:	Matthew Ashdown (BSc) **Principal Environmental Consultant**
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2 Disclaimer

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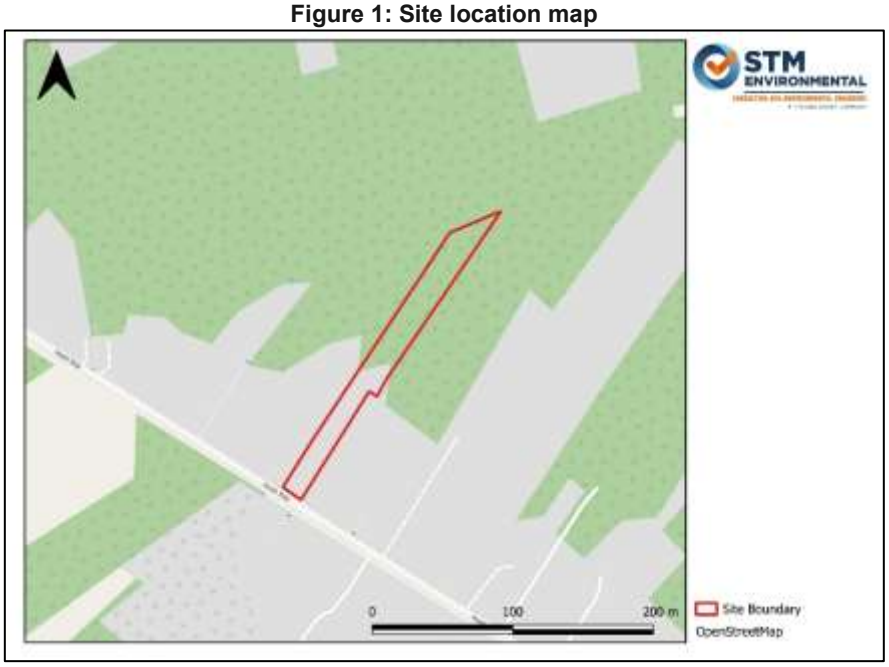
3 Introduction

STM Environmental Consultants Limited were appointed by Keen Partnership Ltd to undertake a percolation test for the discharge of surface water and effluent to ground at Silver Birches, Heath Ride, Finchampstead, Wokingham, RG40 3QJ.

The site is centred at national grid reference 480828 , 164618. Figure 1 provides the site location map and aerial imagery.

Figure 1: Site location map



3.1 Proposed Development

The percolation testing is required to support a the drainage design for the construction of a new dwelling. Copies of the development plans are presented in Appendix 1.

3.2 Report Aims and Objectives

This report summarises testing carried out on site to assess the feasibility of using soakaways & drainage field systems, for the discharge of surface water and treated foul effluent to ground.

4 Site Investigation

4.1.1 Works Undertaken

The site investigation was undertaken between the 21st and 23rd of April 2026. A total of 3no. trial pits were excavated to depths of between 0.6 – and 1.8mbgl.

TP01 and TP03 was undertaken in compliance with the BRE 365 methodology for the soakaway design.

TP02 was undertaking following the methodology from the guidance documents BS 6297:2007 for the use of a drainage field.

A test location map is available in Appendix 1.

Pictures of the trial pits are available in Appendix 2.

The table below summarise the works that were conducted on site.

BRE 365 DG Methodology				
TP / BH	**Dimension L & W / ø (m)**	**Depth (m)**	**Infiltration Rate (m/hr)**	**Infiltration Rate (m/s)**
TP01	1.5 x 0.3	1.8	0.00446*	1.24E-06*
TP03	1.5 x 0.3	1.5	0.00781	2.17E-06
Field Drainage Testing				
ID	**Dimension L & W / ø (m)**	**Depth (m)**	**Average Vp Rate**	Result
TP02/1	2.5 x 0.6	0.6	Fail<10<Pass>112 = FAIL	
TP02/2	0.3 x 0.3	0.9	74	Pass
TP03	0.3 x 0.3	0.9	96	Pass

* Only 1 drainage cycle calculated – No in accordance with BRE 365 Methodology

4.1.2 Geology Encounter

The investigation encountered ground conditions that were generally consistent with the published geological records of the area. Made Ground was encountered to a maximum depth of 1mbgl and was generally underlain by slightly Clayey SAND to 4mbgl, itself in turn underlain by SAND to a depth of 6mbgl.

4.1.3 Infiltration Test

The BRE DG 365 Soakaway Design methodology was employed to determine the infiltration coefficient describing the rate of infiltration into the ground.

The water drained relatively slowly during all rounds of testing.

The infiltration rate was calculated from the longest drain time (in minutes) between the 75% and 25% total volume of water.

The data from the testing was used to calculate the infiltration rates. The infiltration rate was estimated to be 1.24E-06m/s (0.004m/hr) in TP01 which can be classified as a moderately slow rate of infiltration. **It should be noted only 1no. drainage cycle was completed within this test location.**

The infiltration rate was estimated to be 2.17E-06m/s (0.00781m/hr) in TP03 which can be classified as a moderate rate of infiltration. It should be noted the final drainage cycle was not completed due to time constraints.

4.2 Percolation Testing - Land Drainage Testing

A total of 2no. land drainage tests were undertaken within the base of a trial pit forming TP02.

TP02 was an elongated trial pit with a base level of 0.6mbgl. TP02/01 and TP02/02 were excavated at the base 1m apart (0.3m wide and 0.3m deep).

The methodology was adopted from the guidance documents BS 6297:2007 – 'Code of practice for design and installation of drainage fields for use in wastewater treatment and Drainage and Waste Disposal 2010'.

The purpose of the field drainage tests was to calculate the speed at which the water in the test holes percolates through the soil (Vp).

All test locations were dry on the morning of the second day of the investigation. As such, repeat drainage cycles were undertaken within each test location.

The average Vp values were calculated from the test results during the three drainage cycles completed in each test location. TP02/01 & TP02/2 established **average** Vp values of 74 and 96 respectively.

As such, the use of a drainage field system within the tested location is deemed to be suitable as the results lie within the range of good results. A positive result is generally indicated to greater than 10 and less than 112.

5 Conclusions

The infiltration rate calculated from TP03 was classified as having a moderate rate of infiltration, however the rate is considered to be unlikely to be suitable to ensure suitable half drainage times when considering the extreme storm events.

As a result the site is considered partially suitable for the use of infiltration SuDS such as soakaways.

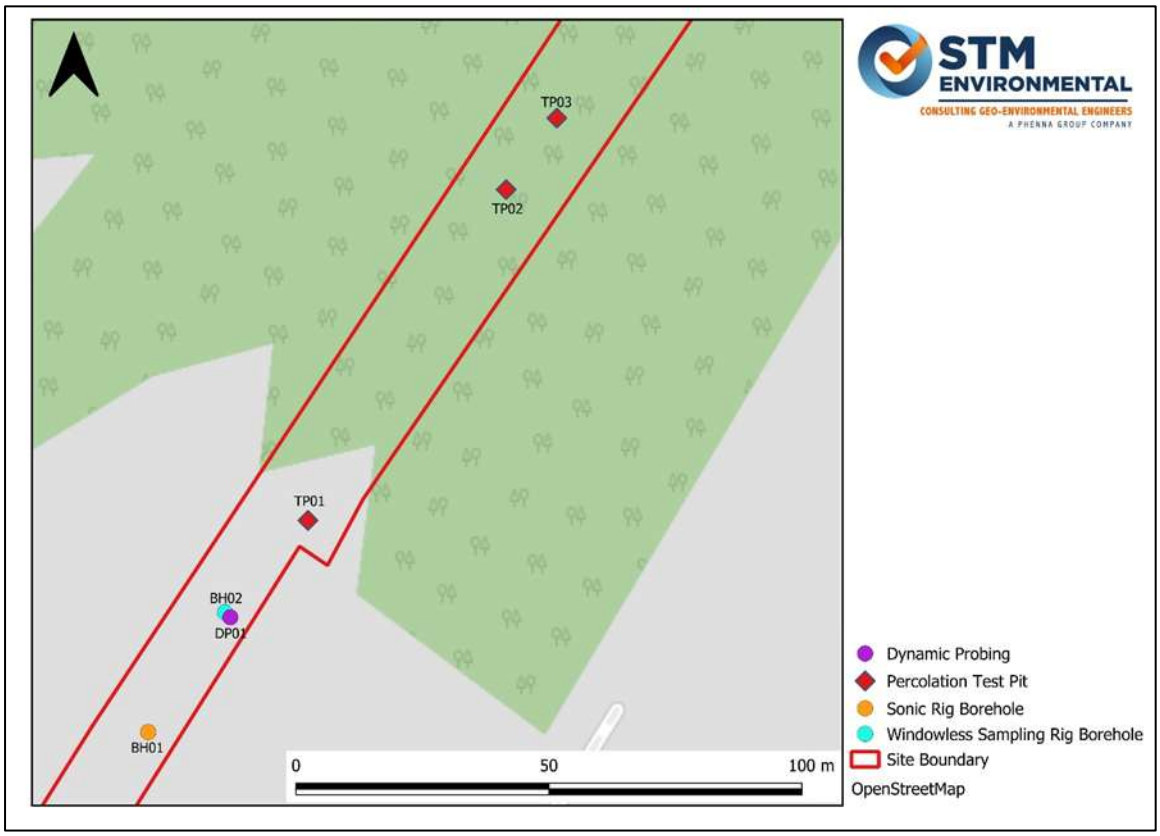
The Vp values were inside the range required for the use of drainage fields, as such, assuming the general binding rules are followed, the discharge of treated effluent to ground is suitable.

6 References

1. Communities and Local Government - National Planning Policy Framework NPPF, March 2012.
2. CIRIA, Defra, Environment Agency – UK SuDS Manual, 2015.

7 Appendices

7.1 Appendix 1 - Site Investigation Map



7.2 Appendix 2 - Site Photographs

Photograph showing the front of the site.

- STM Reference: PT – 2026 - 00004
- Site Address: Silver Birches, Heath Ride, Finchampstead, Wokingham, RG40 3QJ

STM
TP01 Dimensions
(1.8m D)
Project GT/SuDS - Silver Birches
Time Tues, 21 Apr 2026 10:18
Coordinate 51.374957°N, 0.839913°W
±4m

STM
TP01 Morning of
22/04/26
Project GT/SuDS - Silver Birches
Time Wed, 22 Apr 2026 08:24
Coordinate 51.374992°N, 0.839813°W
±5m

TP02 Location
Project GT/SuDS - Silver Birches
Time Tues, 21 Apr 2026 12:10
Coordinate 51.375632°N, 0.839185°W ±25m

TP02 Morning of 22/04/26
Project GT/SuDS - Silver Birches
Time Wed, 22 Apr 2026 08:21
Coordinate 51.375594°N, 0.839047°W ±10m

TP02 - Run No.2 (Start)
Project GT/SuDS - Silver Birches
Time Wed, 22 Apr 2026 08:42
Coordinate 51.375590°N, 0.839188°W
Timemark

TP02 Dimensions inner pit (300mmx300mm)
Project GT/SuDS - Silver Birches
Time Tues, 21 Apr 2026 12:10
Coordinate 51.375631°N, 0.839224°W ±24m

TP03 Location
Project GT/SuDS - Silver Birches
Time Tues, 21 Apr 2026 10:25
Coordinate 51.375692°N, 0.839025°W ±5m

TP03 Dimensions (1.5m D)
Project GT/SuDS - Silver Birches
Time Tues, 21 Apr 2026 10:44
Coordinate 51.375685°N, 0.839094°W ±22m

TP03 Dimensions
(0.3m W)
Project GT/SuDS - Silver Birches
Time Tues, 21 Apr 2026 10:44
Coordinate 51.375674°N, 0.839162°W
±28m

TP03 Morning of
22/04/26
Project GT/SuDS - Silver Birches
Time Wed, 22 Apr 2026 08:21
Coordinate 51.375794°N, 0.839084°W
±10m

7.3 Appendix 3 - Infiltration Results

7.3.1 Infiltration Vs Time Graph (TP01)

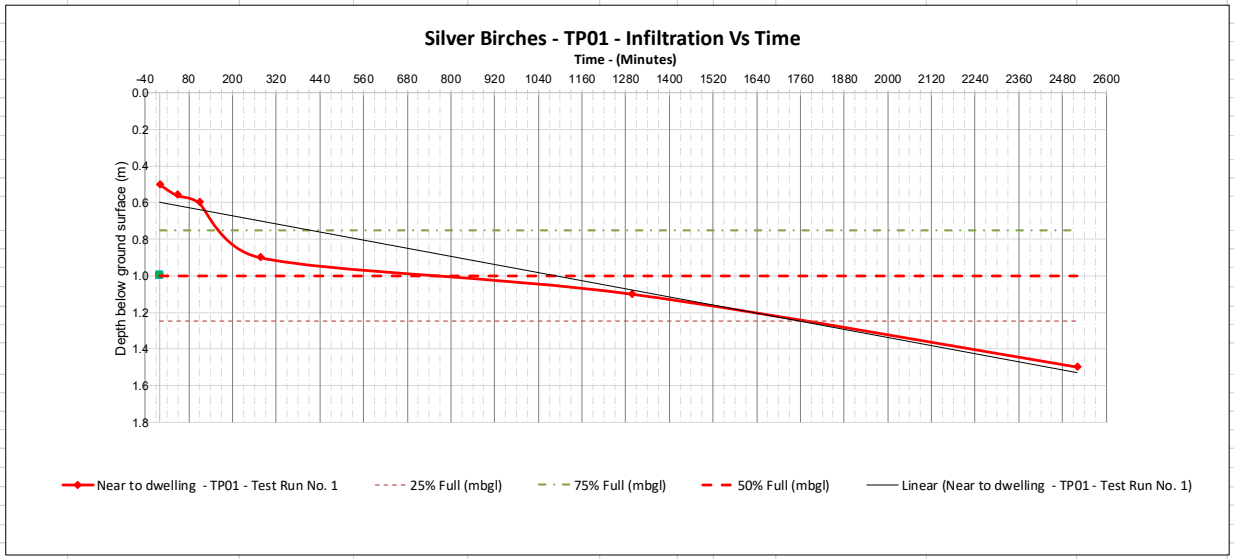
Site Location	Silver Birches		
Area	Near to dwelling		
Trial Pit ID	TP01		
Test Run	1	2	3

Near to dwelling - TP01 - Test Run No. 1

insert time according to the measured units

Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)		Time	*25% Full (mbgl)*	*50% Full (mbgl)*	*75% Full (mbgl)*
1	0.5	0.00	0	0	0:00	10:24:00	1.25	1.00	0.75
0.94	0.6	0.80	48	2880.00	0:48	11:12:00	1.25	1.00	0.75
0.9	0.6	1.80	108	6480.00	1:48	12:12:00	1.25	1.00	0.75
0.6	0.9	4.60	276	16560.00	4:36	15:00:00	1.25	1.00	0.75
0.4	1.1	21.60	1296	77760.00	21:36	08:00:00	1.25	1.00	0.75
0	1.5	42.00	2520	151200.00	18:00		1.25	1.00	0.75

Reached 25% within 24 hours. Second run undertaken.



$f = V_{p75-25} * 0.3 / a_{s50} * t_{p75-25}$

Infiltration Coef. Calculations		
Width	0.50	m
Depth	1.50	m
Length	2.00	m
Total Volume	1.50	m3
Effective Storage Depth	1.00	m
25% Full	1.25	mbgl
50% Full	1.00	mbgl
75% Full	0.75	mbgl
Pipe Depth	**1.85**	
a_{s50}	4.00	m^2
V_{p75-25}	0.50	m^3
$t_{p75-25\ (read\ from\ graph)}$	1680.00	mins
f	**1.24E-06**	m/s
f	4.46429	mm/hr
f	0.00446	m/hr

Infiltration Rate (mm/hr)	
IR < 0.036	IMPERMEABLE
0.036 < IR < 0.38	VERY SLOW
0.38 < IR < 3.7	MODERATELY SLOW
3.7 < IR < 37	MODERATE
37 < IR < 370	MODERATELY RAPID
IR > 370	RAPID

BASIC INFILTRATION RATES FOR VARIOUS SOIL	
Soil type	**Basic infiltration rate (mm/hour)**
sand	less than 30
sandy loam	20 - 30
loam	10 - 20
clay loam	5 - 10
clay	1 - 5

Water level = Pipe Depth - Dip

7.3.2 Infiltration Vs Time Graph (TP03)

Site Location	Silver Birches		
Area	Rear or site		
Trial Pit ID	TP03		
Test Run	1	2	3

Rear or site - TP03 - Test Run No. 1

insert time according to the measured units

Dip Readng	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
	1	0.5	0.00	0	0 0:00	11:00:00	1.25	1.00	0.75
	0.9	0.6	0.50	30	1800.00 0:30	11:30:00	1.25	1.00	0.75
	0.81	0.7	1.33	80	4800.00 1:20	12:20:00	1.25	1.00	0.75
	0.6	0.9	4.20	252	15120.00 4:12	15:12:00	1.25	1.00	0.75
	0	1.5	21.00	1260	75600.00 21:00	08:00:00	1.25	1.00	0.75

Reached 25% within 24 hours. Second run undertaken.

Rear or site - TP03 - Test Run No. 2

insert time according to the measured units

Dip Readng	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
	1	0.5	0.00	0	0 0:00	09:16:00	1.25	1.00	0.75
	0.9	0.6	0.28	17	1020.00 0:17	09:33:00	1.25	1.00	0.75
	0.84	0.7	0.73	44	2640.00 0:44	10:00:00	1.25	1.00	0.75
	0.78	0.7	1.48	89	5340.00 1:29	10:45:00	1.25	1.00	0.75
	0.71	0.8	2.23	134	8040.00 2:14	11:30:00	1.25	1.00	0.75
	0.6	0.9	4.95	297	17820.00 4:57	14:13:00	1.25	1.00	0.75
	0.46	1.0	6.48	389	23340.00 6:29	15:45:00	1.25	1.00	0.75
	0	1.5	22.73	1364	81840.00 22:44	08:00:00	1.25	1.00	0.75

Reached 25% within 24 hours. Second run undertaken.

Rear or site - TP03 - Test Run No. 3

insert time according to the measured units

Dip Readng	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
	1	0.5	0.00	0	0 0:00	08:42:00	1.25	1.00	0.75
	0.87	0.6	1.42	85	5100.00 1:25	10:07:00	1.25	1.00	0.75
	0.77	0.7	2.63	158	9480.00 2:38	11:20:00	1.25	1.00	0.75
	0.72	0.8	3.70	222	13320.00 3:42	12:24:00	1.25	1.00	0.75
	0.6	0.9	5.70	342	20520.00 5:42	14:24:00	1.25	1.00	0.75
	0.5	1.0	7.80	468	28080.00 7:48	16:30:00	1.25	1.00	0.75

End of Testing due to time constraints and poor rate of infiltration

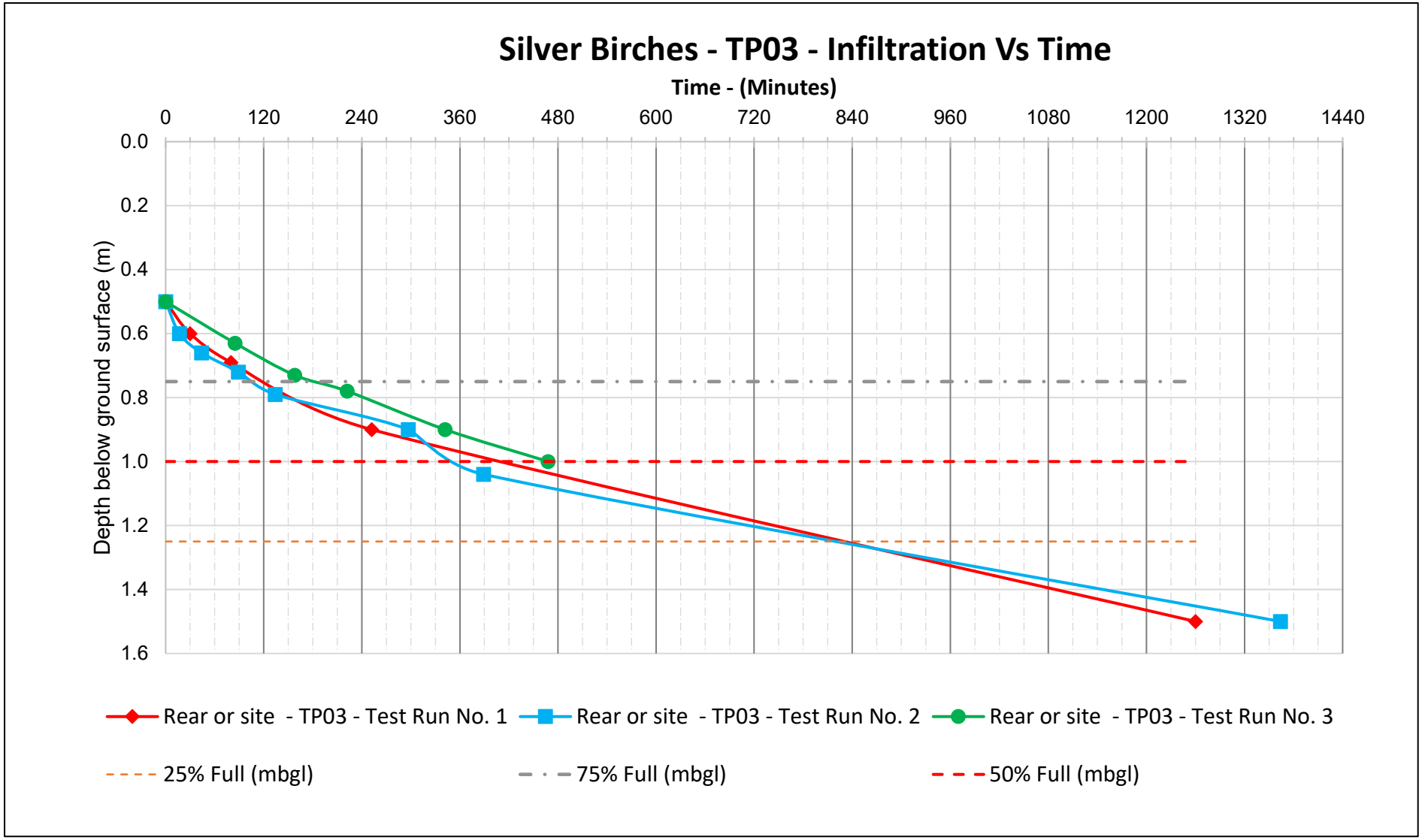
$f = V_{p75-25} * 0.3 / a_{s50} * t_{p75-25}$

Infiltration Coef. Calculations		
Width	0.30	m
Depth	1.50	m
Length	1.50	m
Total Volume	0.68	m3
Effective Storage Depth	1.00	m
25% Full	1.25	mbgl
50% Full	1.00	mbgl
75% Full	0.75	mbgl
Pipe Depth	**1.85**	
a_{s50}	2.40	m^2
V_{p75-25}	0.23	m^3
$t_{p75-25\ (read\ from\ graph)}$	720.00	mins
f	**2.17E-06**	m/s
f	7.81250	mm/hr
f	0.00781	m/hr

Infiltration Rate (mm/hr)	
IR < 0.036	IMPERMEABLE
0.036 < IR < 0.38	VERY SLOW
0.38 < IR < 3.7	MODERATELY SLOW
3.7 < IR < 37	MODERATE
37 < IR < 370	MODERATELY RAPID
IR > 370	RAPID

BASIC INFILTRATION RATES FOR VARIOUS SOIL	
Soil type	**Basic infiltration rate (mm/hour)**
sand	less than 30
sandy loam	20 - 30
loam	10 - 20
clay loam	5 - 10
clay	1 - 5

Water level = Pipe Depth - Dip


Silver Birches - TP03 - Infiltration Vs Time
Time - (Minutes)
0
120
240
360
480
600
720
840
960
1080
1200
1320
1440
Depth below ground surface (m)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
Rear or site - TP03 - Test Run No. 1
Rear or site - TP03 - Test Run No. 2
Rear or site - TP03 - Test Run No. 3
25% Full (mbgl)
75% Full (mbgl)
50% Full (mbgl)

7.3.3 Vp Results (TP02/1)

Site Location	Silver Birches			
Area	Field Drainage Testing - Rear of Site			
Trial Pit ID	TP02/01			
Test Run	1	2	3	

Field Drainage Testing - Rear of Site - TP02/01 - Test Run No. 1

insert time according to the measured units

% Percentage	Water Level (m)	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
100	0.3	0.3	0.6	0.00	0	0	0:00	12:24:00	0.825	0.75	0.675
75	0.225	0.225	0.7	0.27	16	960.00	0:16	12:40:00	0.825	0.75	0.675
50	0.15	0.15	0.8	0.50	30	1800.00	0:30	12:54:00	0.825	0.75	0.675
25	0.075	0.075	0.8	1.68	101	6060.00	1:41	14:05:00	0.825	0.75	0.675
0	0		0.9	#VALUE!	#VALUE!	#VALUE!	#VALUE!	-	0.825	0.75	0.675
VP Value	34			VP Value of 20.4, 2nd run undertaken.							

Field Drainage Testing - Rear of Site - TP02/01 - Test Run No. 2

insert time according to the measured units

% Percentage	Water Level (m)	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
100	0.3	0.3	0.6	0.00	0	0	0:00	08:35:00	0.825	0.75	0.675
75	0.225	0.225	0.7	0.77	46	2760.00	0:46	09:21:00	0.825	0.75	0.675
50	0.15	0.15	0.8	2.17	130	7800.00	2:10	10:45:00	0.825	0.75	0.675
25	0.075	0.07	0.8	4.78	287	17220.00	4:47	13:22:00	0.825	0.75	0.675
0	0		0.9	#VALUE!	#VALUE!	#VALUE!	#VALUE!	-	0.825	0.75	0.675
VP Value	96.4			VP Value of 96.4 3rd run undertaken.							

Field Drainage Testing - Rear of Site - TP02/01 - Test Run No. 3

insert time according to the measured units

% Percentage	Water Level (m)	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
100	0.3	0.3	0.6	0.00	0	0	0:00	09:00:00	0.825	0.75	0.675
75	0.225	0.225	0.7	1.42	85	5100.00	1:25	10:25:00	0.825	0.75	0.675
50	0.15	0.15	0.8	2.85	171	10260.00	2:51	11:51:00	0.825	0.75	0.675
25	0.075	0.075	0.8	5.33	320	19200.00	5:20	14:20:00	0.825	0.75	0.675
0	0		0.9	#VALUE!	#VALUE!	#VALUE!	#VALUE!	-	0.825	0.75	0.675
VP Value	94			Average VP Value of 74 over three drainage cylces.							

$f = V_{p75-25} * 0.3 / a_{s50} * t_{p75-25}$

Infiltration Coef. Calculations		
Width	0.30	m
Depth	0.90	m
Length	1.60	m
Total Volume	0.43	m3
Effective Storage Depth	0.30	m
25% Full	0.83	mbgl
50% Full	0.75	mbgl
75% Full	0.68	mbgl
Pipe Depth	**1.85**	
VP Value	(25% (time seconds) - **75% (time seconds)) / 150 (mm)**	m^2
Average Vp Value	74.80	mm/s

7.3.4 Vp Results (TP02/2)

Site Location	Silver Birches			
Area	Field Drainage Testing - Rear of Site			
Trial Pit ID	TP02_2			
Test Run	1	2	3	

Field Drainage Testing - Rear of Site - TP02_2 - Test Run No. 1

insert time according to the measured units

% Percentage	Water Level (m)	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
100	0.3	0.3	0.7	0.00	0	0	0:00	12:24:00	0.925	0.85	0.775
75	0.225	0.225	0.8	0.57	34	2040.00	0:34	12:58:00	0.925	0.85	0.775
50	0.15	0.15	0.9	1.27	76	4560.00	1:16	13:40:00	0.925	0.85	0.775
25	0.075	0.075	0.9	1.78	107	6420.00	1:47	14:11:00	0.925	0.85	0.775
0	0		1.0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	-	0.925	0.85	0.775
VP Value	29.2			VP Value of 20.4, 2nd run undertaken.							

Field Drainage Testing - Rear of Site - TP02_2 - Test Run No. 2

insert time according to the measured units

% Percentage	Water Level (m)	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
100	0.3	0.3	0.7	0.00	0	0	0:00	08:39:00	0.925	0.85	0.775
75	0.225	0.225	0.8	0.70	42	2520.00	0:42	09:21:00	0.925	0.85	0.775
50	0.15	0.15	0.9	2.72	163	9780.00	2:43	11:22:00	0.925	0.85	0.775
25	0.075	0.075	0.9	5.85	351	21060.00	5:51	14:30:00	0.925	0.85	0.775
0	0		1.0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	-	0.925	0.85	0.775
VP Value	123.6			VP Value of 123.6 3rd run undertaken.							

Field Drainage Testing - Rear of Site - TP02_2 - Test Run No. 3

insert time according to the measured units

% Percentage	Water Level (m)	Water Level Above Base	Depth (mbgl)	Time (hours)	Time (minutes)	Time (s)	Time	25% Full (mbgl)	50% Full (mbgl)	75% Full (mbgl)
100	0.3	0.3	0.7	0.00	0	0	0:00	09:08:00	0.925	0.85	0.775
75	0.225	0.225	0.8	2.00	120	7200.00	2:00	11:08:00	0.925	0.85	0.775
50	0.15	0.15	0.9	4.12	247	14820.00	4:07	13:15:00	0.925	0.85	0.775
25	0.075	0.075	0.9	7.58	455	27300.00	7:35	16:43:00	0.925	0.85	0.775
0	0		1.0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	-	0.925	0.85	0.775
VP Value	134			Average VP Value of 95 over three drainage cylces.							

$f = V_{p75-25} * 0.3 / a_{s50} * t_{p75-25}$

Infiltration Coef. Calculations		
Width	0.30	m
Depth	1.00	m
Length	1.60	m
Total Volume	0.48	m3
Effective Storage Depth	0.30	m
25% Full	0.93	mbgl
50% Full	0.85	mbgl
75% Full	0.78	mbgl
Pipe Depth	**1.85**	
VP Value	(25% (time seconds) - **75% (time seconds)) / 150 (mm)**	m^2
Average Vp Value	95.60	mm/s