

APPENDIX E

Infiltration Testing Results

Infiltration Test to BRE365 - SA1 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.40
	1.0	60	0.40
	4.0	240	0.42
	23.0	1380	0.53
	60.0	3600	0.65
	85.0	5100	0.70
	135.0	8100	0.78

Location: SA1

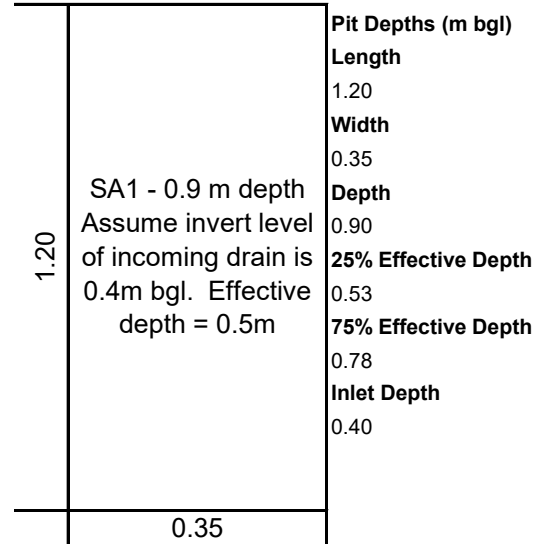
TEST 1

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation



Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \text{Vp75-25} / (\text{ap50} \times \text{tp75-25})$$

Where:

Vp75-25 = effective storage volume between 75% and 25% effective depth

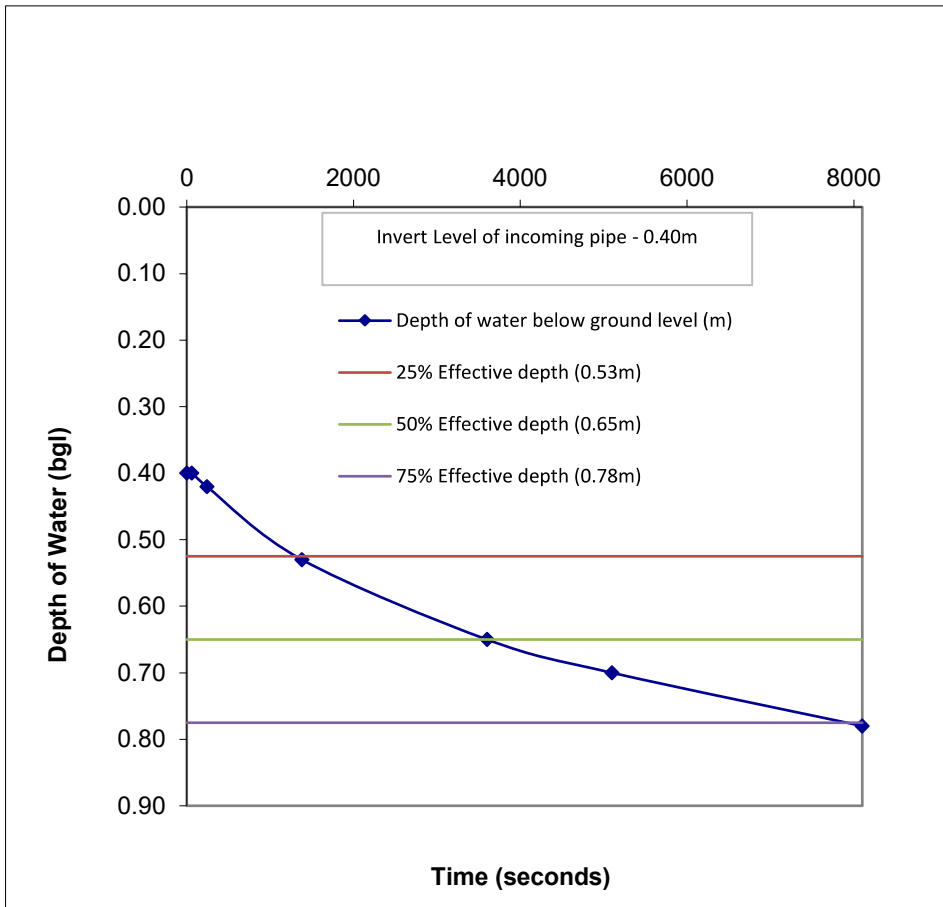
$$1.2 \times 0.35 \times (0.775 - 0.525) = \mathbf{0.105}$$

$$\text{ap50} = \text{internal area of TP upto 50\% effective depth} + \text{base of TP} \\ 2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35) = \mathbf{1.195}$$

$$\text{Tp75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth} \\ = \mathbf{6720} \text{ secs}$$

$$f = \mathbf{1.31E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA1 TEST 2

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.40
	9.0	540	0.42
	39.0	2340	0.49
	52.0	3120	0.53
	72.0	4320	0.59
	74.0	4440	0.60
	107.0	6420	0.63
	127.0	7620	0.65
	209.0	12540	0.76
	220.0	13200	0.78

Location: SA1 **TEST 2**
Weather: Bright and sunny
Engineer: TN
Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.20	SA1 - 0.9 m depth Assume invert level of incoming drain is 0.4m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.20
		Width
		0.35
		Depth
		0.90
		25% Effective Depth
		0.53
		75% Effective Depth
	0.78	
	Inlet Depth	
	0.40	
		0.35

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{ap_{50} \times t_{p75-25}}$$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

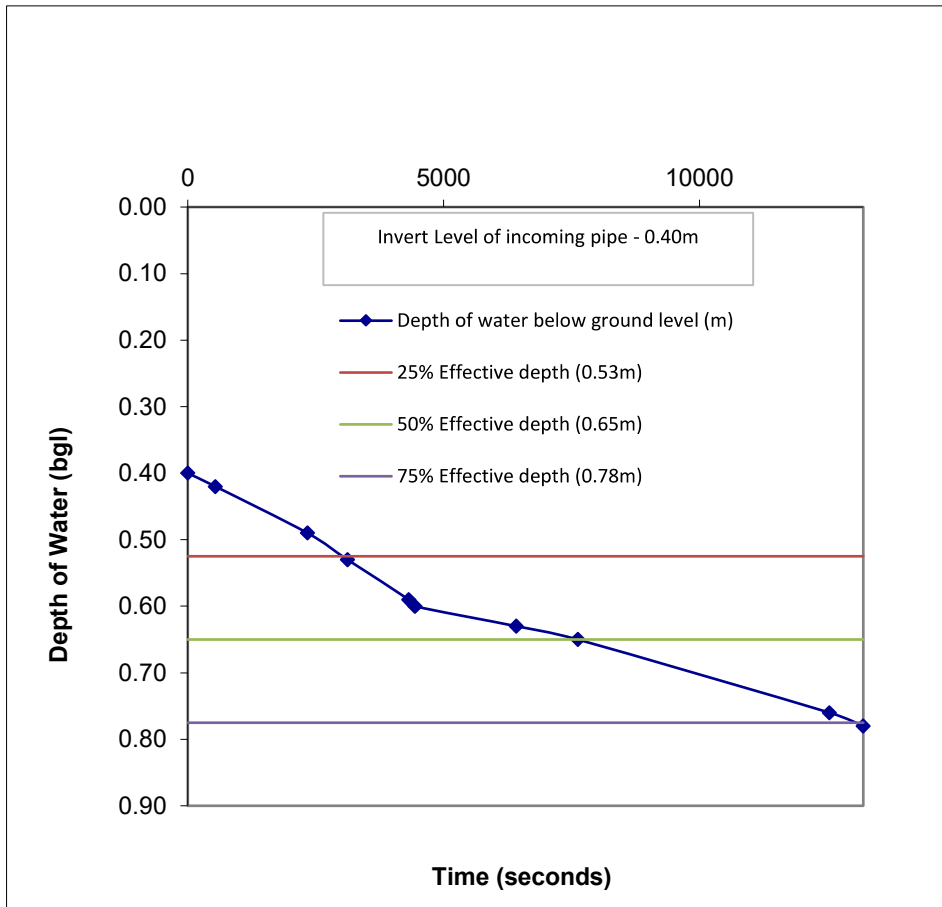
$$1.2 \times 0.35 \times (0.775 - 0.525) = \mathbf{0.105}$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35) = \mathbf{1.195}$$

$$t_{p75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth} \\ = \mathbf{10080 \text{ secs}}$$

$$f = \mathbf{8.72E-06 \text{ m/s}}$$

Comment



Infiltration Test to BRE365 - SA1 TEST 3

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.40
	5.0	300	0.42
	30.0	1800	0.46
	60.0	3600	0.53
	80.0	4800	0.58
	88.0	5280	0.60
	153.0	9180	0.72
	230.0	13800	0.78

Location: SA1

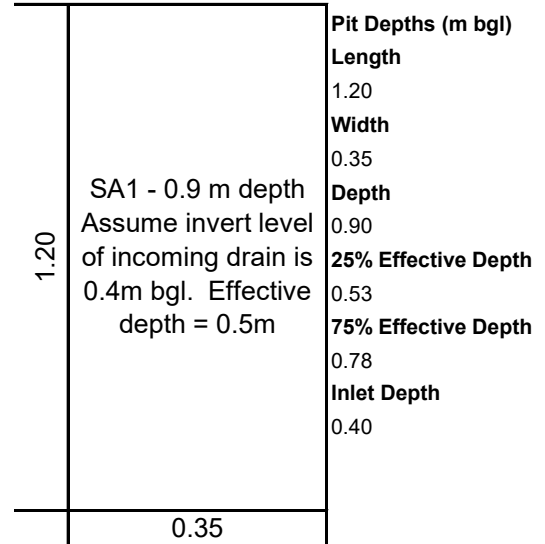
TEST 3

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation



Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{ap_{50} \times t_{p75-25}}$$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

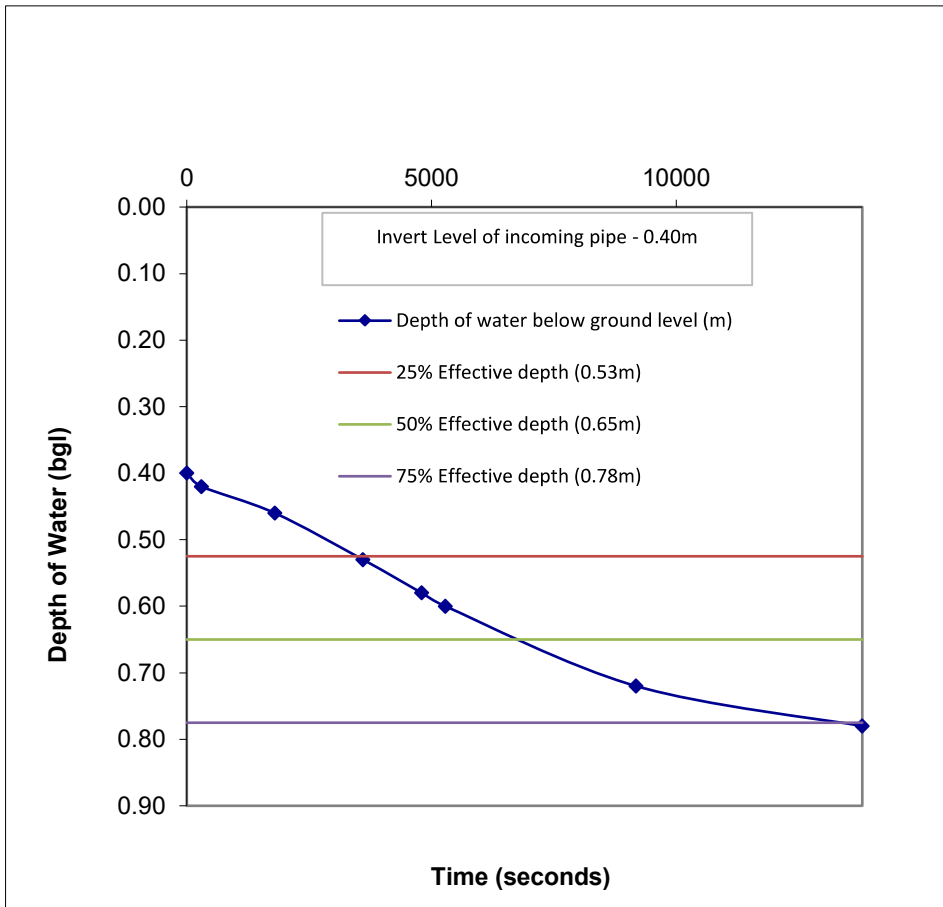
$$1.2 \times 0.35 \times (0.775 - 0.525) = \mathbf{0.105}$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35) = \mathbf{1.195}$$

$$t_{p75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth} \\ = \mathbf{10200} \text{ secs}$$

$$f = \mathbf{8.61E-06} \text{ m/s}$$

Comment



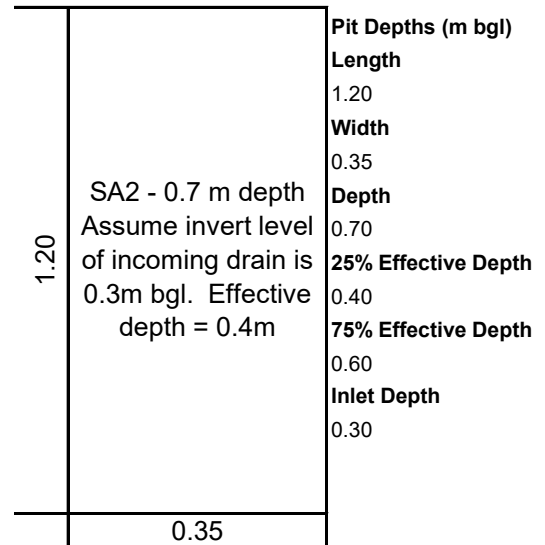
Infiltration Test to BRE365 - SA2 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.30
	1.0	60	0.32
	2.0	120	0.34
	8.0	480	0.40
	29.0	1740	0.53
	45.0	2700	0.60
	54.0	3240	0.64
	66.0	3960	0.70

Location: SA2 **TEST 1**
Weather: Bright and sunny
Engineer: TN
Date: 16/08/2021

Strata Tested Marlstone Rock Formation



Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \text{Vp75-25} / (\text{ap50} \times \text{tp75-25})$$

Where:

Vp75-25 = effective storage volume between 75% and 25% effective depth

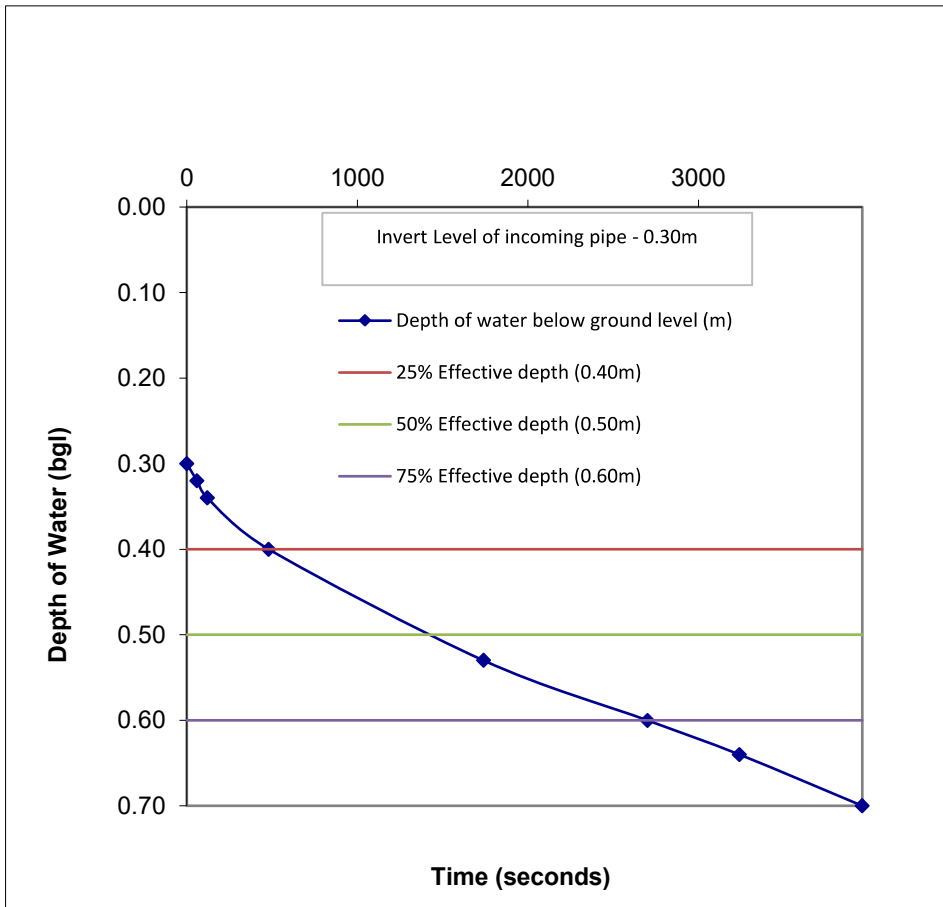
$$1.2 \times 0.35 \times (0.6 - 0.4) = \mathbf{0.084}$$

$$\text{ap50} = \text{internal area of TP upto 50\% effective depth} + \text{base of TP} \\ 2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35) = \mathbf{1.04}$$

$$\text{Tp75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth} = \mathbf{2220} \text{ secs}$$

$$f = \mathbf{3.64E-05} \text{ m/s}$$

Comment



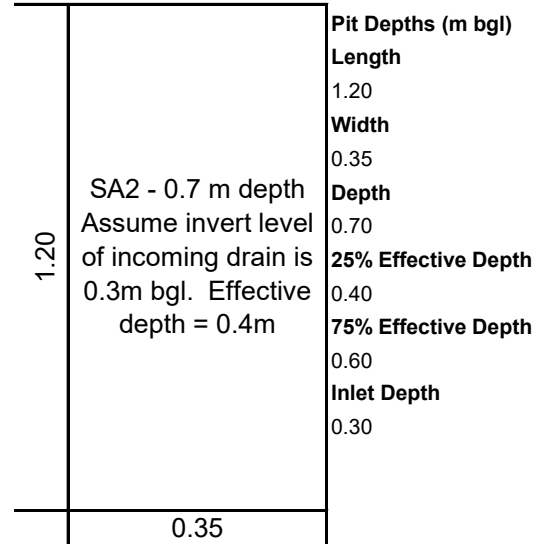
Infiltration Test to BRE365 - SA2 TEST 2

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.30
	3.0	180	0.34
	19.0	1140	0.40
	62.0	3720	0.60
	86.0	5160	0.65
	169.0	10140	0.69

Location: SA2 **TEST 2**
Weather: Bright and sunny
Engineer: TN
Date: 16/08/2021

Strata Tested Marlstone Rock Formation



Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{ap_{50} \times t_{p75-25}}$$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

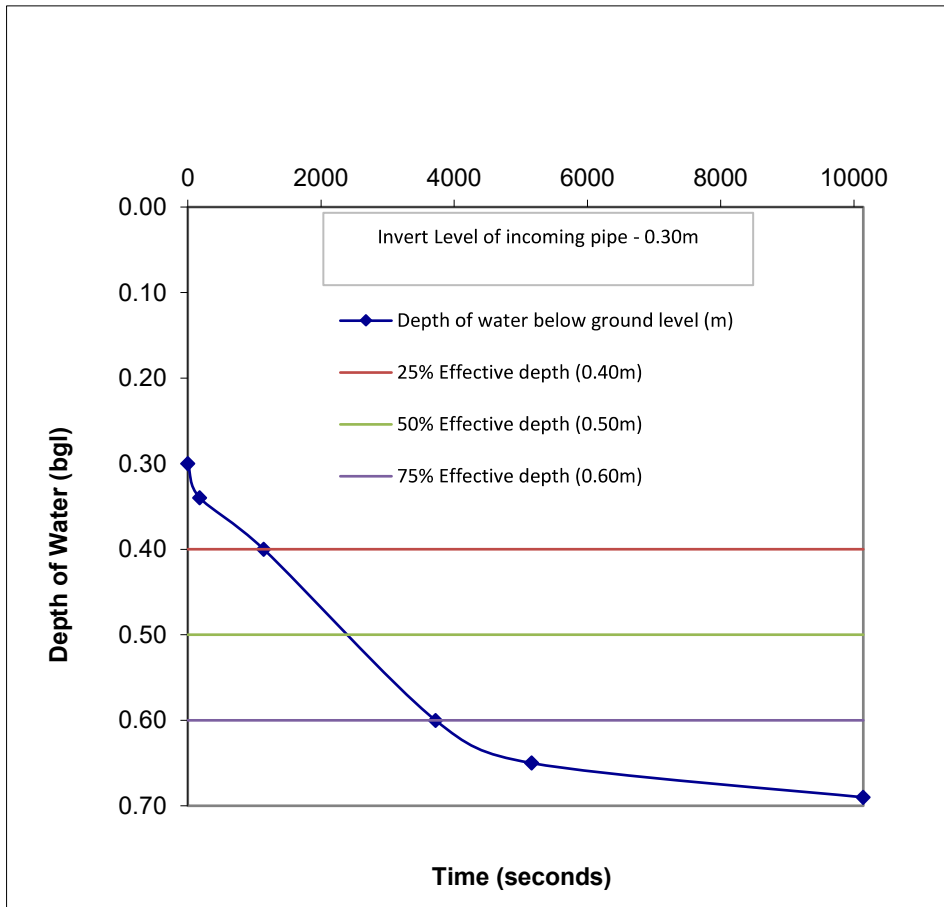
$$1.2 \times 0.35 \times (0.6 - 0.4) = \mathbf{0.084}$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35) = \mathbf{1.04}$$

$$t_{p75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth} \\ = \mathbf{2580} \text{ secs}$$

$$f = \mathbf{3.13E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA2 TEST 3

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.30
	3.0	180	0.33
	30.0	1800	0.37
	42.0	2520	0.40
	90.0	5400	0.50
	144.0	8640	0.60

Location: SA2

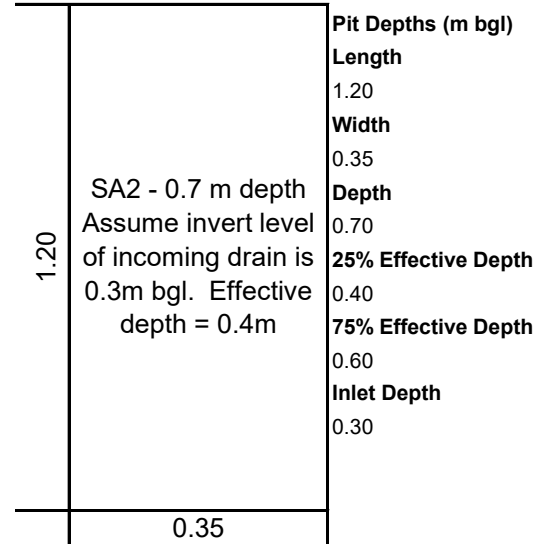
TEST 3

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation



Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{(ap_{50} \times t_{p75-25})}$$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

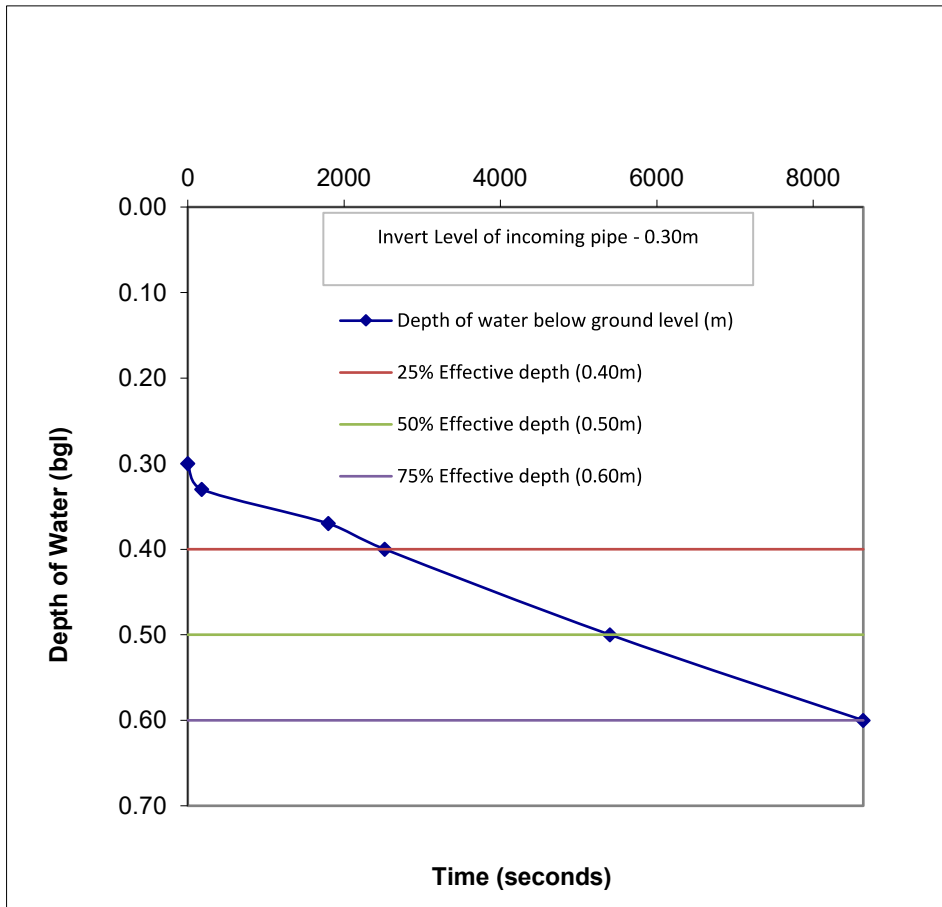
$$1.2 \times 0.35 \times (0.6 - 0.4) = \mathbf{0.084}$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.2 \times 0.5) + 2(0.35 \times 0.5) + (1.2 \times 0.35) = \mathbf{1.04}$$

$$T_{p75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth} \\ = \mathbf{6120} \text{ secs}$$

$$f = \mathbf{1.32E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA3 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	1.20
	1.0	60	1.33
	3.0	180	1.42
	6.0	360	1.55
	11.0	660	1.58

Location: SA3 **TEST 1**
Weather: Bright and sunny
Engineer: TN
Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.30	SA3 - 1.7 m depth Assume invert level of incoming drain is 1.2m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.30
		Width
		0.35
		Depth
		1.70
	25% Effective Depth	
	1.33	
	75% Effective Depth	
	1.58	
	Inlet Depth	
	1.20	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{ap_{50} \times tp_{75-25}}$$

Where:

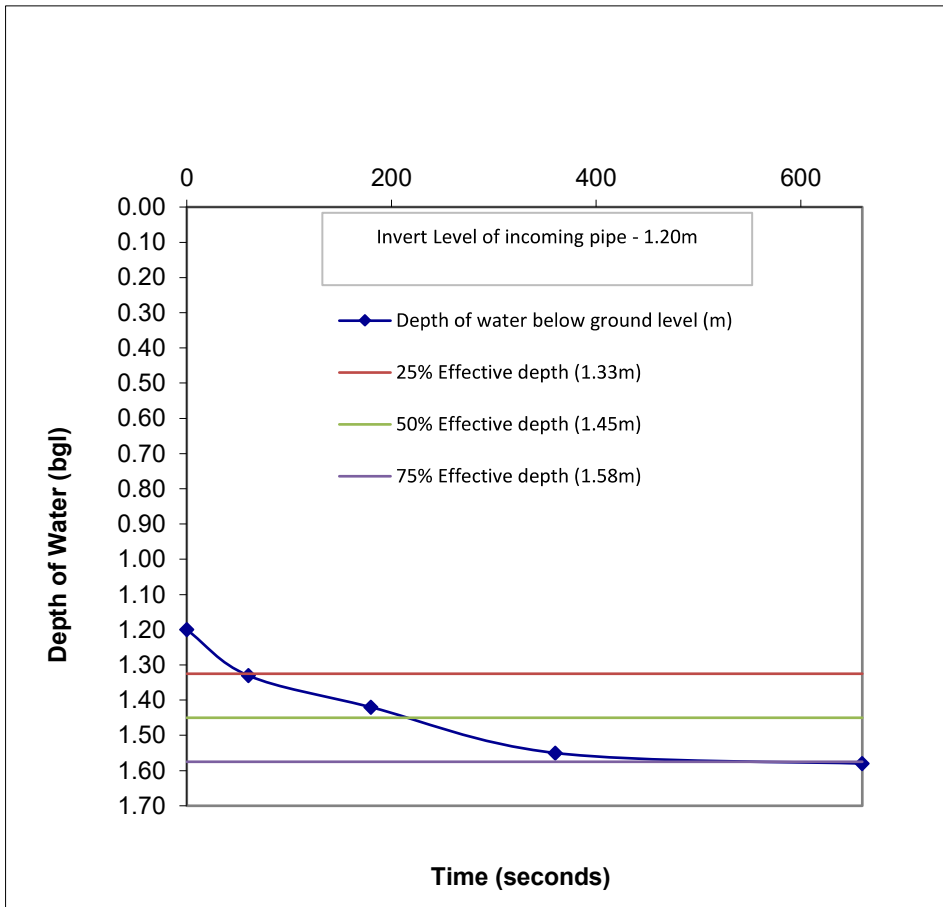
$$\begin{aligned}
 V_{p75-25} &= \text{effective storage volume between 75\% and 25\% effective depth} \\
 &= 1.3 \times 0.35 \times (1.575 - 1.325) \\
 &= \mathbf{0.11375}
 \end{aligned}$$

$$\begin{aligned}
 ap_{50} &= \text{internal area of TP upto 50\% effective depth + base of TP} \\
 &= 2(1.3 \times 0.35) + (1.3 \times 0.35) \\
 &= \mathbf{1.28}
 \end{aligned}$$

$$\begin{aligned}
 tp_{75-25} &= \text{the time for water level to fall from 75\% - 25\% effective depth} \\
 &= \mathbf{600} \text{ secs}
 \end{aligned}$$

$$f = \mathbf{1.48E-04} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA3 TEST 2

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	1.20
	3.0	180	1.31
	3.5	210	1.33
	5.0	300	1.38
	10.0	600	1.44
	16.0	960	1.55
	20.0	1200	1.58

Location: SA3 **TEST 2**
Weather: Bright and sunny
Engineer: TN
Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.30	SA3 - 1.7 m depth Assume invert level of incoming drain is 1.2m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.30
		Width
		0.35
		Depth
		1.70
		25% Effective Depth
	1.33	
	75% Effective Depth	
	1.58	
	Inlet Depth	
	1.20	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{ap_{50} \times t_{p75-25}}$$

Where:

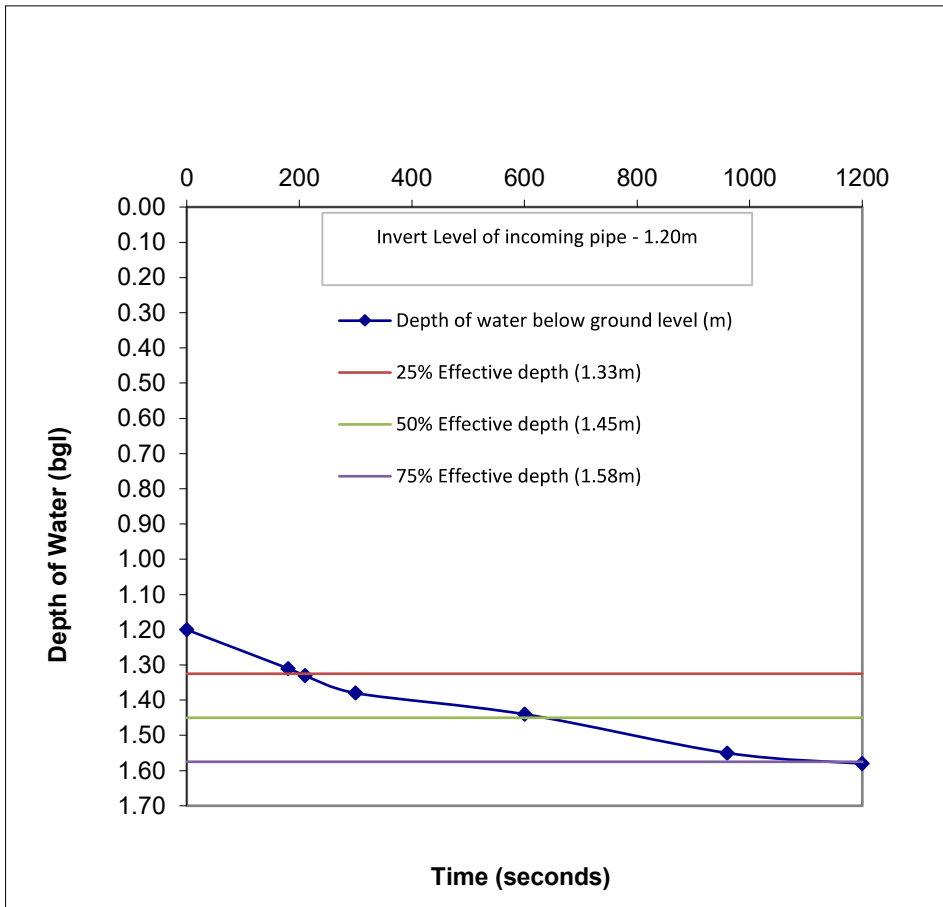
$$\begin{aligned}
 V_{p75-25} &= \text{effective storage volume between 75\% and 25\% effective depth} \\
 &= 1.3 \times 0.35 \times (1.575 - 1.325) \\
 &= \mathbf{0.11375}
 \end{aligned}$$

$$\begin{aligned}
 ap_{50} &= \text{internal area of TP upto 50\% effective depth + base of TP} \\
 &= 2(1.3 \times 0.35) + 2(0.35 \times 0.35) + (1.3 \times 0.35) \\
 &= \mathbf{1.28}
 \end{aligned}$$

$$\begin{aligned}
 t_{p75-25} &= \text{the time for water level to fall from 75\% - 25\% effective depth} \\
 &= \mathbf{990} \text{ secs}
 \end{aligned}$$

$$f = \mathbf{8.98E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA3 TEST 3

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	1.20
	3.0	180	1.27
	4.5	270	1.33
	5.0	300	1.35
	10.0	600	1.40
	15.0	900	1.45
	21.0	1260	1.51
	28.0	1680	1.56
	31.0	1860	1.58

Location: SA3

TEST 3

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.30	SA3 - 1.7 m depth Assume invert level of incoming drain is 1.2m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.30
		Width
		0.35
		Depth
		1.70
		25% Effective Depth
		1.33
		75% Effective Depth
	1.58	
	Inlet Depth	
	1.20	
		0.35

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \text{Vp75-25} / (\text{ap50} \times \text{tp75-25})$$

Where:

Vp75-25 = effective storage volume between 75% and 25% effective depth

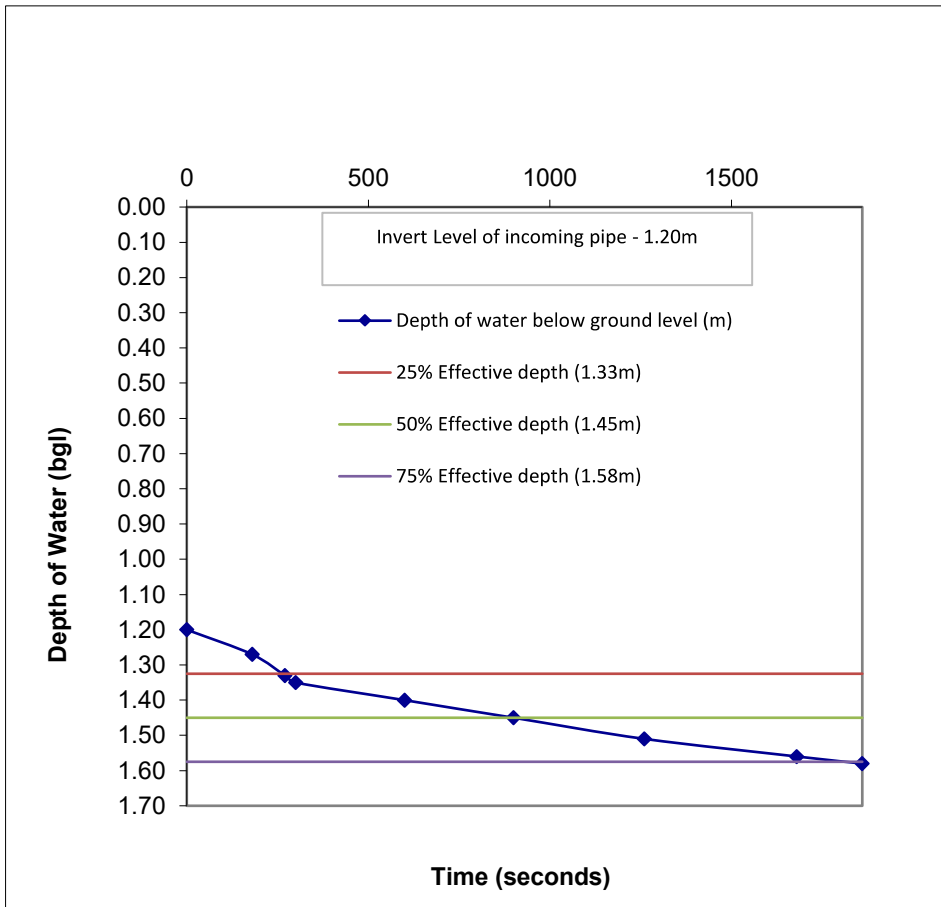
$$1.3 \times 0.35 \times (1.575 - 1.325) = \mathbf{0.11375}$$

$$\begin{aligned} \text{ap50} &= \text{internal area of TP upto 50\% effective depth + base of TP} \\ &= 2(1.3 \times 0.35) + (1.3 \times 0.35) \\ &= \mathbf{1.28} \end{aligned}$$

$$\begin{aligned} \text{Tp75-25} &= \text{the time for water level to fall from 75\% - 25\% effective depth} \\ &= \mathbf{1590} \text{ secs} \end{aligned}$$

$$f = \mathbf{5.59E-05} \text{ m/s}$$

Comment



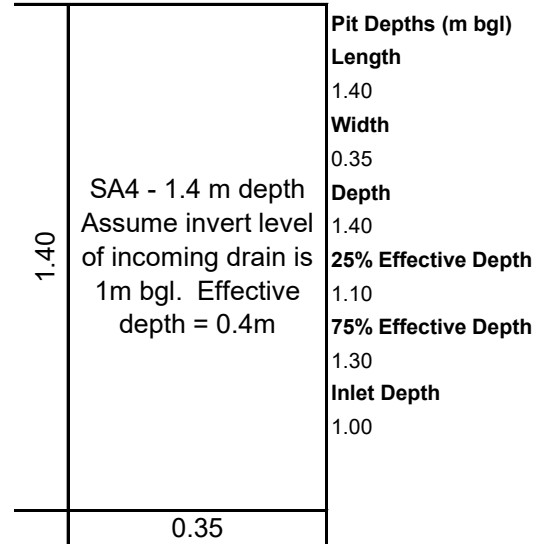
Infiltration Test to BRE365 - SA4 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	1.00
	1.0	60	1.10
	2.0	120	1.12
	3.0	180	1.16
	5.0	300	1.25
	10.0	600	1.30
	11.0	660	1.32

Location: SA4 **TEST 1**
Weather: Bright and sunny
Engineer: TN
Date: 16/08/2021

Strata Tested Marlstone Rock Formation



Linear extrapolated values for calculation

CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times t_{p75-25})$

Where:

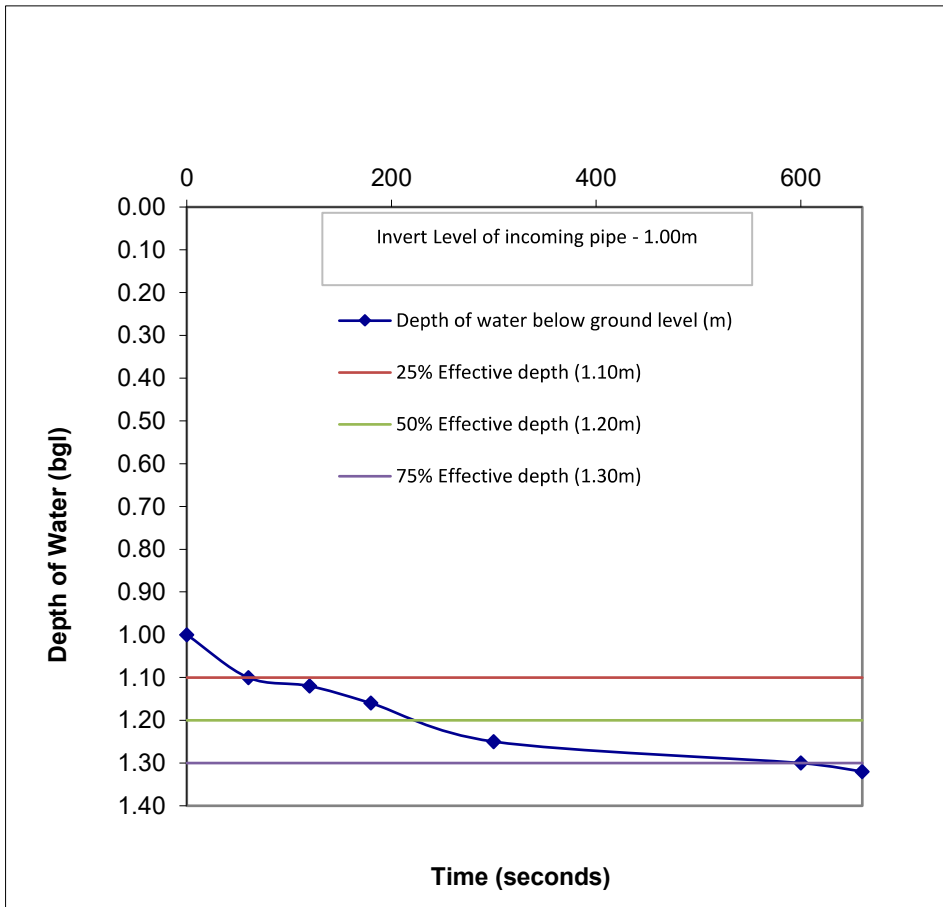
V_{p75-25} = effective storage volume between 75% and 25% effective depth
 $1.4 \times 0.35 \times (1.3 - 1.1)$
 = **0.098**

ap_{50} = internal area of TP upto 50% effective depth + base of TP
 $2(1.4 \times 0.35) + 2(0.35 \times 0.35) + (1.4 \times 0.35)$
 = **1.19**

t_{p75-25} = the time for water level to fall from 75% - 25% effective depth
 = **540** secs

f = **1.53E-04** m/s

Comment



Infiltration Test to BRE365 - SA4 TEST 2

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	1.00
	1.0	60	1.09
	1.5	90	1.10
	2.0	120	1.11
	3.0	180	1.14
	5.0	300	1.22
	10.0	600	1.28
	13.0	780	1.30
	15.0	900	1.33

Location: SA4 **TEST 2**
Weather: Bright and sunny
Engineer: TN
Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.40	SA4 - 1.4 m depth Assume invert level of incoming drain is 1m bgl. Effective depth = 0.4m	Pit Depths (m bgl)
		Length
		1.40
		Width
		0.35
		Depth
		1.40
		25% Effective Depth
		1.10
		75% Effective Depth
	1.30	
	Inlet Depth	
	1.00	
		0.35

Linear extrapolated values for calculation

CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times t_{p75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

$$1.4 \times 0.35 \times (1.3 - 1.1) = \mathbf{0.098}$$

ap_{50} = internal area of TP upto 50% effective depth + base of TP

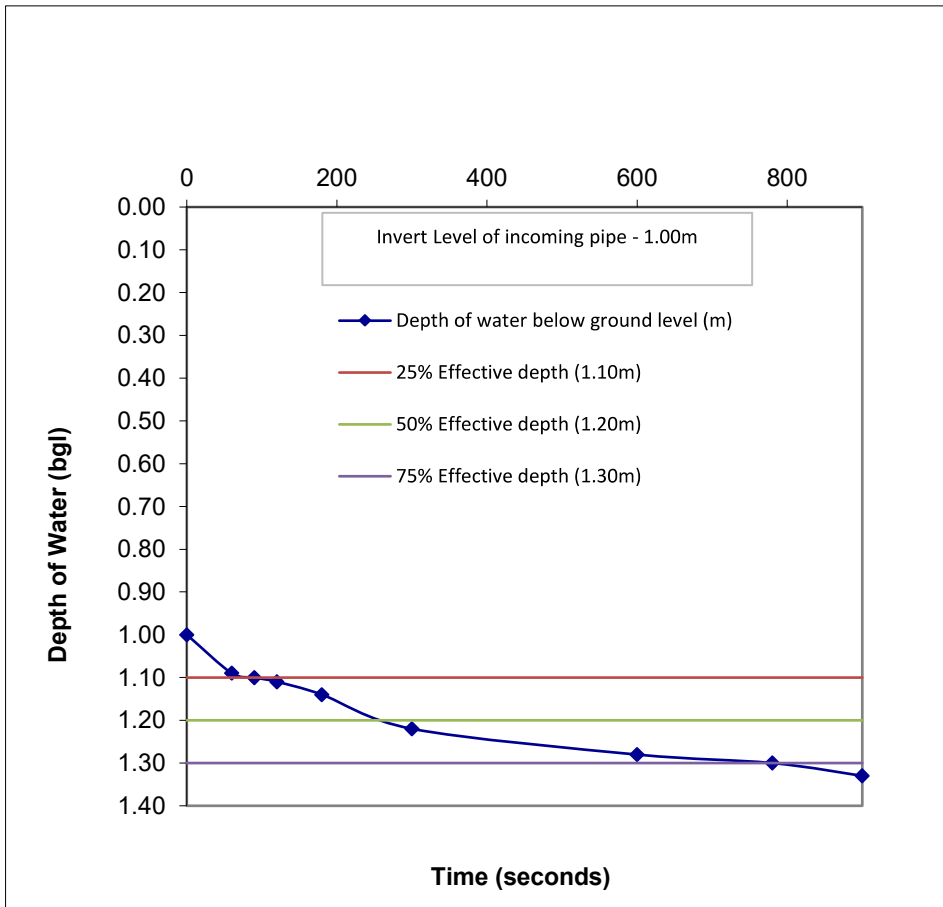
$$2(1.4 \times 1) + 2(0.35 \times 1) + (1.4 \times 0.35) = \mathbf{1.19}$$

T_{p75-25} = the time for water level to fall from 75% - 25% effective depth

$$= \mathbf{690} \text{ secs}$$

$$f = \mathbf{1.19E-04} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA4 TEST 3

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	1.00
	1.0	60	1.07
	2.0	120	1.10
	3.0	180	1.12
	5.0	300	1.19
	10.0	600	1.25
	16.0	960	1.30

Location: SA4

TEST 3

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.40	SA4 - 1.4 m depth Assume invert level of incoming drain is 1m bgl. Effective depth = 0.4m	Pit Depths (m bgl)
		Length
		1.40
		Width
		0.35
		Depth
		1.40
		25% Effective Depth
	1.10	
	75% Effective Depth	
	1.30	
	Inlet Depth	
	1.00	
		0.35

Linear extrapolated values for calculation

CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times t_{p75-25})$

Where:

V_{p75-25} = effective storage
 volume between 75% and 25%
 effective depth

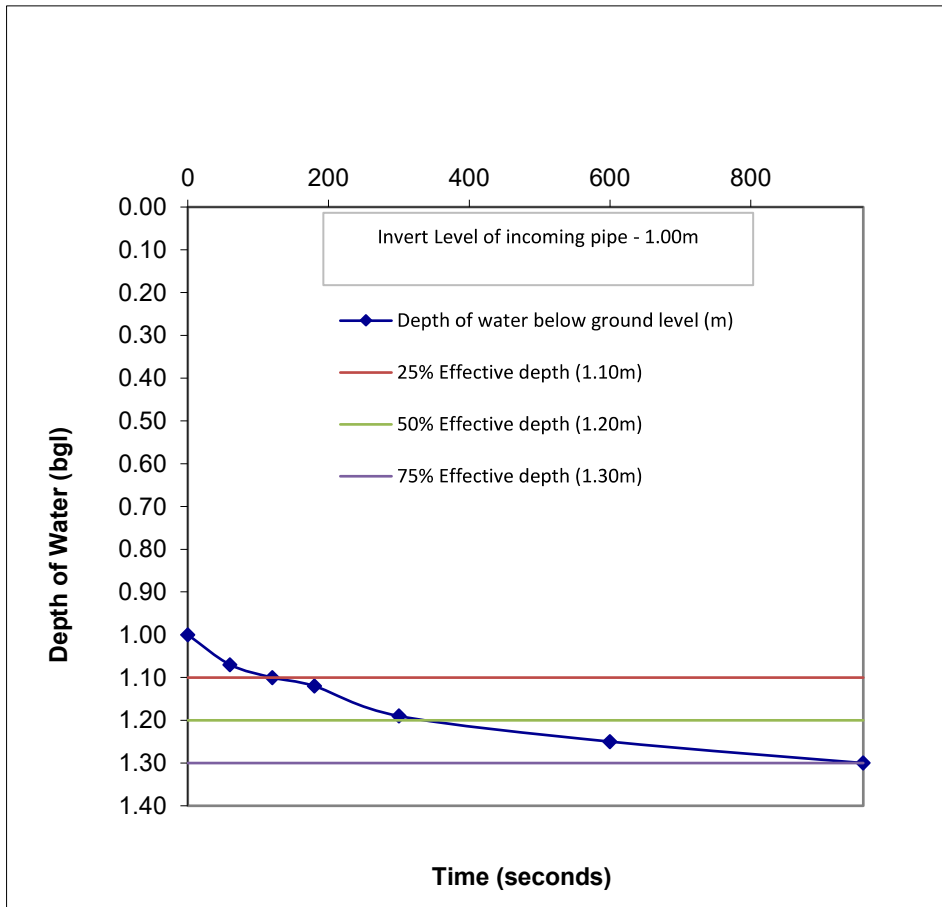
$$1.4 \times 0.35 \times (1.3 - 1.1) = \mathbf{0.098}$$

ap_{50} = internal area of TP upto
 50% effective depth + base of TP
 $2(1.4 \times 1) + 2(0.35 \times 1) + (1.4 \times 0.35) = \mathbf{1.19}$

T_{p75-25} = the time for water level
 to fall from 75% - 25% effective
 depth
 $= \mathbf{840}$ secs

$f = \mathbf{9.80E-05}$ m/s

Comment



Infiltration Test to BRE365 - SA5 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.80
	1.0	60	0.90
	1.5	90	0.93
	2.0	120	0.96
	3.0	180	1.01
	6.0	360	1.09
	8.0	480	1.13
	9.0	540	1.18

Location: SA5

TEST 1

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.40	SA5 - 1.3 m depth Assume invert level of incoming drain is 0.8m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.40
		Width
		0.35
		Depth
		1.30
		25% Effective Depth
		0.93
		75% Effective Depth
	1.18	
	Inlet Depth	
	0.80	
		0.35

Linear extrapolated values for calculation

CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times t_{p75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

$$1.4 \times 0.35 \times (1.175 - 0.925) = \mathbf{0.1225}$$

ap_{50} = internal area of TP upto 50% effective depth + base of TP

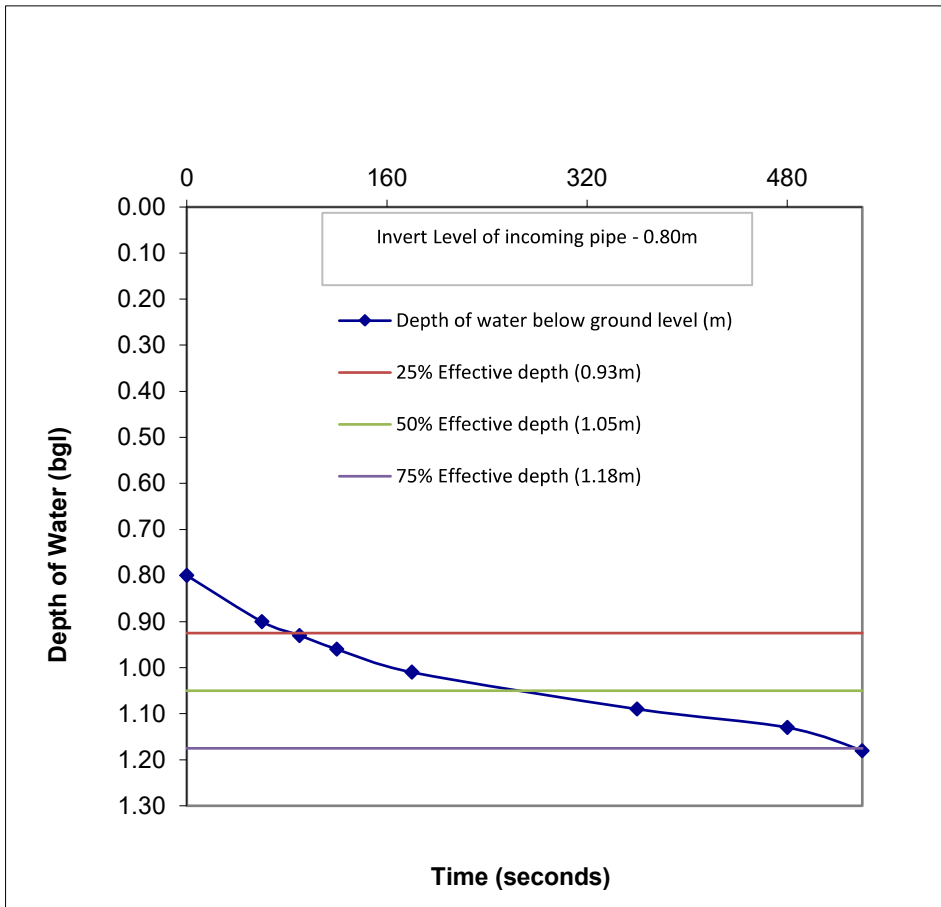
$$2(1.4 \times 1) + 2(0.35 \times 1) + (1.4 \times 0.35) = \mathbf{1.365}$$

T_{p75-25} = the time for water level to fall from 75% - 25% effective depth

$$= \mathbf{450} \text{ secs}$$

$$f = \mathbf{1.99E-04} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA5 TEST 2

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.80
	2.0	120	0.86
	4.0	240	0.93
	5.0	300	0.96
	9.0	540	1.04
	14.0	840	1.10
	20.0	1200	1.16
	20.8	1245	1.18
	21.0	1260	1.19

Location: SA5

TEST 2

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.40	SA5 - 1.3 m depth Assume invert level of incoming drain is 0.8m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.40
		Width
		0.35
		Depth
		1.30
		25% Effective Depth
		0.93
		75% Effective Depth
	1.18	
	Inlet Depth	
	0.80	
		0.35

Linear extrapolated values for calculation

CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times t_{p75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

$$1.4 \times 0.35 \times (1.175 - 0.925) = 0.1225$$

ap_{50} = internal area of TP upto 50% effective depth + base of TP

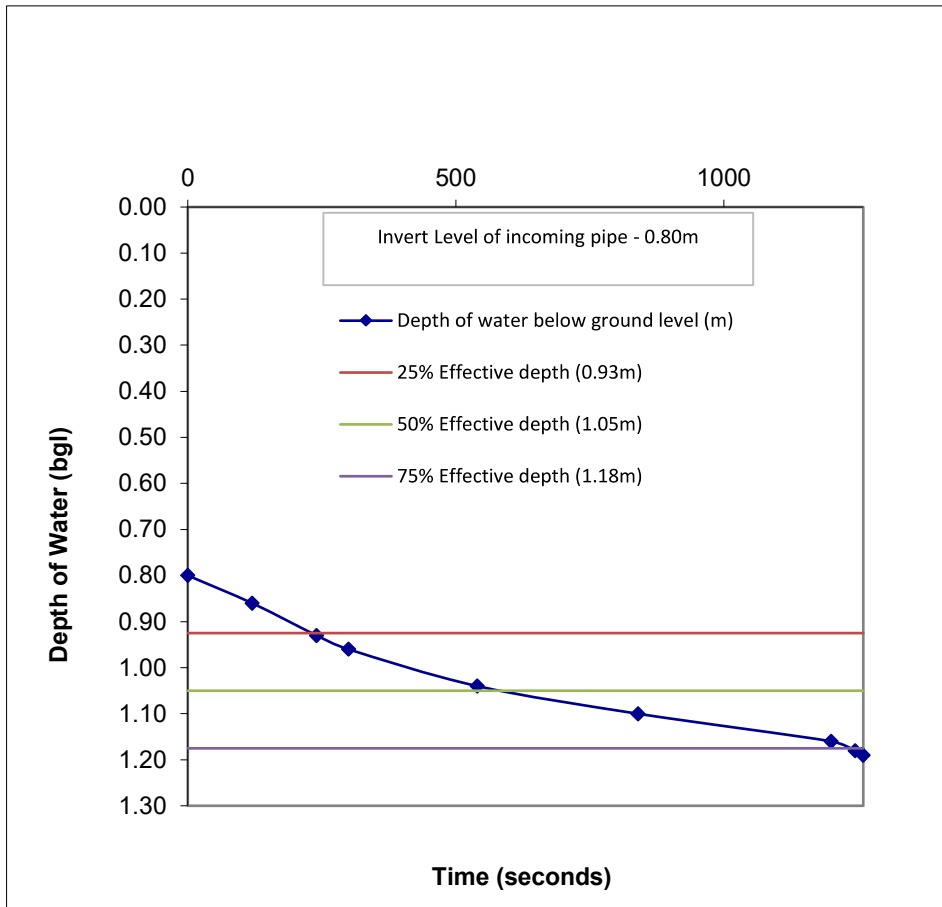
$$2(1.4 \times 1) + 2(0.35 \times 1) + (1.4 \times 0.35) = 1.365$$

T_{p75-25} = the time for water level to fall from 75% - 25% effective depth

$$= 1005 \text{ secs}$$

$$f = 8.93E-05 \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA5 TEST 3

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.80
	2.0	120	0.84
	5.0	300	0.90
	6.0	360	0.93
	9.0	540	1.00
	15.0	900	1.06
	20.0	1200	1.11
	26.0	1560	1.18

Location: SA5

TEST 3

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.40	SA5 - 1.3 m depth Assume invert level of incoming drain is 0.8m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.40
		Width
		0.35
		Depth
		1.30
		25% Effective Depth
		0.93
		75% Effective Depth
	1.18	
	Inlet Depth	
	0.80	
		0.35

Linear extrapolated values for calculation

CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times t_{p75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

$$1.4 \times 0.35 \times (1.175 - 0.925) = 0.1225$$

ap_{50} = internal area of TP upto 50% effective depth + base of TP

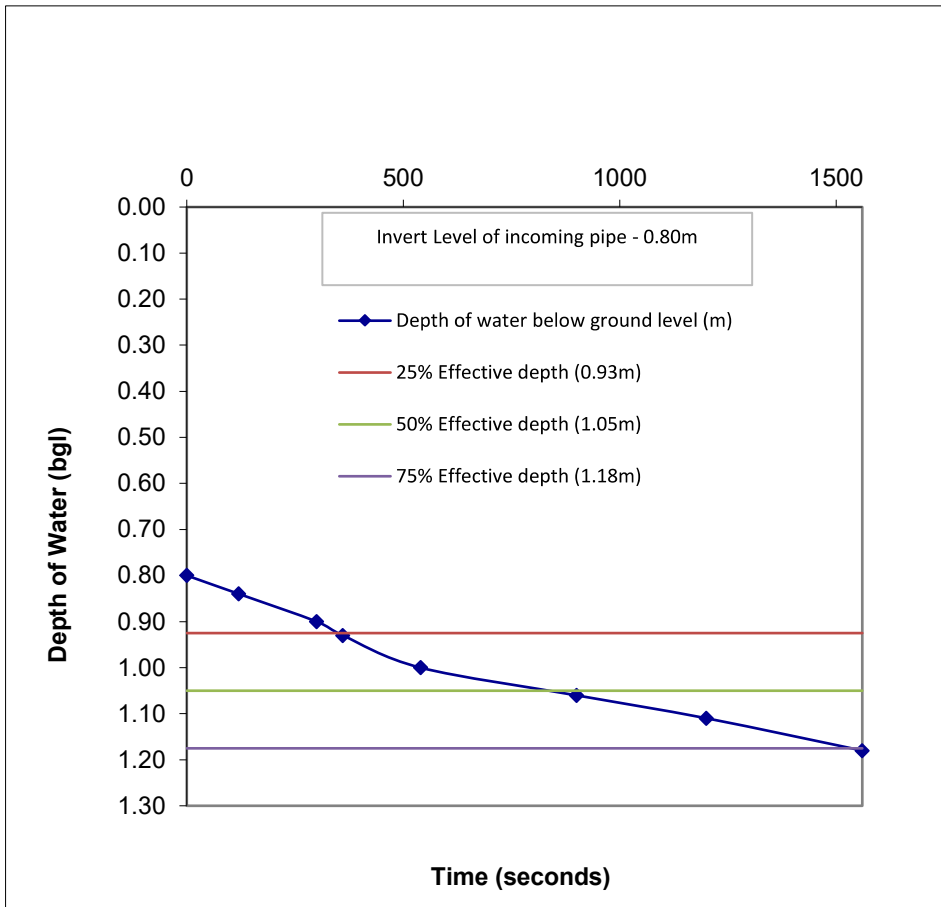
$$2(1.4 \times 1) + 2(0.35 \times 1) + (1.4 \times 0.35) = 1.365$$

T_{p75-25} = the time for water level to fall from 75% - 25% effective depth

$$= 1200 \text{ secs}$$

$$f = 7.48E-05 \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA6 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.50
	1.0	60	0.54
	3.0	180	0.57
	7.0	420	0.63
	8.0	480	0.64
	20.0	1200	0.73
	35.0	2100	0.88

Location: SA6

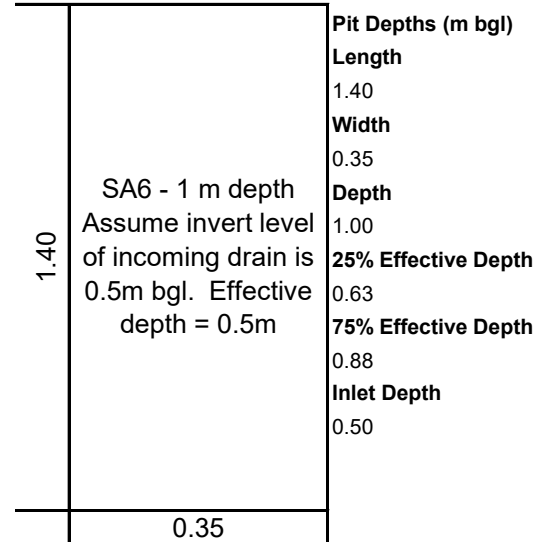
TEST 1

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation



Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{ap_{50} \times t_{p75-25}}$$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

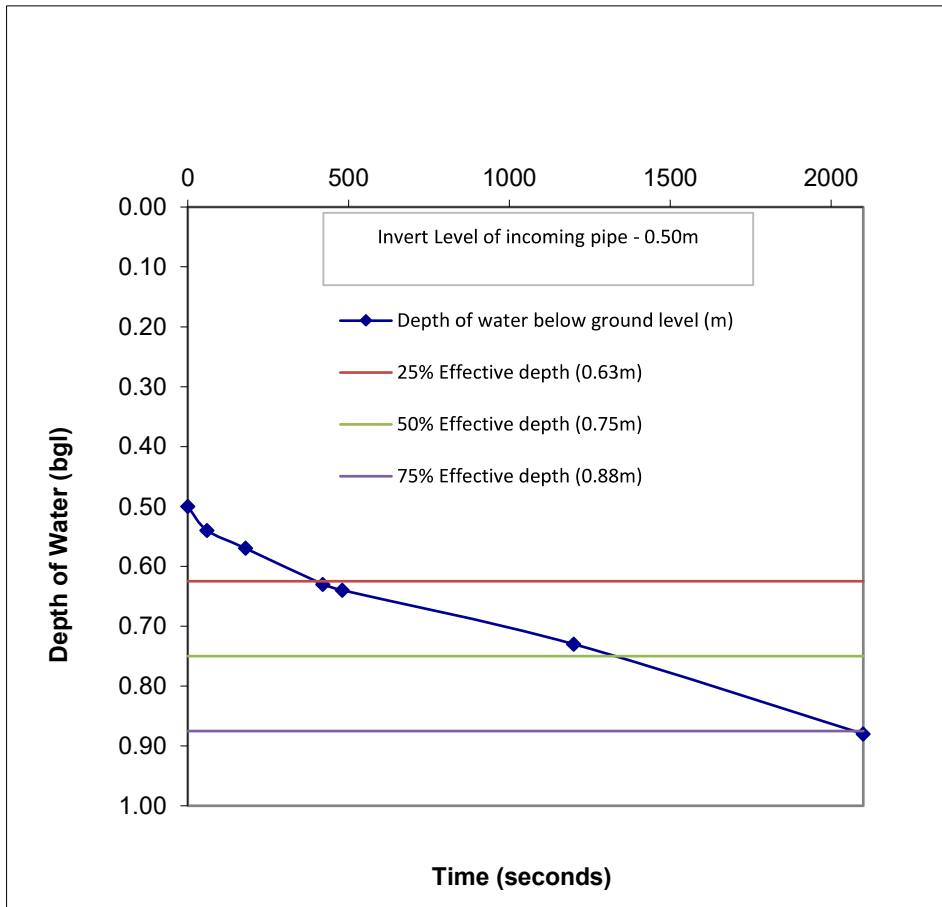
$$1.4 \times 0.35 \times (0.875 - 0.625) = \mathbf{0.1225}$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.4 \times 0.35) + 2(0.35 \times 0.35) + (1.4 \times 0.35) = \mathbf{1.365}$$

$$T_{p75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth} \\ = \mathbf{1680} \text{ secs}$$

$$f = \mathbf{5.34E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA6 TEST 2

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.50
	1.0	60	0.53
	3.0	180	0.55
	8.0	480	0.59
	12.0	720	0.63
	42.0	2520	0.88

Location: SA6

TEST 2

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.40	SA6 - 1 m depth Assume invert level of incoming drain is 0.5m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.40
		Width
		0.35
		Depth
		1.00
	25% Effective Depth	
	0.63	
	75% Effective Depth	
	0.88	
	Inlet Depth	
	0.50	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times t_{p75-25})$

Where:

V_{p75-25} = effective storage
 volume between 75% and 25%
 effective depth

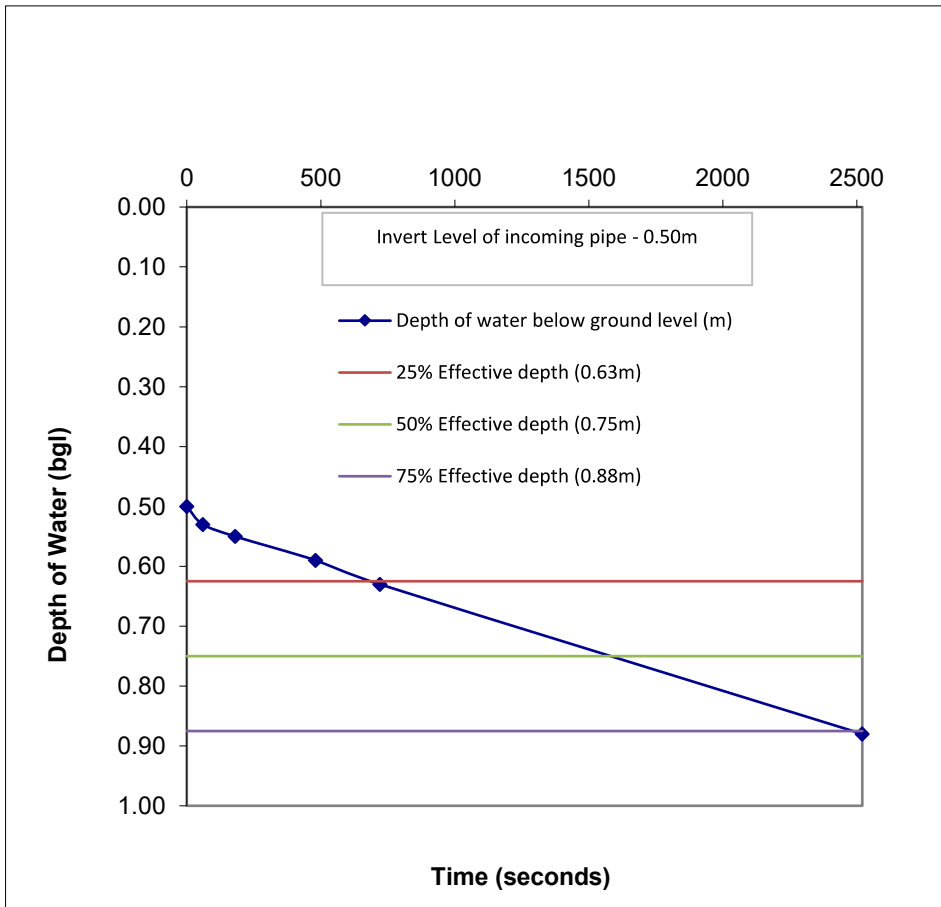
$$1.4 \times 0.35 \times (0.875 - 0.625) = 0.1225$$

ap_{50} = internal area of TP upto
 50% effective depth + base of TP
 $2(1.4 \times) + 2(0.35 \times) + (1.4 \times 0.35)$
 = 1.365

T_{p75-25} = the time for water level
 to fall from 75% - 25% effective
 depth
 = 1800 secs

f = 4.99E-05 m/s

Comment



Infiltration Test to BRE365 - SA6 TEST 3

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.50
	1.0	60	0.52
	3.0	180	0.53
	8.0	480	0.55
	10.0	600	0.57
	18.0	1080	0.63
	60.0	3600	0.88

Location: SA6

TEST 3

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.40	SA6 - 1 m depth Assume invert level of incoming drain is 0.5m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.40
		Width
		0.35
		Depth
		1.00
		25% Effective Depth
	0.63	
	75% Effective Depth	
	0.88	
	Inlet Depth	
	0.50	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times t_{p75-25})$

Where:

V_{p75-25} = effective storage
 volume between 75% and 25%
 effective depth

$$1.4 \times 0.35 \times (0.875 - 0.625) = 0.1225$$

ap_{50} = internal area of TP upto
 50% effective depth + base of TP

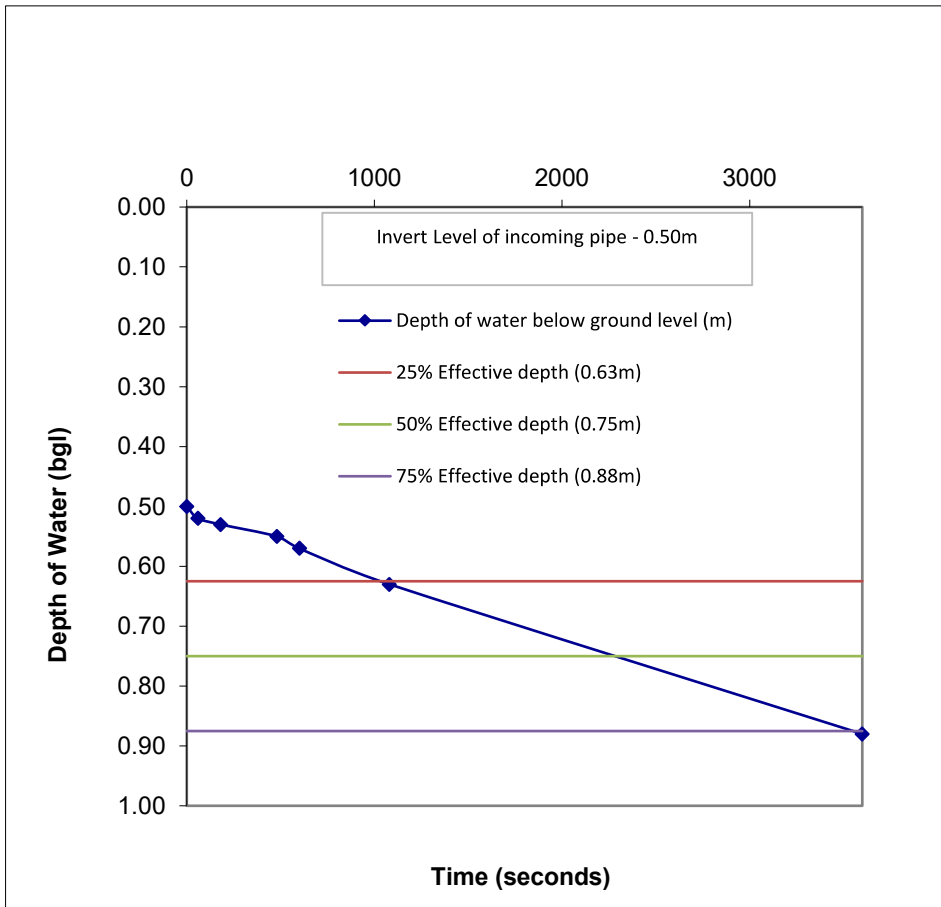
$$2(1.4 \times 1) + 2(0.35 \times 1) + (1.4 \times 0.35) = 1.365$$

T_{p75-25} = the time for water level
 to fall from 75% - 25% effective
 depth

$$= 2520 \text{ secs}$$

$$f = 3.56E-05 \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA7 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.00
	1.0	60	0.04
	3.0	180	0.08
	9.0	540	0.13
	15.0	900	0.17
	27.0	1620	0.30
	41.0	2460	0.38
	69.0	4140	0.48

Location: SA7

TEST 1

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.20	SA7 - 0.5 m depth Assume invert level of incoming drain is 0m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.20
		Width
		0.35
		Depth
		0.50
		25% Effective Depth
		0.13
		75% Effective Depth
	0.38	
	Inlet Depth	
	0.00	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{(ap_{50} \times tp_{75-25})}$$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

$$1.2 \times 0.35 \times (0.375 - 0.125) = \mathbf{0.105}$$

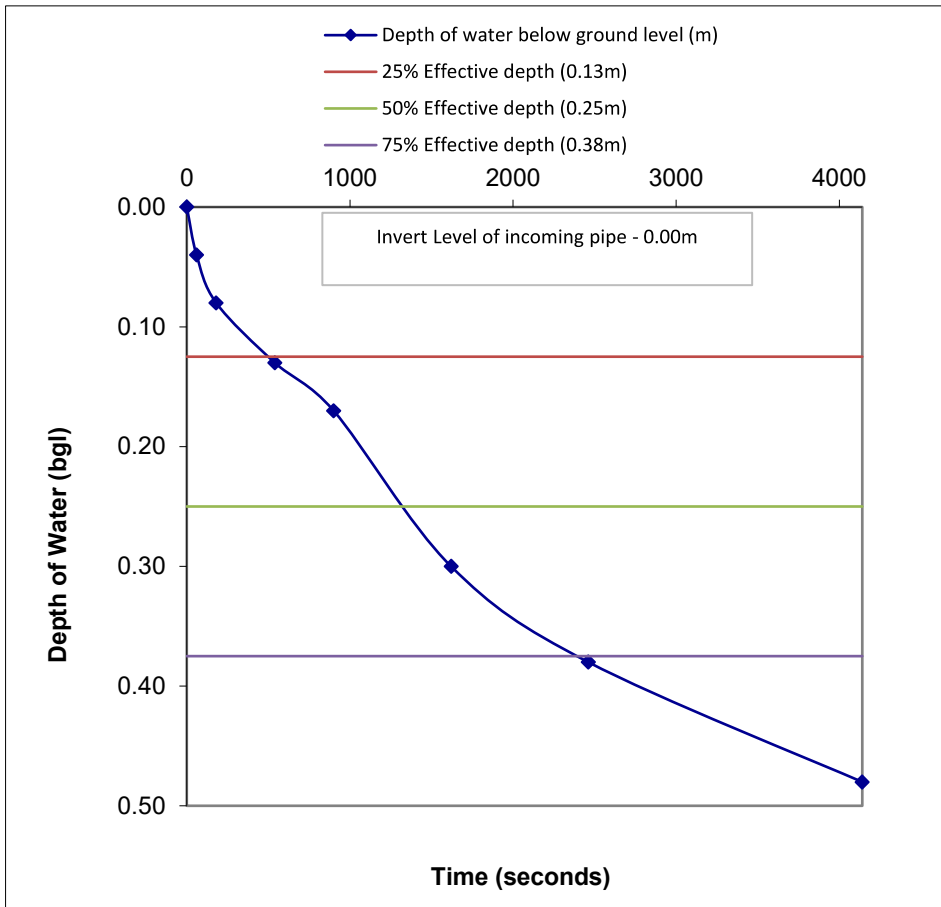
$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35) = \mathbf{1.195}$$

tp_{75-25} = the time for water level to fall from 75% - 25% effective depth

$$= \mathbf{1920} \text{ secs}$$

$$f = \mathbf{4.58E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA7 TEST 2

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.00
	1.0	60	0.04
	4.0	240	0.12
	5.0	300	0.13
	30.0	1800	0.33
	38.0	2280	0.38
	40.0	2400	0.40

Location: SA7

TEST 2

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.20	SA7 - 0.5 m depth Assume invert level of incoming drain is 0m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.20
		Width
		0.35
		Depth
		0.50
		25% Effective Depth
	0.13	
	75% Effective Depth	
	0.38	
	Inlet Depth	
	0.00	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{(ap_{50} \times tp_{75-25})}$$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

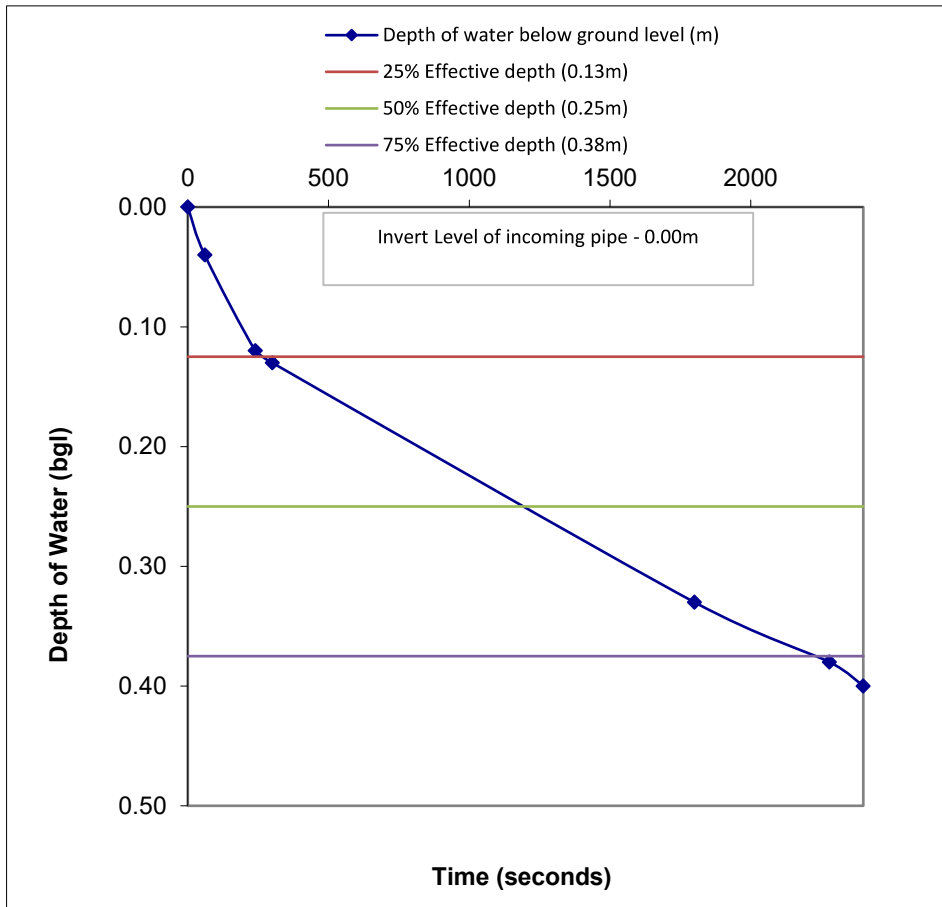
$$1.2 \times 0.35 \times (0.375 - 0.125) = \mathbf{0.105}$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35) = \mathbf{1.195}$$

$$tp_{75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth} \\ = \mathbf{1980} \text{ secs}$$

$$f = \mathbf{4.44E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA7 TEST 3

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.00
	1.0	60	0.04
	5.0	300	0.11
	9.0	540	0.13
	30.0	1800	0.30
	50.0	3000	0.38

Location: SA7

TEST 3

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.20	SA7 - 0.5 m depth Assume invert level of incoming drain is 0m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.20
		Width
		0.35
		Depth
		0.50
		25% Effective Depth
	0.13	
	75% Effective Depth	
	0.38	
	Inlet Depth	
	0.00	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{(ap_{50} \times tp_{75-25})}$$

Where:

$$V_{p75-25} = \text{effective storage volume between 75\% and 25\% effective depth}$$

$$1.2 \times 0.35 \times (0.375 - 0.125) = \mathbf{0.105}$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP}$$

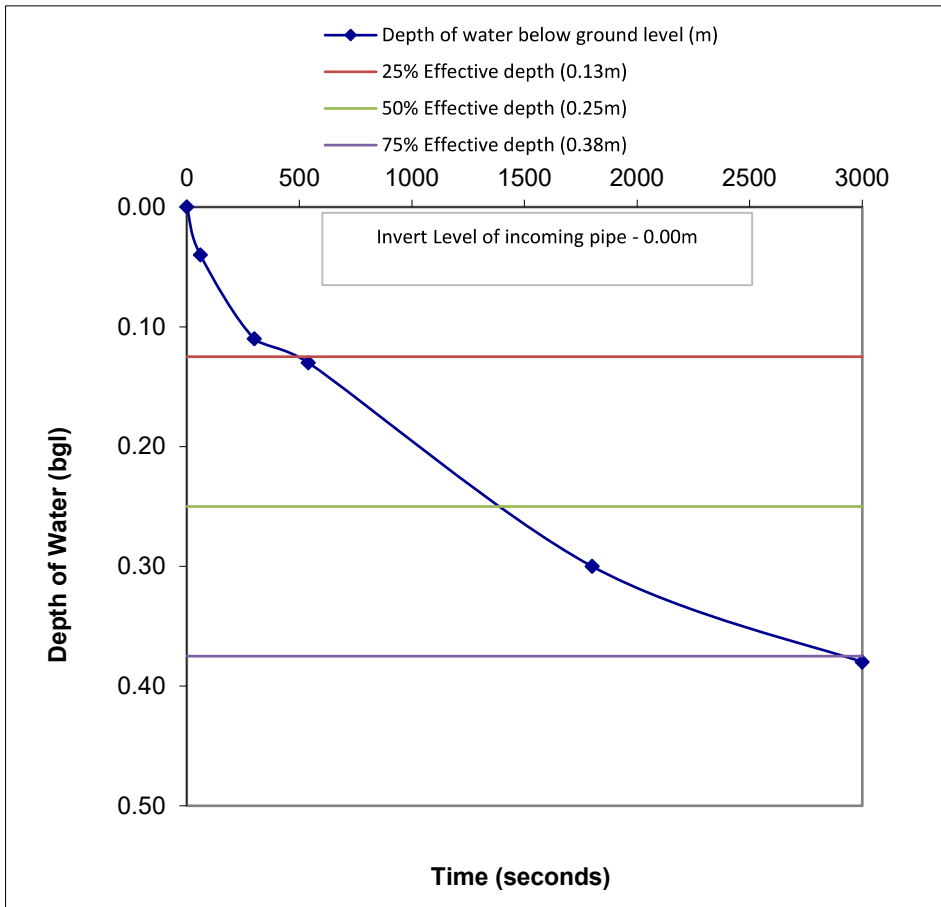
$$2(1.2 \times 1) + 2(0.35 \times 1) + (1.2 \times 0.35) = \mathbf{1.195}$$

$$tp_{75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth}$$

$$= \mathbf{2460} \text{ secs}$$

$$f = \mathbf{3.57E-05} \text{ m/s}$$

Comment



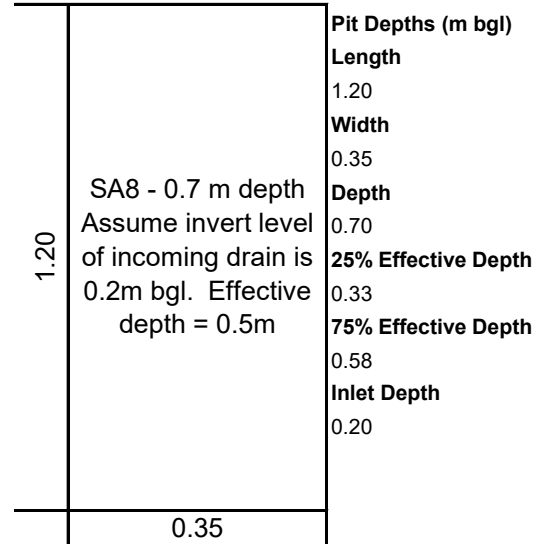
Infiltration Test to BRE365 - SA8 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.20
	1.0	60	0.23
	8.0	480	0.33
	12.0	720	0.37
	17.0	1020	0.44
	26.0	1560	0.50
	32.0	1920	0.55
	38.0	2280	0.58

Location: SA8 **TEST 1**
Weather: Bright and sunny
Engineer: TN
Date: 16/08/2021

Strata Tested Marlstone Rock Formation



Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{(ap_{50} \times t_{p75-25})}$$

Where:

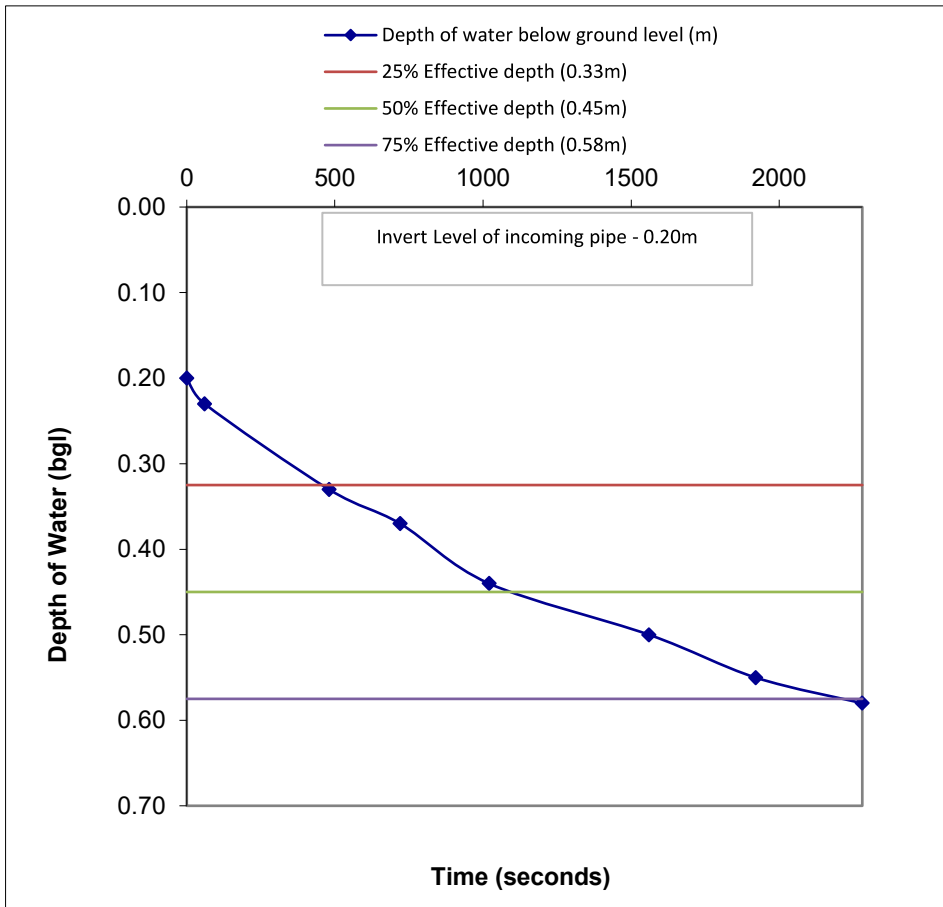
$$\begin{aligned}
 V_{p75-25} &= \text{effective storage volume between 75\% and 25\% effective depth} \\
 &= 1.2 \times 0.35 \times (0.575 - 0.325) \\
 &= \mathbf{0.105}
 \end{aligned}$$

$$\begin{aligned}
 ap_{50} &= \text{internal area of TP upto 50\% effective depth + base of TP} \\
 &= 2(1.2 \times 0.35) + (1.2 \times 0.35) \\
 &= \mathbf{1.195}
 \end{aligned}$$

$$\begin{aligned}
 t_{p75-25} &= \text{the time for water level to fall from 75\% - 25\% effective depth} \\
 &= \mathbf{1800} \text{ secs}
 \end{aligned}$$

$$f = \mathbf{4.88E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA8 TEST 2

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.20
	5.0	300	0.26
	15.0	900	0.33
	16.0	960	0.34
	30.0	1800	0.42
	48.0	2880	0.49
	55.0	3300	0.56
	58.0	3480	0.58

Location: SA8

TEST 2

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.20	SA8 - 0.7 m depth Assume invert level of incoming drain is 0.2m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.20
		Width
		0.35
		Depth
		0.70
		25% Effective Depth
		0.33
		75% Effective Depth
	0.58	
	Inlet Depth	
	0.20	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{(ap_{50} \times tp_{75-25})}$$

Where:

$$V_{p75-25} = \text{effective storage volume between 75\% and 25\% effective depth}$$

$$1.2 \times 0.35 \times (0.575 - 0.325)$$

$$= \mathbf{0.105}$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP}$$

$$2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35)$$

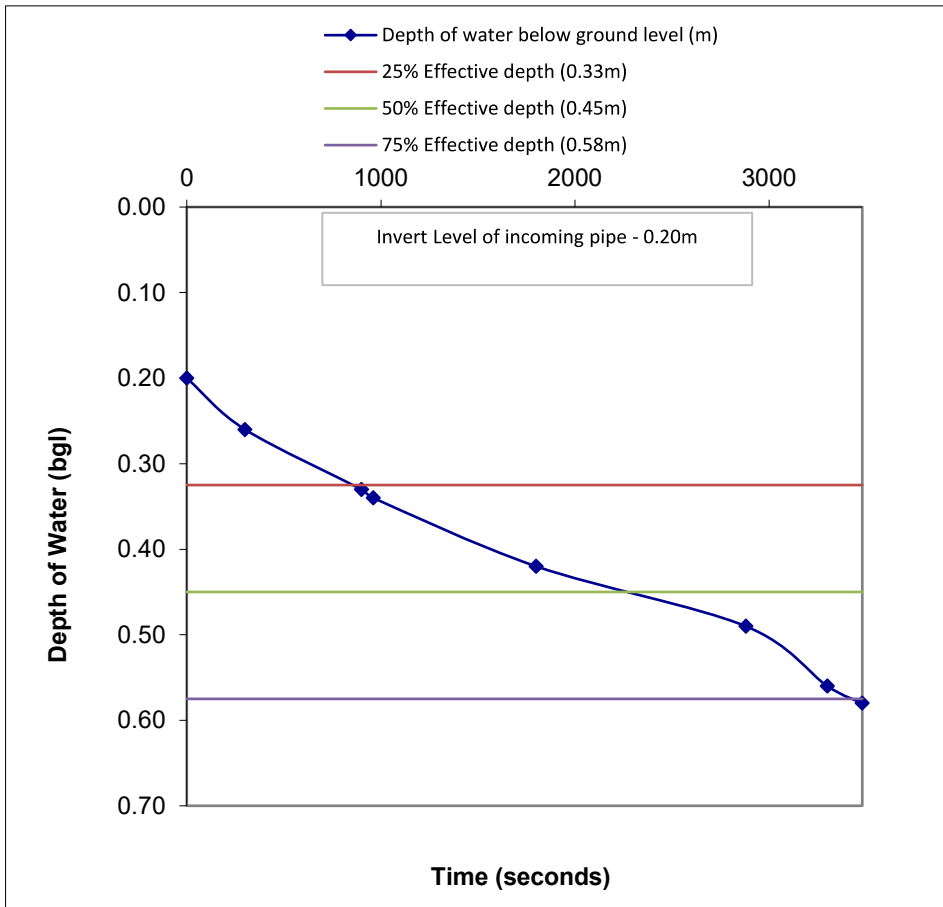
$$= \mathbf{1.195}$$

$$tp_{75-25} = \text{the time for water level to fall from 75\% - 25\% effective depth}$$

$$= \mathbf{2580} \text{ secs}$$

$$f = \mathbf{3.41E-05} \text{ m/s}$$

Comment



Infiltration Test to BRE365 - SA8 TEST 3

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
	0.0	0	0.20
	1.0	60	0.22
	5.0	300	0.24
	15.0	900	0.29
	25.0	1500	0.33
	30.0	1800	0.36
	60.0	3600	0.48
	80.0	4800	0.56
	90.0	5400	0.58

Location: SA8

TEST 3

Weather: Bright and sunny

Engineer: TN

Date: 16/08/2021

Strata Tested Marlstone Rock Formation

1.20	SA8 - 0.7 m depth Assume invert level of incoming drain is 0.2m bgl. Effective depth = 0.5m	Pit Depths (m bgl)
		Length
		1.20
		Width
		0.35
		Depth
		0.70
		25% Effective Depth
		0.33
		75% Effective Depth
	0.58	
	Inlet Depth	
	0.20	
	0.35	

Linear extrapolated values for calculation

CALCULATION:

$$\text{Soil Infiltration Rate}(f) = \frac{V_{p75-25}}{(ap_{50} \times tp_{75-25})}$$

Where:

$$\begin{aligned} V_{p75-25} &= \text{effective storage volume between 75\% and 25\% effective depth} \\ &= 1.2 \times 0.35 \times (0.575 - 0.325) \\ &= \mathbf{0.105} \end{aligned}$$

$$\begin{aligned} ap_{50} &= \text{internal area of TP upto 50\% effective depth + base of TP} \\ &= 2(1.2 \times 0.35) + 2(0.35 \times 0.35) + (1.2 \times 0.35) \\ &= \mathbf{1.195} \end{aligned}$$

$$\begin{aligned} tp_{75-25} &= \text{the time for water level to fall from 75\% - 25\% effective depth} \\ &= \mathbf{3900} \text{ secs} \end{aligned}$$

$$f = \mathbf{2.25E-05} \text{ m/s}$$

Comment

