PROPOSED RESIDENTIAL DEVELOPMENT
LAND SOUTH OF ARUNDEL ROAD, FONTWELL

DRAINAGE STRATEGY
& SUDS STATEMENT-

JANUARY 2020

ARUN DISTRICT COUNCIL WA/48/19/RES

Document Control Sheet

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Revision	Date	Description	Prepared	Approved
1	23.05.19	Issued for Planning.	LD	TRS
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1.0 Introduction

Rogers Cory Partnership Limited have been instructed on behalf of Dandara (Southern) to prepare a Surface Water Drainage Strategy and SuDS Statement to support the Reserved Matters submission associated with the redevelopment of the site referred to as the Land South of Arundel Road, Fontwell, West Sussex per the current Outline Planning Notice (WA/22/15/OUT).

This report outlines the development of the Surface Water Drainage and SuDS Strategy following on from the Flood Risk Assessment (FRA) produced by Wormald Burrows Partnership Limited (Report dated April 2015) which formed part of the outline planning submission.

The purpose of this strategy is currently not to seek to discharge the current planning conditions relating to the surface water and SuDS of the Outline Planning Notice (WA/22/15/OUT) but rather to support the Reserved Matters application and to demonstrate that a surface water drainage solution can feasibly be delivered to support the detailed layout.

Further details, including detailed hydraulic calculations, detailed drainage layouts and associated drainage construction details will be developed and submitted as part of a separate and future Discharge of Conditions application.

The drainage strategy outlined and presented in this report build on the principles of the following:

- Flood Risk Assessment by Wormald Burrows Partnership Limited (April 2015);
- BRE 365 Soakaway Testing & Groundwater Levels Monitoring by Deltasimons (April 2014);
- BRE 365 Soakaway Testing by Leap Environmental (October 2018);
- Winter Groundwater Monitoring by Leap Environmental (April 2019);
- BRE 365 Winter Soakaway Testing by Leap Environmental (April 2019)

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2.0 Existing Site

The overall site is located within Fontwell, adjacent to the A29 and Arundel Road (Refer to **Figure 1** below). The development is bounded to the north by existing residential properties and Arundel Road, to the east and south by Wandleys Lane and residential properties including a Care Home, to the west by the A29 and Fontwell racecourse just beyond this.

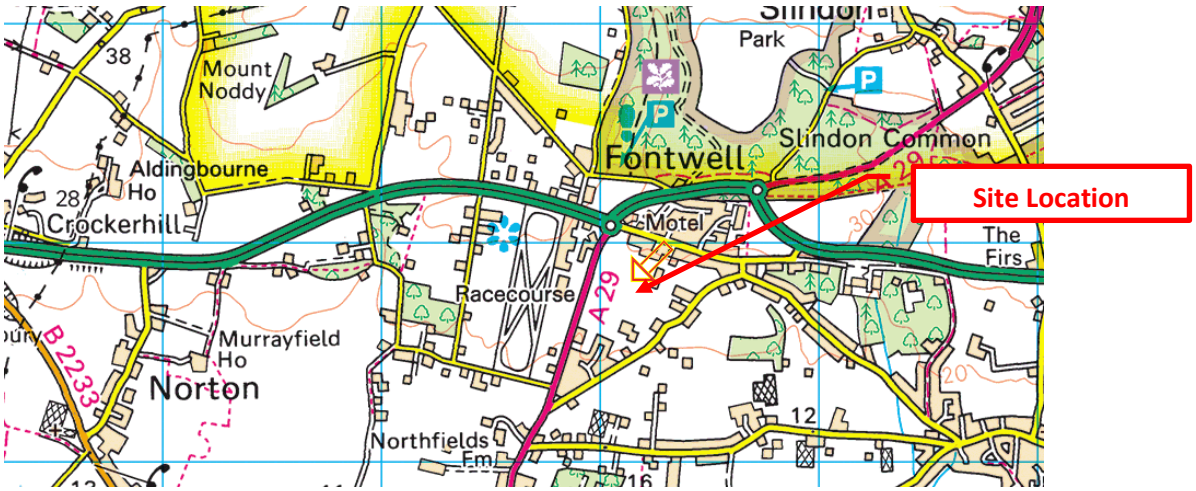


Figure 1: Site Location

The existing site proposed for development covers approximately 16.18ha of greenfield land comprising of open grassed fields. The approximate centre of the site is at Ordnance Survey (OS) Grid Reference 495140; 106820.

The application site generally falls in a southerly direction towards the western, southern and eastern boundaries respectively. An overview of the change in topography in this part of the wider site is presented as **Figure 2** overleaf. A copy of the topographical survey can be found in **Appendix A**.

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Figure 2: Site Topography

Geotechnical

The current review of the geotechnical aspects of the site are based on the following documents:

- Flood Risk Assessment by Wormald Burrows Partnership Limited (April 2015);
- BRE 365 Soakaway Testing & Groundwater Levels Monitoring by Deltasimons (April 2014);
- BRE 365 Soakaway Testing by Leap Environmental (October 2018);
- Winter Groundwater Monitoring by Leap Environmental (April 2019);
- BRE 365 Winter Soakaway Testing by Leap Environmental (April 2019)
- Additional BRE 365 Soakaway Testing by Leap Environmental (July 2019)

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Ground Conditions

BGS geological maps indicate that the site is underlain by the Lambeth Group Formation comprising of Clay, Silt and Sand with superficial deposits of Head Deposits (comprising of Gravel, Sand, Silt and Clay).

Intrusive investigations carried out by Deltasimons and LEAP report that the site consists of topsoil up to 0.4mbgl, over sandy, silty, clayey GRAVEL, overlying a gravelly, clayey SILT and gravelly CLAY, with some areas of the site the Gravel strata was found to have stiff very gravelly CLAY.

Winter groundwater monitoring indicates the presence of groundwater parts of the site varying from 0.67mbgl to 3.45mbgl. Winter infiltration testing to BRE 365 was carried out and indicated permeability rates ranging from 1.27 $x10^{-6}$ to 2.91 x 10^{-4} m/s.

Investigations on the potential presence and risk of formation of solution features was carried out by Leap Environmental, who have provided recommendations on the minimum offsets for the construction of new plot soakaways from the structural foundations. A copy of the extracts from the Leap Environmental Ground investigation report is contained in **Appendix B**.

Hydrology

There are no existing ordinary watercourses immediately within the vicinity of the site.

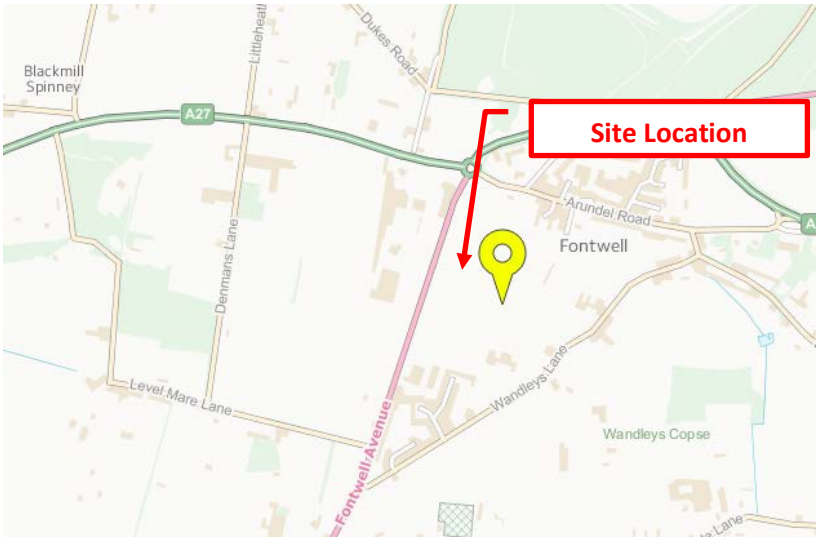


Figure 3: Extract of Flood Map from the EA's website

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Hydrogeology

Groundwater mapping published by the EA indicates that the site is located over a Groundwater Vulnerability Zone designated as a Minor Aquifer Intermediate, with a Secondary A Bedrock and Secondary A Superficial Deposit designation respectively. The site is located over a groundwater source protection Zone 1 (Inner Protection Zone) in the north western part, whilst the remainder lies within Zone 2 (Subsurface Activity)

3.0 Flood Risk and Existing Surface Water Drainage

This report reviews the existing risk of flooding to the site and requirements for a compliant drainage strategy by interrogating the following information:

- Available topographic survey information;
- Arun District Council Strategic Flood Risk Assessment (SFRA);
- West Sussex LLFA Policy for the Management of Surface Water;
- Available mapping from the Environment Agency's website;
- Existing Southern Water sewer service records;
- Wormald Burrows Partnership Limited Flood Risk Assessment (April 2015);

Based on a review of the EA's Flood Zone maps (see **Figure 3**), the development site appears to lie wholly within Flood Zone 1, considered to be at low risk from fluvial and tidal flooding.

The risk of flooding from pluvial sources has been assessed and based on the mapping information provided by the EA is deemed low for the site. Whilst there is a small localised area highlighted as high risk this is due to a localised low point in the site topography which would allow potential exceedance flows to accumulate. The risk to the future development could be mitigated through consideration of proposed finished levels in relation to these existing low points on the site to ensure such localised surface water flooding will not pose a risk to buildings or people, nor increase the risk of surface water flooding elsewhere.

It should be noted that as from April 2015, the Lead Local Flood Authority (LLFA) has now become a statutory consultee with respects to surface water drainage and risk of flooding from surface water, groundwater, reservoirs and sewers. As such West Sussex County Council (WSCC) and Arun District Council (ADC) will become a primary consultee during the Reserved Matter submission and discharging planning conditions relating to localised flood risk and the surface water drainage strategy.

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Existing Site Drainage

A review of the existing topographic information and sewer records has been carried out to assess the existing surface water drainage regime of the site.

The majority of the surface water from fields within the development site appear to drain naturally to ground via infiltration.

4.0 Surface Water Management

The surface water management section should ensure that there is no adverse impact on flood risk elsewhere as a result of a change in the surface water runoff regime from the re-development.

Design Principles

Key design principles in the following guidance documents steer the approach to managing surface water runoff at sites:

- Building Regulations hierarchy of drainage (H3);
- Interim Code of Practice for SuDS; and
- CIRIA best practice guidance, including the use of the 'SuDS management train'.

Building Regulations hierarchy of drainage outlines the preferred methods for the disposal of surface water with infiltration methods being the preferred option. If this is not possible the next favoured option is to drain to an existing watercourse. If neither of these options are feasible, the regulations state that rainwater discharge should be directed to a sewer.

The Interim Code of Practice for SuDS provides guidance about the hydraulic design criteria for Sustainable drainage systems. This in general refers to both peak rate of runoff and the volume of runoff, post development. Prior to mitigation measures such as the use of SuDS attenuation features, both the volume and peak rate of run-off may increase post development.

The design principles for surface water management extend beyond simple hydraulic criteria. CIRIA guidance promotes the use of the SuDS management train, a concept where SuDS techniques are used to treat, convey and store surface water runoff. This approach is considered as part of the SuDS selection methodology.

Sustainable Drainage Systems

To drain the development in a sustainable manner whilst complying with the requirements of the NPPF, the scheme should seek to adopt an appropriate form(s) of sustainable urban drainage systems (SuDS).

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SuDS techniques comprise of implementation of permeable paving and on plot soakaways (where applicable) as well as an infiltration basin in the south western corner of the site.

Surface Water Drainage Strategy

In view of the requirements of the NPPF, PPG, WSCC, ADC the design parameters and constraints associated with redeveloping this site, a surface water drainage strategy design has been devised and hydraulically modelled to demonstrate that the scheme can be suitably implemented without increasing the level of flood risk, when the surface water drainage system experiences a 1:100-year rainfall event (including climate change).

The surface water drainage scheme has been designed to ensure:

- A reduction in the pre development site discharge for peak storm events.
- Sustainable Urban Drainage systems are wholly incorporated within the scheme.
- Consideration is given for the improvement of water quality within the design.
- The designed drainage scheme can satisfactorily retain a critical 1 in 100 Year storm event with climate change.

The development of the onsite surface water drainage strategy has been carried out through ongoing consultation with ADC Drainage Officers to agree the principles of the infiltration rates applicable to parts of the site. As there are some areas where soakage rates vary significantly, it has been agreed with ADC Drainage officers that further location specific testing will be undertaken to inform soakage rates at soakaway locations where this occurs. Further engagement with ADC will be undertaken to agree these additional test locations.

All new access roads, parking bays and access drives will be permeable paving with full infiltration. Run-off from the new plots will be directed to trench soakaways. In the south western part of the site where the infiltration rates were poorer, the runoff from the new buildings will be directed to the new infiltration basin. An outline of the above proposal is provided in drawings DAN/E4736/031-034 in **Appendix D.**

Calculations to demonstrate the feasibility of permeable paving for parking bays, access roads, on plot soakaways and the infiltration basin are provided in **Appendix E.**

It must be noted that the strategy layout and calculations presented at this stage is to demonstrate that the detailed layout can feasibly be drained in terms of surface water. The full details of the drainage layouts including construction details for permeable paving, soakaways and infiltration basin will be provided as part of the separate Discharge of Conditions application of the Outline Consent.

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Water Quality

It is important to address issues with regards to quality when considering surface water management. As part of the surface water is proposed to be discharge to the existing downstream watercourses, treatment is proposed as part of a SuDS Management Train in accordance with the recommendations of the SuDS Manual (CIRIA 753) and as required by the LLFA.

This SuDS management train will be achieved through the use of on plot soakaways, permeable paving and the infiltration basin.

Chapter 26 of the CIRIA SuDS Manual (2015) provides guidance on methods that should be used to design SuDS to meet the water quality design criteria and good practice design standards. Diffuse urban pollution is a significant factor in compromising groundwater and receiving water standards that are required under the EA Water Framework Directive. Chapter 4 of the SuDS Manual summarises factors, which influence pollution levels in urban run-off. This summary is presented in **Table 1 below:**

Factors influencing pollution levels in urban run-off
The amount and type of pollution washed off a surface will depend on many things including: • Planning activities on, above and adjacent to the surface that affect the deposition of pollutants, their retention on the surface and the extent to which they are mixed with runoff (including pollution prevention strategies) • Unplanned activities (accidents and spillages) that can cause temporary unexpected high pollution concentrations • The surface location and type, affecting wash-off rates and contaminant movement mechanisms • The drainage path • The length of the dry weather period before the rainfall event • The intensity and the duration of the rainfall, and the associated flow velocities Any further pollutant transformations occurring during residence and conveyance within gullies, chambers, pipe or channel networks, gravels, soils and vegetation and quiescent bodies of water.

Table 1: Extract of Box 4.1 of the SuDS Manual (CIRIA 753)

Table 4.3 of the SuDS Manual classifies the pollution hazard level for residential sites, including residential car parks, low traffic roads as being “low” and thus only

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requiring a “Simple index approach” in terms of the requirements for the discharge to surface waters, including coasts and estuaries.

The SuDS Manual summarises the steps for the simple index approach:

Step 1 – *Allocate suitable pollution hazard indices for the proposed land use*

Step 2 – *Select SuDS with a total pollution mitigation index that equals or exceeds the pollution index*

Step 3 – *Where the discharge to a protected surface waters or groundwater, consider the need for a more precautionary approach*

The SuDS Manual describes “protected surface waters” as protected surface water resources, which include those designated for drinking water abstraction or for other environmental protection reasons

Table 26.2 of the SuDS manual notes the following pollution hazard indices for residential land use development:

Land Use	Pollution Hazard Level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (eg. cul-de sacs, home zones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie. Less than 300 vehicle movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospital, retail), all roads except low traffic roads and trunk roads/ motorways	Medium	0.7	0.6	0.7

Table 2: Extract of Table 26.2 of SuDS Manual (2015)

Table 26.3 of the SuDS Manual provides details of the SuDS pollution mitigation indices for various types of SuDS components

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	Mitigation indices		
Type of SuDS component	**TSS**	**Metals**	**Hydrocarbons**
Filter Strip	0.4	0.4	0.5
Filter Drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable Paving	0.7	0.6	0.7
Detention Basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8

Table 3: Extract of Table 26.3 of SuDS Manual (2015)

As such the total SuDS mitigation index (figure 5) must be greater than the pollution hazard index (figure 4), furthermore when used in combination of two or more SuDS components, a factor of 0.5 is used to account for the reduced performance of the secondary or tertiary components associated with the already reduced inflow of concentration, therefore:

Total SuDS mitigation index = mitigation index$_1$ + 0.5 (mitigation index$_2$)

The use of the permeable paving for the access roads and soakaways/infiltration for roof drainage will provide the minimum required level of SuDS mitigation index to the run off from the development.

Long Term Maintenance

Consideration will need to be given to the long-term maintenance of the proposed drainage structures. Permeable paving, soakaways and all associated external pipework, chambers and manholes within the demise of each plot ownership boundaries will be the responsibility of the future occupants. Elsewhere, the surface water networks below the access roads and open space will be the responsibility of the Management Company. Details of the Maintenance Plan will be provided as part of the separate Discharge of Conditions application of the Outline Consent.

Exceedance

Whilst the drainage system has been designed to a very high standard (1 in 100 Year storm event including climate change), it is possible that a more extreme event will occur and that the design standard for the system will be exceeded. It is best practice to design the drainage system to shed water, primarily into landscaped and

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other areas, therefore reducing the risk of flooding areas of built development during extreme events.

A strategy for directing overland flows for the site will be confirmed using overland flow modeling and provided as part of the separate Discharge of Conditions application.

5.0 Foul Drainage

The proposed foul water discharge generated by the site has been calculated at 18.51l/s (based on 400 dwellings at 4000l/dwelling/day) in accordance with Sewers for Adoption 7th Edition.

The foul water drainage will be conveyed via a new below ground foul sewer network through development to a new connection to the Southern Water network within Fontwell Avenue

All domestic foul drainage will be designed in accordance with Part H of the Building Regulations.

6.0 Conclusion

A surface water drainage strategy has been prepared and demonstrates that the development proposal can be successfully implemented and designed to withstand the impact of a 1:100-year rainfall event (including climate change), in accordance with the NPPF, PPG, WSCC and ADC requirements.

In view of this assessment, the report concludes that:

i. The Development can be drained in a sustainable manner utilizing SuDS techniques;

ii. The Development will satisfactorily manage and maintain a 1 in 100 Year storm event with an allowance for climate change;

iii. The detailed drainage strategy generally follows the principles of the approved FRA and Surface Water Drainage Strategy and SuDS Statement;

iv. Further testing has been undertaken to inform soakage rates further in some areas following consultation with ADC drainage officers and as a result design principles have been agreed as indicated in **Appendix F**.

v. The findings of this report identify the opportunity to promote the sustainable re-use of existing resources and potential to implement an appropriate SuDS strategy.

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Appendix (A)

Topographic Survey

Notes :

1. GRID AND LEVELS RELATED TO OSGB36 NATIONAL DATUM DERIVED FROM THE NATIONAL GPS NETWORK. LSF (0.99971) USED IN ALL CALCULATIONS.
2. DRAINAGE INFORMATION HAS BEEN DETERMINED WITHOUT MAN ENTRY INTO CHAMBERS AND WHILST EVERY EFFORT HAS BEEN MADE TO CORRECTLY IDENTIFY THIS INFORMATION, IT SHOULD ALWAYS BE CHECKED IN AREAS THAT ARE CRITICAL TO THE FUTURE PROPOSAL.
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6. BACKGROUND AERIAL IMAGERY (c) Getmapping plc 2014.

Coordinate Table

Station	Description	Easting	Northing	Level
S1	ROAD NAIL	495221.769	107043.742	31.633
S2	ROAD NAIL	495147.491	107064.290	29.326
S3	ROAD NAIL	495083.446	107088.548	27.122
S4	ROAD NAIL	495108.797	107058.953	28.235
S5	ROAD NAIL	495034.023	107066.958	26.414
S6	ROAD NAIL	494989.424	106954.370	23.829
S7	ROAD NAIL	494948.868	106835.924	22.990
S8	ROAD NAIL	494898.698	106651.796	21.392
S9	PEG	494984.817	106660.200	24.555
S10	PEG	495048.688	106670.672	27.316
S11	PEG	495163.848	106829.478	29.513
S12	PEG	495304.854	106878.168	29.678
S13	PEG	495140.971	106744.223	28.097
S14	ROAD NAIL	495300.303	106767.149	27.249
S15	PEG	495382.076	106859.180	29.012
S16	ROAD NAIL	495557.692	106817.401	28.217
S17	ROAD NAIL	495610.185	106837.144	26.872
S18	ROAD NAIL	495342.956	107010.041	31.943
S19	ROAD NAIL	495421.424	106985.761	31.206
S20	ROAD NAIL	495492.656	106967.908	30.971
S21	ROAD NAIL	495544.484	106958.929	30.686
S22	ROAD NAIL	495604.731	106946.996	29.719
S23	ROAD NAIL	495655.204	106940.772	29.797
S24	ROAD NAIL	495675.728	106860.756	26.632

KEY

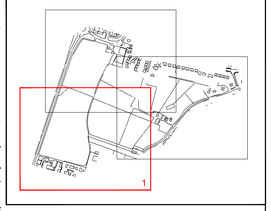
GENERAL ABBREVIATIONS

SURVEY STATION	5	AIR VALVE	AV
	TOP	BACK DROP	BD
BANKING		BRICK	BK
	BOTTOM	BOLLARD	BO
HEDGE SPREADS		BUTT JOINT	BT
		BT INSPECTION COVER	BT
WOODLAND CANOPY		CABLE TV COVER	CATV
		CONTROL BOX	CB
MARSH / WATERLOGGED		COVER LEVEL	CL
		CAST IRON	CIPIT
TREES	SPREAD & GIRTH AS SHOWN TO SCALE	DROP KERB	DK
		ELECTRICITY CONTROL BOX	EB
		ELECTRICITY POLE	EP
		EARTH ROD	ER
		FIRE HYDRANT	FH
		FLOOR LEVEL	FL
		FOUL WATER	FW
		FOUL WATER SEWER	FWS
		GAS VALVE	GV
		GATE POST	GP
GATE		GULLY	GY
		INSPECTION COVER	IC
KERB CHANNEL		INVERT LEVEL	IL
		KERB OUTLET	KO
ROAD UNKERBED		LAMP POST	LP
		LETTER BOX	LB
FOOTPATH		LITTER BIN	BIN
		MANHOLE	MH
CHANGE IN SURFACE		MARKER POST	MP
		METER	MT
FENCE		ORDNANCE SURVEY BENCH MARK	OSBM
		RODDING EYE	RE
WALL		ROAD SIGN	RS
		RAIN WATER PIPE	RWP
OVERHEAD ELECTRIC		RETAINING WALL	RW
		SOIL PIPE	SP
OVERHEAD TELECOM		STREET NAME PLATE	SNP
		STAY CABLES	ST
FOUL SEWER		SURFACE WATER SEWER	SWS
		STOP VALVE	SV
SURFACE SEWER		SOIL VENT PIPE	SVP
		TELEPHONE CALL BOX	TCB
BUILDING		TRIAL HOLE	TH
		TELECOM POLE	TP
		UNABLE TO LIFT	UTL
OPEN SIDED BUILDING		VENT PIPE	VP
		WATER LEVEL	WL
GLASSHOUSE		WATER METER	WM
		WASH OUT	WO

FENCE ABBREVIATIONS

CONTOUR	25.50	BARBED WIRE FENCE	B/W
		CLOSE BOARDED FENCE	C/B
SPOT LEVEL	+ 127.13	CONCRETE PANEL FENCE	CPL
		CORRUGATED IRON FENCE	C/I
BORE HOLE	BH	CHAIN LINK FENCE	CHL
		CHESTNUT PALING	CNP
TRIAL HOLE	TH	IRON RAILINGS	I/R
		POST AND RAIL FENCE	P/R
		POST AND WIRE FENCE	P/W
		WIRE MESH FENCE	W/M

Sheet Layout (not to scale)



Revision	Description	Date
2	Aerial imagery added	August 2014
1	Survey extended around Barn Farm	June 2014

0 5 10 15 20 25 30 35 40 45 50 55

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Tel 01403 243162 — Horsham — horsham@mksurveys.co.uk

dandara

Land at Fontwell Avenue Fontwell West Sussex

Topographical Survey

Scale	Sheet Size:	Sheet Number:	Date:
1:500	A0	1	May 2014
Project Number:	Rev:	Surveyed By:	Approved By:
19734	2	NC/MJW	NL

mks19734 DWG A1 Amended

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S24	ROAD NAIL	495675.728	106860.756	26.632

KEY

SURVEY STATION 5

BANKING (TOP / BOTTOM)

HEDGE SPREADS

WOODLAND CANOPY

MARSH / WATERLOGGED

TREES (SPREAD & GIRTH SHOWN TO SCALE)

GATE

KERB CHANNEL

ROAD UNKERBED

FOOTPATH

CHANGE IN SURFACE

FENCE

WALL

OVERHEAD ELECTRIC

OVERHEAD TELECOM

FOUL SEWER

SURFACE SEWER

BUILDING

OPEN SIDED BUILDING

GLASSHOUSE

CONTOUR 25.50

SPOT LEVEL + 127.13

BORE HOLE BH

TRIAL HOLE TH

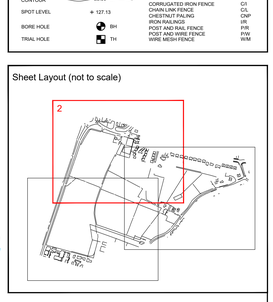
GENERAL ABBREVIATIONS

AIR VALVE	AV
BACK DROP	BD
BRICK	BK
BOLLARD	BO
BUSH	BU
BT INSPECTION COVER	BT
CABLE TV COVER	CATV
CONTROL BOX	CB
COVER LEVEL	CL
CONCRETE	CONT
DROP KERB	DK
ELECTRICITY CONTROL BOX	EB
ELECTRICITY POLE	EP
EARTH ROD	ER
FIRE HYDRANT	FH
FLOOR LEVEL	FL
FOOTPATH	FP
FOUL WATER SEWER	FWS
GAS VALVE	GV
GATE POST	GP
GULLY	GY
INSPECTION COVER	IC
INVERT LEVEL	IL
KERB OUTLET	KO
LAMP POST	LP
LETTER BOX	LB
LITTER BIN	BIN
MANHOLE	MH
MARKER POST	MP
METER	MT
ORDNANCE SURVEY BENCH MARK	OSBM
RODDING EYE	RE
ROAD SIGN	RS
RAIN WATER PIPE	RWP
RETAINING WALL	RW
STREET LIGHT	SL
STREET NAME PLATE	SNP
STAY CABLES	ST
SURFACE WATER SEWER	SWS
STOP VALVE	SV
SOIL VENT PIPE	SVP
TELEPHONE CALL BOX	TCB
TELEGRAPH	TP
TELECOM POLE	TP
UNABLE TO LIFT	UTL
VENT PIPE	VP
WATER LEVEL	WL
WATER METER	WM
WASH OUT	WO

FENCE ABBREVIATIONS

BARBED WIRE FENCE	B/W
CLOSE BOARDED FENCE	C/B
CONCRETE PANEL FENCE	C/PL
CORRUGATED IRON FENCE	C/I
CHAIN LINK FENCE	C/L
CHESTNUT PALING	CNP
IRON RAILINGS	I/R
POST AND RAIL FENCE	P/R
POST AND WIRE FENCE	P/W
WIRE MESH FENCE	W/M

Sheet Layout (not to scale)



Revision	Description	Date
2	Aerial imagery added	August 2014
1	Survey extended around Barn Farm	June 2014

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enquiries@mksurveys.co.uk	oxford@mksurveys.co.uk	mk@mksurveys.co.uk	nuneaton@mksurveys.co.uk	newmarket@mksurveys.co.uk

dandara

Land at Fontwell Avenue Fontwell West Sussex

Topographical Survey

Scale	Sheet Size:	Sheet Number:	Date:
1:500	A0	2	May 2014
Project Number:	Rev:	Surveyed By:	Approved By:
19734	2	NC/MJW	NL

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Notes :

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6. BACKGROUND AERIAL IMAGERY (c) Getmapping plc 2014.

Coordinate Table

Station	Description	Easting	Northing	Level
S1	ROAD NAIL	495221.769	107043.742	31.633
S2	ROAD NAIL	495147.491	107064.290	29.326
S3	ROAD NAIL	495083.446	107088.548	27.122
S4	ROAD NAIL	495108.767	107058.953	28.235
S5	ROAD NAIL	495034.023	107066.958	26.414
S6	ROAD NAIL	494989.424	106954.370	23.829
S7	ROAD NAIL	494948.868	106835.924	22.990
S8	ROAD NAIL	494898.698	106651.796	21.392
S9	PEG	494884.817	106660.200	24.555
S10	PEG	495048.688	106670.672	27.316
S11	PEG	495163.848	106829.478	29.513
S12	PEG	495304.854	106878.168	29.678
S13	PEG	495140.971	106744.223	28.097
S14	ROAD NAIL	495300.303	106767.149	27.249
S15	PEG	495382.076	106859.180	29.012
S16	ROAD NAIL	495557.692	106817.401	28.217
S17	ROAD NAIL	495610.185	106837.144	26.872
S18	ROAD NAIL	495342.956	107010.041	31.943
S19	ROAD NAIL	495421.424	106985.761	31.206
S20	ROAD NAIL	495492.856	106967.908	30.971
S21	ROAD NAIL	495544.484	106958.929	30.686
S22	ROAD NAIL	495604.731	106946.996	29.719
S23	ROAD NAIL	495655.204	106940.772	29.797
S24	ROAD NAIL	495675.728	106860.756	26.632

KEY

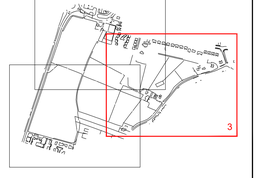
GENERAL ABBREVIATIONS

SURVEY STATION	5	AIR VALVE	AV
BANKING	TOP / BOTTOM	BACK DROP	BD
		BRICK	BK
		BOLLARD	BO
		BUSH	BU
		BT INSPECTION COVER	BT
		CABLE TV COVER	CATV
HEDGE SPREADS		CONTROL BOX	CB
		COVER LEVEL	CL
WOODLAND CANOPY		CONCRETE	CONT
		DROP KERB	DK
MARSH / WATERLOGGED		ELECTRICITY CONTROL BOX	EB
		ELECTRICITY POLE	EP
		EARTH ROD	ER
		FIRE HYDRANT	FH
TREES	SPREAD & GIRTH AS SHOWN TO SCALE	FLOOR LEVEL	FL
		FOUL MANHOLE	FM
		FOUL WATER SEWER	FWS
		GAS VALVE	GV
		GATE POST	GP
GATE		GULLY	GY
		INSPECTION COVER	IC
		INVERT LEVEL	IL
KERB CHANNEL		KERB OUTLET	KO
ROAD UNKERBED		LAMP POST	LP
		LETTER BOX	LB
FOOTPATH		LITTER BIN	BIN
		MANHOLE	MH
CHANGE IN SURFACE		MARKER POST	MP
		METER	MT
FENCE		ORDNANCE SURVEY BENCH MARK	OSBM
		PODDING EYE	PE
WALL		ROAD SIGN	RS
		RAIN WATER PIPE	RWP
OVERHEAD ELECTRIC		RETAINING WALL	RW
		SOIL PIPE	SP
OVERHEAD TELECOM		STREET NAME PLATE	SNP
		STAY CABLES	ST
FOUL SEWER		SURFACE WATER SEWER	SWS
		STOP VALVE	SV
SURFACE SEWER		SOIL VENT PIPE	SVP
		TELEPHONE CALL BOX	TCB
BUILDING		TELEPHONE	TP
		TELECOM POLE	TX
		UNABLE TO LIFT	UTL
OPEN SIDED BUILDING		VENT PIPE	VP
		WATER LEVEL	WL
GLASSHOUSE		WATER METER	WM
		WASH OUT	WO

FENCE ABBREVIATIONS

CONTOUR	25.50	BARBED WIRE FENCE	B/W
		CLOSE BOARDED FENCE	C/B
SPOT LEVEL	127.13	CONCRETE PANEL FENCE	CPL
		CORRUGATED IRON FENCE	C/I
		CHAIN LINK FENCE	CHL
		CHESTNUT PALING	CNP
BORE HOLE	BH	IRON RAILINGS	I/R
		POST AND RAIL FENCE	P/R
TRIAL HOLE	TH	POST AND WIRE FENCE	P/W
		WIRE MESH FENCE	W/M

Sheet Layout (not to scale)



Revision	Description	Date
2	Aerial imagery added	August 2014
1	Survey extended around Barn Farm	June 2014

0 5 10 15 20 25 30 35 40 45 50 55

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dandara

Land at Fontwell Avenue Fontwell West Sussex

Topographical Survey

Scale	Sheet Size:	Sheet Number:	Date:
1:500	A0	3	May 2014
Project Number:	Rev:	Surveyed By:	Approved By:
19734	2	NC/MJW	NL

mks/dwg/19734_Survey.dwg

Notes :

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N

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S19	ROAD NAIL	495421.424	106985.761	31.206
S20	ROAD NAIL	495492.856	106967.908	30.971
S21	ROAD NAIL	495544.484	106958.929	30.686
S22	ROAD NAIL	495604.731	106946.996	29.719
S23	ROAD NAIL	495655.204	106940.772	29.797
S24	ROAD NAIL	495675.728	106860.756	26.632

KEY

SURVEY STATION 5

BANKING (TOP / BOTTOM)

HEDGE SPREADS

WOODLAND CANOPY

MARSH / WATERLOGGED

TREES (SPREAD & GIRTH SHOWN TO SCALE)

GATE

KERB CHANNEL

ROAD UNKERBED

FOOTPATH

CHANGE IN SURFACE

FENCE

WALL

OVERHEAD ELECTRIC

OVERHEAD TELECOM

FOUL SEWER

SURFACE SEWER

BUILDING

OPEN SIDED BUILDING

GLASSHOUSE

CONTOUR 25.50

SPOT LEVEL + 127.13

BORE HOLE BH

TRIAL HOLE TH

GENERAL ABBREVIATIONS

AIR VALVE	AV
BACK DROP	BD
BRICK	BK
BOLLARD	BO
BUILDING	BT
BT INSPECTION COVER	BT
CABLE TV COVER	CATV
CONTROL BOX	CB
COVER LEVEL	CL
CONCRETE	CONT
DROP KERB	DK
ELECTRICITY CONTROL BOX	EB
ELECTRICITY POLE	EP
EARTH ROD	ER
FIRE HYDRANT	FH
FLOOR LEVEL	FL
FLAG POLE	FP
FOUL WATER SEWER	FWS
GAS VALVE	GV
GATE POST	GP
GULLY	GY
INSPECTION COVER	IC
INVERT LEVEL	IL
KERB OUTLET	KO
LAMP POST	LP
LETTER BOX	LB
LITTER BIN	BIN
MANHOLE	MH
MARKER POST	MP
METER	MT
ORDNANCE SURVEY BENCH MARK	OSBM
RODDING EYE	RE
ROAD SIGN	RS
RAIN WATER PIPE	RWP
RETAINING WALL	RW
STEPS	STP
STREET NAME PLATE	SNP
STAY CABLES	ST
SURFACE WATER SEWER	SWS
STOP VALVE	SV
SOIL VENT PIPE	SVP
TELEPHONE CALL BOX	TCB
TELEGRAPH	TP
TELECOM POLE	TP
UNABLE TO LIFT	UTL
VENT PIPE	VP
WATER LEVEL	WL
WATER METER	WM
WASH OUT	WO

FENCE ABBREVIATIONS

BARBED WIRE FENCE	B/W
CLOSE BOARDED FENCE	C/B
CONCRETE PANEL FENCE	C/PL
CORRUGATED IRON FENCE	C/I
CHAIN LINK FENCE	C/L
CHESTNUT PALING	CNP
IRON RAILINGS	I/R
POST AND RAIL FENCE	P/R
POST AND WIRE FENCE	P/W
WIRE MESH FENCE	W/M

Revision	Description	Date
2	Aerial imagery added	August 2014
1	Survey extended around Barn Farm	June 2014

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Tel 02476 017500	Nuneaton	nuneaton@mksurveys.co.uk
Tel 01903 243150	Horsham	horsham@mksurveys.co.uk

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Land at Fontwell Avenue
Fontwell
West Sussex

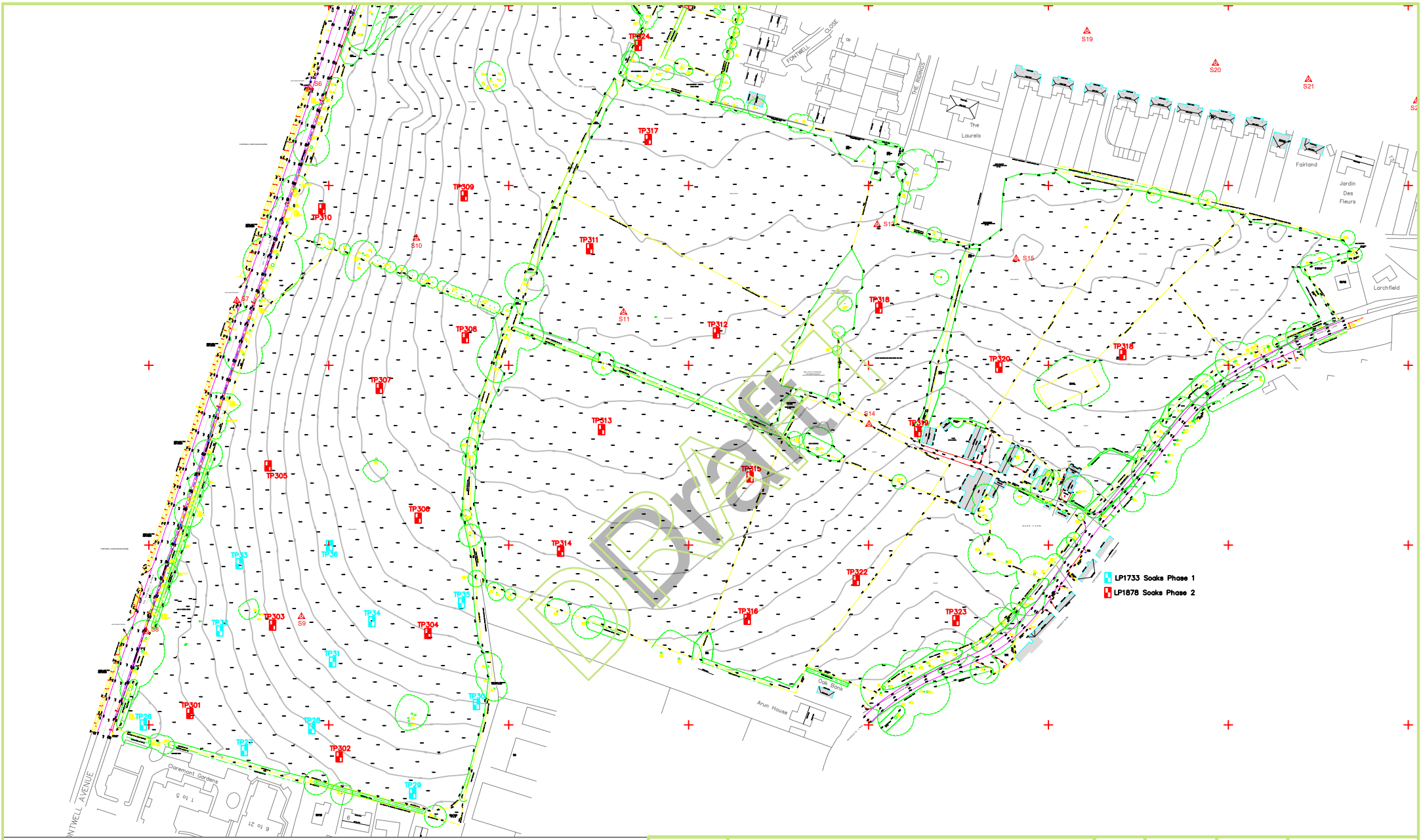
Topographical Survey

Scale	Sheet Size:	Sheet Number:	Date:
1:1000	A0	4	May 2014
Project Number: 19734	Rev: 2	Surveyed By: NC/MJW	Approved By: NL

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Appendix (B)

Geotechnical Information (Extract)



Client	Dandara Properties Ltd	Date	5/4/19	Project Ref.	LP1878
Project	Fontwell Shallow Soaks	Scale at A4	NTS	Fig No.	1
Title	Shallow Soakage Positions				

Leap Environmental Ltd
The Atrium, Curtis Road
Dorking, Surrey RH4 1XA
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www.leapenvironmental.com

Trial Pit Log

Trialpit No
TP301
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 05/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	175 / 47	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
				0.35			Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
							Hand Pen at 0.6m = 120kPa
	1.00	B	N=32				*Hand Pen at 1m = 120kPa*
				1.20			Pale grey occasionally mottled yellow brown weathered CHALK recovered as slightly clayey slightly gravelly silt. Gravel of extremely weak medium to coarse sub-angular to sub-rounded chalk. Clasts are low density. Matrix dominated.
			N=27				
	1.70	B					
				1.90			Firm to stiff brown silty slightly gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
	2.00	D		2.00			End of pit at 2.00 m

DRAFT

Remarks: Moderate water seepage at 1.5m. Some collapsing below 1.6m. Pit was backfilled with gravel to 0.5mbgl.

Stability: Collapsing below 1.6m.

AGS

Leap Environmental Ltd
The Atrium, Curtis Road
Dorking, Surrey RH4 1XA
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www.leapenvironmental.com

Trial Pit Log

Trialpit No
TP302
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 05/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	185 / 48	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
	0.80	B	N=28				Dense brown silty very clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint. Occasional partings of gravelly silty clay.
			N=26				*Too gravelly for hand penetrometer test at 1m.*
	2.00	D		1.80			Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
				2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

AGS

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Dorking, Surrey RH4 1XA
Tel: 01306 646510
www.leapenvironmental.com

Trial Pit Log

Trialpit No
TP303
Sheet 1 of 1

Project Name: Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 05/03/2019
Location: Land near Fontwell, BN18 0SW		Dimensions (m): Depth 2.00 (174 × 47)	Scale 1:25
Client: Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
				0.30			Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
							Hand Pen at 0.8m = 150kPa
	1.00	B	N=32				*Becoming more gravelly below 1m.*
			N=35	1.50			Pale grey occasionally mottled yellow brown weathered CHALK recovered as slightly clayey slightly gravelly silt. Gravel of extremely weak medium to coarse sub-angular to sub-rounded chalk. Clasts are low density. Matrix dominated.
							Too gravelly for hand penetrometer test at 1.5m.
	2.00	D		2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

AGS

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Dorking, Surrey RH4 1XA
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www.leapenvironmental.com

Trial Pit Log

Trialpit No
TP304
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 05/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	182 / 47	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
							Hand Pen at 0.8m = 175kPa
	1.00	B	N=16				
			N=9				*Hand Pen at 1.5m = 220kPa*
	1.80	B					
				1.90			Pale grey weathered CHALK recovered as slightly clayey slightly gravelly silt. Gravel of extremely weak medium to coarse sub-angular to sub-rounded chalk. Clasts are low density. Matrix dominated.
				2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.8mbgl.

Stability: Stable.

AGS

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The Atrium, Curtis Road
Dorking, Surrey RH4 1XA
Tel: 01306 646510
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Trial Pit Log

Trialpit No
TP305
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 05/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	166 / 46	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
							Hand Pen at 0.5m = 60kPa
	0.80	B	N=27				*Hand Pen at 1m = 160kPa*
				1.20			Pale grey occasionally mottled yellow brown weathered CHALK recovered as slightly clayey slightly gravelly silt. Gravel of extremely weak medium to coarse sub-angular to sub-rounded chalk. Clasts are low density. Matrix dominated.
	1.60	D	N=25				
				2.00			End of pit at 2.00 m

DRAFT

Remarks: Moderate water seepage at 1.9m. Some collapsing below 1.6m. Pit was backfilled with gravel to 0.5mbgl.

Stability: Collapsing below 1.6m.

AGS

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Dorking, Surrey RH4 1XA
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www.leapenvironmental.com

Trial Pit Log

Trialpit No
TP306
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 04/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	182 / 47	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
	0.80	B					*Hand Pen at 0.8m = 130kPa*
			N=20				
			N=34				*Hand Pen at 1.5m = 190kPa*
	2.00	B		2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

AGS

Leap Environmental Ltd
The Atrium, Curtis Road
Dorking, Surrey RH4 1XA
Tel: 01306 646510
www.leapenvironmental.com

Trial Pit Log

Trialpit No
TP307
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 04/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	186 / 48	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Dense brown silty very clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint. Occasional partings of gravelly silty clay.
			N=44				*Too gravelly for hand penetrometer test at 1m.*
	1.10	B					
			N=43				
	2.00	B		2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

AGS

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Trial Pit Log

Trialpit No
TP308
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 04/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	194 / 48	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
							Hand Pen at 0.8m = 275kPa
	1.00	B	N=23				
			N=13				*Hand Pen at 1.5m = 180kPa*
				1.90			
	2.00	D		2.00			Pale grey occasionally mottled yellow brown weathered CHALK recovered as slightly sandy slightly gravelly silt. Gravel of extremely weak medium to coarse sub-angular to sub-rounded chalk. Clasts are low density. Matrix dominated.
							End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP309
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 04/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	192 / 48	Scale 1:25
Client:	Dandara Ltd			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Grass over brown gravelly silty TOPSOIL. Gravel of fine to coarse, angular to sub-rounded flint.
	1.00	B	N=27				Medium dense orange brown clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
			N=8				
	1.80	B					*Partings of white grey weathered chalk recovered as slightly clayey slightly gravelly silt at the northern end of the pit below 1.7m. Gravel is rare fine to medium chalk.*
				2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP310
Sheet 1 of 1

Project Name: Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 04/03/2019
Location: Land near Fontwell, BN18 0SW		Dimensions (m): 190 x 48 Depth 2.00	Scale 1:25
Client: Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints. Occasional roots and rootlets.
	0.80	B	N=6	1.00			Firm to stiff brown slightly silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint. *Hand Pen at 0.8m = 100kPa*
	1.50	B	N=15	2.00			Pale grey occasionally mottled yellow brown weathered CHALK recovered as slightly sandy slightly gravelly silt. Gravel of extremely weak medium to coarse sub-angular to sub-rounded chalk. Clasts are low density. Matrix dominated. End of pit at 2.00 m

DRAFT

Remarks: Slight water seapage at 1.9m. Some collapsing below 1.8m. Pit was backfilled with gravel to 0.2mbgl.

Stability: Collapsing below 1.8m.

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Trial Pit Log

Trialpit No
TP311
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 05/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	177 / 48	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Dense brown silty clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint. Occasional partings of gravelly silty clay.
							Hand Pen at 0.6m = 280kPa
	1.00	B	N=57				
			N=50				*Too gravelly for hand penetrometer test at 1.5m.*
	2.00	B		2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP312
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 06/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	180 / 47	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
	0.80	B	N=50				Dense brown silty clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint. Occasional partings of gravelly silty clay.
							Too gravelly for hand penetrometer test at 1m.
	1.50	B	N=50				
				2.00			End of pit at 2.00 m

1 2 3 4 5

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP313
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 06/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	173 / 48	Scale 1:25
Client:	Dandara Ltd			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
	0.70	D	N=50				Firm orange brown slightly gravelly silty CLAY. Gravel of fine to coarse, sub-angular to sub-rounded flint. *Hand Pen at 0.8m = 70kPa*
				1.20			Firm to stiff brown gravelly silty CLAY. Gravel of fine to coarse, sub-angular to sub-rounded flint
	1.50	B	N=44				*Too gravelly for hand penetrometer test at 1.5m.*
				2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP314
Sheet 1 of 1

Project Name: Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 06/03/2019
Location: Land near Fontwell, BN18 0SW		Dimensions (m): Depth 2.00 (173 × 48)	Scale 1:25
Client: Dandara Ltd			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Dense pale brown clayey silty GRAVEL with partings of silty gravelly clay. Gravel of fine to coarse, sub-angular to sub-rounded flint.
							Hand Pen at 0.9m = 100kPa
	1.00	B	N=44				
			N=42				*Too gravelly for hand penetrometer test at 1.5m.*
				2.00			End of pit at 2.00 m

1 2 3 4 5

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP315
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 06/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	173 / 48	Scale 1:25
Client:	Dandara Ltd			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm orange brown slightly gravelly silty CLAY. Gravel of fine to coarse, sub-angular to sub-rounded flint.
							Hand Pen at 0.6m = 100kPa
	1.00	D	N=24				
							Becoming very gravelly below 1.3m.
			N=50				*Too gravelly for hand penetrometer test at 1.5m.*
	2.00	B		2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP316
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 06/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	170 / 49	Scale 1:25
Client:	Dandara Ltd			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm orange brown slightly gravelly silty CLAY. Gravel of fine to coarse, sub-angular to sub-rounded flint.
							Hand Pen at 0.6m = 225kPa
			N=31				*Becoming very gravelly below 1m.*
	1.20	B					
			N=3				*Too gravelly for hand penetrometer test at 1.5m.*
							Partings of white grey weathered chalk recovered as slightly clayey slightly gravelly silt at the eastern end of the pit below 1.8m. Gravel is rare fine to medium chalk.
	2.00	D		2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP317
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 07/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	180 / 48	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
	1.00	B	N=50				Dense brown silty clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
			N=54				
	2.00	B		2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP318
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 07/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	172 / 54	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
	1.00	B	N=11				Medium dense brown slightly sandy silty clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint. Occasional partings of gravelly silty clay.
			N=11				*Too gravelly for hand penetrometer test at 1m.*
	2.00	D		1.85 2.00			Pale grey weathered CHALK recovered as slightly gravelly silt. Gravel of extremely weak medium to coarse sub-angular to sub-rounded chalk. Clasts are low density. Matrix dominated.
							End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

AGS

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Trial Pit Log

Trialpit No
TP319
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 07/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	165 / 48	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
	0.80	D					Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint. *Hand Pen at 0.8m = 90kPa*
				1.20			Dense brown silty clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
	1.50	B					*Too gravelly for hand penetrometer test at 1.5m.*
				2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl. Unable to complete perth penetrometer test.

Stability: Stable.

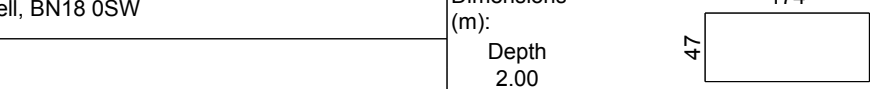
AGS

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Trial Pit Log

Trialpit No
TP320
Sheet 1 of 1

Project Name: Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 11/03/2019
Location: Land near Fontwell, BN18 0SW		Dimensions (m): Depth 2.00	Scale 1:25
Client: Dandara Ltd			Logged SN



Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
	1.20	B	N=50 N=45				Dense brown silty clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
				2.00			End of pit at 2.00 m

1
2
3
4
5

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

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Trial Pit Log

Trialpit No
TP321
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 11/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	170 / 46	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
	1.00	B	N=38 N=50				Dense brown silty clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
				2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.3mbgl.

Stability: Stable.

AGS

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Trial Pit Log

Trialpit No
TP322
Sheet 1 of 1

Project Name: Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 11/03/2019
Location: Land near Fontwell, BN18 0SW		Dimensions (m): 172 x 46 Depth 2.00	Scale 1:25
Client: Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
	1.00	B	N=30				*Too gravelly for hand penetrometer test at 1m.*
	1.50	D	N=41	1.40			Pale grey occasionally mottled yellow brown weathered CHALK recovered as slightly gravelly slightly clayey silt. Gravel of extremely weak medium to coarse sub-angular to sub-rounded chalk. Clasts are low density. Matrix dominated.
				2.00			End of pit at 2.00 m

DRAFT

Remarks: Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

AGS

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Trial Pit Log

Trialpit No
TP323
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 11/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	174 / 47	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
							Too gravelly for hand penetrometer test at 0.8m.
	1.00	B	N=30				
			N=27				*Too gravelly for hand penetrometer test at 1.5m.*
				1.80			Medium dense brown slightly clayey SAND. Sand is fine.
	2.00	B		2.00			End of pit at 2.00 m

DRAFT

Remarks: Slight water seapage at 1.8m. Some collapsing below 1.8m. Pit was backfilled with gravel to 0.5mbgl.

Stability: Collapsing below 1.8m.

AGS

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Trial Pit Log

Trialpit No
TP324
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 07/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 1.90	180 / 46	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
			N=50				Dense brown slightly sandy silty slightly clayey GRAVEL. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint. Occasional partings of gravelly silty clay.
	1.20	B					*Becoming more clayey below 1m.*
			N=50				
	2.00	D		1.90			End of pit at 1.90 m

DRAFT

Remarks: No further progress below 1.9m due to dense gravels. Pit remained dry and stable. Pit was backfilled to 0.5mbgl.

Stability: Stable.

AGS

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Trial Pit Log

Trialpit No
TP326
Sheet 1 of 1

Project Name:	Fontwell Additional Shallow Soaks	Project No. LP01878	Co-ords: - Level:	Date 04/03/2019
Location:	Land near Fontwell, BN18 0SW	Dimensions (m): Depth 2.00	194 / 48	Scale 1:25
Client:	Dandara Ltd			Logged SN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Grass over brown slightly gravelly silt TOPSOIL. Gravel of fine to coarse, sub-angular to sub-rounded flints.
							Firm to stiff brown silty gravelly CLAY. Gravel of fine to coarse and occasional cobbles, angular to sub-rounded flint.
							Hand Pen at 0.6m = 160kPa
			N=21				
	1.20	B					*Hand Pen at 1.2m = 130kPa*
			N=27				
	2.00	D		2.00			End of pit at 2.00 m

DRAFT

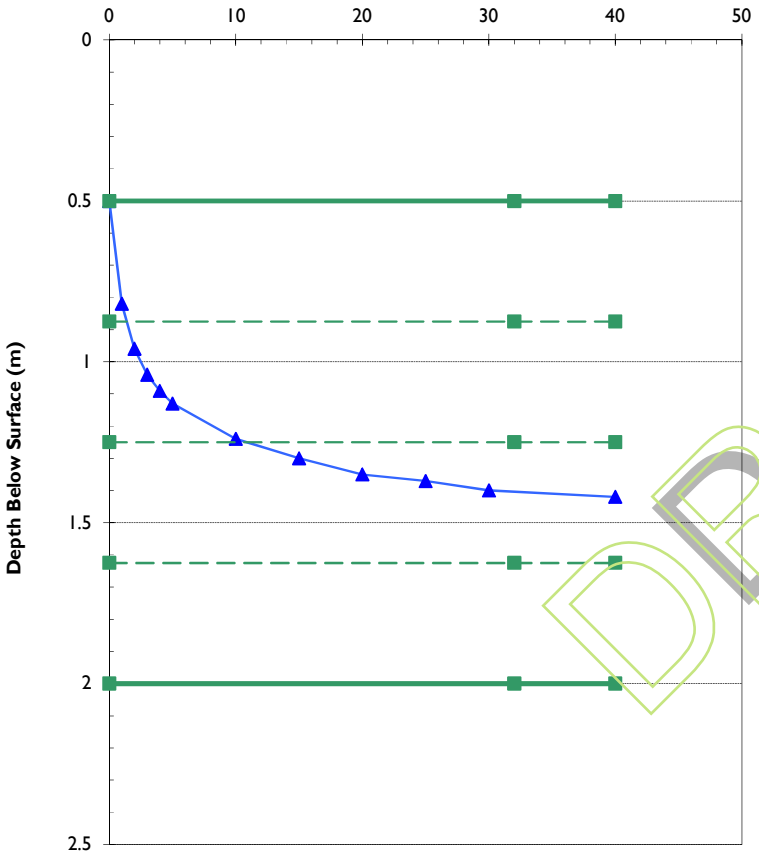
Remarks: Pit remained dry and stable. Pit was backfilled with arising, no soakage testing undertaken.

Stability: Stable.

AGS

BRE Digest 365 - Soakage Test

Test Hole No:	TP301
Test No:	Test No 1



Pit Length (m)	1.75
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.46
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	0.92
Total Soakage Test Time (min)	40
Mean Internal Discharge Area (m2)	5.3513
Discharge Rate (litre/min)	9.466594
Soakage Rate (litre/m2/min)	1.769027
BRE Soil Infiltration Rate (m/sec)	2.95E-05

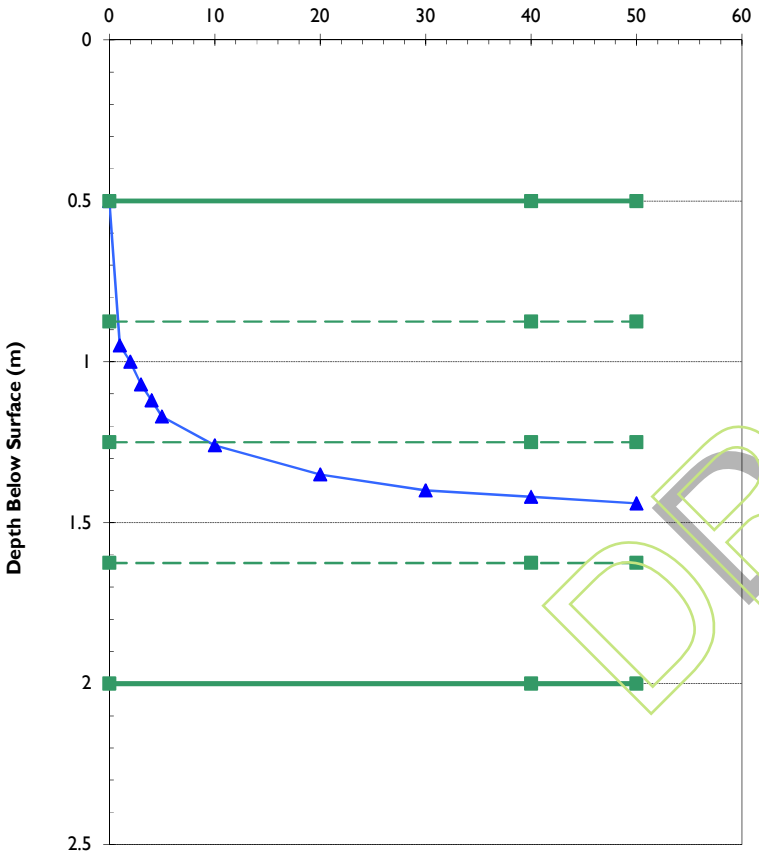
Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP301
Test No:	Test No 2



Pit Length (m)	1.75
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.46
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	0.94
Total Soakage Test Time (min)	50
Mean Internal Discharge Area (m2)	5.3513
Discharge Rate (litre/min)	10.89939
Soakage Rate (litre/m2/min)	2.036774
BRE Soil Infiltration Rate (m/sec)	3.39E-05

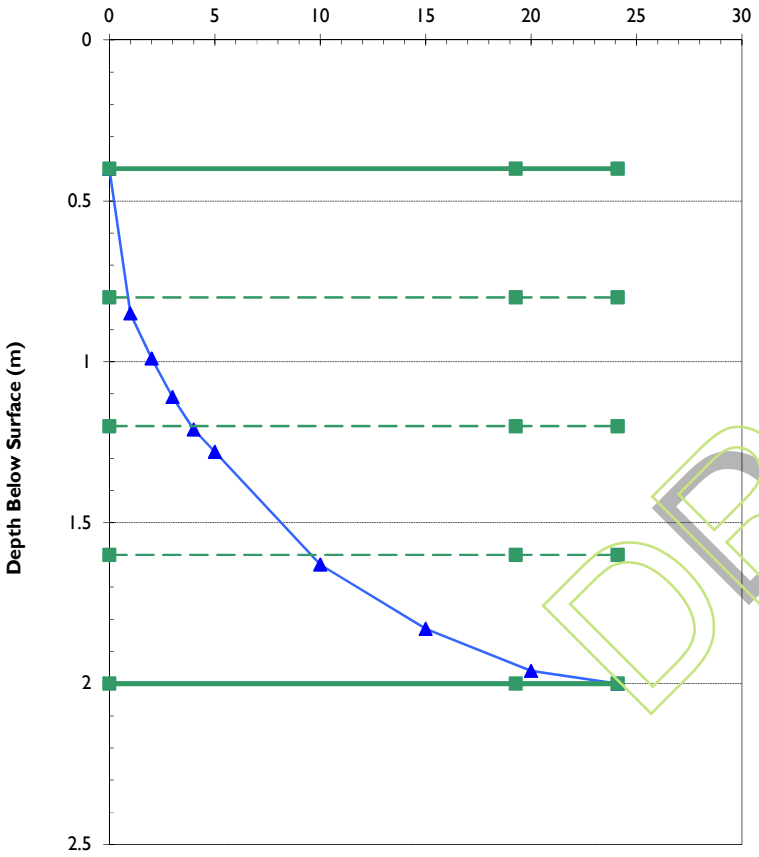
Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP301
Test No:	Test No 3



Pit Length (m)	1.75
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.46
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.6
Total Soakage Test Time (min)	24.1
Mean Internal Discharge Area (m2)	5.5733
Discharge Rate (litre/min)	26.73475
Soakage Rate (litre/m2/min)	4.796934
BRE Soil Infiltration Rate (m/sec)	7.99E-05

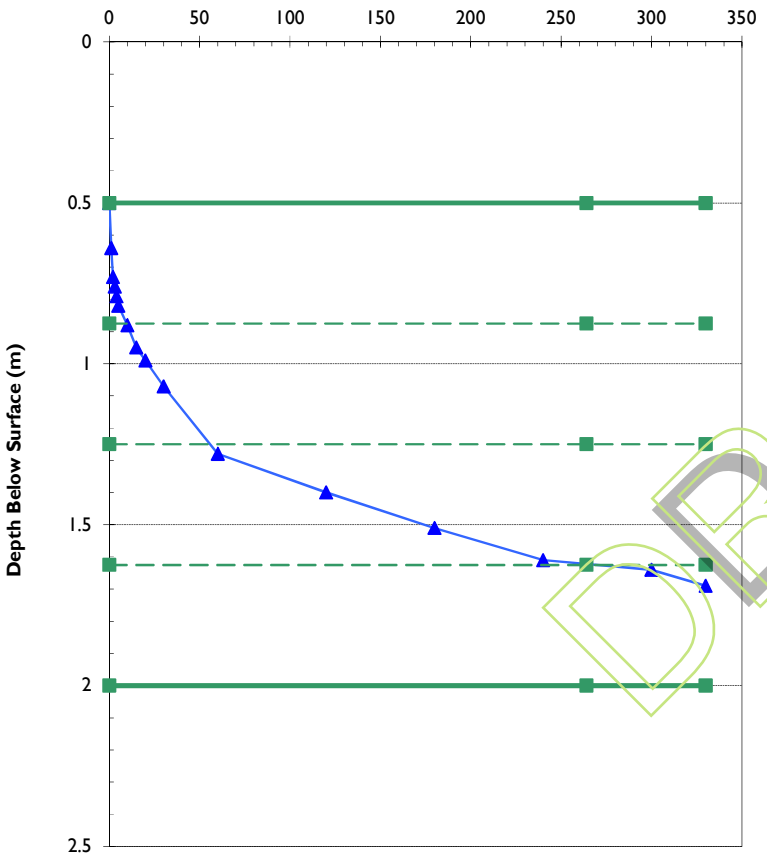
Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP302
Test No:	Test No 1



Pit Length (m)	1.85
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.9
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.19
Total Soakage Test Time (min)	330
Mean Internal Discharge Area (m2)	4.616
Discharge Rate (litre/min)	0.632672
Soakage Rate (litre/m2/min)	0.137061
BRE Soil Infiltration Rate (m/sec)	2.28E-06

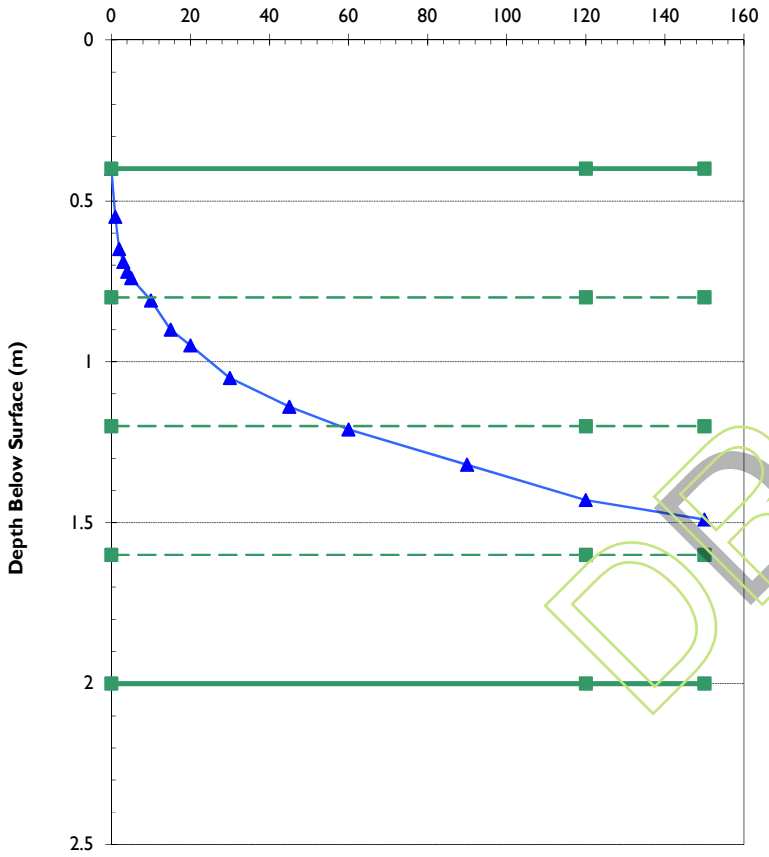
Comments:
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	11/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP302
Test No:	Test No 2



Pit Length (m)	1.85
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.9
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.09
Total Soakage Test Time (min)	150
Mean Internal Discharge Area (m2)	4.93055
Discharge Rate (litre/min)	0.891116
Soakage Rate (litre/m2/min)	0.180734
BRE Soil Infiltration Rate (m/sec)	3.01E-06

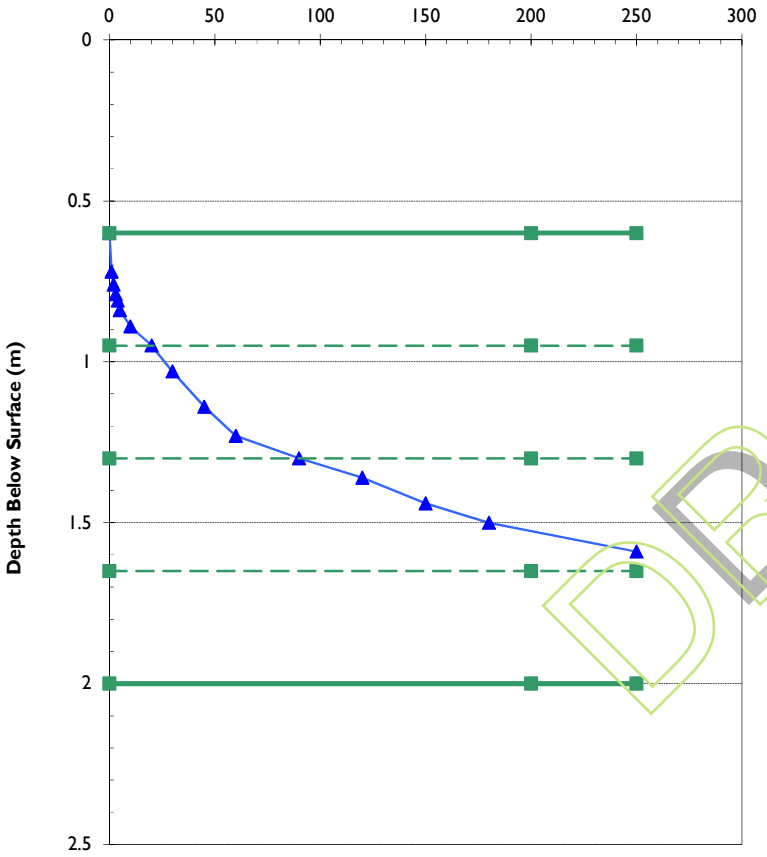
Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP302
Test No:	Test No 3



Pit Length (m)	1.85
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.9
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.6
Max Water Dropdown during Test (m)	0.99
Total Soakage Test Time (min)	250
Mean Internal Discharge Area (m2)	4.383
Discharge Rate (litre/min)	0.518831
Soakage Rate (litre/m2/min)	0.118374
BRE Soil Infiltration Rate (m/sec)	1.97E-06

Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	13/03/19

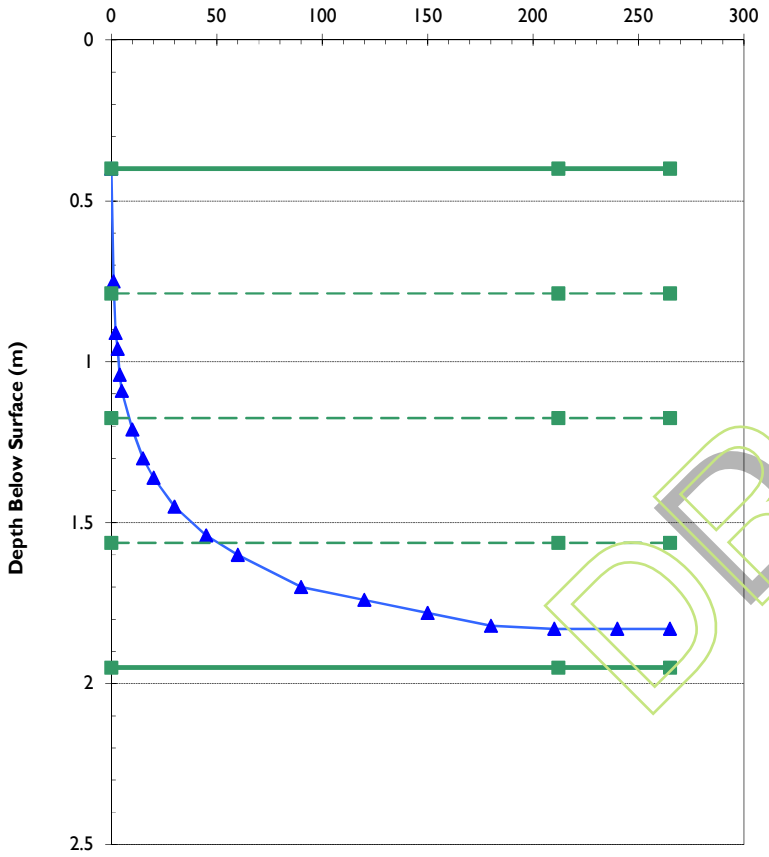
Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP303
Test No:	Test No 1

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.95
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.43
Total Soakage Test Time (min)	265
Mean Internal Discharge Area (m2)	4.2433
Discharge Rate (litre/min)	2.566459
Soakage Rate (litre/m2/min)	0.604826
BRE Soil Infiltration Rate (m/sec)	1.01E-05

Comments:

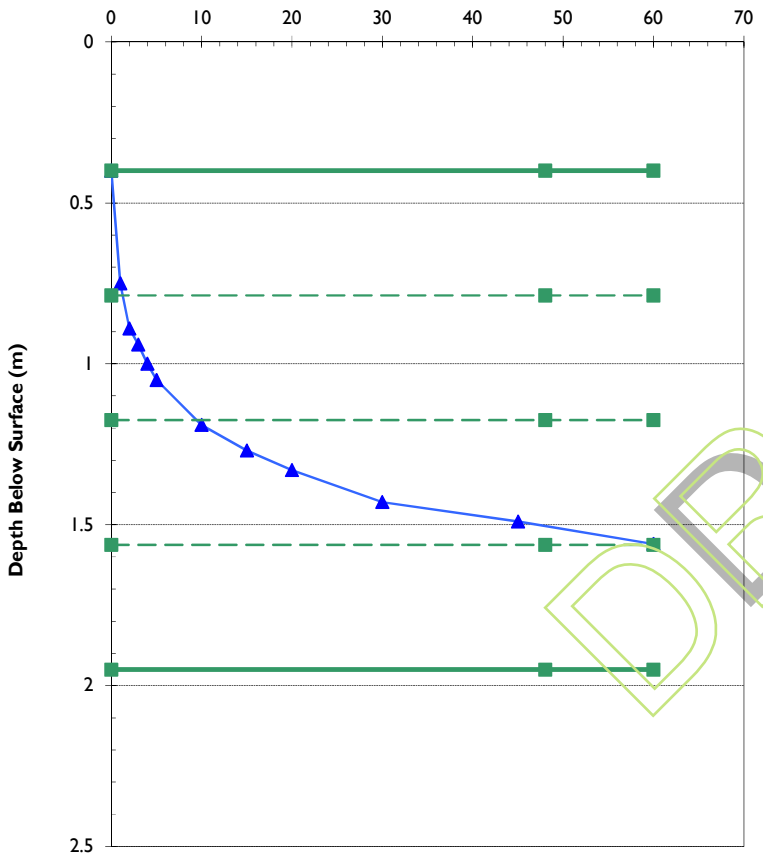
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	08/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP303
Test No:	Test No 2



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.95
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.16
Total Soakage Test Time (min)	60
Mean Internal Discharge Area (m2)	4.248825
Discharge Rate (litre/min)	
Soakage Rate (litre/m2/min)	
BRE Soil Infiltration Rate (m/sec)	

Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	08/03/19

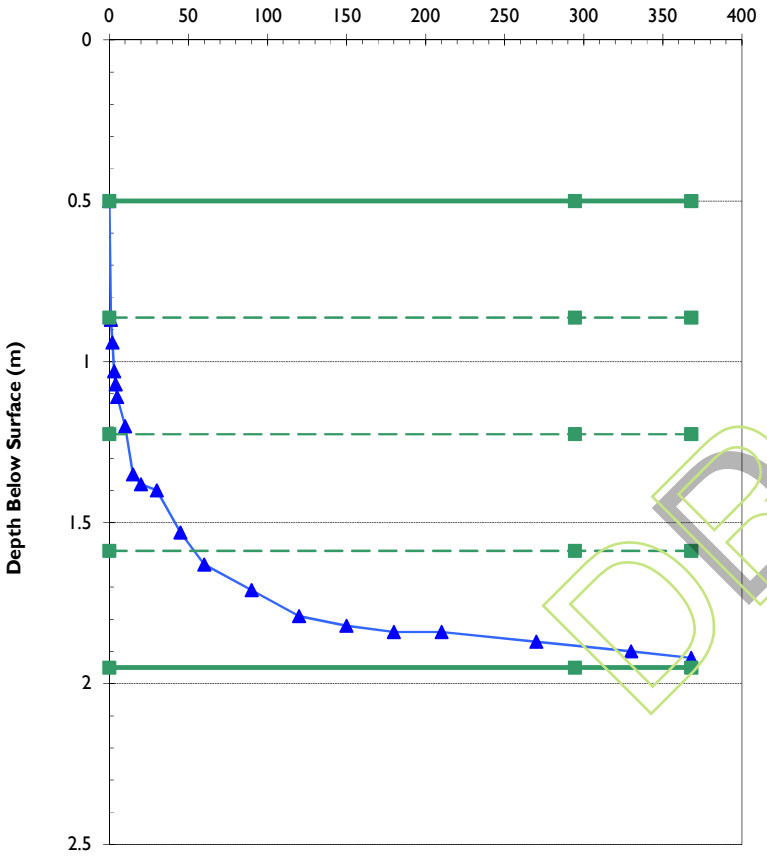
DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP303
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.95
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.42
Total Soakage Test Time (min)	368
Mean Internal Discharge Area (m2)	4.0223
Discharge Rate (litre/min)	2.252453
Soakage Rate (litre/m2/min)	0.559991
BRE Soil Infiltration Rate (m/sec)	9.33E-06

Draft

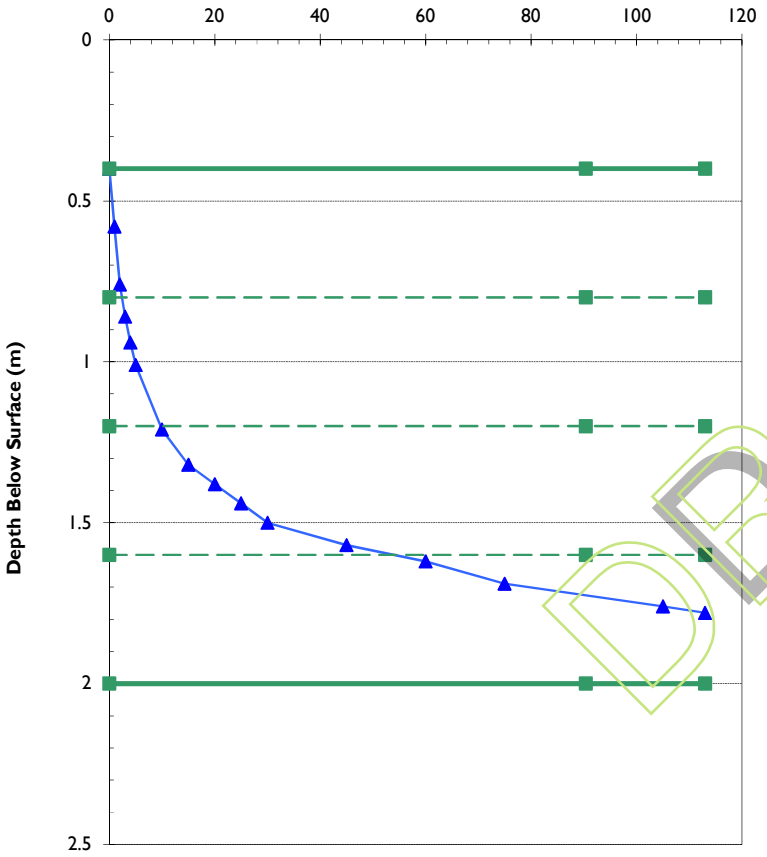
Comments:

Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	11/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP304
Test No:	Test No 1



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.38
Total Soakage Test Time (min)	113
Mean Internal Discharge Area (m2)	4.5194
Discharge Rate (litre/min)	2.652403
Soakage Rate (litre/m2/min)	0.586893
BRE Soil Infiltration Rate (m/sec)	9.78E-06

Comments:

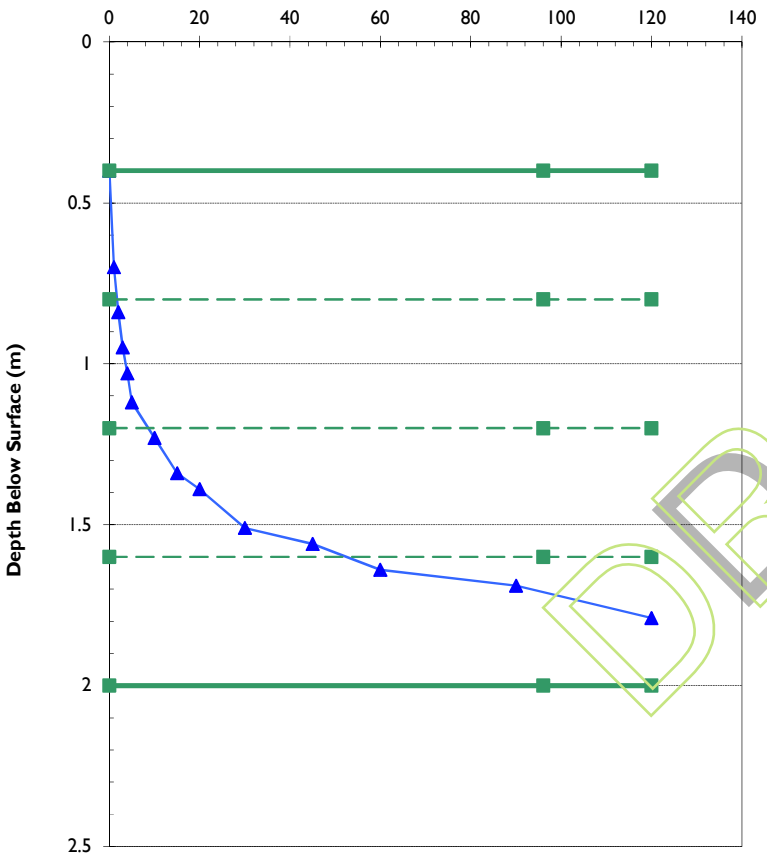
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	08/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP304
Test No:	Test No 2



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.39
Total Soakage Test Time (min)	120
Mean Internal Discharge Area (m2)	4.5194
Discharge Rate (litre/min)	2.694931
Soakage Rate (litre/m2/min)	0.596303
BRE Soil Infiltration Rate (m/sec)	9.94E-06

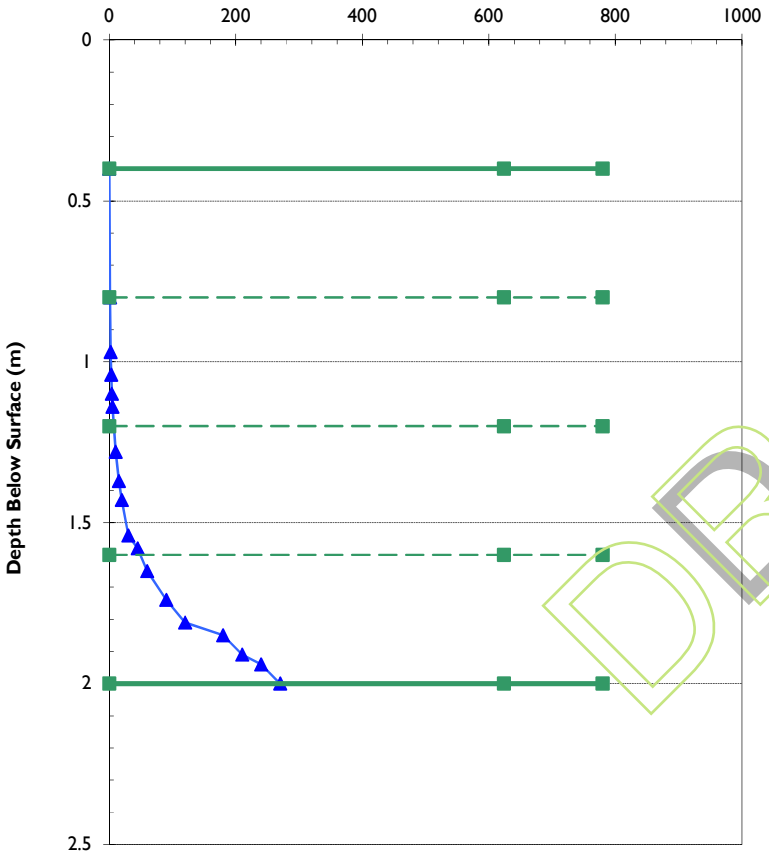
Comments:
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	08/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP304
Test No:	Test No 3



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.6
Total Soakage Test Time (min)	780
Mean Internal Discharge Area (m2)	4.5194
Discharge Rate (litre/min)	2.834462
Soakage Rate (litre/m2/min)	0.627177
BRE Soil Infiltration Rate (m/sec)	1.05E-05

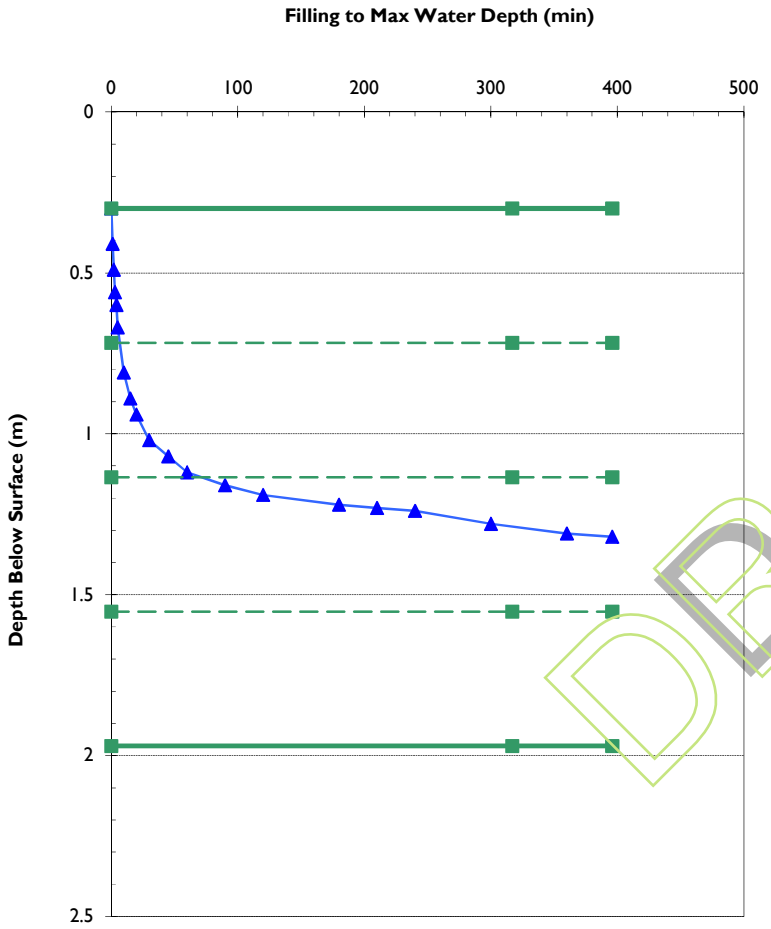
Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	11/03/19

DRAFT

BRE Digest 365 - Soakage Test



Test Hole No:	TP305
Test No:	Test No 1

Pit Length (m)	1.66
Pit Width (m)	0.46
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.56
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.3
Max Water Dropdown during Test (m)	1.02
Total Soakage Test Time (min)	396
Mean Internal Discharge Area (m2)	5.1732
Discharge Rate (litre/min)	0.395476
Soakage Rate (litre/m2/min)	0.076447
BRE Soil Infiltration Rate (m/sec)	1.27E-06

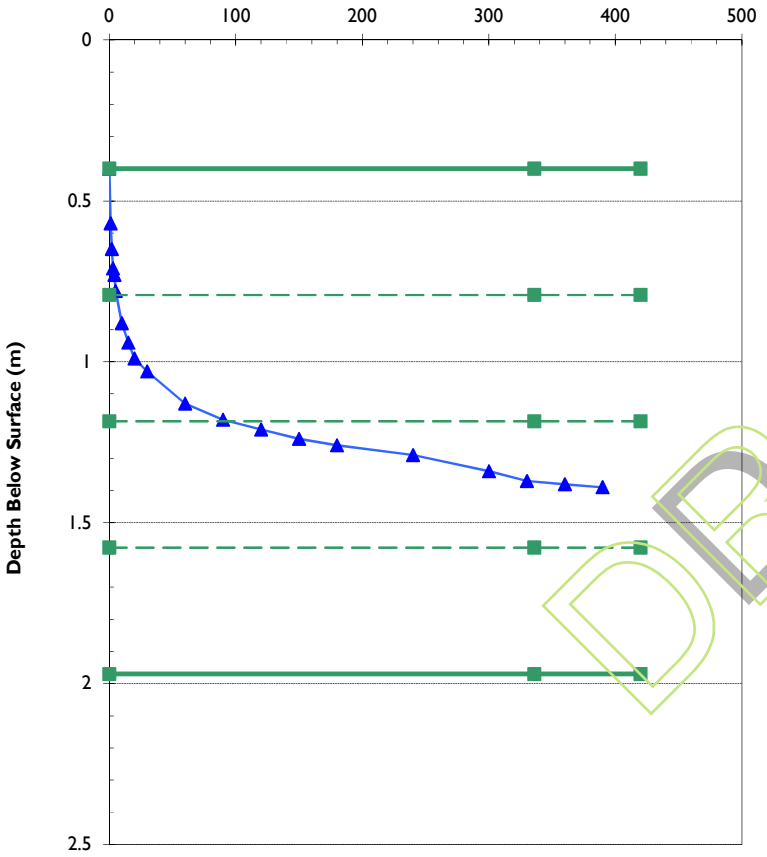
Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	08/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP305
Test No:	Test No 2



Pit Length (m)	1.66
Pit Width (m)	0.46
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.56
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	0.99
Total Soakage Test Time (min)	420
Mean Internal Discharge Area (m2)	4.9612
Discharge Rate (litre/min)	0.389638
Soakage Rate (litre/m2/min)	0.078537
BRE Soil Infiltration Rate (m/sec)	1.31E-06

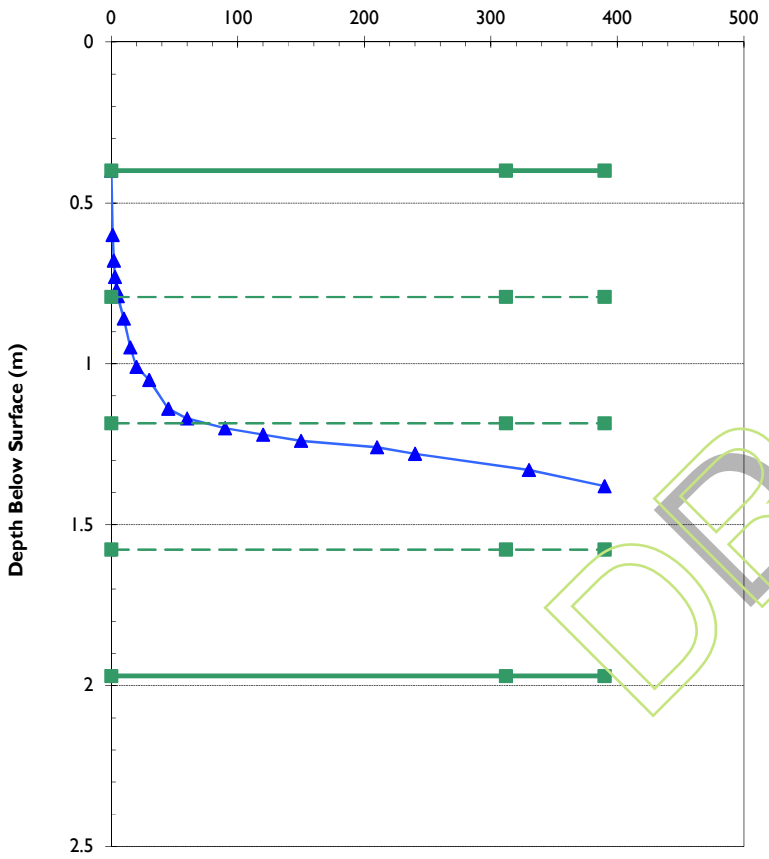
Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	11/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP305
Test No:	Test No 3



Pit Length (m)	1.66
Pit Width (m)	0.46
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.56
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	0.98
Total Soakage Test Time (min)	390
Mean Internal Discharge Area (m2)	4.9612
Discharge Rate (litre/min)	0.397566
Soakage Rate (litre/m2/min)	0.080135
BRE Soil Infiltration Rate (m/sec)	1.34E-06

Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

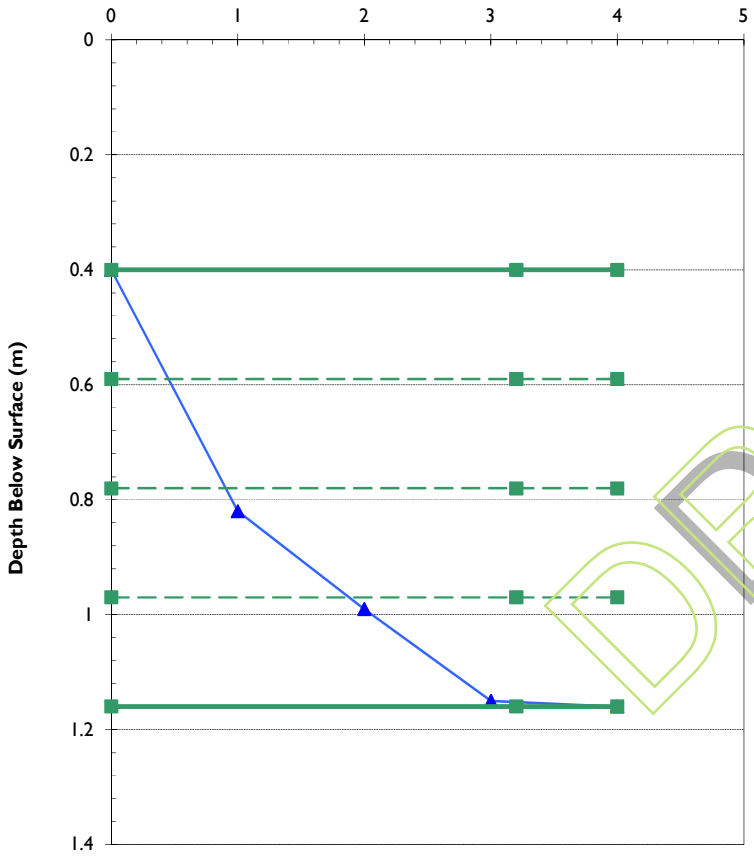
Client:	
Site:	
Tested By:	
Test Date:	12/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP306
Test No:	Test No 1

Filling to Max Water Depth (min)



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	1.16
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	0.76
Total Soakage Test Time (min)	4
Mean Internal Discharge Area (m2)	2.5958
Discharge Rate (litre/min)	45.46271
Soakage Rate (litre/m2/min)	17.51395
BRE Soil Infiltration Rate (m/sec)	0.000292

Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	08/03/19

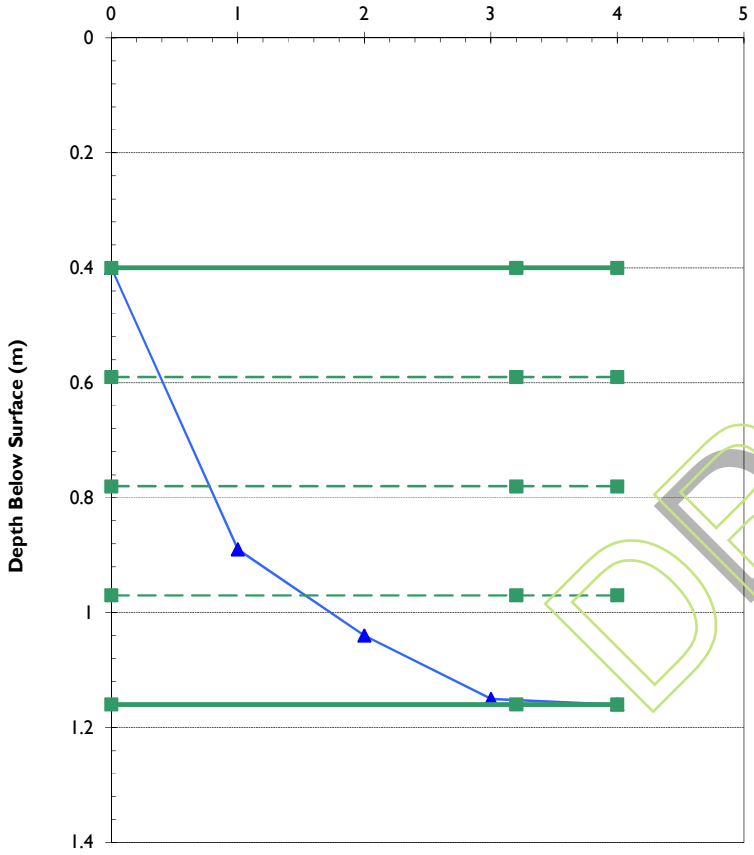
Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP306
Test No:	Test No 2

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	1.16
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	0.76
Total Soakage Test Time (min)	4
Mean Internal Discharge Area (m2)	2.5958
Discharge Rate (litre/min)	56.74898
Soakage Rate (litre/m2/min)	21.86185
BRE Soil Infiltration Rate (m/sec)	0.000364

Draft

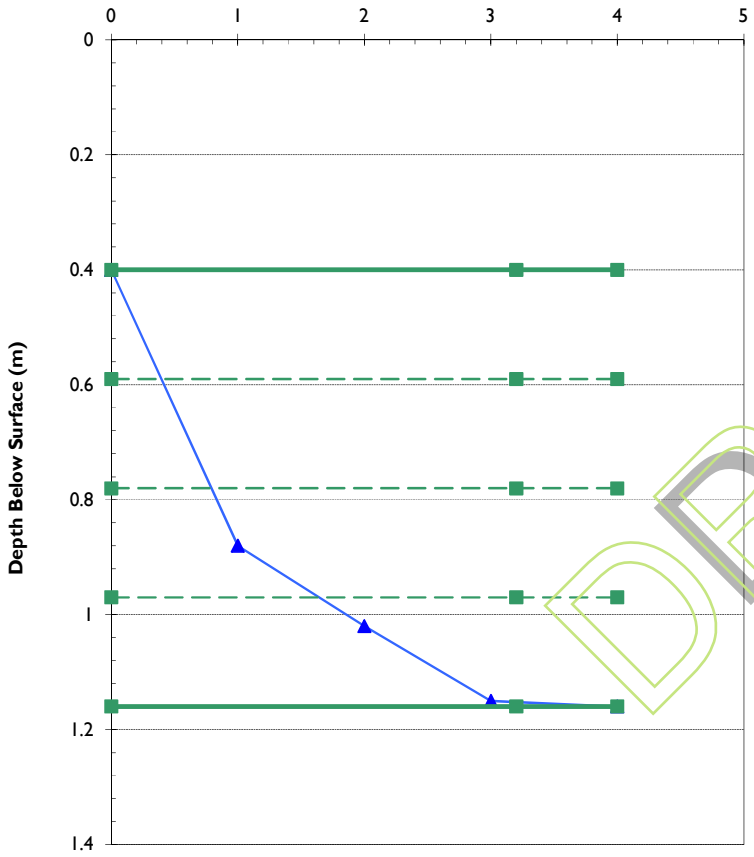
Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	08/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP306
Test No:	Test No 3



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	1.16
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	0.76
Total Soakage Test Time (min)	4
Mean Internal Discharge Area (m2)	2.5958
Discharge Rate (litre/min)	52.13244
Soakage Rate (litre/m2/min)	20.08338
BRE Soil Infiltration Rate (m/sec)	0.000335

Comments:

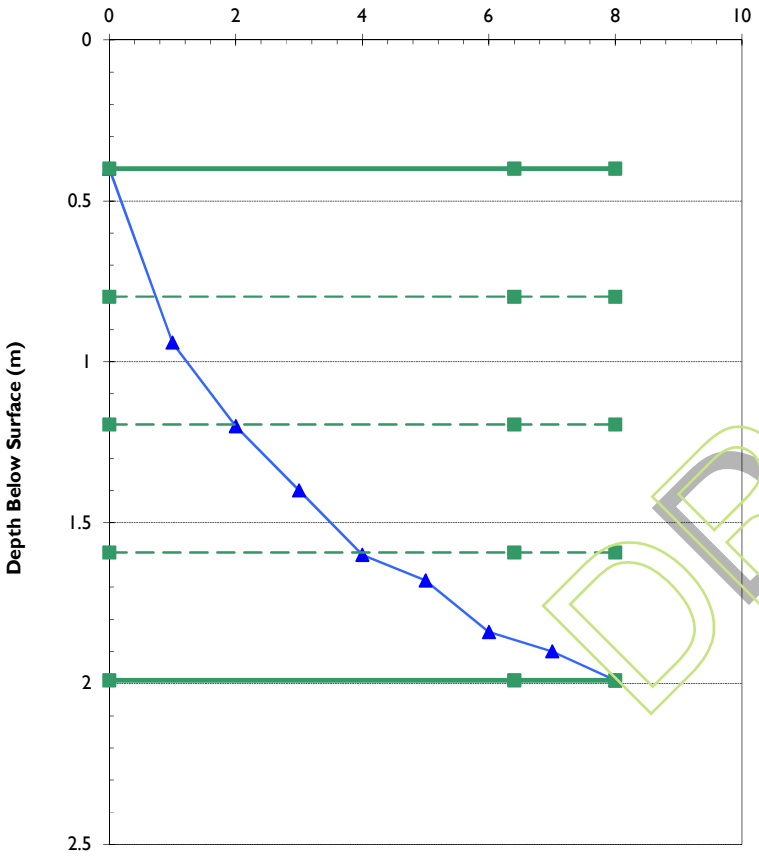
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	08/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP307
Test No:	Test No 1



Pit Length (m)	1.86
Pit Width (m)	0.48
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.59
Total Soakage Test Time (min)	8
Mean Internal Discharge Area (m2)	4.6134
Discharge Rate (litre/min)	43.99817
Soakage Rate (litre/m2/min)	9.537037
BRE Soil Infiltration Rate (m/sec)	0.000159

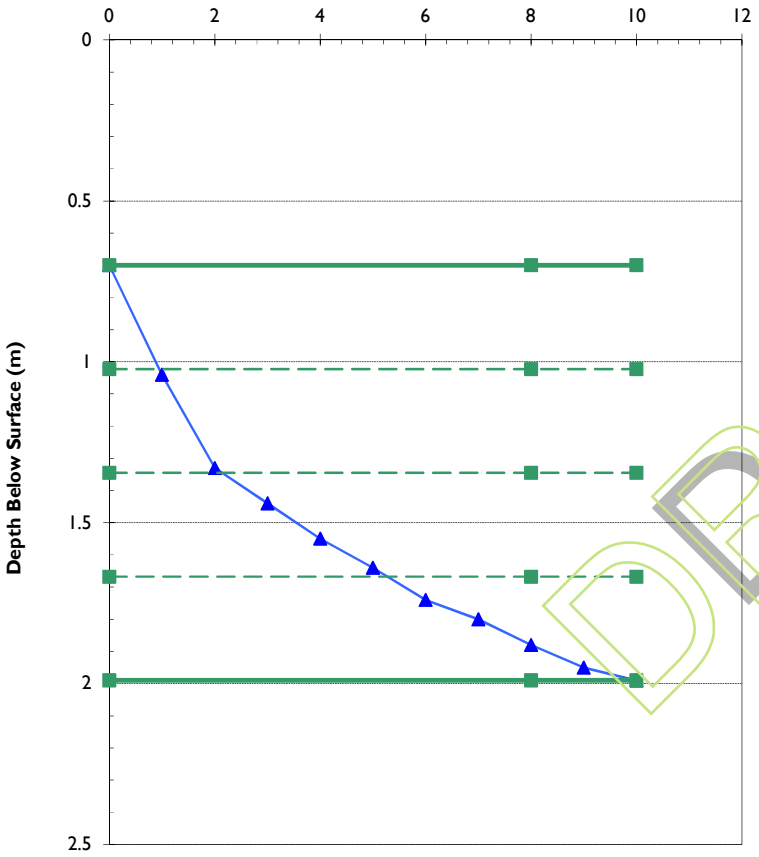
Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	07/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP307
Test No:	Test No 2



Pit Length (m)	1.86
Pit Width (m)	0.48
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.7
Max Water Dropdown during Test (m)	1.29
Total Soakage Test Time (min)	10
Mean Internal Discharge Area (m2)	3.9114
Discharge Rate (litre/min)	26.62013
Soakage Rate (litre/m2/min)	6.80578
BRE Soil Infiltration Rate (m/sec)	0.000113

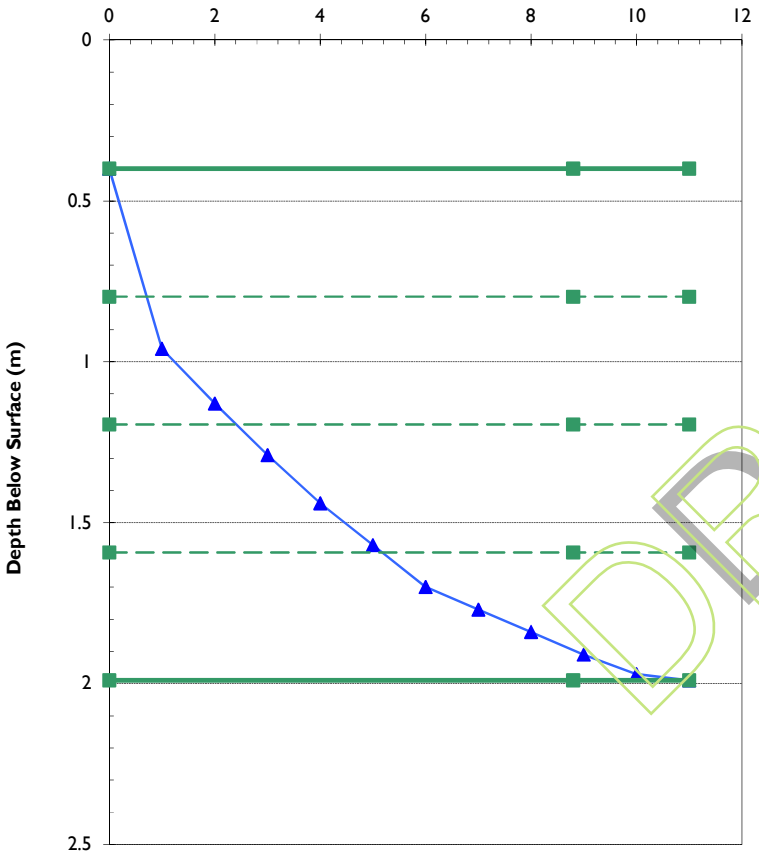
Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	07/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP307
Test No:	Test No 3



Pit Length (m)	1.86
Pit Width (m)	0.48
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.59
Total Soakage Test Time (min)	11
Mean Internal Discharge Area (m2)	4.6134
Discharge Rate (litre/min)	31.8053
Soakage Rate (litre/m2/min)	6.894114
BRE Soil Infiltration Rate (m/sec)	0.000115

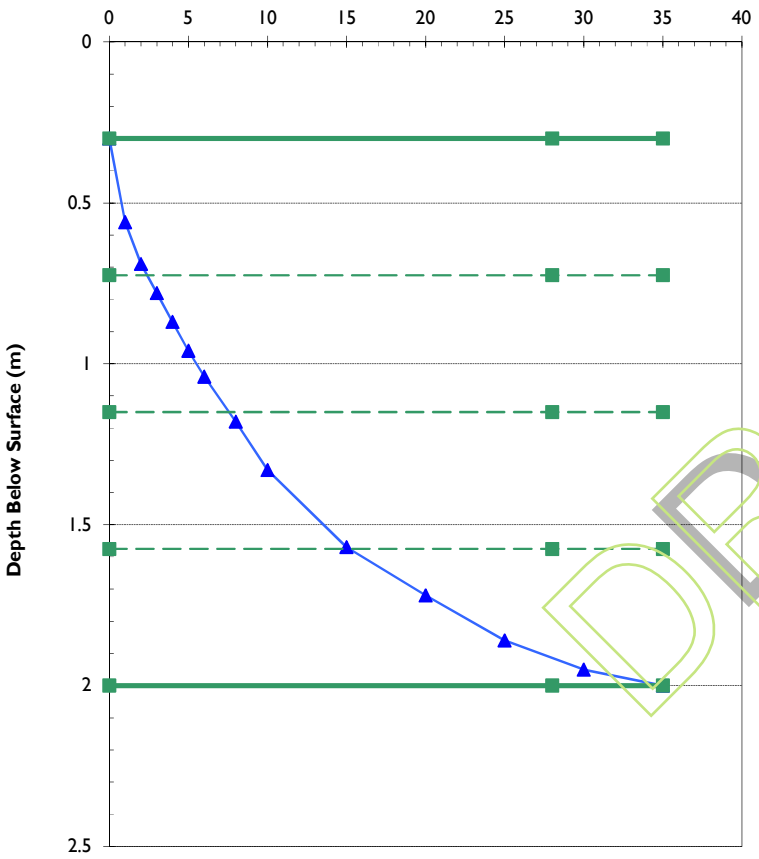
Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	07/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP308
Test No:	Test No 1



Pit Length (m)	1.94
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.3
Max Water Dropdown during Test (m)	1.7
Total Soakage Test Time (min)	35
Mean Internal Discharge Area (m2)	5.0452
Discharge Rate (litre/min)	12.38901
Soakage Rate (litre/m2/min)	2.455603
BRE Soil Infiltration Rate (m/sec)	4.09E-05

Comments:

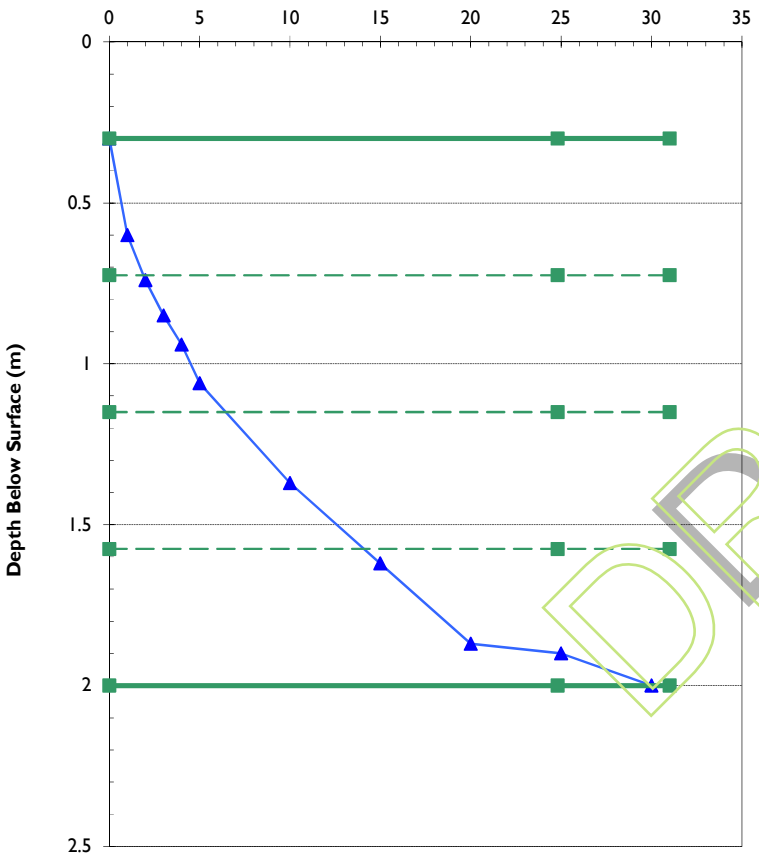
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	07/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP308
Test No:	Test No 2



Pit Length (m)	1.94
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.3
Max Water Dropdown during Test (m)	1.7
Total Soakage Test Time (min)	31
Mean Internal Discharge Area (m2)	5.0452
Discharge Rate (litre/min)	12.96815
Soakage Rate (litre/m2/min)	2.570393
BRE Soil Infiltration Rate (m/sec)	4.28E-05

Comments:

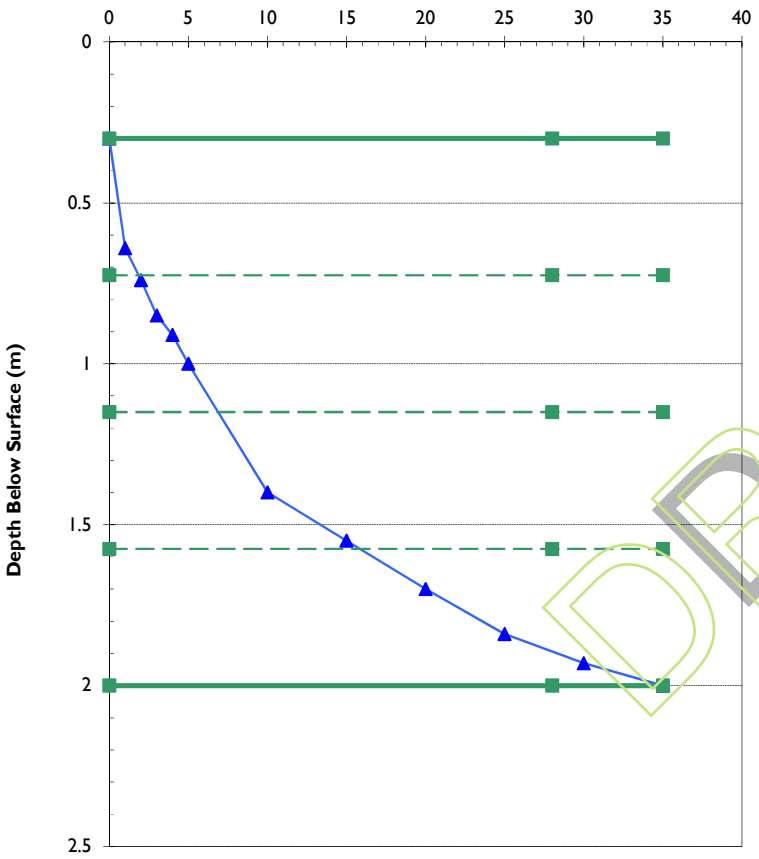
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	07/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP308
Test No:	Test No 3



Pit Length (m)	1.94
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.3
Max Water Dropdown during Test (m)	1.7
Total Soakage Test Time (min)	35
Mean Internal Discharge Area (m2)	5.0452
Discharge Rate (litre/min)	11.32091
Soakage Rate (litre/m2/min)	2.243896
BRE Soil Infiltration Rate (m/sec)	3.74E-05

Comments:

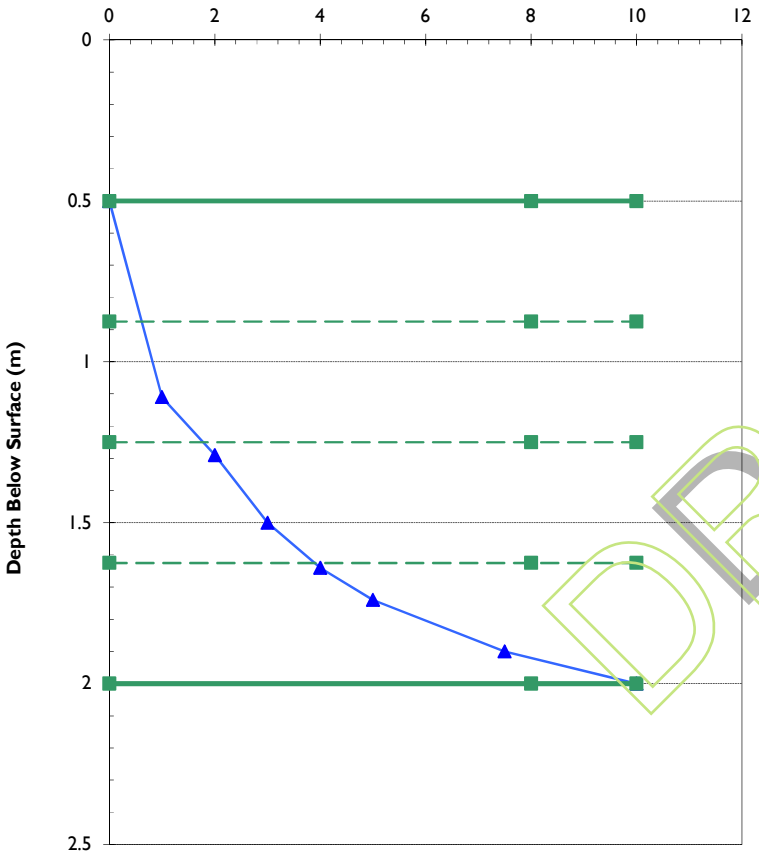
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	07/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP309
Test No:	Test No 1



Pit Length (m)	1.92
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.5
Total Soakage Test Time (min)	10
Mean Internal Discharge Area (m2)	4.5216
Discharge Rate (litre/min)	42.17073
Soakage Rate (litre/m2/min)	9.326506
BRE Soil Infiltration Rate (m/sec)	0.000155

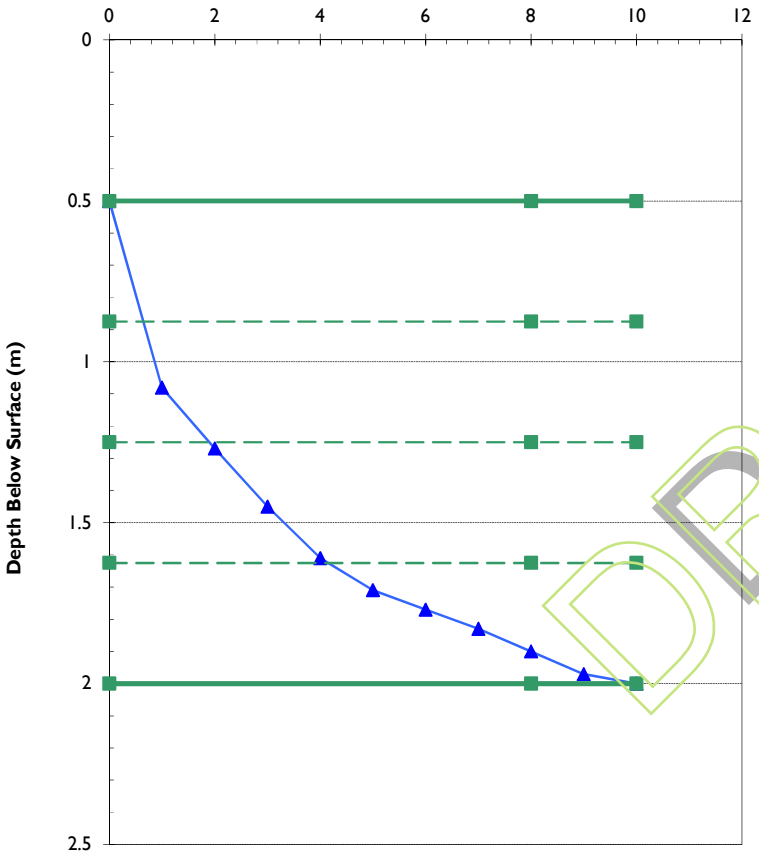
Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	05/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP309
Test No:	Test No 2



Pit Length (m)	1.92
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.5
Total Soakage Test Time (min)	10
Mean Internal Discharge Area (m2)	4.5216
Discharge Rate (litre/min)	39.45827
Soakage Rate (litre/m2/min)	8.726616
BRE Soil Infiltration Rate (m/sec)	0.000145

Comments:

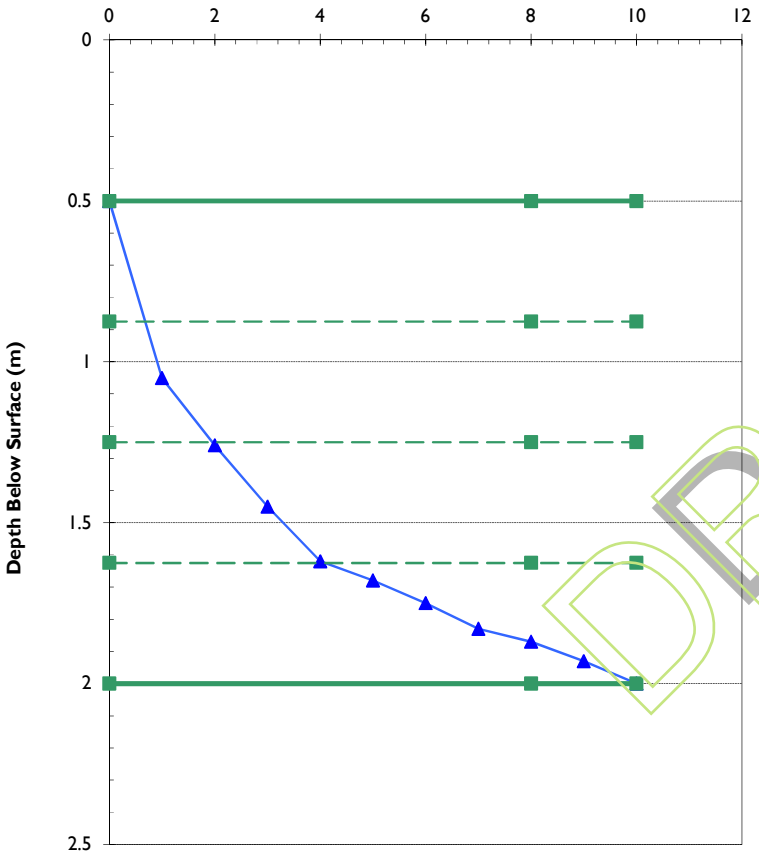
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	05/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP309
Test No:	Test No 3



Pit Length (m)	1.92
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.5
Total Soakage Test Time (min)	10
Mean Internal Discharge Area (m2)	4.5216
Discharge Rate (litre/min)	40.64071
Soakage Rate (litre/m2/min)	8.988126
BRE Soil Infiltration Rate (m/sec)	0.00015

Comments:

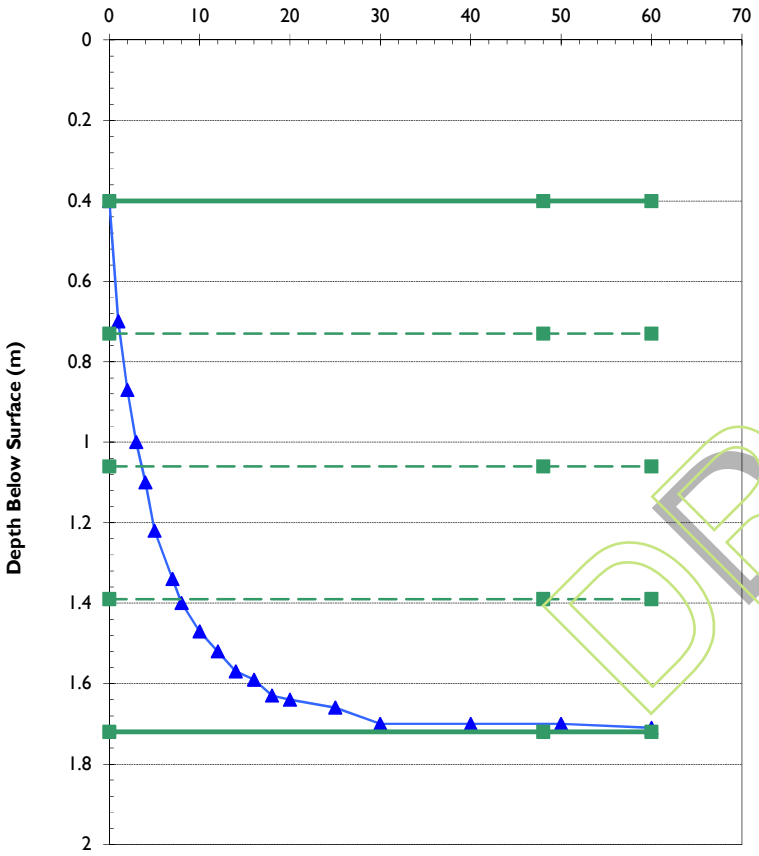
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	05/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP310
Test No:	Test No 1



Pit Length (m)	1.9
Pit Width (m)	0.48
Depth to Pit Base (m)	1.72
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.92
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.31
Total Soakage Test Time (min)	60
Mean Internal Discharge Area (m2)	3.5776
Discharge Rate (litre/min)	12.23576
Soakage Rate (litre/m2/min)	3.420104
BRE Soil Infiltration Rate (m/sec)	5.7E-05

Comments:

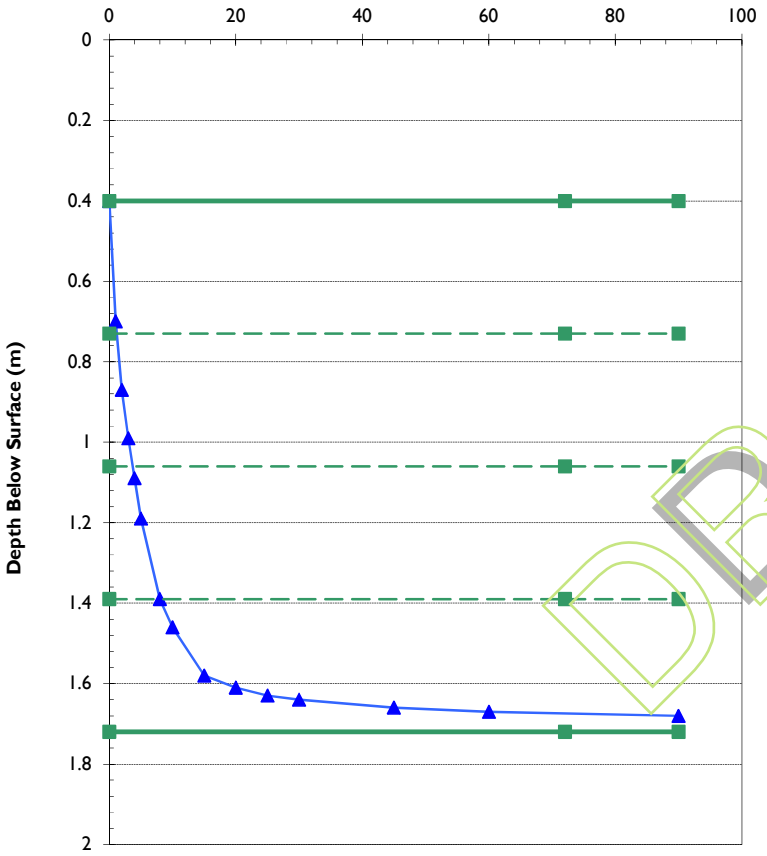
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	05/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP310
Test No:	Test No 2



Pit Length (m)	1.9
Pit Width (m)	0.48
Depth to Pit Base (m)	1.72
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.92
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.28
Total Soakage Test Time (min)	90
Mean Internal Discharge Area (m2)	3.5776
Discharge Rate (litre/min)	11.68566
Soakage Rate (litre/m2/min)	3.26634
BRE Soil Infiltration Rate (m/sec)	5.44E-05

Comments:

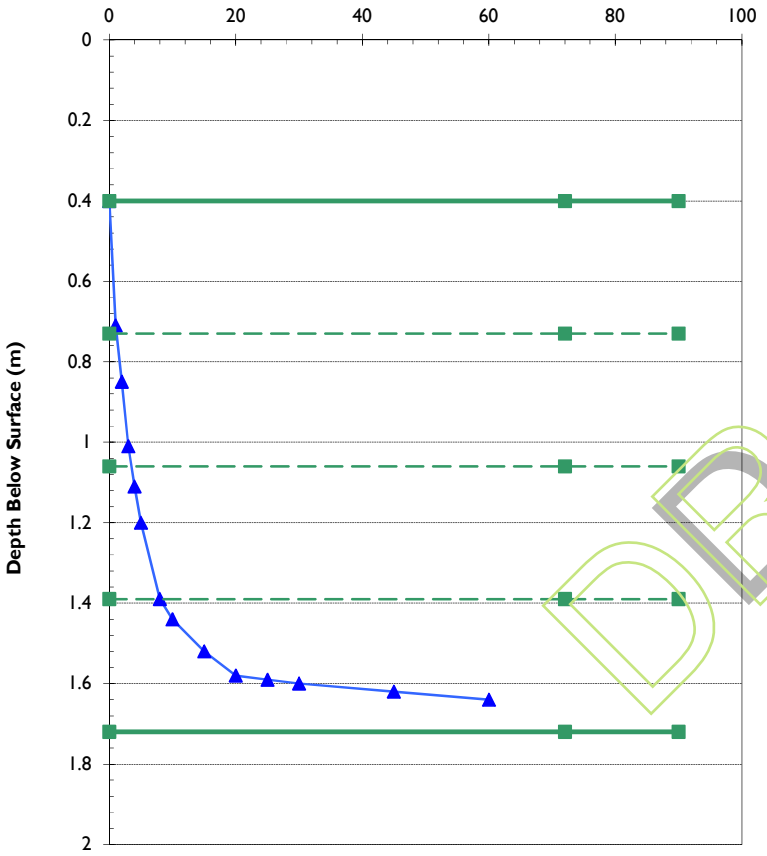
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	06/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP310
Test No:	Test No 3



Pit Length (m)	1.9
Pit Width (m)	0.48
Depth to Pit Base (m)	1.72
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.92
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.24
Total Soakage Test Time (min)	90
Mean Internal Discharge Area (m2)	3.5776
Discharge Rate (litre/min)	9.140044
Soakage Rate (litre/m2/min)	2.554798
BRE Soil Infiltration Rate (m/sec)	4.26E-05

Comments:

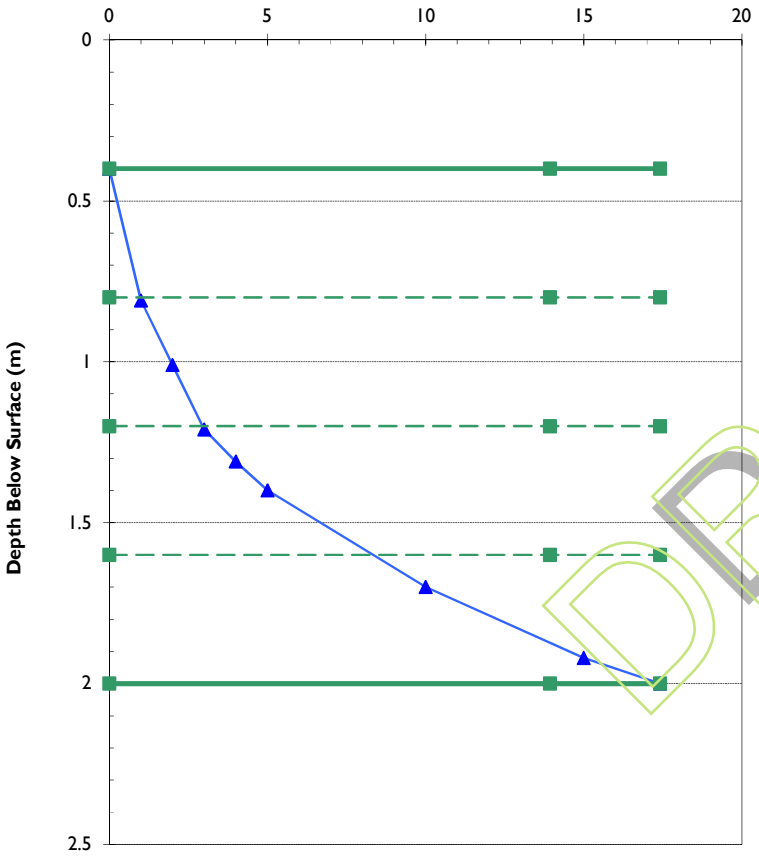
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	07/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP311
Test No:	Test No 1



Pit Length (m)	1.77
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.6
Total Soakage Test Time (min)	17.41
Mean Internal Discharge Area (m2)	4.4496
Discharge Rate (litre/min)	18.47528
Soakage Rate (litre/m2/min)	4.152121
BRE Soil Infiltration Rate (m/sec)	6.92E-05

Draft

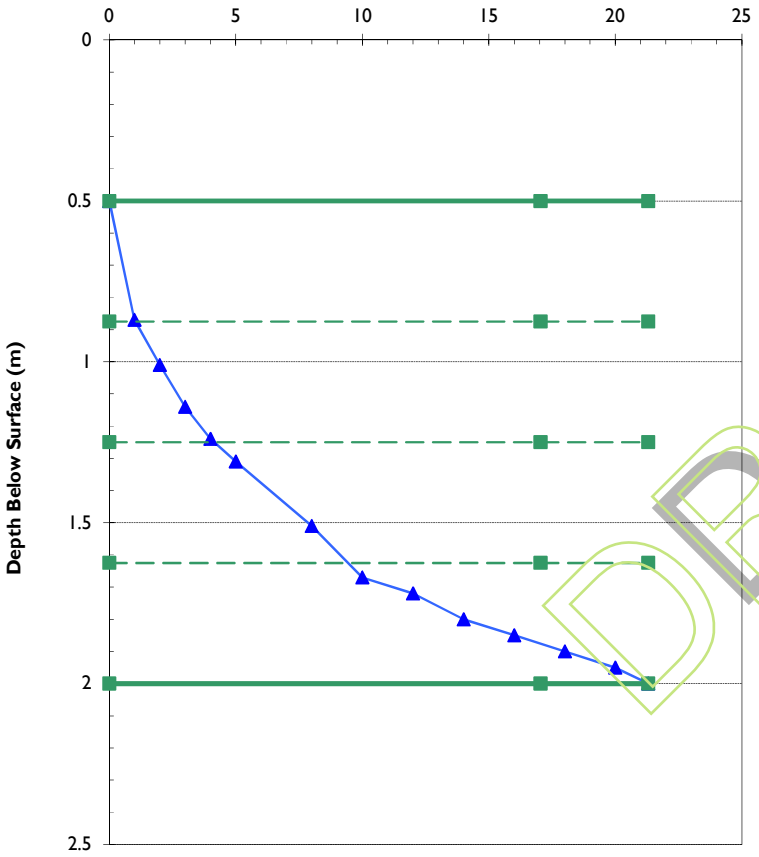
Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP311
Test No:	Test No 2



Pit Length (m)	1.77
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.5
Total Soakage Test Time (min)	21.3
Mean Internal Discharge Area (m2)	4.2246
Discharge Rate (litre/min)	15.1682
Soakage Rate (litre/m2/min)	3.590447
BRE Soil Infiltration Rate (m/sec)	5.98E-05

Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

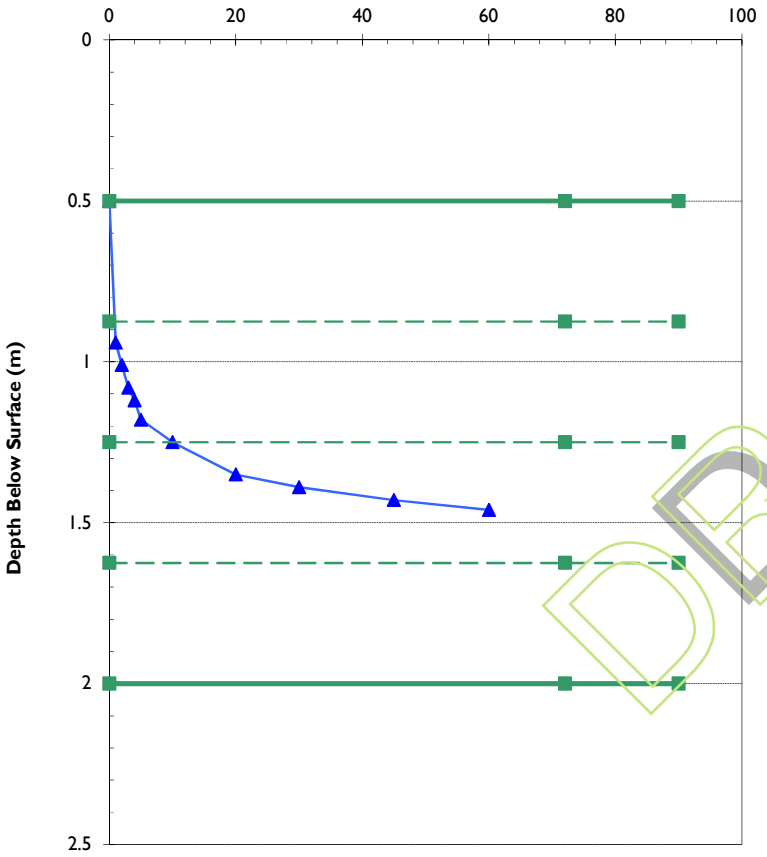
Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP311
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.77
Pit Width (m)	0.48
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	0.96
Total Soakage Test Time (min)	90
Mean Internal Discharge Area (m2)	4.59585
Discharge Rate (litre/min)	1.115039
Soakage Rate (litre/m2/min)	0.242619
BRE Soil Infiltration Rate (m/sec)	4.04E-06

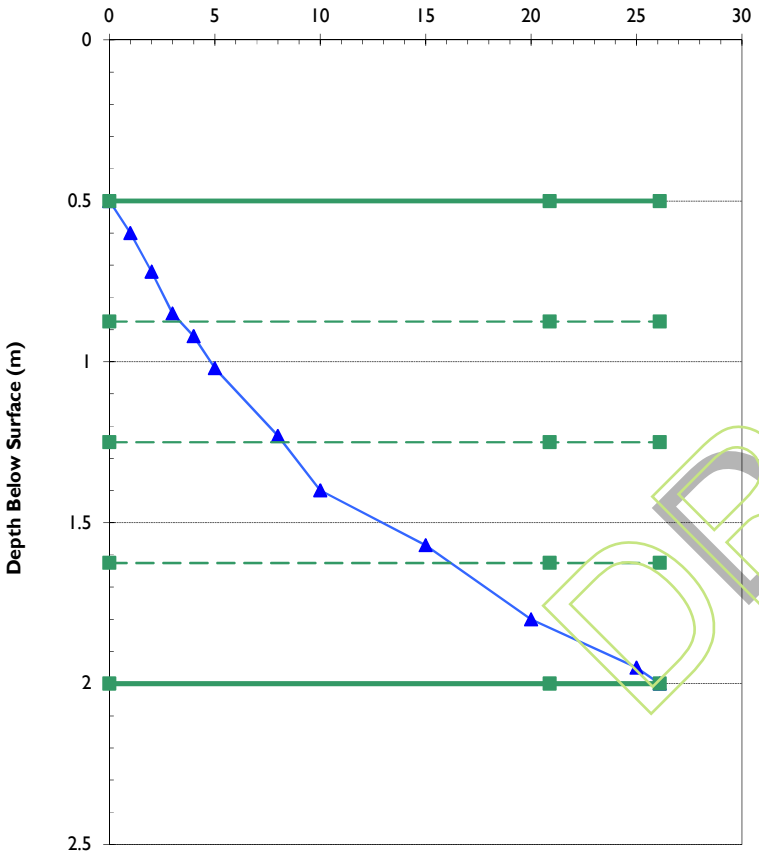
Draft

Comments:	Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP312
Test No:	Test No 1



Pit Length (m)	1.8
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.5
Total Soakage Test Time (min)	26.1
Mean Internal Discharge Area (m2)	4.251
Discharge Rate (litre/min)	9.884325
Soakage Rate (litre/m2/min)	2.325176
BRE Soil Infiltration Rate (m/sec)	3.88E-05

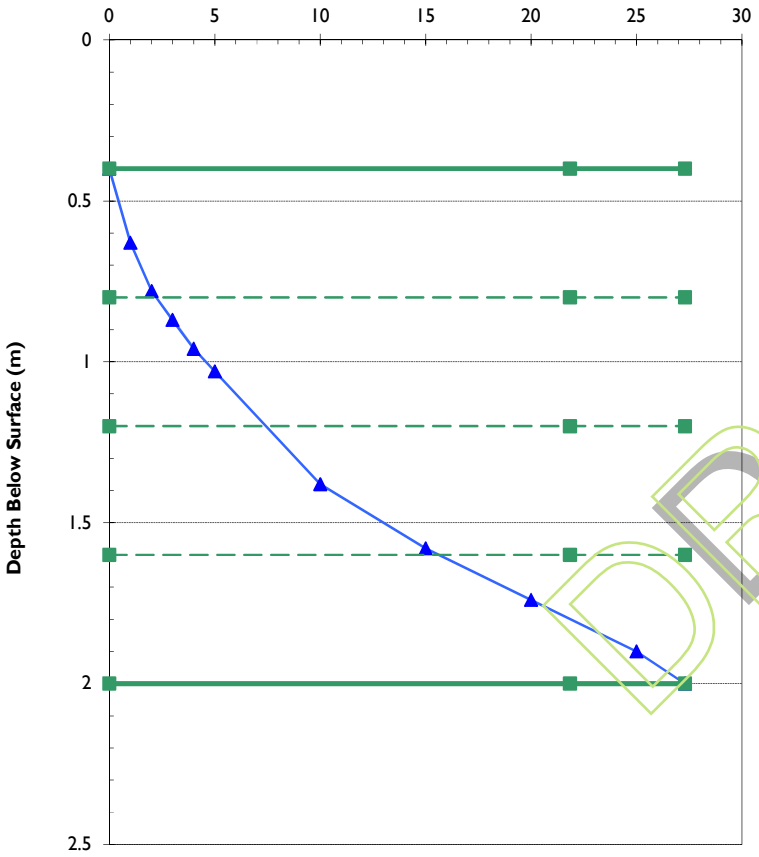
Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP312
Test No:	Test No 2



Pit Length (m)	1.8
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.6
Total Soakage Test Time (min)	27.3
Mean Internal Discharge Area (m2)	4.478
Discharge Rate (litre/min)	10.0994
Soakage Rate (litre/m2/min)	2.255337
BRE Soil Infiltration Rate (m/sec)	3.76E-05

DRAFT

Comments:

Pit was emptied at finish of test.

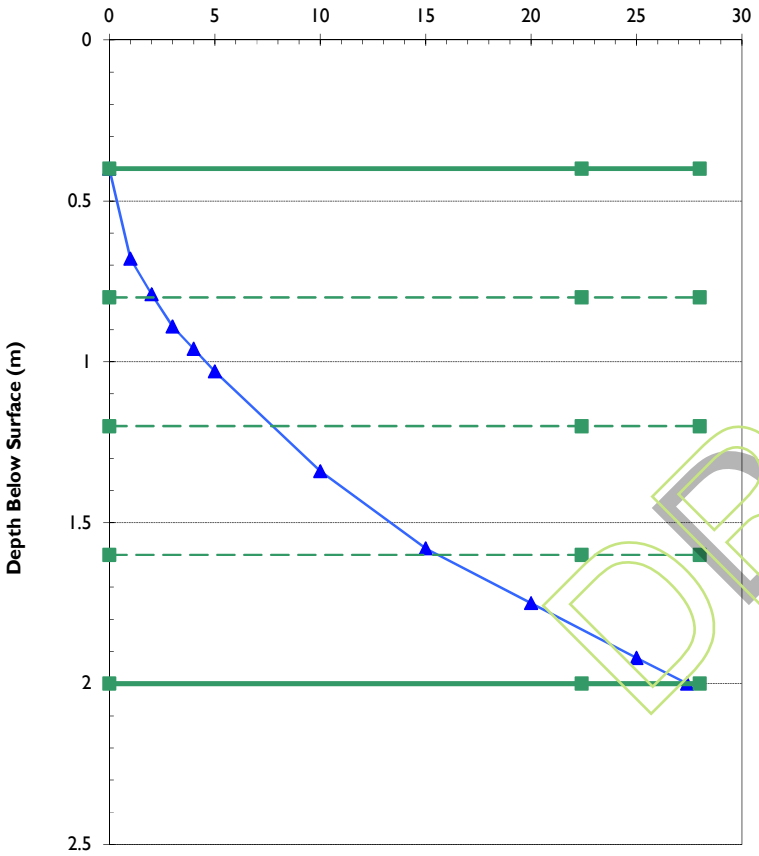
Client:	
Site:	
Tested By:	
Test Date:	12/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP312
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.8
Pit Width (m)	0.47
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.6
Total Soakage Test Time (min)	28
Mean Internal Discharge Area (m2)	4.478
Discharge Rate (litre/min)	10.03541
Soakage Rate (litre/m2/min)	2.241048
BRE Soil Infiltration Rate (m/sec)	3.74E-05

DRAFT

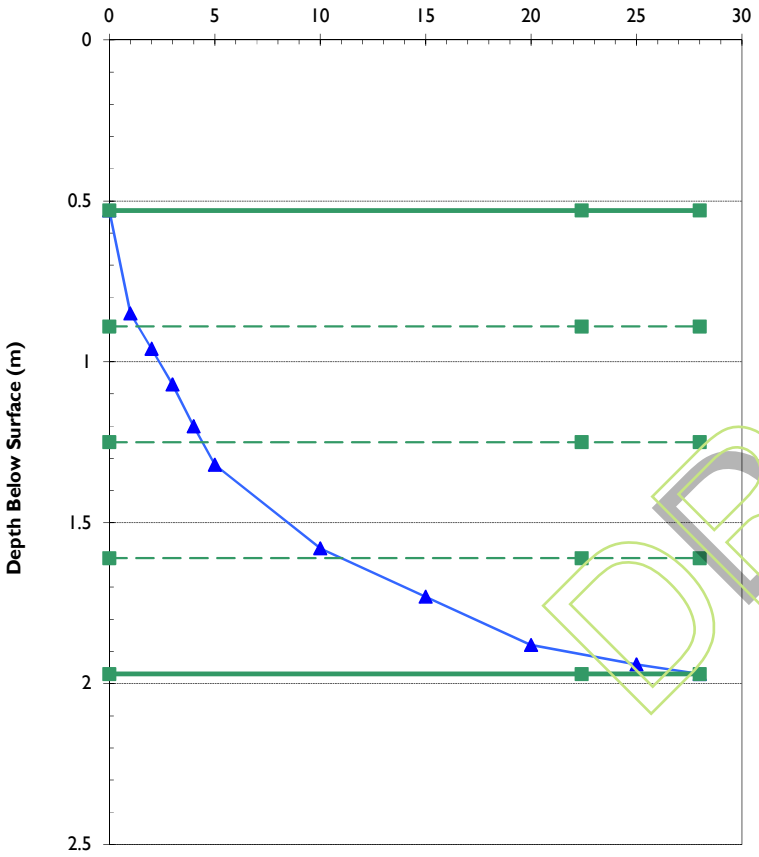
Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	12/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP313
Test No:	Test No 1



Pit Length (m)	1.7
Pit Width (m)	0.48
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.53
Max Water Dropdown during Test (m)	1.44
Total Soakage Test Time (min)	28
Mean Internal Discharge Area (m2)	3.9552
Discharge Rate (litre/min)	12.19381
Soakage Rate (litre/m2/min)	3.082982
BRE Soil Infiltration Rate (m/sec)	5.14E-05

Comments:

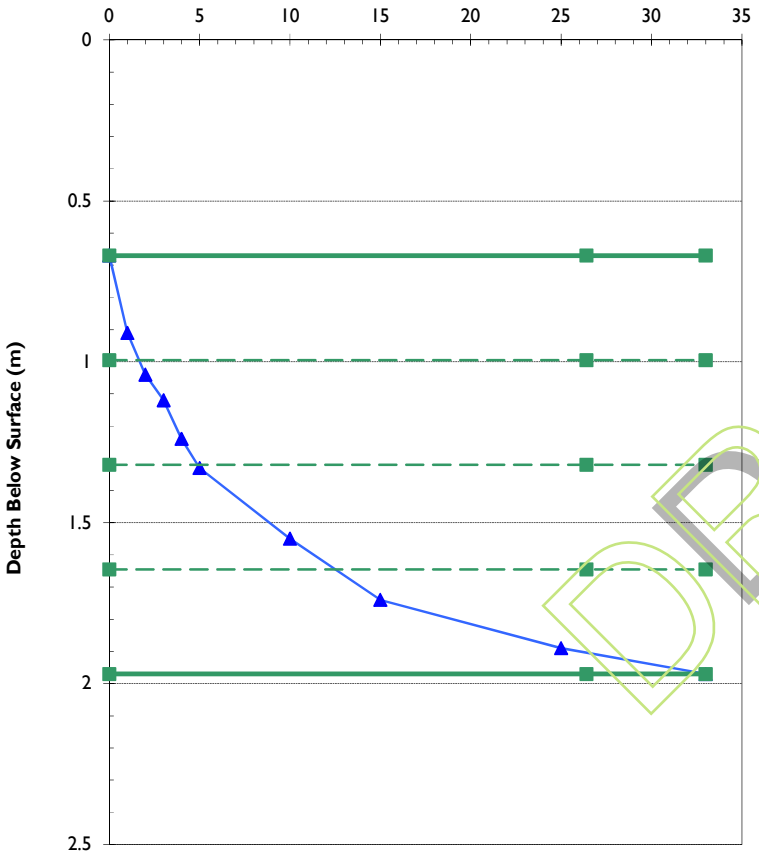
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP313
Test No:	Test No 2



Pit Length (m)	1.7
Pit Width (m)	0.48
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.67
Max Water Dropdown during Test (m)	1.3
Total Soakage Test Time (min)	33
Mean Internal Discharge Area (m2)	3.65
Discharge Rate (litre/min)	9.780426
Soakage Rate (litre/m2/min)	2.679569
BRE Soil Infiltration Rate (m/sec)	4.47E-05

Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

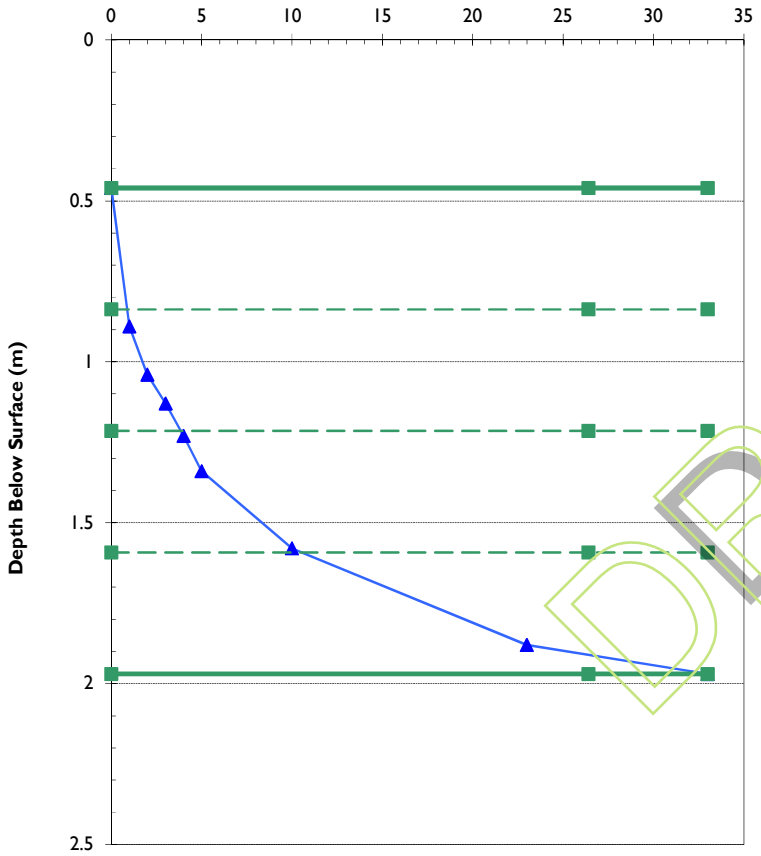
DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP313
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.7
Pit Width (m)	0.48
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.46
Max Water Dropdown during Test (m)	1.51
Total Soakage Test Time (min)	33
Mean Internal Discharge Area (m2)	4.1078
Discharge Rate (litre/min)	12.75032
Soakage Rate (litre/m2/min)	3.103928
BRE Soil Infiltration Rate (m/sec)	5.17E-05

DRAFT

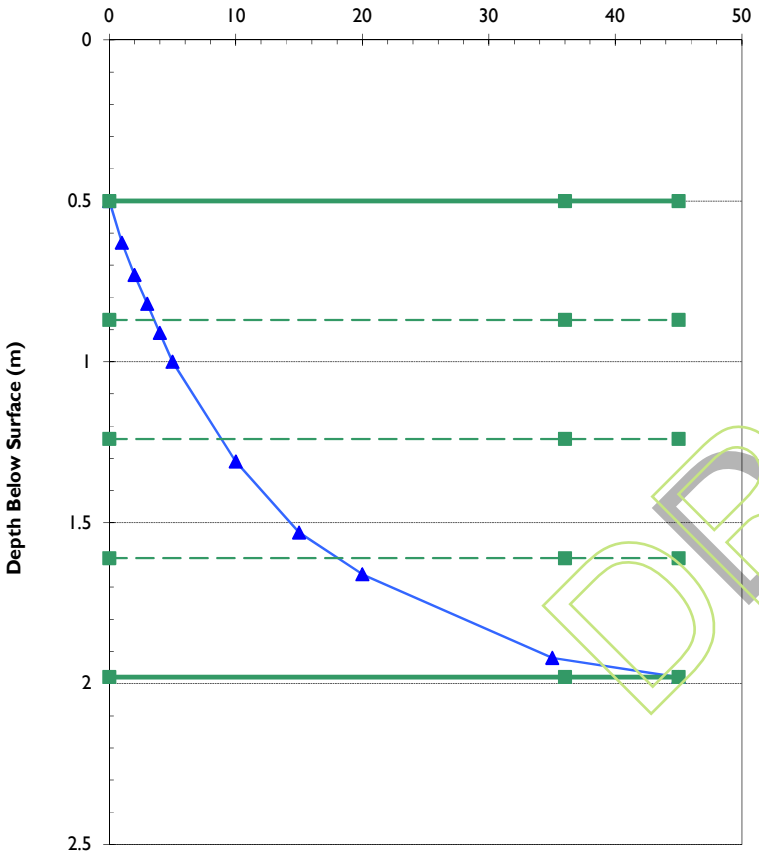
Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP314
Test No:	Test No 1



Pit Length (m)	1.73
Pit Width (m)	0.48
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.48
Total Soakage Test Time (min)	45
Mean Internal Discharge Area (m2)	4.1012
Discharge Rate (litre/min)	8.463335
Soakage Rate (litre/m2/min)	2.063624
BRE Soil Infiltration Rate (m/sec)	3.44E-05

Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

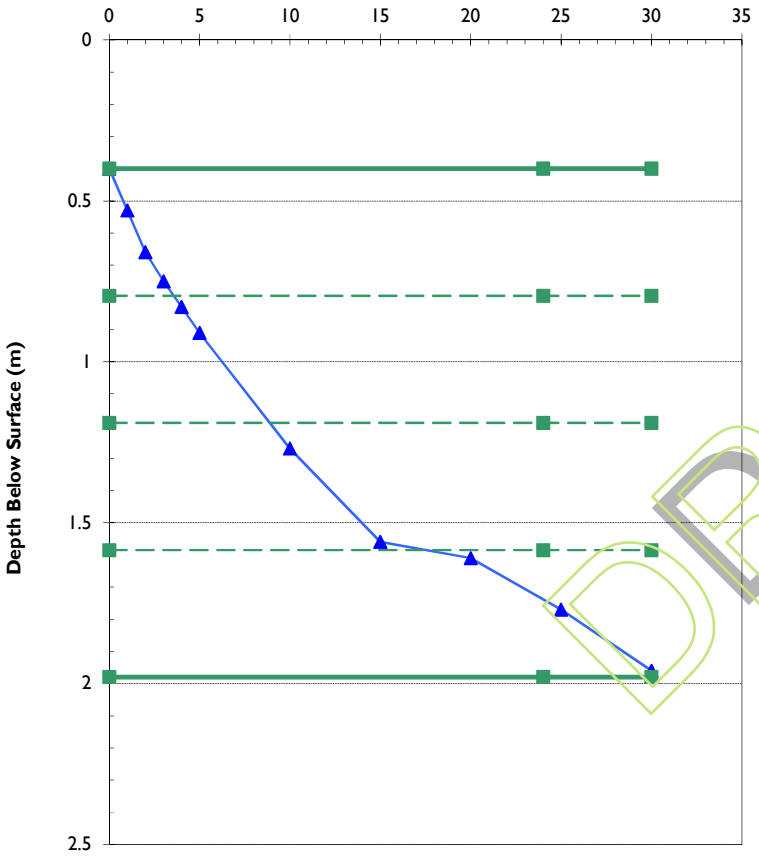
DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP314
Test No:	Test No 2

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.73
Pit Width (m)	0.48
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.56
Total Soakage Test Time (min)	30
Mean Internal Discharge Area (m2)	4.3222
Discharge Rate (litre/min)	9.413683
Soakage Rate (litre/m2/min)	2.177984
BRE Soil Infiltration Rate (m/sec)	3.63E-05

Draft

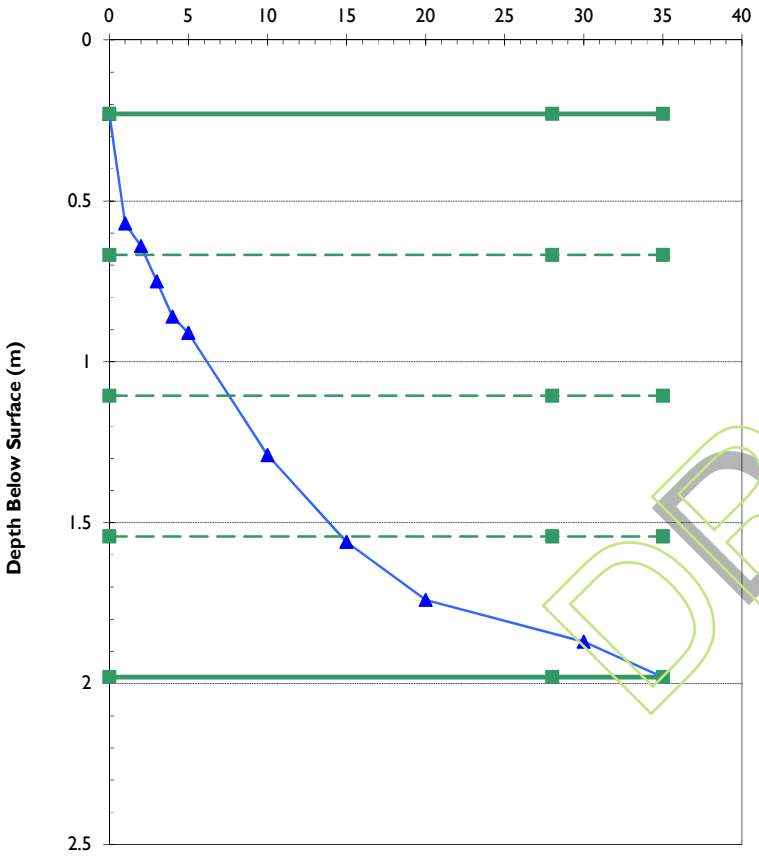
Comments:

Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	18/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP314
Test No:	Test No 3



Pit Length (m)	1.73
Pit Width (m)	0.48
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.23
Max Water Dropdown during Test (m)	1.75
Total Soakage Test Time (min)	35
Mean Internal Discharge Area (m2)	4.6979
Discharge Rate (litre/min)	11.6949
Soakage Rate (litre/m2/min)	2.48939
BRE Soil Infiltration Rate (m/sec)	4.15E-05

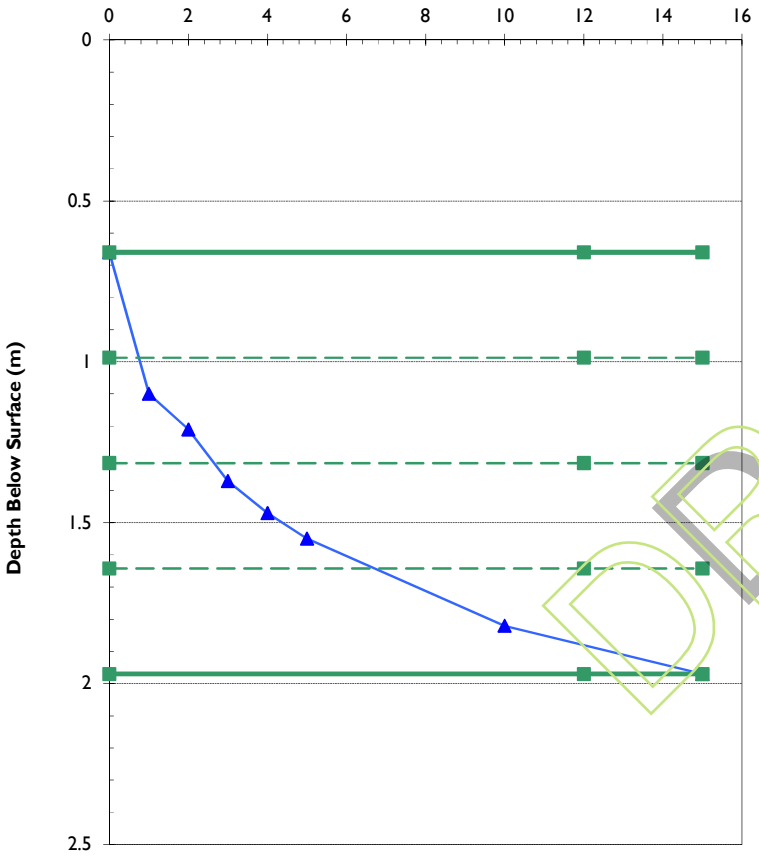
Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	18/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP315
Test No:	Test No 1



Pit Length (m)	1.73
Pit Width (m)	0.48
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.66
Max Water Dropdown during Test (m)	1.31
Total Soakage Test Time (min)	15
Mean Internal Discharge Area (m2)	3.7255
Discharge Rate (litre/min)	18.22564
Soakage Rate (litre/m2/min)	4.892134
BRE Soil Infiltration Rate (m/sec)	8.15E-05

Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

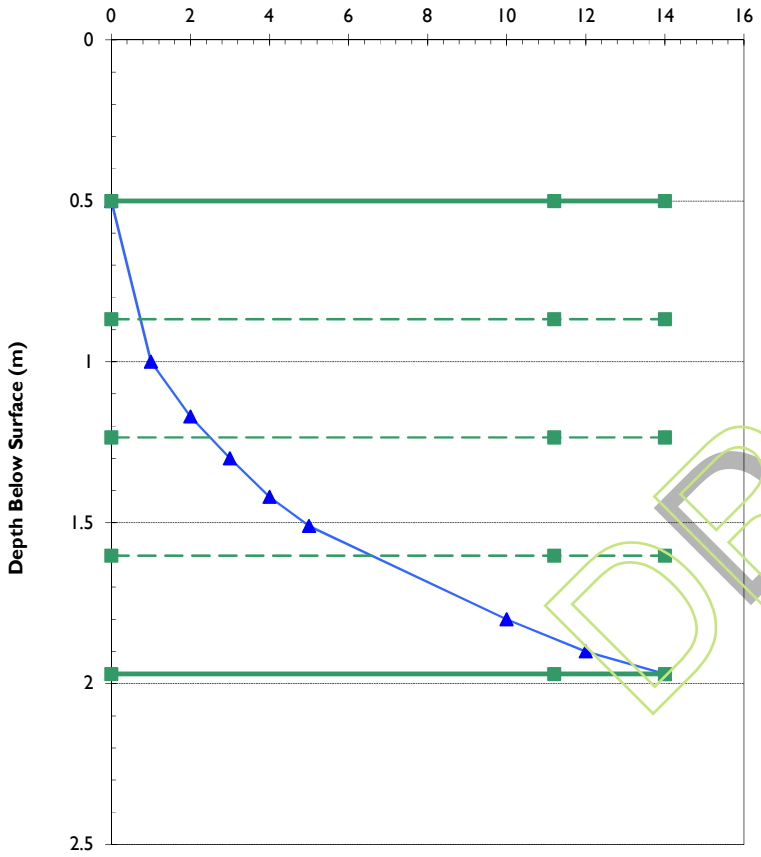
Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP315
Test No:	Test No 2

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.73
Pit Width (m)	0.48
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.47
Total Soakage Test Time (min)	14
Mean Internal Discharge Area (m2)	4.0791
Discharge Rate (litre/min)	20.83147
Soakage Rate (litre/m2/min)	5.106878
BRE Soil Infiltration Rate (m/sec)	8.51E-05

Comments:

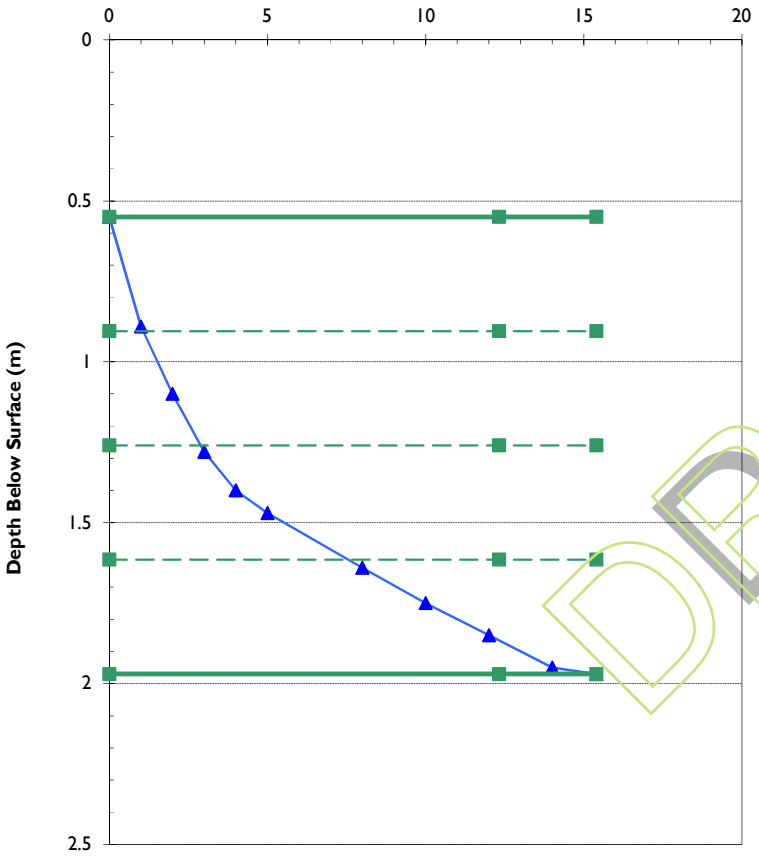
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	18/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP315
Test No:	Test No 3



Pit Length (m)	1.73
Pit Width (m)	0.48
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.55
Max Water Dropdown during Test (m)	1.42
Total Soakage Test Time (min)	15.4
Mean Internal Discharge Area (m2)	3.9686
Discharge Rate (litre/min)	18.17629
Soakage Rate (litre/m2/min)	4.580027
BRE Soil Infiltration Rate (m/sec)	7.63E-05

Comments:

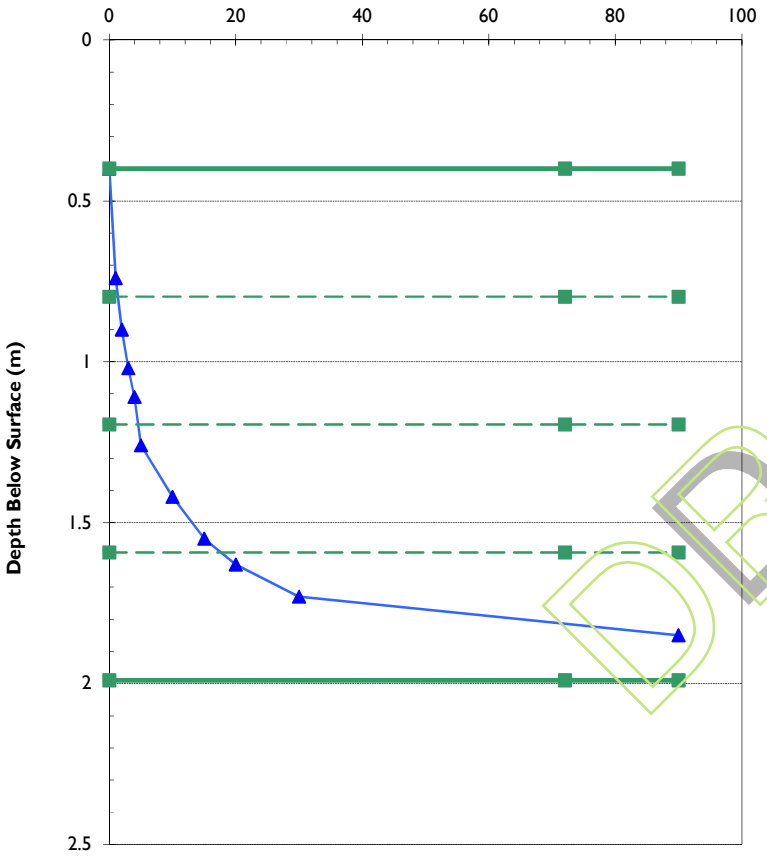
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	18/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP316
Test No:	Test No 1



Pit Length (m)	1.7
Pit Width (m)	0.49
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.81
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.45
Total Soakage Test Time (min)	90
Mean Internal Discharge Area (m2)	4.7093
Discharge Rate (litre/min)	11.33259
Soakage Rate (litre/m2/min)	2.406427
BRE Soil Infiltration Rate (m/sec)	4.01E-05

Comments:
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	18/03/19

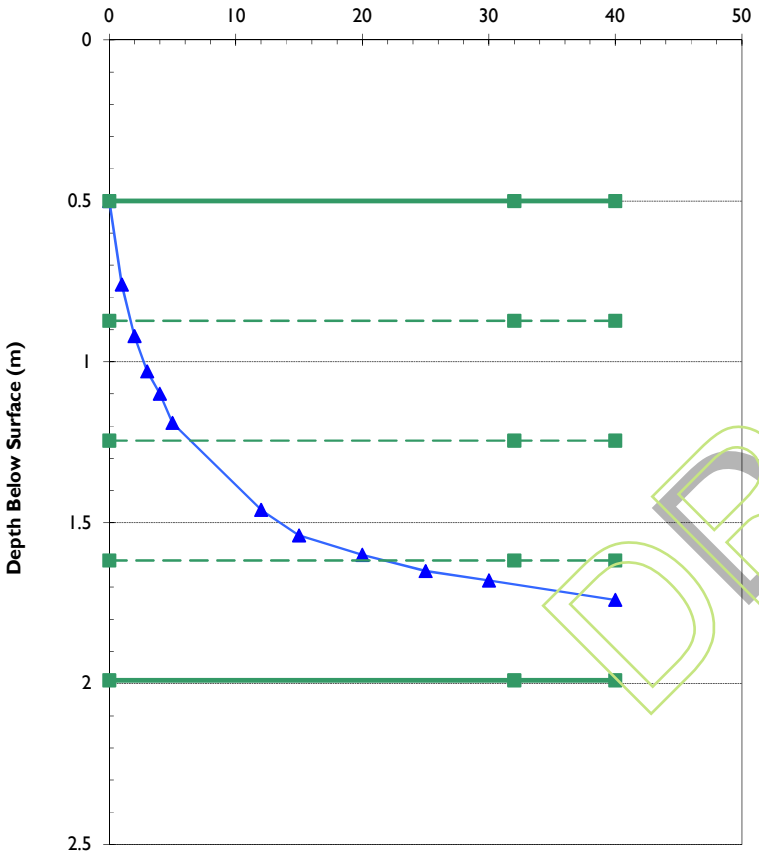
Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP316
Test No:	Test No 2

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.7
Pit Width (m)	0.49
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.81
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.24
Total Soakage Test Time (min)	40
Mean Internal Discharge Area (m2)	4.4903
Discharge Rate (litre/min)	9.55386
Soakage Rate (litre/m2/min)	2.127666
BRE Soil Infiltration Rate (m/sec)	3.55E-05

Draft

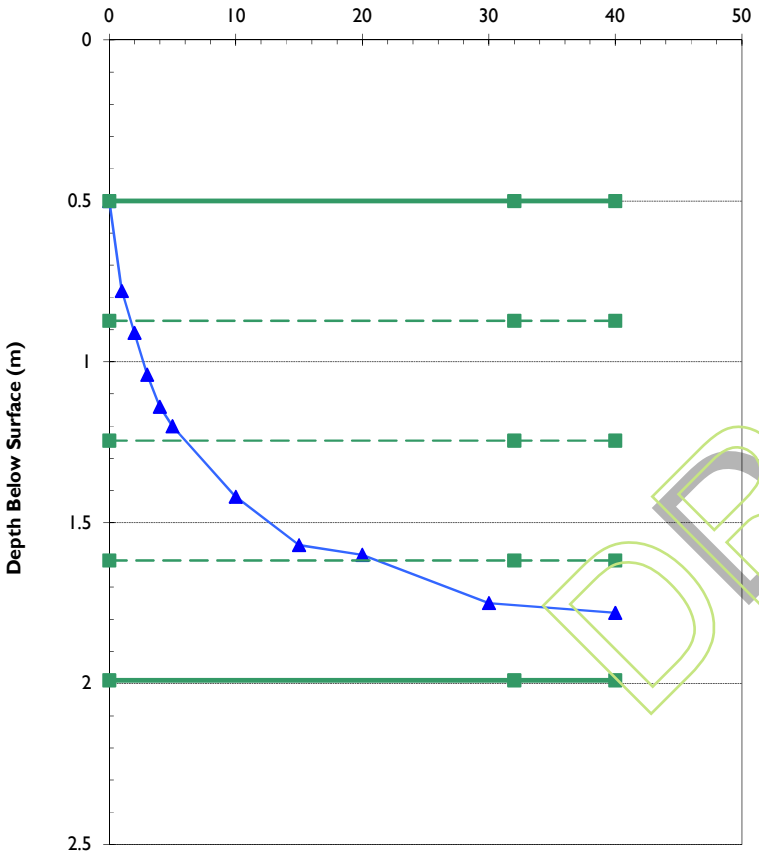
Comments:

Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	18/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP316
Test No:	Test No 3



Pit Length (m)	1.7
Pit Width (m)	0.49
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	1.81
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.28
Total Soakage Test Time (min)	40
Mean Internal Discharge Area (m2)	4.4903
Discharge Rate (litre/min)	10.18133
Soakage Rate (litre/m2/min)	2.267406
BRE Soil Infiltration Rate (m/sec)	3.78E-05

Comments:
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	18/03/19

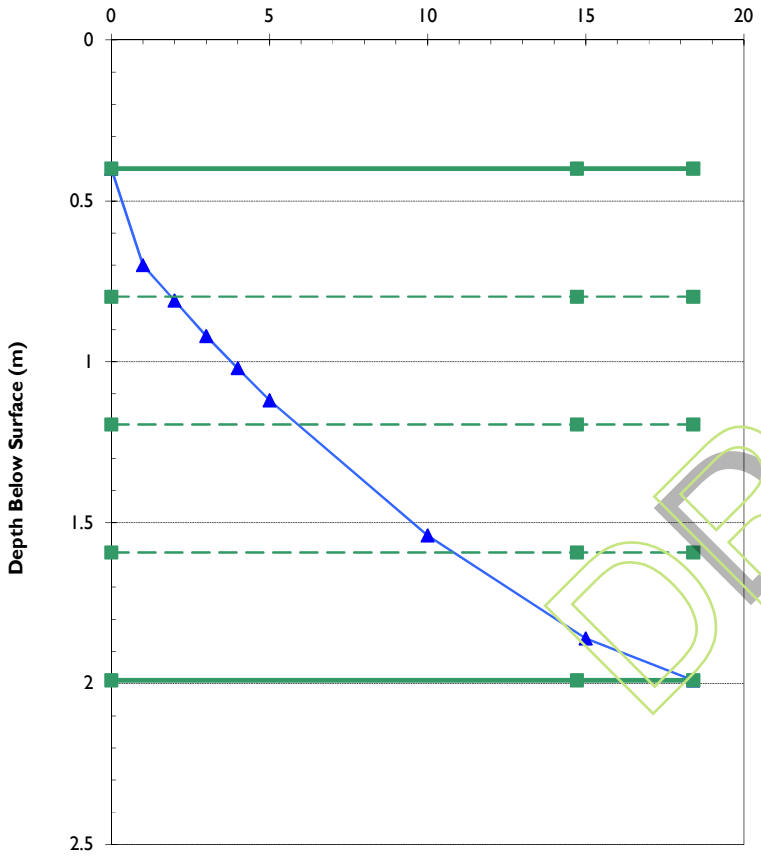
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BRE Digest 365 - Soakage Test

Test Hole No:	TP317
Test No:	Test No 1

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.8
Pit Width (m)	0.48
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.59
Total Soakage Test Time (min)	18.4
Mean Internal Discharge Area (m2)	4.4892
Discharge Rate (litre/min)	15.37685
Soakage Rate (litre/m2/min)	3.425299
BRE Soil Infiltration Rate (m/sec)	5.71E-05

DRAFT

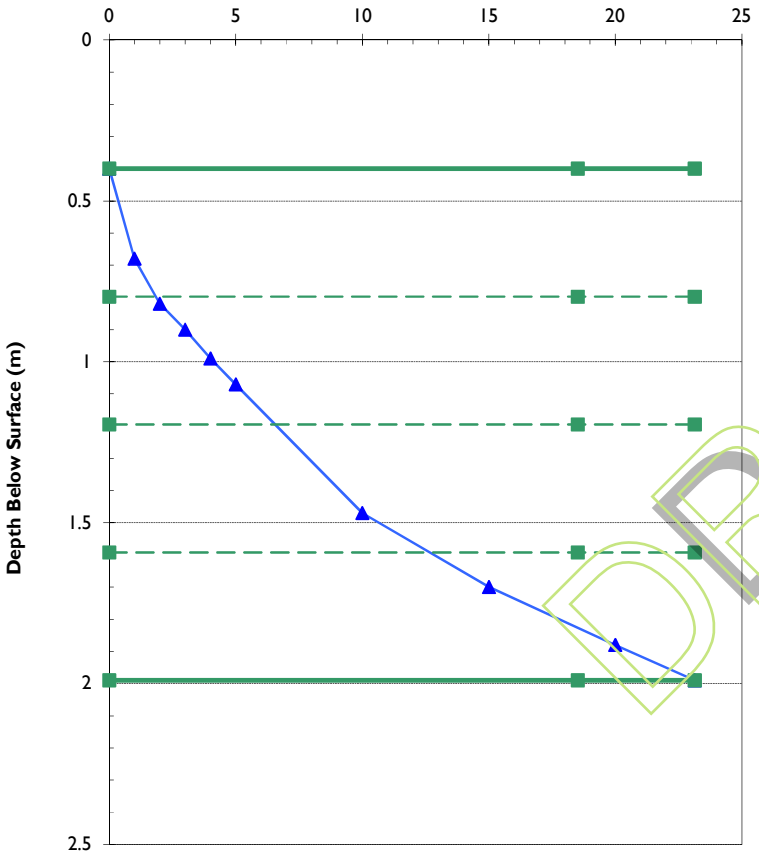
Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	14/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP317
Test No:	Test No 2



Pit Length (m)	1.8
Pit Width (m)	0.48
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.59
Total Soakage Test Time (min)	23.14
Mean Internal Discharge Area (m2)	4.4892
Discharge Rate (litre/min)	12.69208
Soakage Rate (litre/m2/min)	2.827248
BRE Soil Infiltration Rate (m/sec)	4.71E-05

Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	14/03/19

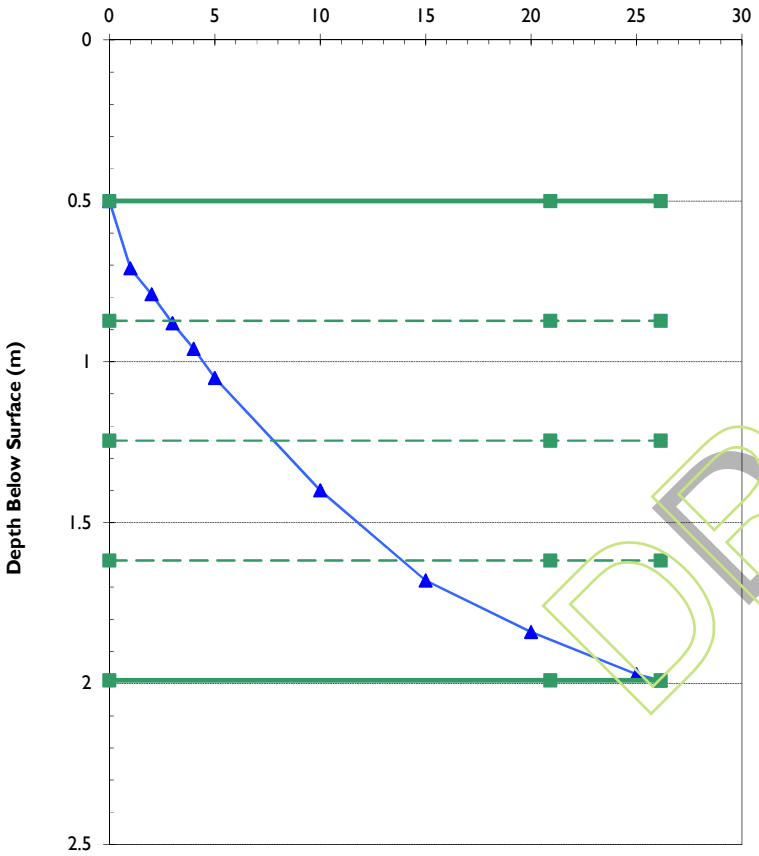
Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP317
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.8
Pit Width (m)	0.48
Depth to Pit Base (m)	1.99
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.49
Total Soakage Test Time (min)	26.14
Mean Internal Discharge Area (m2)	4.2612
Discharge Rate (litre/min)	11.73821
Soakage Rate (litre/m2/min)	2.754672
BRE Soil Infiltration Rate (m/sec)	4.59E-05

Draft

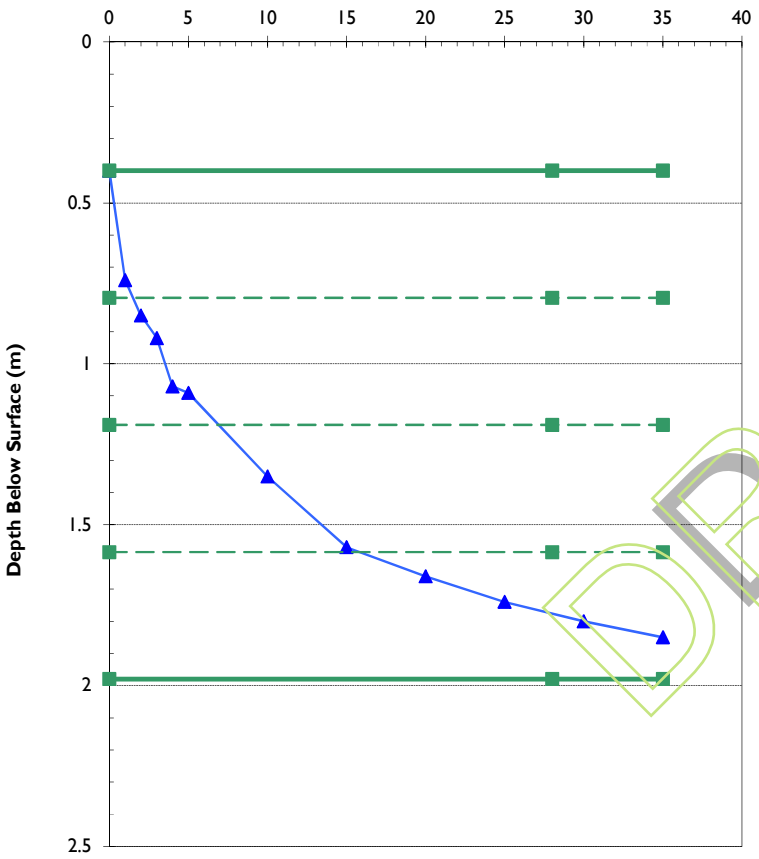
Comments:

Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	14/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP318
Test No:	Test No 1



Pit Length (m)	1.72
Pit Width (m)	0.54
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.45
Total Soakage Test Time (min)	35
Mean Internal Discharge Area (m2)	4.4996
Discharge Rate (litre/min)	10.2384
Soakage Rate (litre/m2/min)	2.275402
BRE Soil Infiltration Rate (m/sec)	3.79E-05

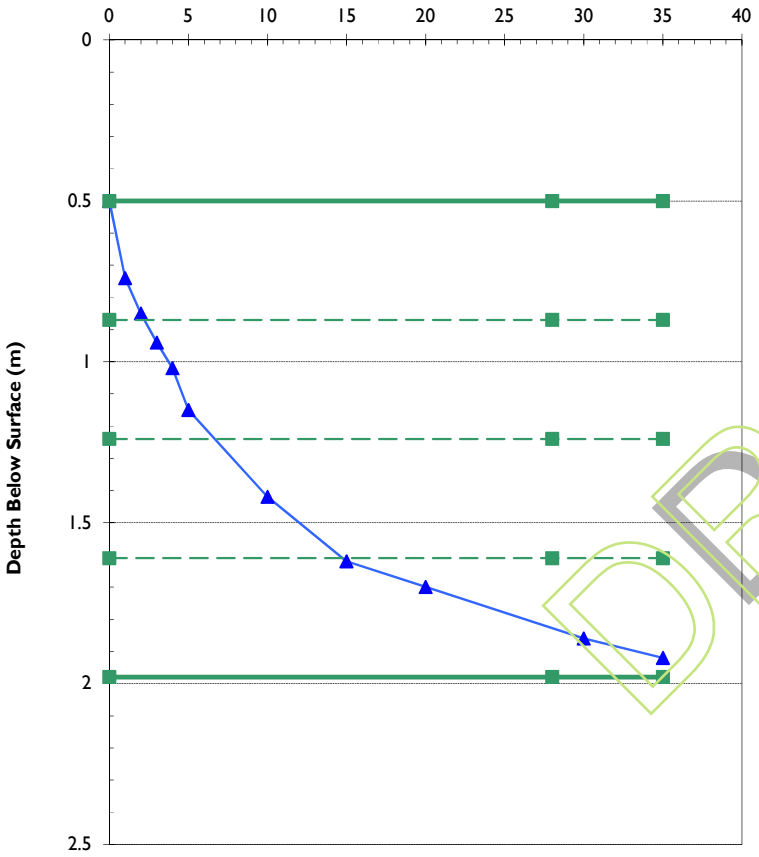
Comments:
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	14/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP318
Test No:	Test No 2



Pit Length (m)	1.72
Pit Width (m)	0.54
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.42
Total Soakage Test Time (min)	35
Mean Internal Discharge Area (m2)	4.2736
Discharge Rate (litre/min)	10.97261
Soakage Rate (litre/m2/min)	2.567533
BRE Soil Infiltration Rate (m/sec)	4.28E-05

Comments:

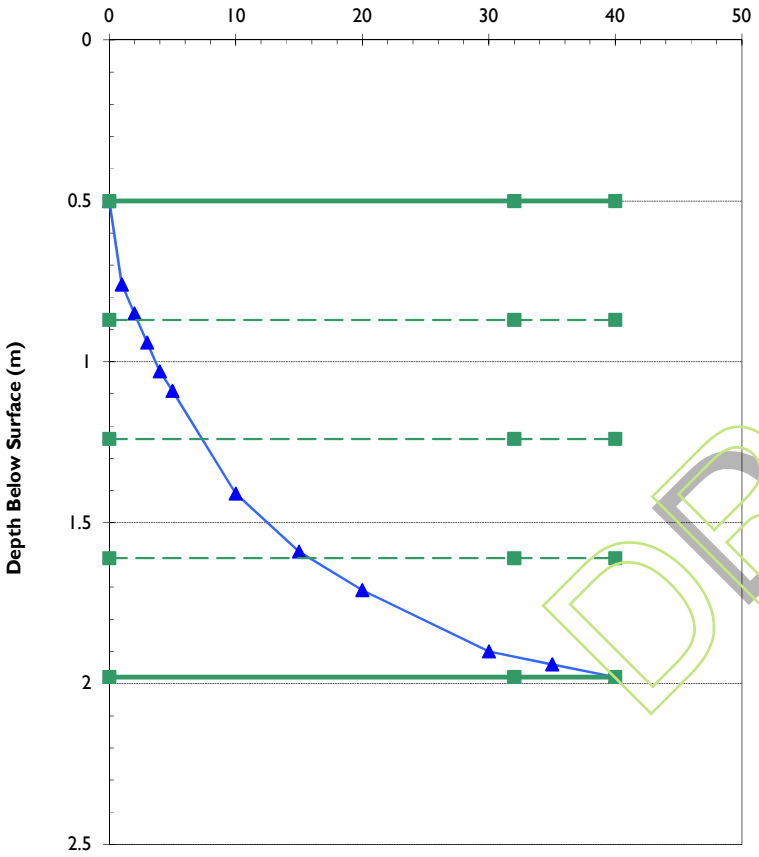
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	14/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP318
Test No:	Test No 3



Pit Length (m)	1.72
Pit Width (m)	0.54
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.48
Total Soakage Test Time (min)	40
Mean Internal Discharge Area (m2)	4.2736
Discharge Rate (litre/min)	10.09928
Soakage Rate (litre/m2/min)	2.363178
BRE Soil Infiltration Rate (m/sec)	3.94E-05

Comments:

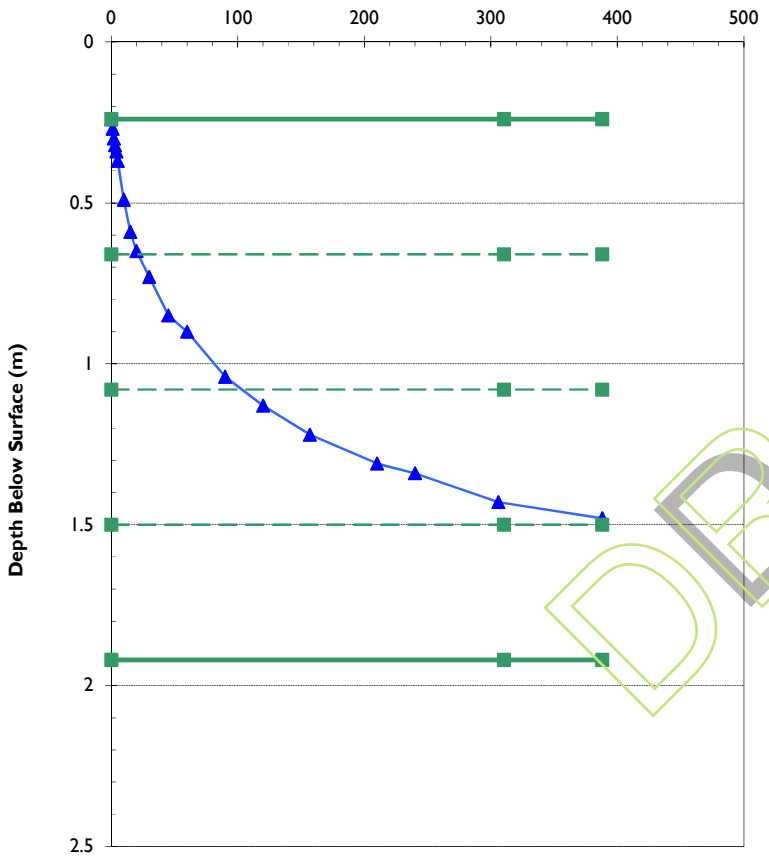
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	14/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP319
Test No:	Test No 1



Pit Length (m)	1.65
Pit Width (m)	0.48
Depth to Pit Base (m)	1.92
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.24
Max Water Dropdown during Test (m)	1.24
Total Soakage Test Time (min)	388
Mean Internal Discharge Area (m2)	4.413
Discharge Rate (litre/min)	0.35416
Soakage Rate (litre/m2/min)	0.080254
BRE Soil Infiltration Rate (m/sec)	1.34E-06

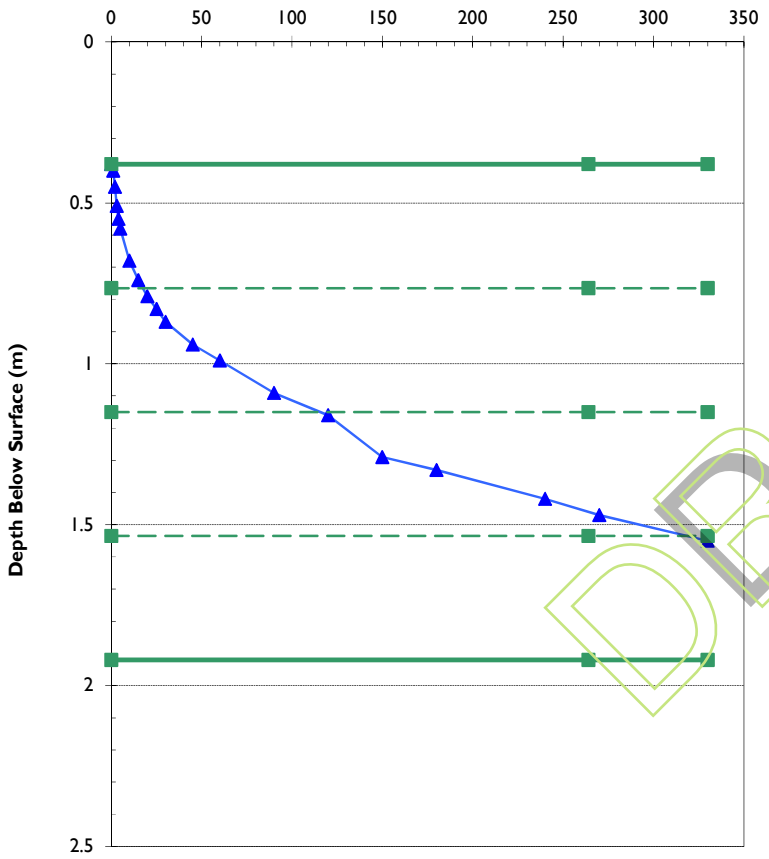
Comments: Water level fell to 50% -- 25% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP319
Test No:	Test No 2



Pit Length (m)	1.65
Pit Width (m)	0.48
Depth to Pit Base (m)	1.92
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.38
Max Water Dropdown during Test (m)	1.17
Total Soakage Test Time (min)	330
Mean Internal Discharge Area (m2)	4.0722
Discharge Rate (litre/min)	0.404873
Soakage Rate (litre/m2/min)	0.099424
BRE Soil Infiltration Rate (m/sec)	1.66E-06

Comments:

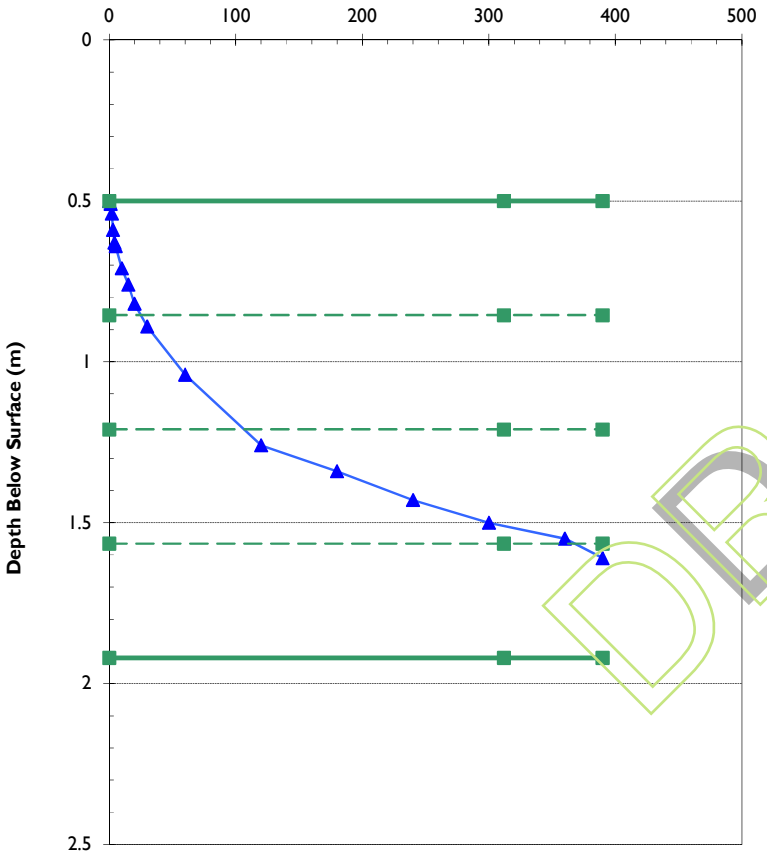
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	18/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP319
Test No:	Test No 3



Pit Length (m)	1.65
Pit Width (m)	0.48
Depth to Pit Base (m)	1.92
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.11
Total Soakage Test Time (min)	390
Mean Internal Discharge Area (m2)	3.8166
Discharge Rate (litre/min)	0.328362
Soakage Rate (litre/m2/min)	0.086035
BRE Soil Infiltration Rate (m/sec)	1.43E-06

Comments:

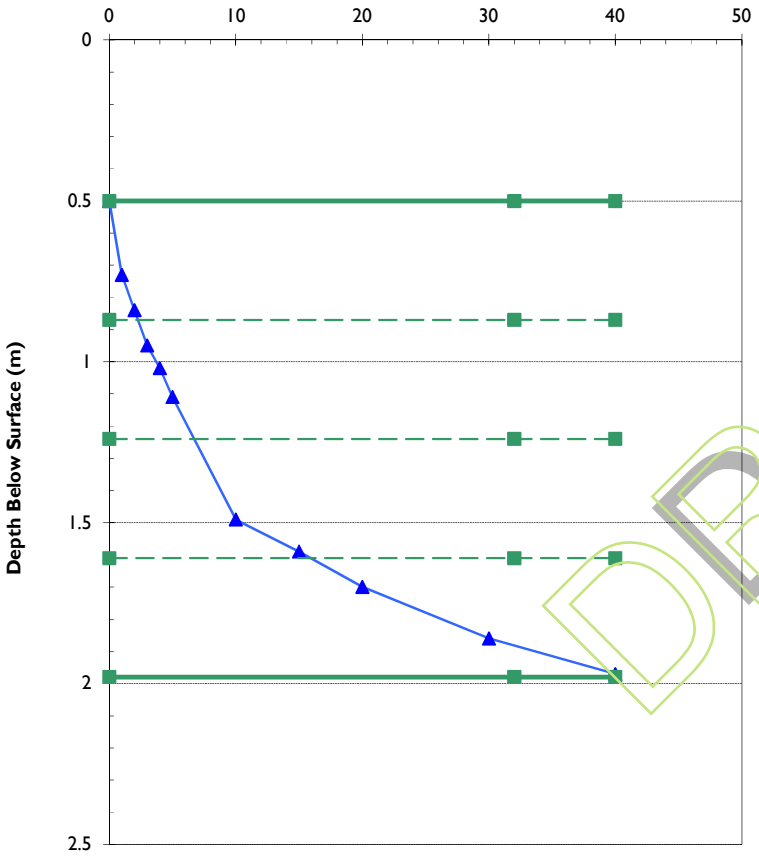
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	19/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP320
Test No:	Test No 1



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.47
Total Soakage Test Time (min)	40
Mean Internal Discharge Area (m2)	4.0886
Discharge Rate (litre/min)	8.875856
Soakage Rate (litre/m2/min)	2.170879
BRE Soil Infiltration Rate (m/sec)	3.62E-05

Comments:

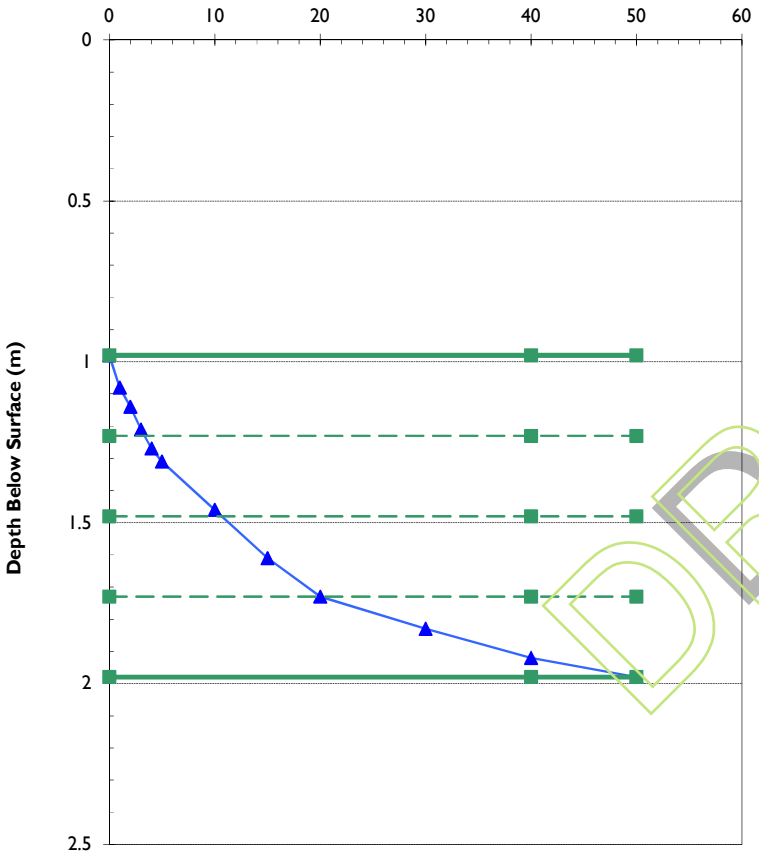
Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP320
Test No:	Test No 2



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.98
Max Water Dropdown during Test (m)	1
Total Soakage Test Time (min)	50
Mean Internal Discharge Area (m2)	3.0278
Discharge Rate (litre/min)	4.9068
Soakage Rate (litre/m2/min)	1.620583
BRE Soil Infiltration Rate (m/sec)	2.7E-05

Comments:
Pit was emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

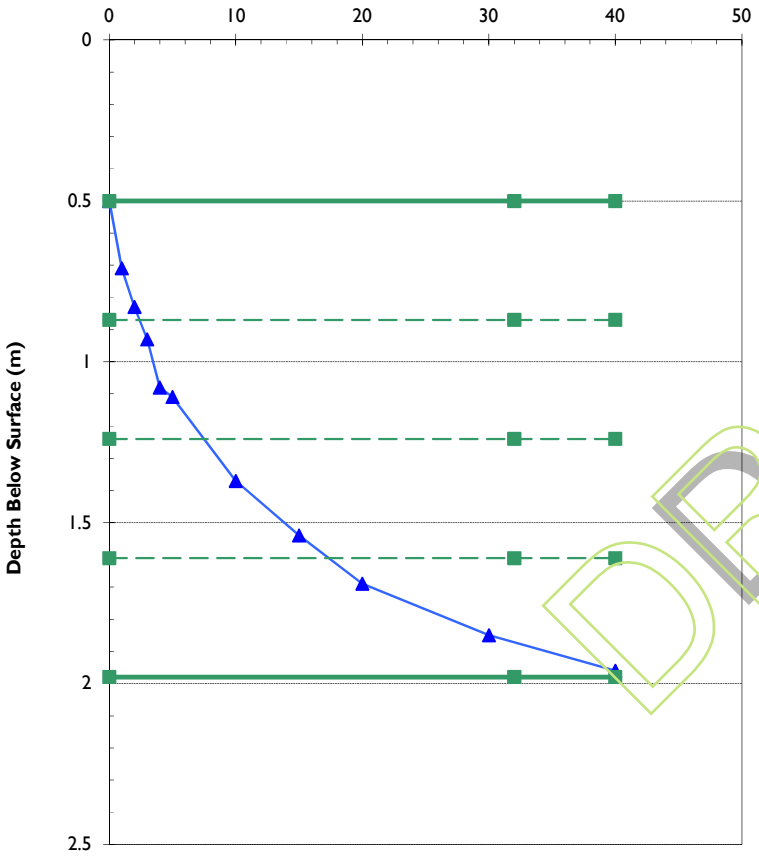
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BRE Digest 365 - Soakage Test

Test Hole No:	TP320
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.46
Total Soakage Test Time (min)	40
Mean Internal Discharge Area (m2)	4.0886
Discharge Rate (litre/min)	8.104982
Soakage Rate (litre/m2/min)	1.982337
BRE Soil Infiltration Rate (m/sec)	3.3E-05

DRAFT

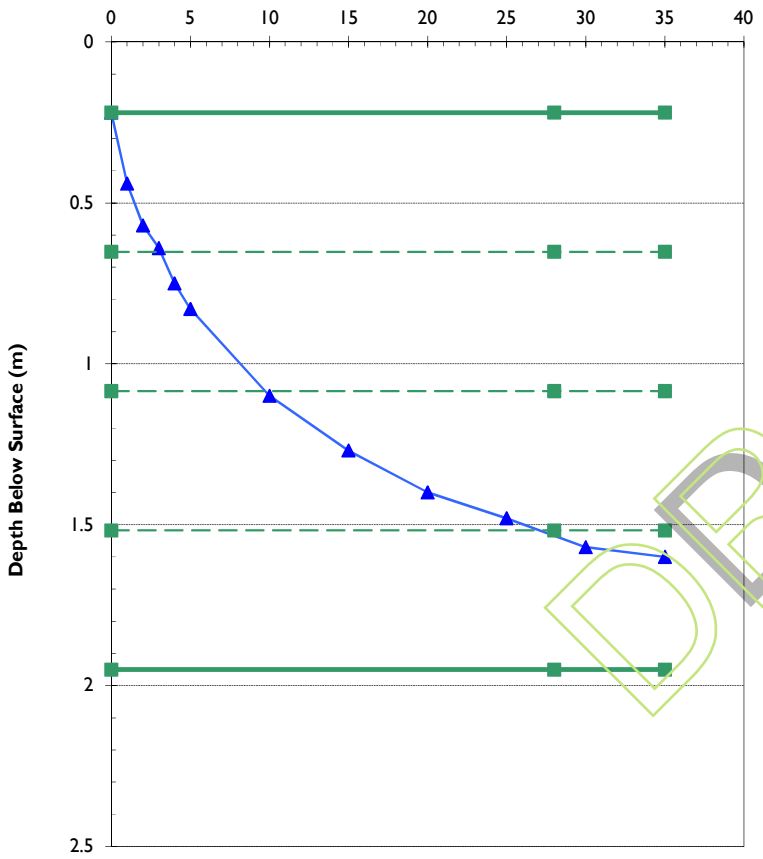
Comments:

Pit was nearly emptied at finish of test.

Client:	
Site:	
Tested By:	
Test Date:	15/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP321
Test No:	Test No 1



Pit Length (m)	1.7
Pit Width (m)	0.46
Depth to Pit Base (m)	1.95
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.22
Max Water Dropdown during Test (m)	1.38
Total Soakage Test Time (min)	35
Mean Internal Discharge Area (m2)	4.5188
Discharge Rate (litre/min)	5.644043
Soakage Rate (litre/m2/min)	1.249014
BRE Soil Infiltration Rate (m/sec)	2.08E-05

Comments:

Pit was nearly emptied at finish of test.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

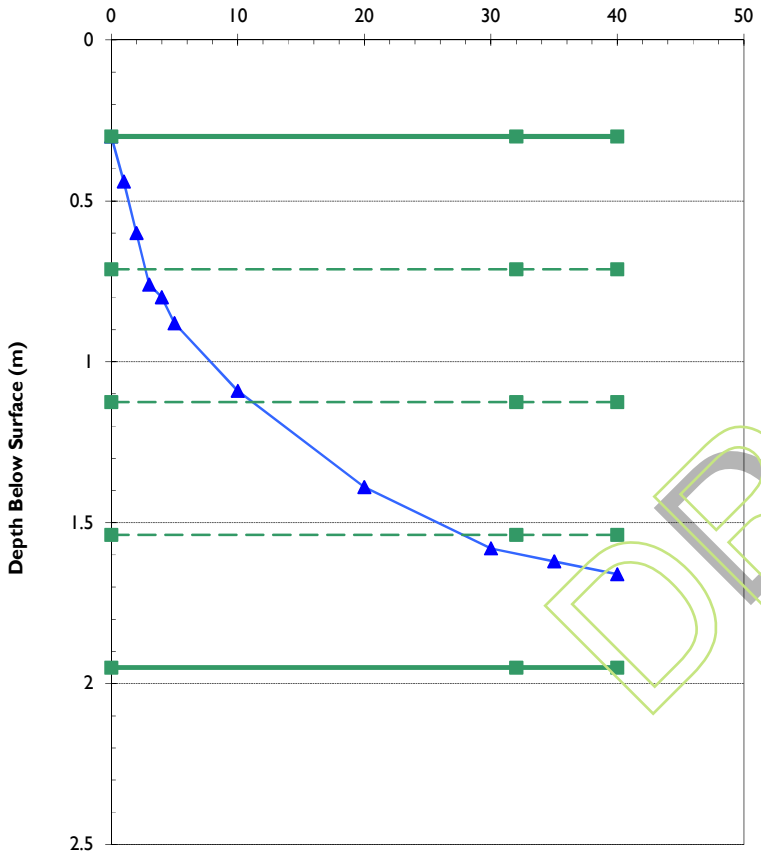
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BRE Digest 365 - Soakage Test

Test Hole No:	TP321
Test No:	Test No 2

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.7
Pit Width (m)	0.46
Depth to Pit Base (m)	1.95
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.3
Max Water Dropdown during Test (m)	1.36
Total Soakage Test Time (min)	40
Mean Internal Discharge Area (m2)	4.346
Discharge Rate (litre/min)	5.148836
Soakage Rate (litre/m2/min)	1.18473
BRE Soil Infiltration Rate (m/sec)	1.97E-05

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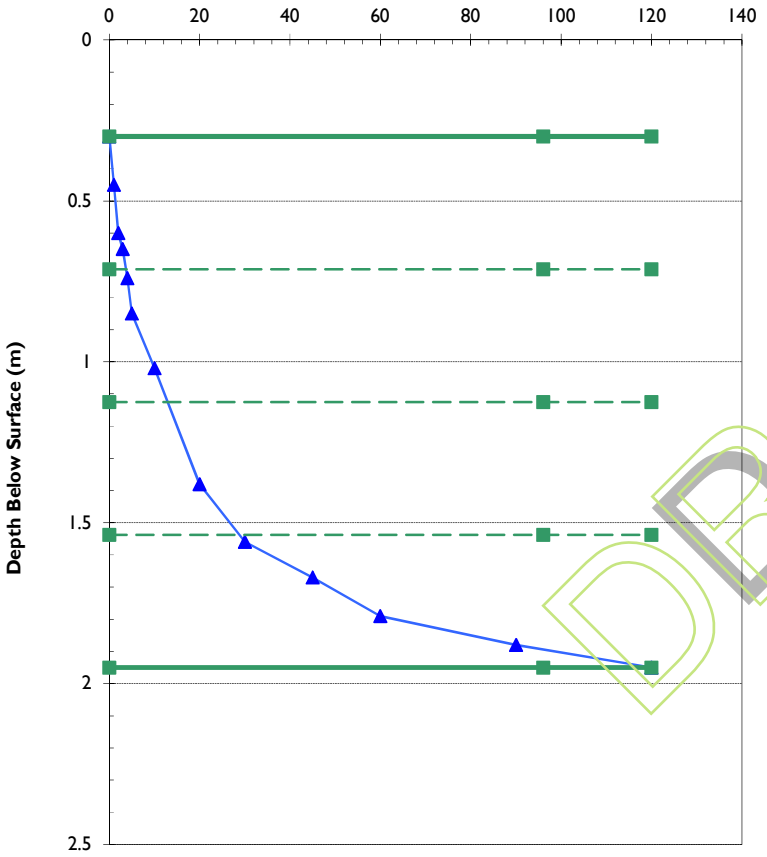
Comments:

Pit was nearly emptied at finish of test.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP321
Test No:	Test No 3



Pit Length (m)	1.7
Pit Width (m)	0.46
Depth to Pit Base (m)	1.95
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.3
Max Water Dropdown during Test (m)	1.65
Total Soakage Test Time (min)	120
Mean Internal Discharge Area (m2)	4.346
Discharge Rate (litre/min)	5.149756
Soakage Rate (litre/m2/min)	1.184942
BRE Soil Infiltration Rate (m/sec)	1.97E-05

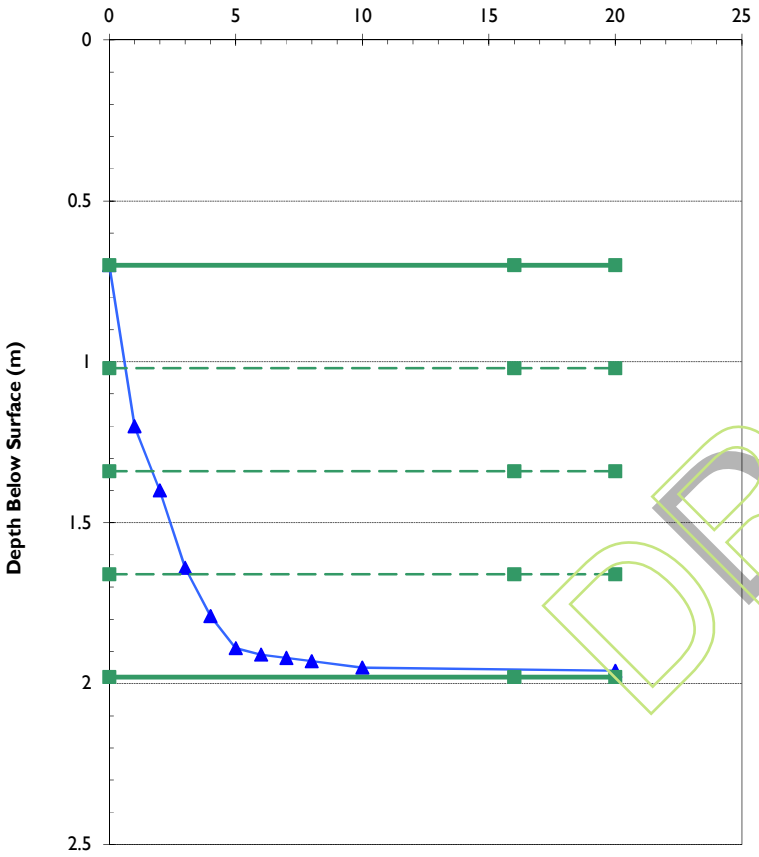
Comments:
Pit was emptied at finish of test.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

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BRE Digest 365 - Soakage Test

Test Hole No:	TP322
Test No:	Test No 1



Pit Length (m)	1.72
Pit Width (m)	0.46
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.7
Max Water Dropdown during Test (m)	1.26
Total Soakage Test Time (min)	20
Mean Internal Discharge Area (m2)	3.5816
Discharge Rate (litre/min)	40.61775
Soakage Rate (litre/m2/min)	11.34067
BRE Soil Infiltration Rate (m/sec)	0.000189

Comments:
Pit was nearly emptied at finish of test.

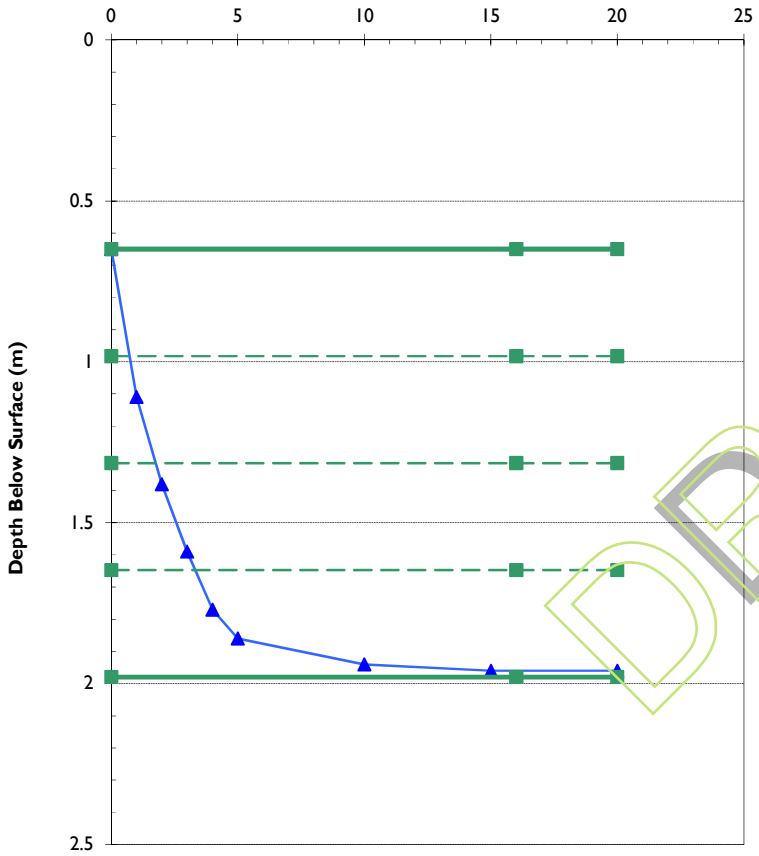
Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

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BRE Digest 365 - Soakage Test

Test Hole No:	TP322
Test No:	Test No 2

Filling to Max Water Depth (min)



Pit Length (m)	1.72
Pit Width (m)	0.46
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.65
Max Water Dropdown during Test (m)	1.31
Total Soakage Test Time (min)	20
Mean Internal Discharge Area (m2)	3.6906
Discharge Rate (litre/min)	40.52563
Soakage Rate (litre/m2/min)	10.98077
BRE Soil Infiltration Rate (m/sec)	0.000183

Comments:

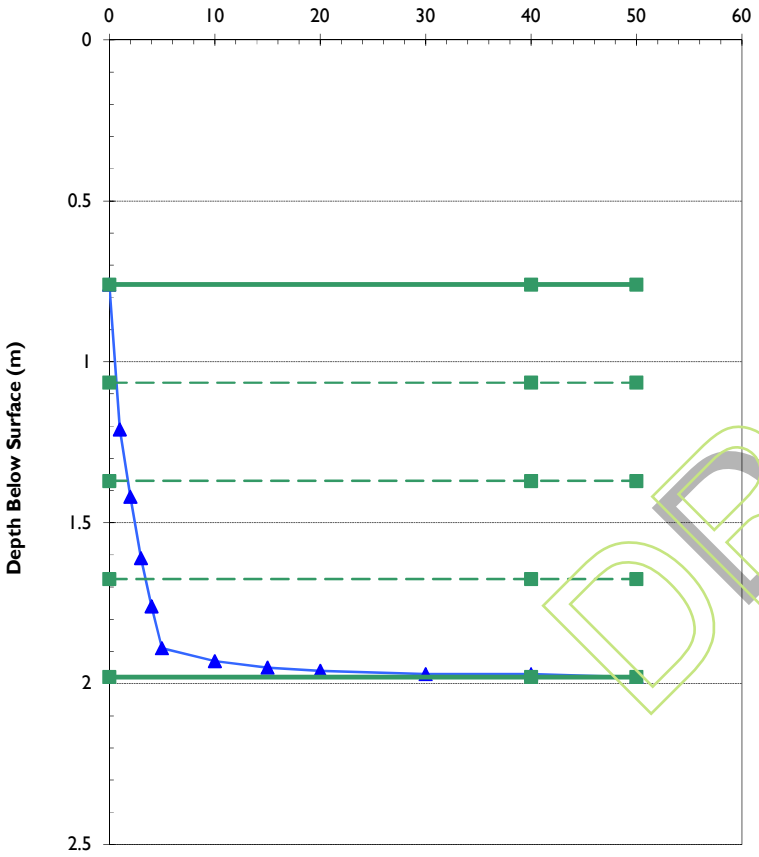
Pit was nearly emptied at finish of test.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

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BRE Digest 365 - Soakage Test

Test Hole No:	TP322
Test No:	Test No 3



Pit Length (m)	1.72
Pit Width (m)	0.46
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.76
Max Water Dropdown during Test (m)	1.22
Total Soakage Test Time (min)	50
Mean Internal Discharge Area (m2)	3.4508
Discharge Rate (litre/min)	35.02974
Soakage Rate (litre/m2/min)	10.15119
BRE Soil Infiltration Rate (m/sec)	0.000169

Comments:

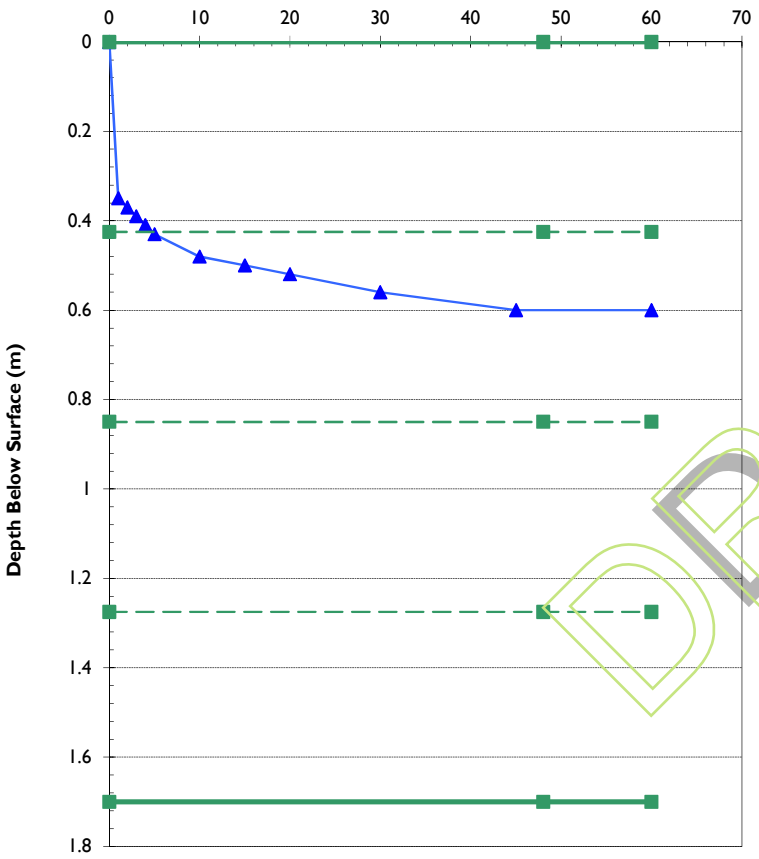
Pit was emptied at finish of test.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP323
Test No:	Test No 1



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.7
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	0.8
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0
Max Water Dropdown during Test (m)	0.6
Total Soakage Test Time (min)	60
Mean Internal Discharge Area (m2)	6.5638
Discharge Rate (litre/min)	4.403538
Soakage Rate (litre/m2/min)	0.670882
BRE Soil Infiltration Rate (m/sec)	1.12E-05

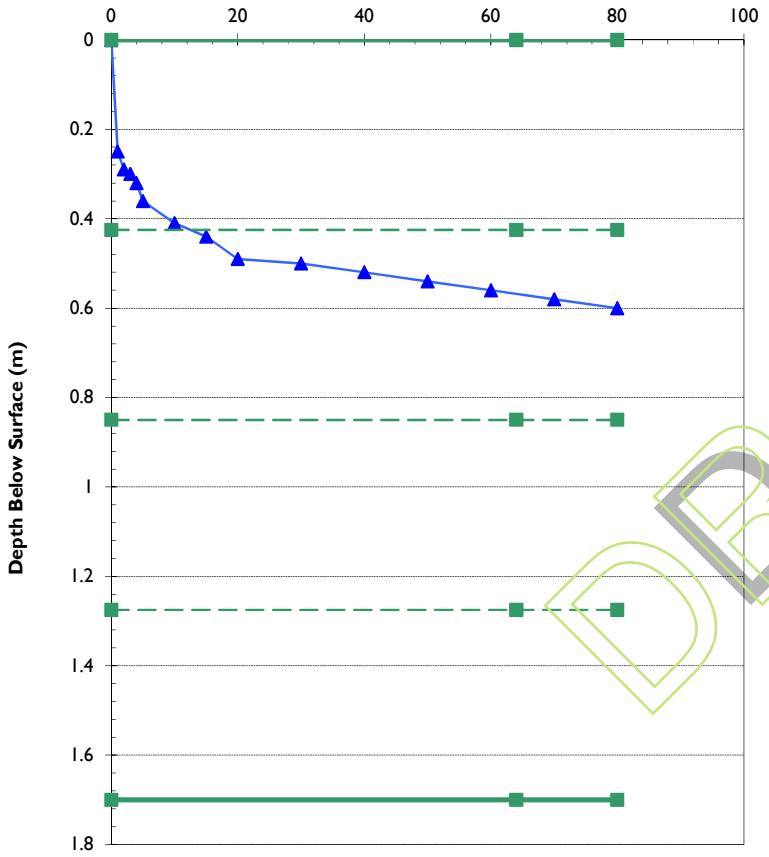
Comments: Water level fell to 75% -- 50% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

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BRE Digest 365 - Soakage Test

Test Hole No:	TP323
Test No:	Test No 2



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.7
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	0.8
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0
Max Water Dropdown during Test (m)	0.6
Total Soakage Test Time (min)	80
Mean Internal Discharge Area (m2)	6.5638
Discharge Rate (litre/min)	3.304242
Soakage Rate (litre/m2/min)	0.503404
BRE Soil Infiltration Rate (m/sec)	8.39E-06

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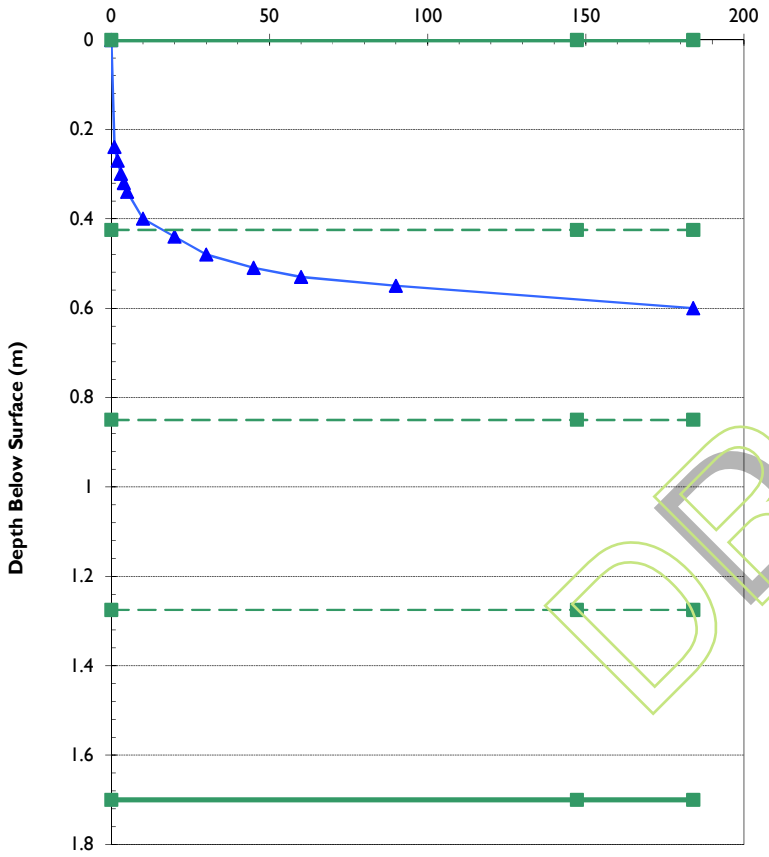
Comments:	Water level fell to 75% -- 50% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP323
Test No:	Test No 3

leap environmental



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.7
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	0.8
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0
Max Water Dropdown during Test (m)	0.6
Total Soakage Test Time (min)	184
Mean Internal Discharge Area (m2)	6.5638
Discharge Rate (litre/min)	1.428732
Soakage Rate (litre/m2/min)	0.217668
BRE Soil Infiltration Rate (m/sec)	3.63E-06

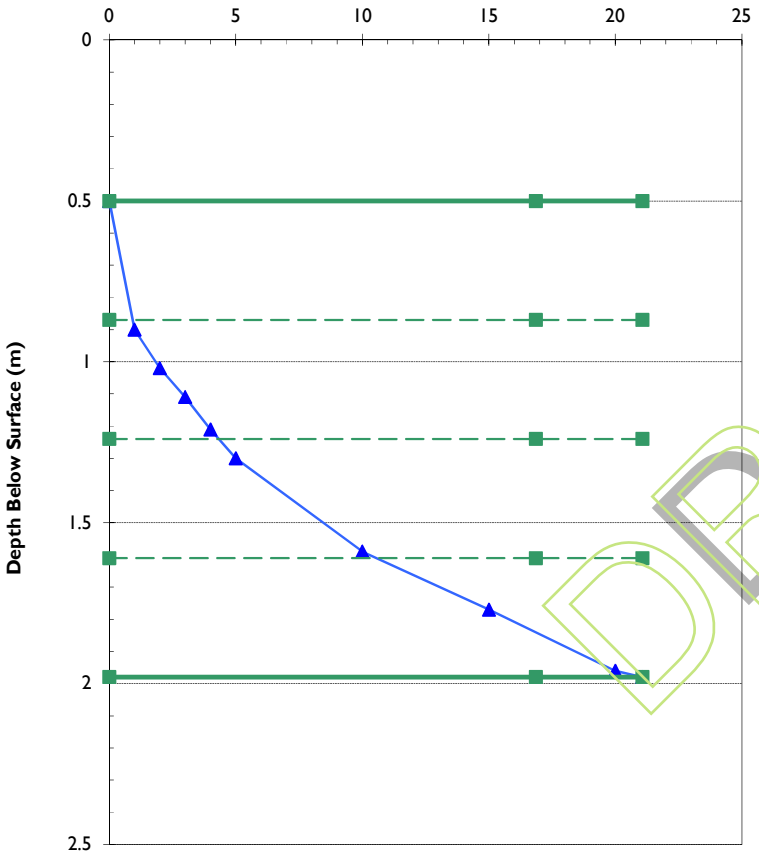
DRaft

Comments:	Water level fell to 75% -- 50% max water depth, calculations were based on actual fall of water level Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	19/03/19

BRE Digest 365 - Soakage Test

Test Hole No:	TP324
Test No:	Test No 1



Pit Length (m)	1.8
Pit Width (m)	0.46
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.48
Total Soakage Test Time (min)	21.07
Mean Internal Discharge Area (m2)	4.1728
Discharge Rate (litre/min)	12.7245
Soakage Rate (litre/m2/min)	3.049391
BRE Soil Infiltration Rate (m/sec)	5.08E-05

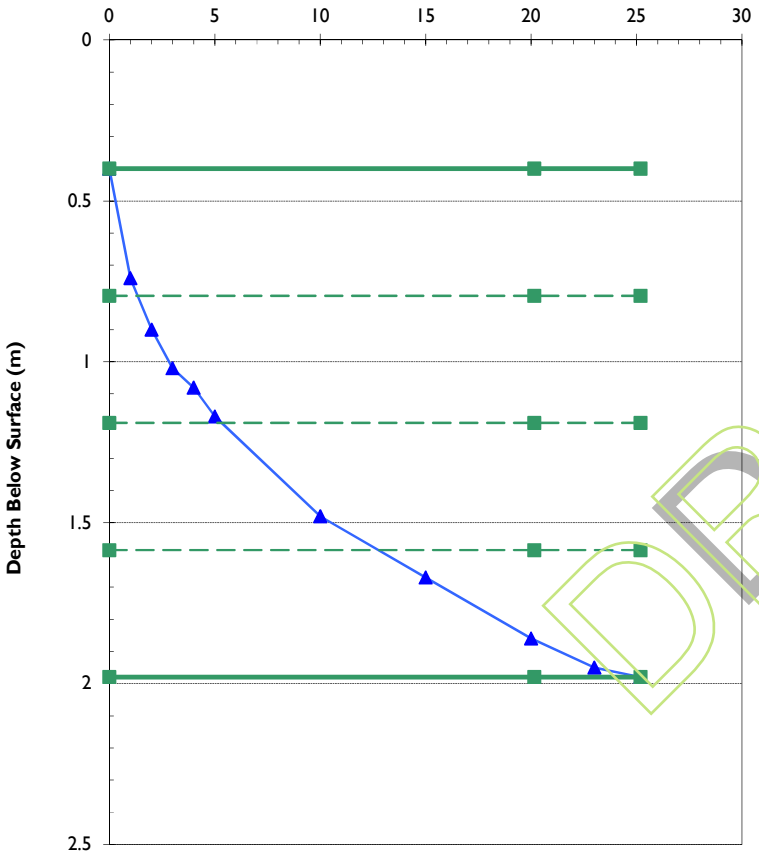
Comments:
Pit was emptied at finish of test.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	20/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP324
Test No:	Test No 2



Pit Length (m)	1.8
Pit Width (m)	0.46
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.58
Total Soakage Test Time (min)	25.2
Mean Internal Discharge Area (m2)	4.3988
Discharge Rate (litre/min)	11.45629
Soakage Rate (litre/m2/min)	2.604412
BRE Soil Infiltration Rate (m/sec)	4.34E-05

Comments:

Pit was emptied at finish of test.

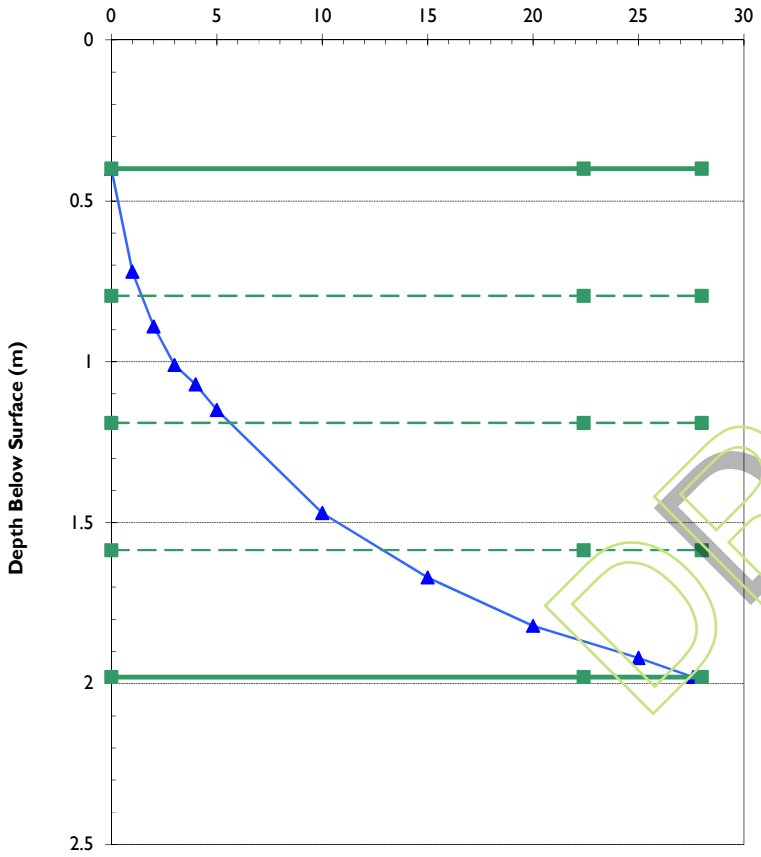
Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	20/03/19

Draft

BRE Digest 365 - Soakage Test

Test Hole No:	TP324
Test No:	Test No 3

leap environmental



Pit Length (m)	1.8
Pit Width (m)	0.46
Depth to Pit Base (m)	1.98
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.5
Voids Assumed for Granular Fill (%)	20%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.58
Total Soakage Test Time (min)	28
Mean Internal Discharge Area (m2)	4.3988
Discharge Rate (litre/min)	11.44184
Soakage Rate (litre/m2/min)	2.601128
BRE Soil Infiltration Rate (m/sec)	4.34E-05

Comments:
Pit was emptied at finish of test.

Client:	Dandara Homes
Site:	Fontwell
Tested By:	MN
Test Date:	20/03/19

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Results of BRE Digest 365 Soakage Tests

Site :
Client :
O S Reference

Tested By :
Test Date : 25/03/2019

Hole Number	Test Number	Hole Depth m	Test Soakage Rat litre/m2/min	Design Soakage Rate litre/m2/min	m/sec	End Water Level	Remarks
TP309	No 1	2	9.33	8.73	0.000145444	Empty pit.	
TP309	No 2	2	8.73			Empty pit.	
TP309	No 3	2	8.99			Empty pit.	
TP310	No 1	1.72	3.42	3.27	4.258E-05	Nearly empty pit.	Depth to existing ground water level was 1.92m.
TP310	No 2	1.72	3.27			Nearly empty pit.	Depth to existing ground water level was 1.92m.
TP310	No 3	1.72	2.55			Nearly empty pit.	Depth to existing ground water level was 1.92m.
TP307	No 1	1.99	9.54	6.81	0.00011343	Empty pit.	
TP307	No 2	1.99	6.81			Empty pit.	

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TP307	No 3	1.99	6.89			Empty pit.	
TP308	No 1	2	2.46	2.46	3.73983E-05	Empty pit.	
TP308	No 2	2	2.57			Empty pit.	
TP308	No 3	2	2.24			Empty pit.	
TP306	No 1	1.16	17.51	17.51	0.000291899	Empty pit.	
TP306	No 2	1.16	21.86			Empty pit.	
TP306	No 3	1.16	20.08			Empty pit.	
TP305	No 1	1.97	0.08	0.08	1.27412E-06	Pit was not empti	Depth to existing ground water level was 1.56m.
TP305	No 2	1.97	0.08			Pit was not empti	Depth to existing ground water level was 1.56m.
TP305	No 3	1.97	0.08			Pit was not empti	Depth to existing ground water level was 1.56m.
TP303	No 1	1.95	0.60	0.60	9.33319E-06	Nearly empty pit.	

DRaft

TP303	No 2	1.95				Pit was not empti	
TP303	No 3	1.95	0.56			Nearly empty pit.	
TP304	No 1	2	0.59	0.59	9.78155E-06	Nearly empty pit.	
TP304	No 2	2	0.60			Nearly empty pit.	
TP304	No 3	2	0.63			Empty pit.	
TP302	No 1	2	0.14	0.14	1.97289E-06	Nearly empty pit.	Depth to existing ground water level was 1.9m.
TP302	No 2	2	0.18			Pit was not empti	Depth to existing ground water level was 1.9m.
TP302	No 3	2	0.12			Pit was not empti	Depth to existing ground water level was 1.9m.
TP311	No 1	2	4.15	3.59	4.04364E-06	Empty pit.	
TP311	No 2	2	3.59			Empty pit.	
TP311	No 3	2	0.24			Pit was not empti	

DRaft

Mean Value of All Calculated Soakage Rates :	4.38 litre/m2/min 6.57156E-05 m/sec	

DRaft

Results of BRE Digest 365 Soakage Tests

Site :
Client :
O S Reference

Tested By :
Test Date : 25/03/2019

Hole Number	Test Number	Hole Depth m	Test Soakage Rate litre/m2/min	Design Soakage Rate litre/m2/min	Design Soakage Rate m/sec	End Water Level	Remarks
TP301	No 1	2	1.77	1.77	2.94838E-05	Pit was not empti	Depth to existing ground water level was 1.46m.
TP301	No 2	2	2.04			Pit was not empti	Depth to existing ground water level was 1.46m.
TP301	No 3	2	4.80			Empty pit.	Depth to existing ground water level was 1.46m.
TP312	No 1	2	2.33	2.26	3.73508E-05	Empty pit.	
TP312	No 2	2	2.26			Empty pit.	
TP312	No 3	2	2.24			Empty pit.	
TP317	No 1	1.99	3.43	2.83	4.59112E-05	Empty pit.	
TP317	No 2	1.99	2.83			Empty pit.	

DRaft

TP317	No 3	1.99	2.75			Empty pit.	
TP318	No 1	1.98	2.28	2.28	3.79234E-05	Nearly empty pit.	
TP318	No 2	1.98	2.57			Nearly empty pit.	
TP318	No 3	1.98	2.36			Empty pit.	
TP319	No 1	1.92	0.08	0.08	1.33756E-06	Pit was not empti	
TP319	No 2	1.92	0.10			Nearly empty pit.	
TP319	No 3	1.92	0.09			Nearly empty pit.	
TP320	No 1	1.98	2.17	1.62	2.70097E-05	Nearly empty pit.	
TP320	No 2	1.98	1.62			Empty pit.	
TP320	No 3	1.98	1.98			Nearly empty pit.	
TP313	No 1	1.97	3.08	2.68	4.46595E-05	Empty pit.	
TP313	No 2	1.97	2.68			Empty pit.	

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TP313	No 3	1.97	3.10			Empty pit.	
TP314	No 1	1.98	2.06	2.06	3.43937E-05	Empty pit.	
TP314	No 2	1.98	2.18			Nearly empty pit.	
TP314	No 3	1.98	2.49			Empty pit.	
TP315	No 1	1.97	4.89	4.89	7.63338E-05	Empty pit.	
TP315	No 2	1.97	5.11			Empty pit.	
TP315	No 3	1.97	4.58			Empty pit.	
TP316	No 1	1.99	2.41	2.13	3.54611E-05	Nearly empty pit.	Depth to existing ground water level was 1.81m.
TP316	No 2	1.99	2.13			Nearly empty pit.	Depth to existing ground water level was 1.81m.
TP316	No 3	1.99	2.27			Nearly empty pit.	Depth to existing ground water level was 1.81m.
Mean Value of All Calculated Soakage Rates :				2.26 litre/m2/min 3.699E-05 m/sec			

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Results of BRE Digest 365 Soakage Tests

Site : Fontwell
Client : Dandara Homes
O S Reference

Tested By : MN
Test Date : 25/03/2019

Hole Number	Test Number	Hole Depth m	Test Soakage Rat litre/m2/min	Design Soakage Rate litre/m2/min	m/sec	End Water Level	Remarks
TP321	No 1	1.95	1.25	1.18	1.97455E-05	Nearly empty pit.	
TP321	No 2	1.95	1.18			Nearly empty pit.	
TP321	No 3	1.95	1.18			Empty pit.	
TP322	No 1	1.98	11.34	10.98	0.000169187	Nearly empty pit.	
TP322	No 2	1.98	10.98			Nearly empty pit.	
TP322	No 3	1.98	10.15			Empty pit.	
TP323	No 1	1.7	0.67	0.50	3.62781E-06	Pit was not empti	Depth to existing ground water level was 0.8m.
TP323	No 2	1.7	0.50			Pit was not empti	Depth to existing ground water level was 0.8m.

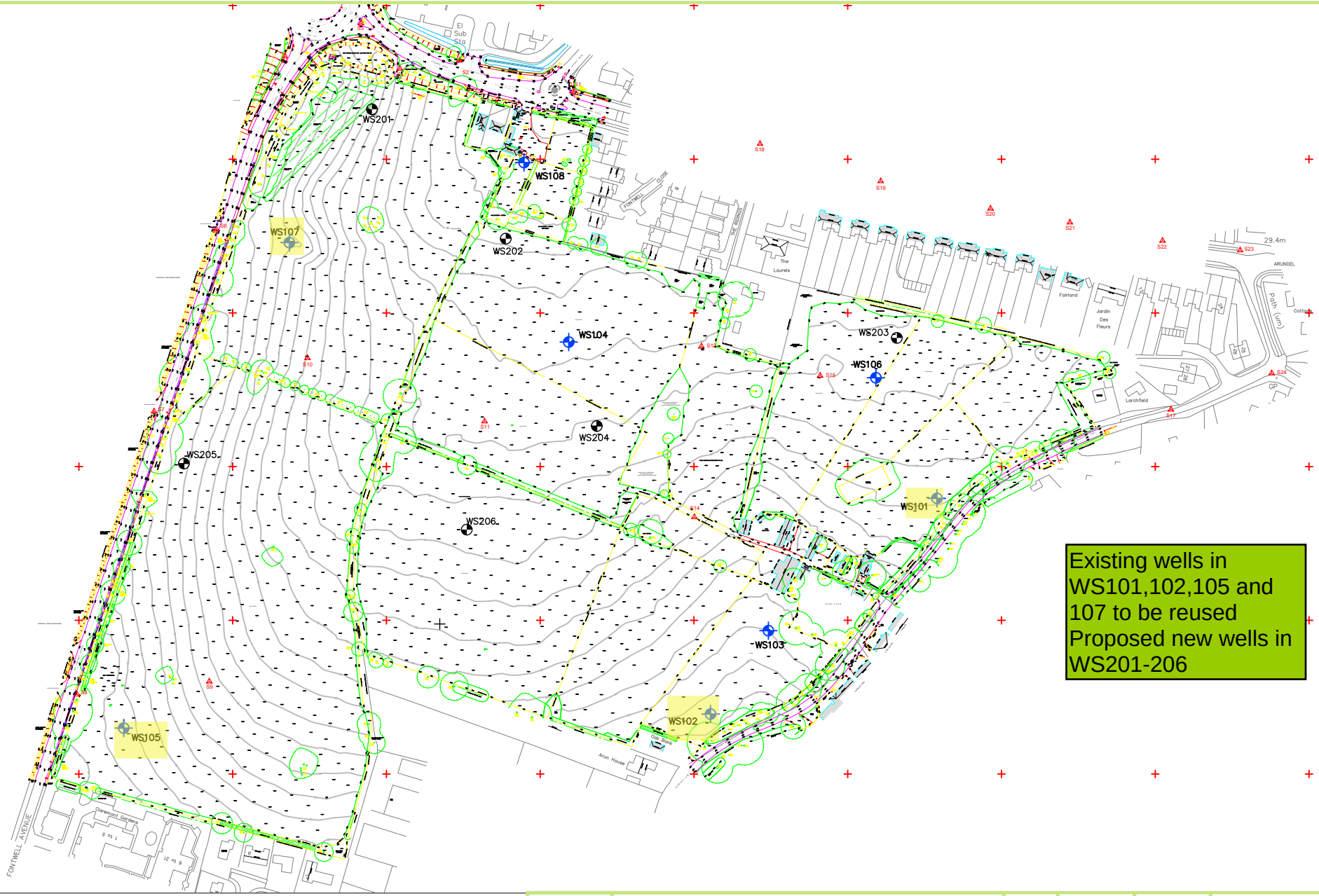
DRaFT

TP323	No 3	1.7	0.22			Pit was not empti	Depth to existing ground water level was 0.8m.
TP324	No 1	1.98	3.05	2.60	4.33521E-05	Empty pit.	
TP324	No 2	1.98	2.60			Empty pit.	
TP324	No 3	1.98	2.60			Empty pit.	
Mean Value of All Calculated Soakage Rates :				3.82 litre/m2/min 5.898E-05 m/sec			

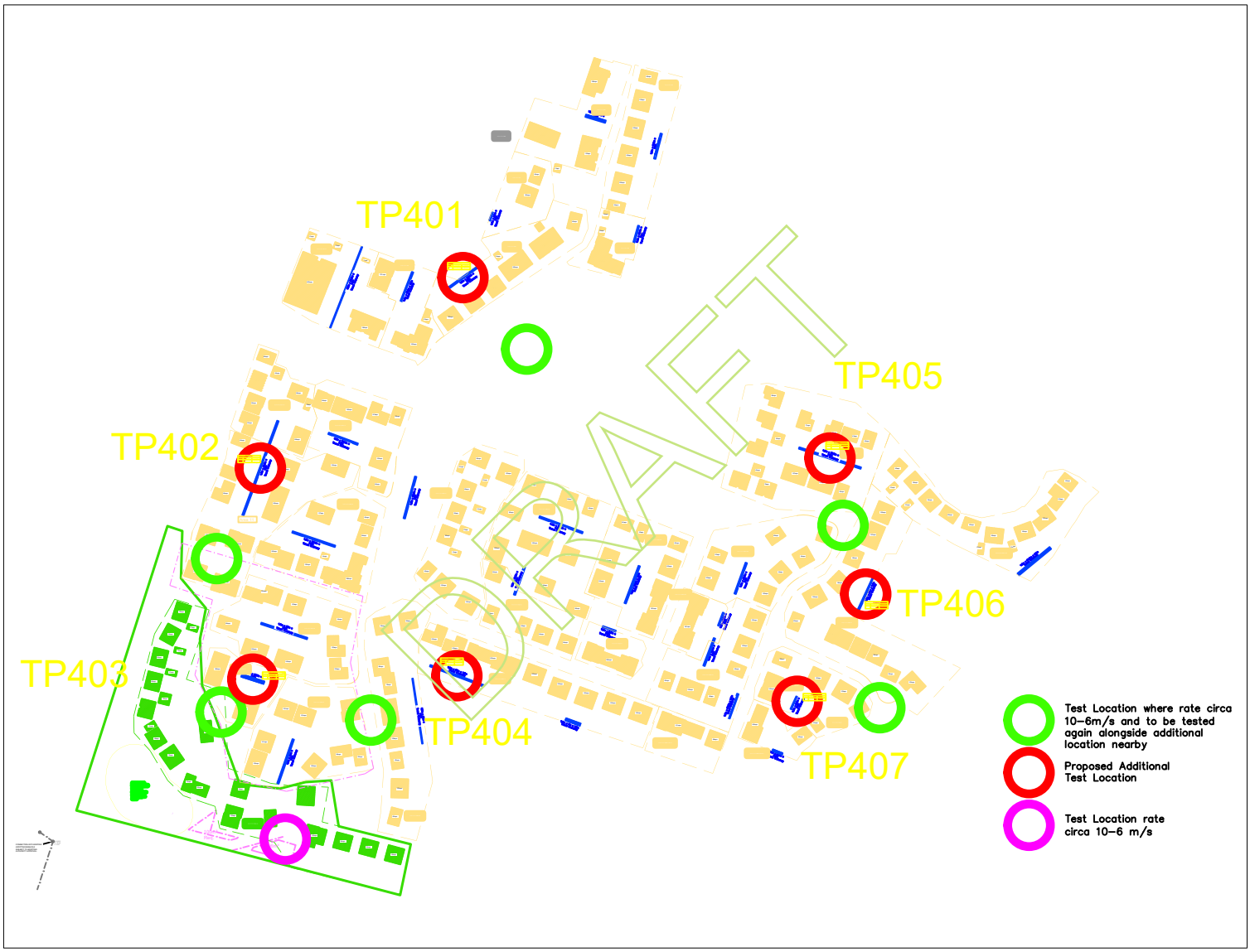
DRaft

Fontwell Groundwater Level (mbgl)

Well depth		Well No.	Elevation	19/12/2018	19/12/2018	04/01/2019	04/01/2019	16/01/2019	16/01/2019	31/01/2019	31/01/2019	15/02/2019	15/02/2019	04/03/2019	04/03/2019	20/03/2019	20/03/2019
mbgl	mAOD		mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD
	24.2	WS102	24.2							1.29	22.91	1.01	23.19	0.67	23.53	0.98	23.22
	21.7	WS105	21.7	0.88	20.82	1.39	20.31	1.55	20.15	1.5	20.2	1.2	20.5	1.25	20.45	1.36	20.34
4	23.7	WS201	27.7	3.6	24.1							3.8	23.9				
4	26.65	WS202	30.65										30.65				
4	25.4	WS203	29.4	3.75	25.65	3.25	26.15	3.33	26.07	3.38	26.02	3.05	26.35	2.8	26.6	3.17	26.23
4	24.9	WS204	28.9	3.7	25.2	3.76	25.14					3.92	24.98			3.9	25
3	20.8	WS205	23.8	0.95	22.85	1.45	22.35	1.6	22.2	1.8	22	1.4	22.4	1.6	22.2	1.56	22.24
4	24.15	WS206	28.15	3.5	24.65	3.76	24.39					3.72	24.43			4.02	24.13
4	21.5	WS207	25.5	2.15	23.35	2.89	22.61	3.34	22.16			2.74	22.76	3.45	22.05	3.2	22.3
4	22.8	WS208	26.8	2.13	24.67	2.5	24.3	3.15	23.65	3.6	23.2	2.45	24.35	3.13	23.67	1.83	24.97
4	19.5	WS209	23.5	0.89	22.61	1.22	22.28	2.05	21.45	1.5	22	1.21	22.29	1.97	21.53	2.9	20.6



Client	Dandara Properties Ltd	Date	26/11/18	Project Ref.	LP1649
Project	Northfield Cottages, Fontwell	Scale at A4	NTS	Fig No.	2
Title	Proposed Shallow Groundwater Monitoring Well Locations				


TP401
TP402
TP403
TP404
TP405
TP406
TP407
Test Location where rate circa 10–6m/s and to be tested again alongside additional location nearby
Proposed Additional Test Location
Test Location rate circa 10–6 m/s



leap environmental	**Client:**	Dandara Homes	**Date:**	10/07/19	**Project ID:**	LP1981
	Project:	Fontwell Avenue, Fontwell.	**Title:**	Proposed Development	**Fig. No.**	1

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Leap Environmental Ltd
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Tel: 01306 646510
www.leapenvironmental.com

Trial Pit Log

Trialpit No
TP401
Sheet 1 of 1

Project Name: Fontwell Shallow Soaks	Project No. LP1981	Co-ords: - Level:	Date 01/07/2019
Location: Fontwell Avenue, Fontwell		Dimensions (m): Depth 2.00 — 2.15 × 0.53	Scale 1:25
Client: Dandara Homes			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Light greyish brown slightly gravelly silty TOPSOIL with abundant rootlets.
							Medium dense - dense greyish brown slightly clayey silty GRAVEL. Gravel is fine to coarse, sub-angular to sub-rounded flint with occasional cobbles. Becomes orange-brown with depth.
				2.00			End of pit at 2.00 m

DRAFT

Remarks: End of trial pit. Trial pit remained dry and stable

Stability:

AGS

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Trial Pit Log

Trialpit No
TP402
Sheet 1 of 1

Project Name: Fontwell Shallow Soaks	Project No. LP1981	Co-ords: - Level:	Date 01/07/2019
Location: Fontwell Avenue, Fontwell		Dimensions (m): Depth 1.95 (1.9 × 0.55)	Scale 1:25
Client: Dandara Homes			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Light greyish silty TOPSOIL with occasional gravel of fine to coarse flint.
				0.90			Medium dense reddish brown clayey GRAVEL. Gravel is fine to coarse, sub-angular to sub-rounded flint.
				1.60			Firm becoming stiff dark orangish brown slightly gravelly slightly silty CLAY. Gravel of fine - medium sub-angular flint. *Hand Pen at 1 m = 230 kPa*
				1.95			Stiff off-white mottled pale yellow slightly sandy clayey SILT (Chalk Head)
							End of pit at 1.95 m

DRAFT

Remarks: End of trial pit. Trial pit remained dry and stable

Stability:

AGS

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Trial Pit Log

Trialpit No
TP403
Sheet 1 of 1

Project Name: Fontwell Shallow Soaks	Project No. LP1981	Co-ords: - Level:	Date 01/07/2019
Location: Fontwell Avenue, Fontwell		Dimensions (m): Depth 2.00 — 1.9 × 0.34	Scale 1:25
Client: Dandara Homes			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Light greyish brown slightly gravelly clayey silty TOPSOIL. Gravel is fine to medium flint
				1.80			Medium dense dark orangish brown slightly silty clayey GRAVEL. Gravel is fine to coarse, sub-angular to sub-rounded flint.
				2.00			Light yellowish white clayey SILT (Chalk Head)
							End of pit at 2.00 m

DRAFT

Remarks: End of trial pit. Trial pit remained dry and stable

Stability:

AGS

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Trial Pit Log

Trialpit No
TP404
Sheet 1 of 1

Project Name: Fontwell Shallow Soaks	Project No. LP1981	Co-ords: - Level:	Date 01/07/2019
Location: Fontwell Avenue, Fontwell		Dimensions (m): Depth 2.00 — 2.2 × 0.55	Scale 1:25
Client: Dandara Homes			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Light brown slightly gravelly slightly clayey TOPSOIL. Gravel is fine to medium flint. Contains frequent rootlets
				0.65			Light orangish brown slightly gravelly clayey silty SUBSOIL. Gravel is fine to medium flint. *Roots to 0.3m*
				1.70			Medium dense dark orangish brown slightly silty gravelly CLAY. Gravel is fine to coarse, angular to sub-rounded flint with occasional cobbles .
				2.00			Off white mottled light yellow clayey SILT with pockets of dark brown clay (Chalk Head). End of pit at 2.00 m

DRAFT

Remarks: End of trial pit. Trial pit remained dry and stable

Stability:

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Trial Pit Log

Trialpit No
TP405
Sheet 1 of 1

Project Name: Fontwell Shallow Soaks	Project No. LP1981	Co-ords: - Level:	Date 02/07/2019
Location: Fontwell Avenue, Fontwell		Dimensions (m): Depth 2.00 — 1.9 × 0.32	Scale 1:25
Client: Dandara Homes			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Light greyish brown slightly gravelly clayey silty TOPSOIL with abundant rootlets. Gravel is fine to medium flint
							Light brownish grey gravelly silty CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint
							Hand Pen at 0.9 m = 210 kPa
				1.10			Firm to stiff dark orangish brown slightly silty gravelly CLAY. Gravel ranges from fine to cobbles of angular to sub-rounded flint
				1.20			Greyish white mottled pale yellow slightly gravelly clayey SILT
							Hand Pen at 1.2 m = 180 kPa
				2.00			End of pit at 2.00 m

DRAFT

Remarks: End of trial pit. Trial pit remained dry and stable

Stability:

AGS

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Trial Pit Log

Trialpit No
TP406
Sheet 1 of 1

Project Name: Fontwell Shallow Soaks	Project No. LP1981	Co-ords: - Level:	Date 02/07/2019
Location: Fontwell Avenue, Fontwell		Dimensions (m): Depth 2.00, 1.83 × 0.5	Scale 1:25
Client: Dandara Homes			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			Light grey clayey silty TOPSOIL
				0.90			Medium dense orangish brown gravelly CLAY. Gravel is fine to medium, angular to sub-angular flint.
							Firm to stiff yellowish grey mottled pale brown slightly gravelly slightly silty CLAY. Gravel is fine sub-rounded flint
							Hand Pen at 1.5 m = 160 kPa
							Hand Pen at 1.8 m = 160 kPa
				2.00			End of pit at 2.00 m

DRAFT

Remarks: End of trial pit. Trial pit remained dry and stable

Stability:

AGS

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Trial Pit Log

Trialpit No
TP407
Sheet 1 of 1

Project Name: Fontwell Shallow Soaks	Project No. LP1981	Co-ords: - Level:	Date 02/07/2019
Location: Fontwell Avenue, Fontwell		Dimensions (m): 1.8 × 0.53, Depth 1.97	Scale 1:25
Client: Dandara Homes			Logged ADC

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Light brown clayey silty TOPSOIL
				0.60			Light brownish grey gravelly silty clay SUBSOIL. Gravel is fine to coarse, angular to sub-angular flint.
				1.68			Medium dense orangish brown slightly silty clayey GRAVEL. Gravel is fine to coarse with occasional cobbles of sub-angular to sub-rounded flint.
				1.97			Firm off white mottled pale orange slightly gravelly clayey SILT with pockets of silty clay. Gravel of rare fine to medium flint. (Chalk Head) *Hand Pen at 1.7 m = 220 kPa* End of pit at 1.97 m

DRAFT

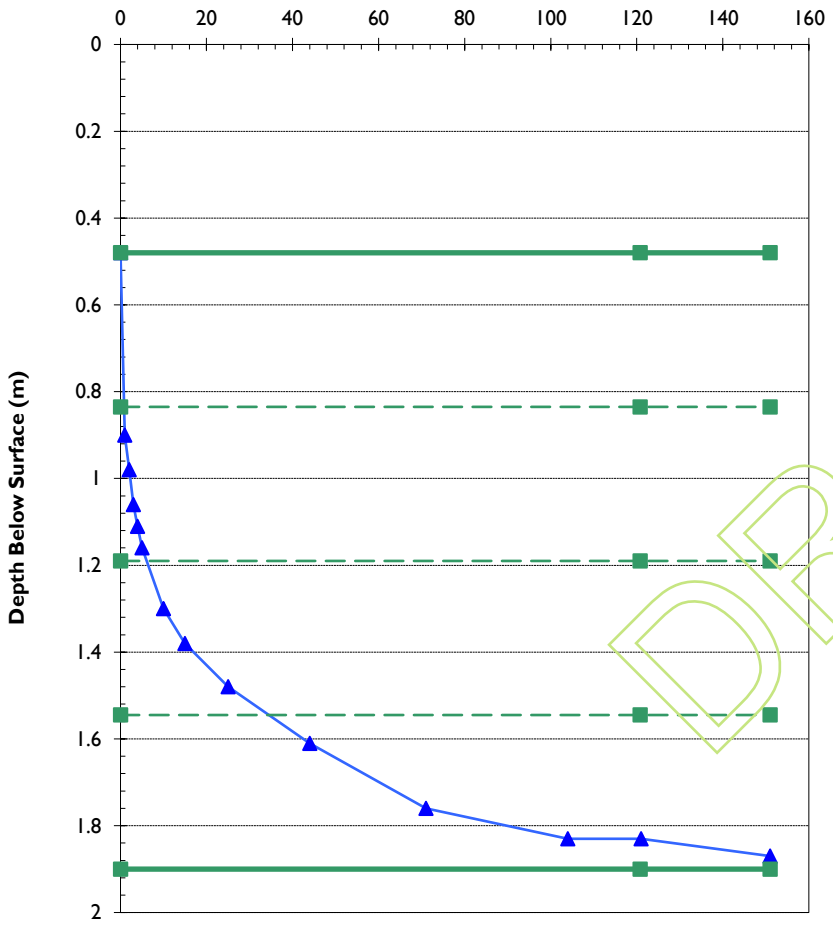
Remarks: End of trial pit. Trial pit remained dry and stable

Stability:

AGS

BRE Digest 365 - Soakage Test

Test Hole No:	TP303
Test No:	Test No 1



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.9
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.48
Max Water Dropdown during Test (m)	1.39
Total Soakage Test Time (min)	151
Mean Internal Discharge Area (m2)	3.956
Discharge Rate (litre/min)	6.0384709
Soakage Rate (litre/m2/min)	1.5264082
BRE Soil Infiltration Rate (m/sec)	2.544E-05

Comments:

Pit was nearly emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	04/07/19

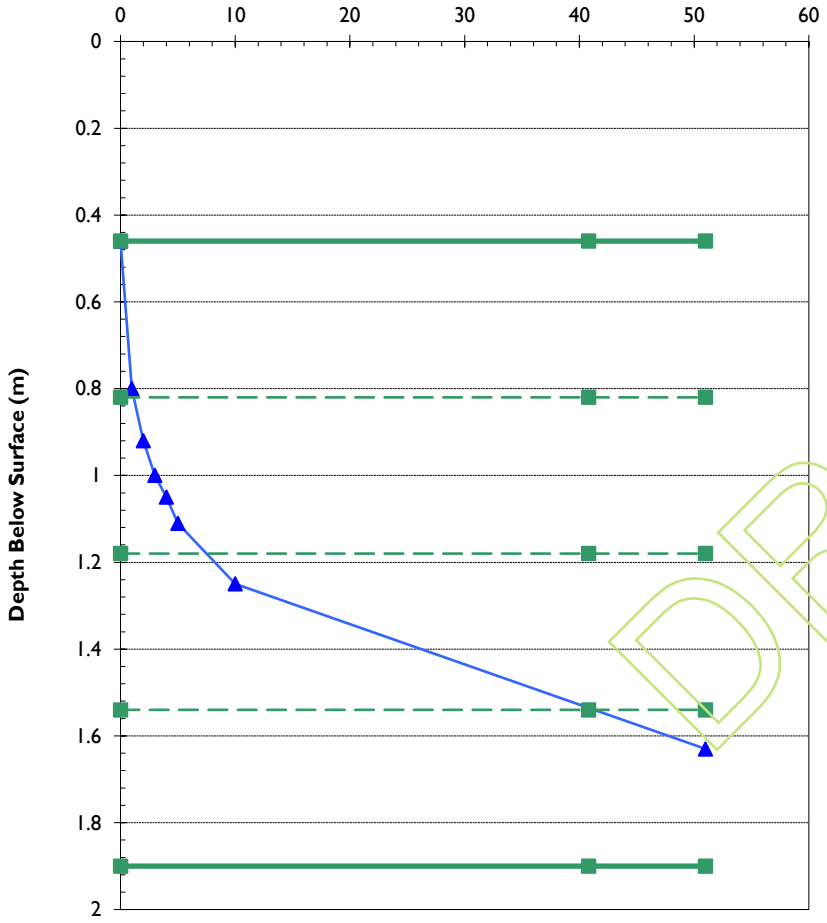
DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP303
Test No:	Test No 2

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Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.9
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.46
Max Water Dropdown during Test (m)	1.17
Total Soakage Test Time (min)	51
Mean Internal Discharge Area (m2)	4.0002
Discharge Rate (litre/min)	5.1363704
Soakage Rate (litre/m2/min)	1.2840284
BRE Soil Infiltration Rate (m/sec)	2.14E-05

Comments:

Pit was nearly emptied at finish of test.

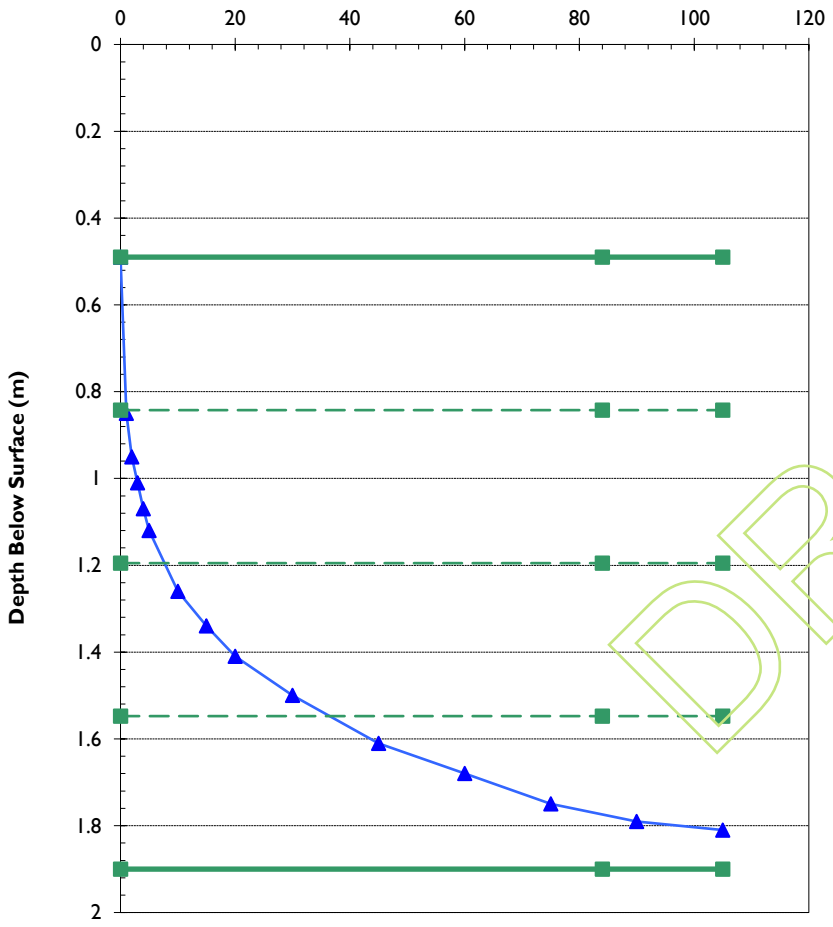
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	04/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP303
Test No:	Test No 3



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.9
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.49
Max Water Dropdown during Test (m)	1.32
Total Soakage Test Time (min)	105
Mean Internal Discharge Area (m2)	3.9339
Discharge Rate (litre/min)	5.6845892
Soakage Rate (litre/m2/min)	1.4450264
BRE Soil Infiltration Rate (m/sec)	2.408E-05

Comments:

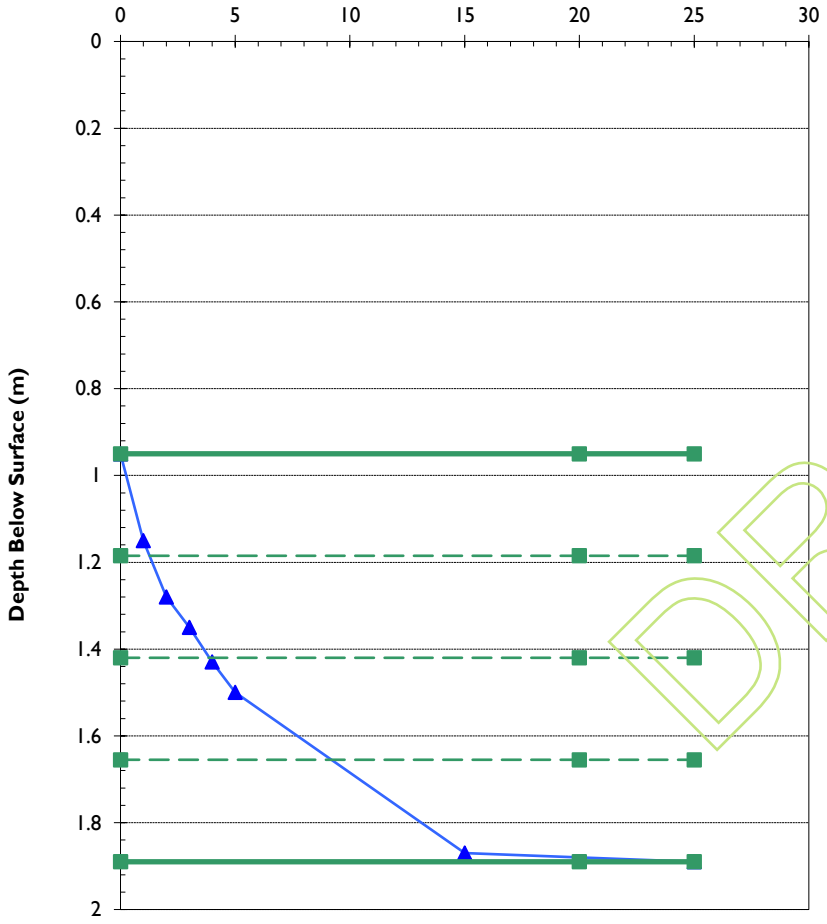
Pit was nearly emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	04/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP304
Test No:	Test No 1



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	1.89
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.95
Max Water Dropdown during Test (m)	0.94
Total Soakage Test Time (min)	25
Mean Internal Discharge Area (m2)	3.008
Discharge Rate (litre/min)	17.766924
Soakage Rate (litre/m2/min)	5.9065572
BRE Soil Infiltration Rate (m/sec)	9.844E-05

Comments:

Pit was emptied at finish of test.

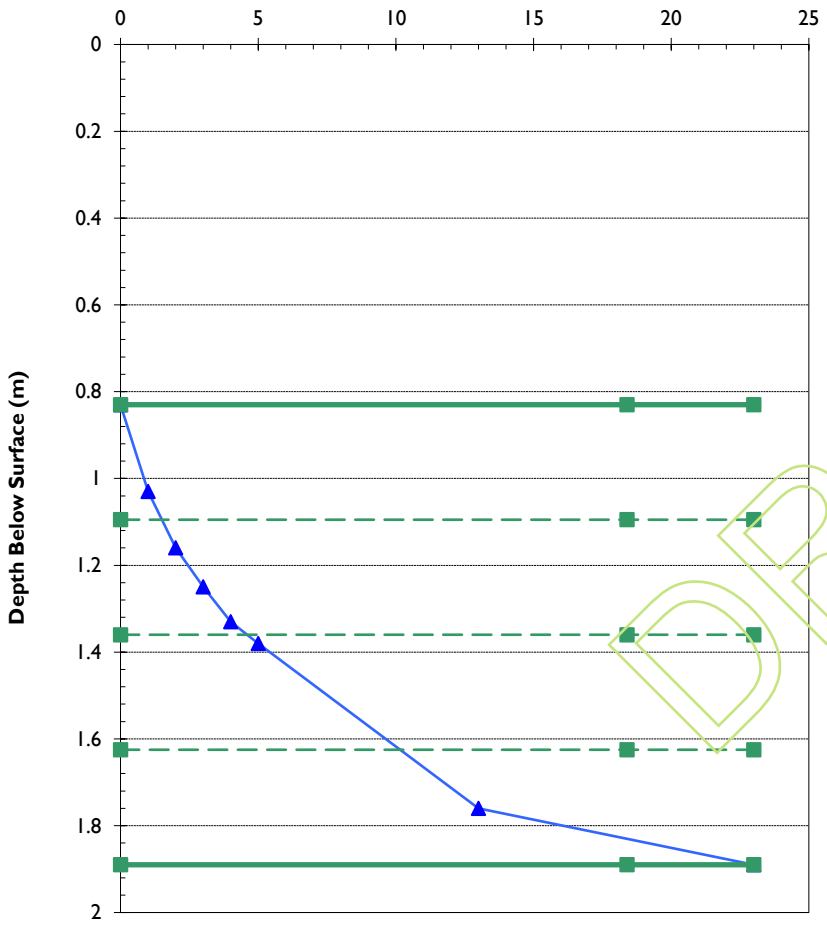
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	04/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP304
Test No:	Test No 2



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	1.89
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.83
Max Water Dropdown during Test (m)	1.06
Total Soakage Test Time (min)	23
Mean Internal Discharge Area (m2)	3.2828
Discharge Rate (litre/min)	18.3274
Soakage Rate (litre/m2/min)	5.5828561
BRE Soil Infiltration Rate (m/sec)	9.305E-05

Comments:

Pit was emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	04/07/19

DRAFT

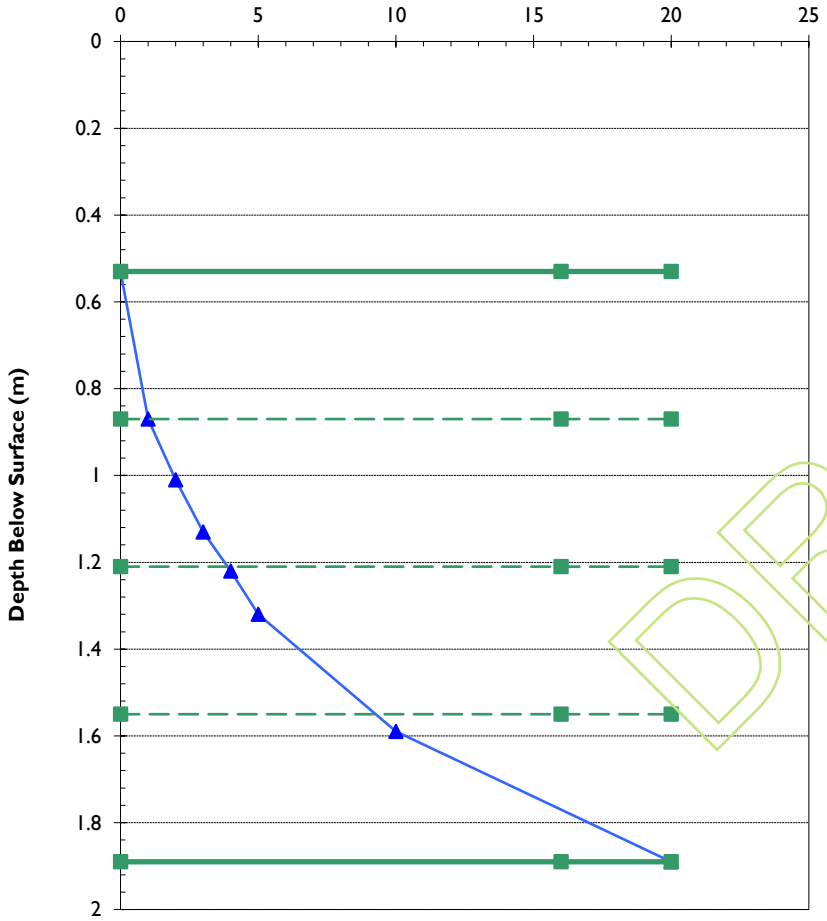
BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP304
Test No:	Test No 3

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Filling to Max Water Depth (min)



Pit Length (m)	1.82
Pit Width (m)	0.47
Depth to Pit Base (m)	1.89
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.53
Max Water Dropdown during Test (m)	1.36
Total Soakage Test Time (min)	20
Mean Internal Discharge Area (m2)	3.9698
Discharge Rate (litre/min)	24.649329
Soakage Rate (litre/m2/min)	6.2092118
BRE Soil Infiltration Rate (m/sec)	0.0001035

Comments:

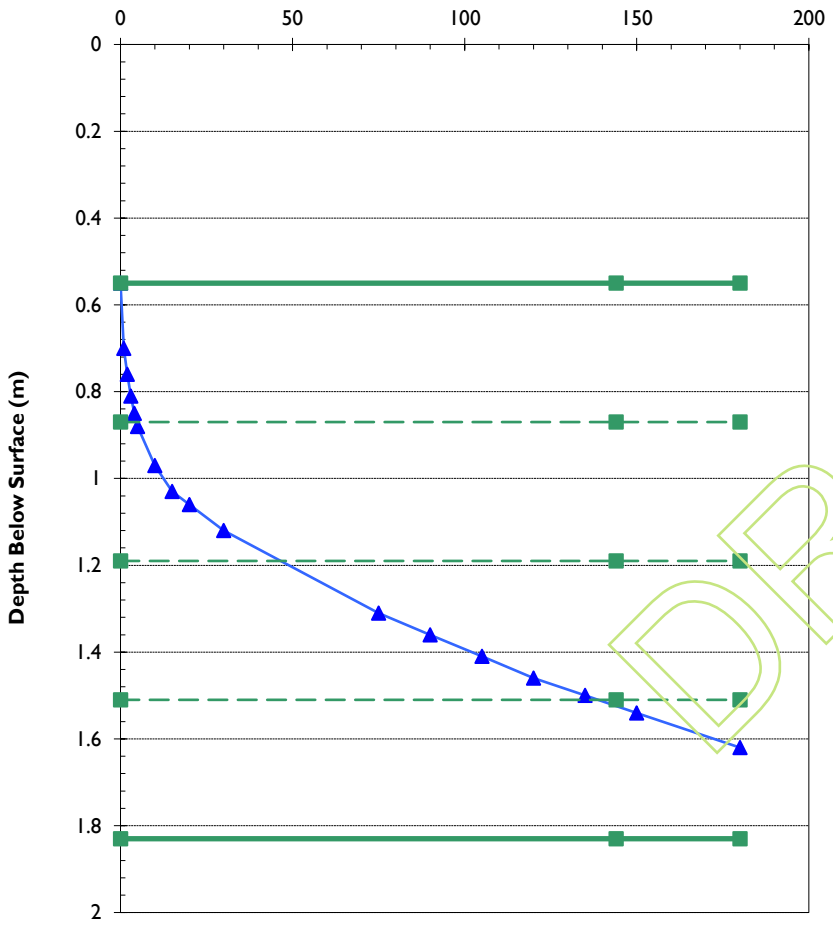
Pit was emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	04/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP305
Test No:	Test No 1



Pit Length (m)	1.66
Pit Width (m)	0.46
Depth to Pit Base (m)	1.83
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.55
Max Water Dropdown during Test (m)	1.07
Total Soakage Test Time (min)	180
Mean Internal Discharge Area (m2)	3.4772
Discharge Rate (litre/min)	1.2756723
Soakage Rate (litre/m2/min)	0.3668677
BRE Soil Infiltration Rate (m/sec)	6.114E-06

Comments:

Pit was nearly emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	01/07/19

DRAFT

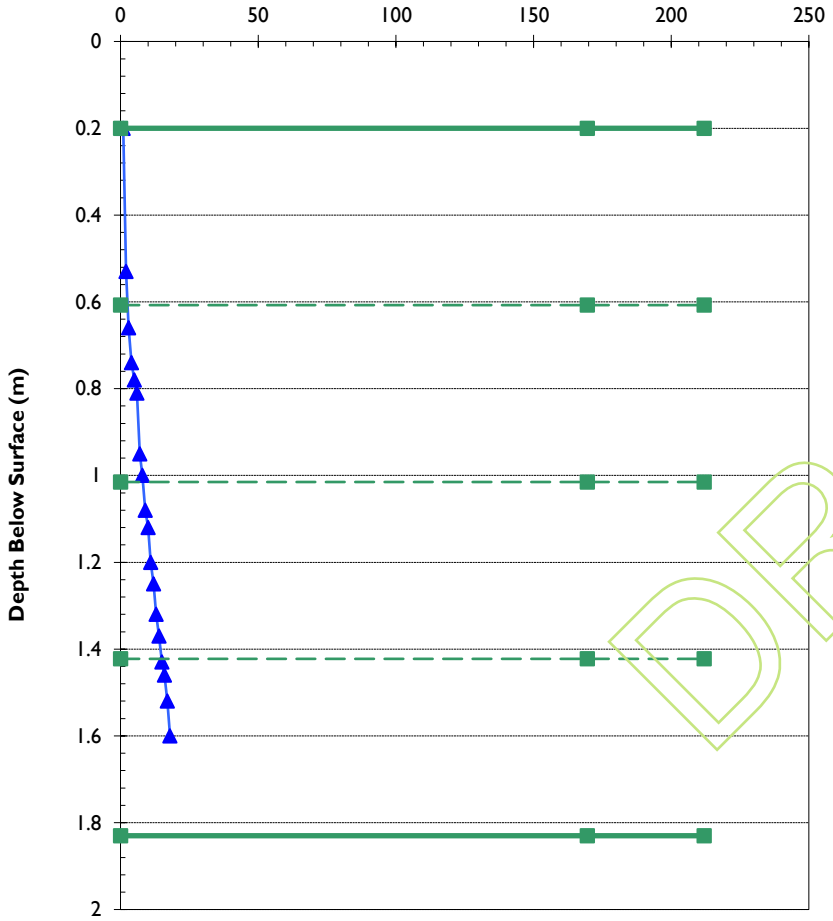
BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP305
Test No:	Test No 2

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Filling to Max Water Depth (min)



Pit Length (m)	1.66
Pit Width (m)	0.46
Depth to Pit Base (m)	1.83
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.2
Max Water Dropdown during Test (m)	1.52
Total Soakage Test Time (min)	212
Mean Internal Discharge Area (m2)	4.2192
Discharge Rate (litre/min)	2.1453696
Soakage Rate (litre/m2/min)	0.5084778
BRE Soil Infiltration Rate (m/sec)	8.475E-06

Comments:

Pit was nearly emptied at finish of test.

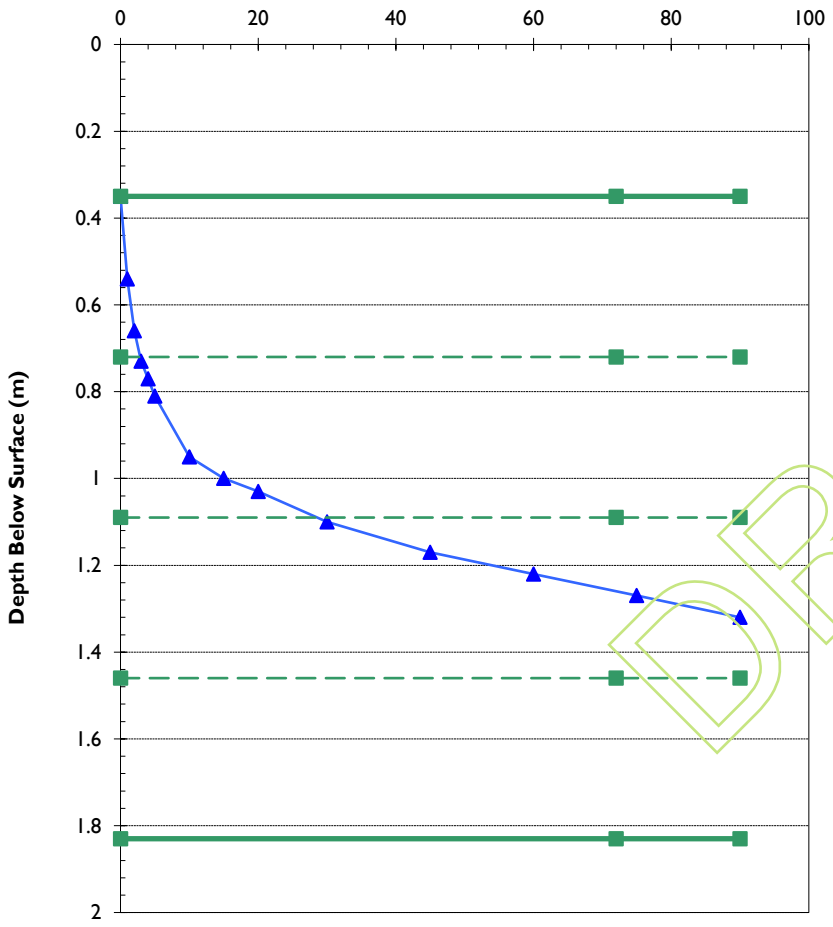
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	02/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP305
Test No:	Test No 3



Pit Length (m)	1.66
Pit Width (m)	0.46
Depth to Pit Base (m)	1.83
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.35
Max Water Dropdown during Test (m)	0.97
Total Soakage Test Time (min)	90
Mean Internal Discharge Area (m2)	4.198
Discharge Rate (litre/min)	1.8401508
Soakage Rate (litre/m2/min)	0.4383399
BRE Soil Infiltration Rate (m/sec)	7.306E-06

Comments:

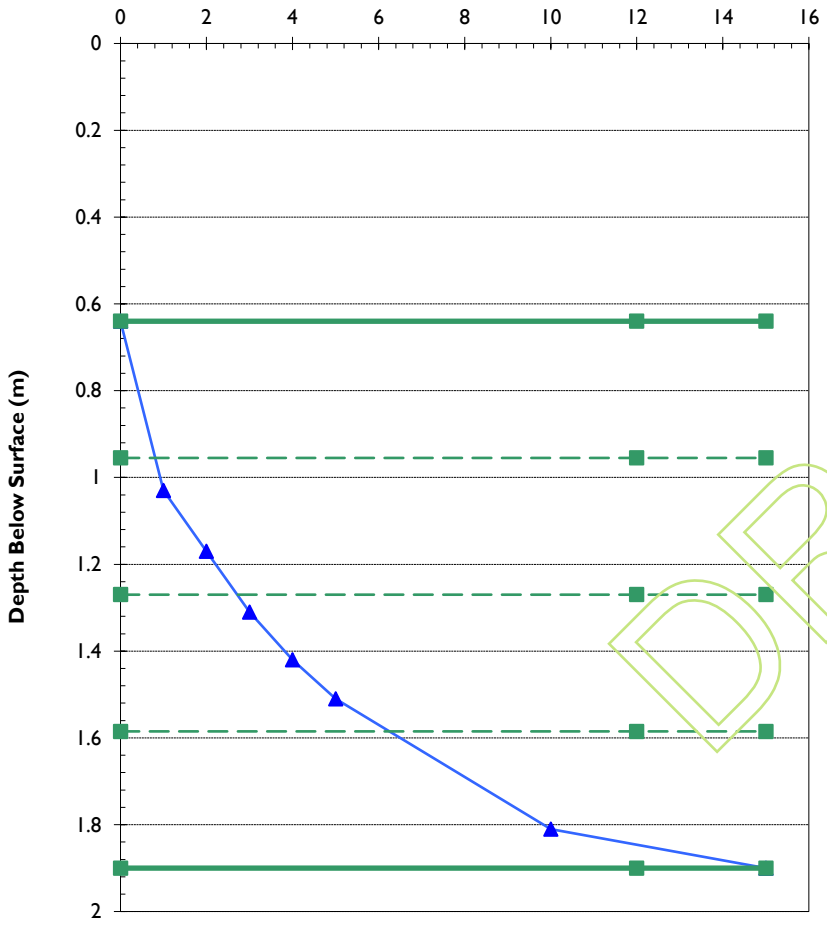
Water level fell to 50% -- 25% max water depth,
Result not compliant with BRE365 requirement

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	02/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP311
Test No:	Test No 1



Pit Length (m)	1.77
Pit Width (m)	0.48
Depth to Pit Base (m)	1.9
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.64
Max Water Dropdown during Test (m)	1.26
Total Soakage Test Time (min)	15
Mean Internal Discharge Area (m2)	3.6846
Discharge Rate (litre/min)	98.349456
Soakage Rate (litre/m2/min)	26.692031
BRE Soil Infiltration Rate (m/sec)	0.0004449

Comments:

Pit was emptied at finish of test.

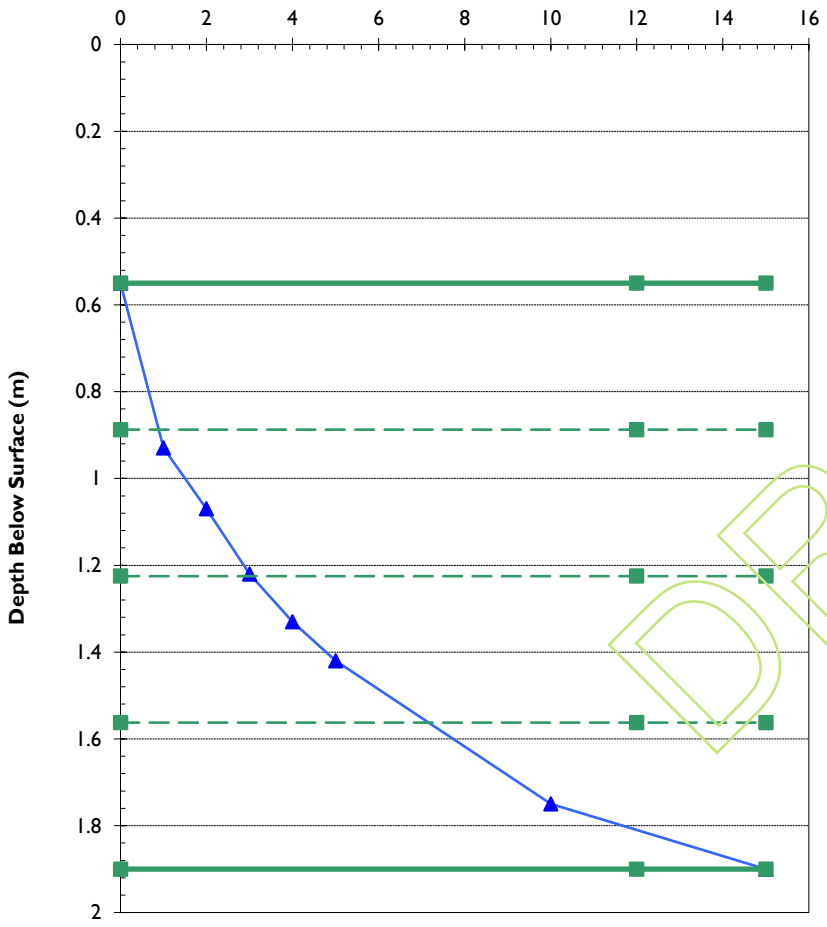
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP311
Test No:	Test No 2



Pit Length (m)	1.77
Pit Width (m)	0.48
Depth to Pit Base (m)	1.9
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.55
Max Water Dropdown during Test (m)	1.35
Total Soakage Test Time (min)	15
Mean Internal Discharge Area (m2)	3.8871
Discharge Rate (litre/min)	91.450506
Soakage Rate (litre/m2/min)	23.526667
BRE Soil Infiltration Rate (m/sec)	0.0003921

Comments:

Pit was emptied at finish of test.

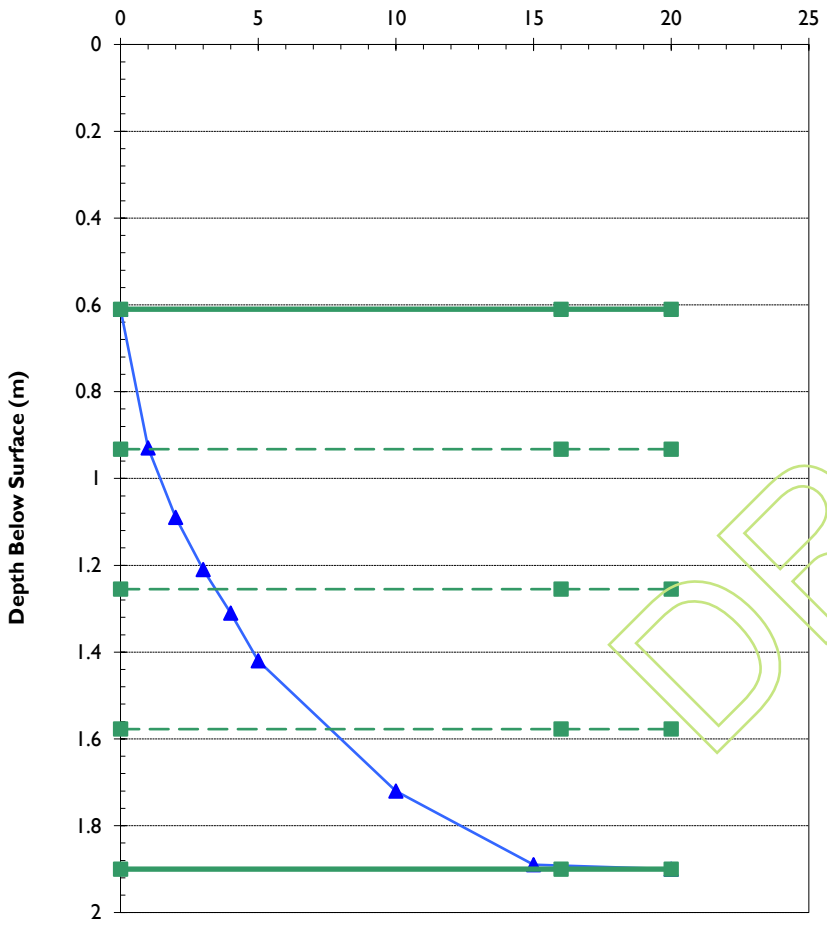
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP311
Test No:	Test No 3



Pit Length (m)	1.77
Pit Width (m)	0.48
Depth to Pit Base (m)	1.9
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.61
Max Water Dropdown during Test (m)	1.29
Total Soakage Test Time (min)	20
Mean Internal Discharge Area (m2)	3.7521
Discharge Rate (litre/min)	82.911319
Soakage Rate (litre/m2/min)	22.097311
BRE Soil Infiltration Rate (m/sec)	0.0003683

Comments:

Pit was emptied at finish of test.

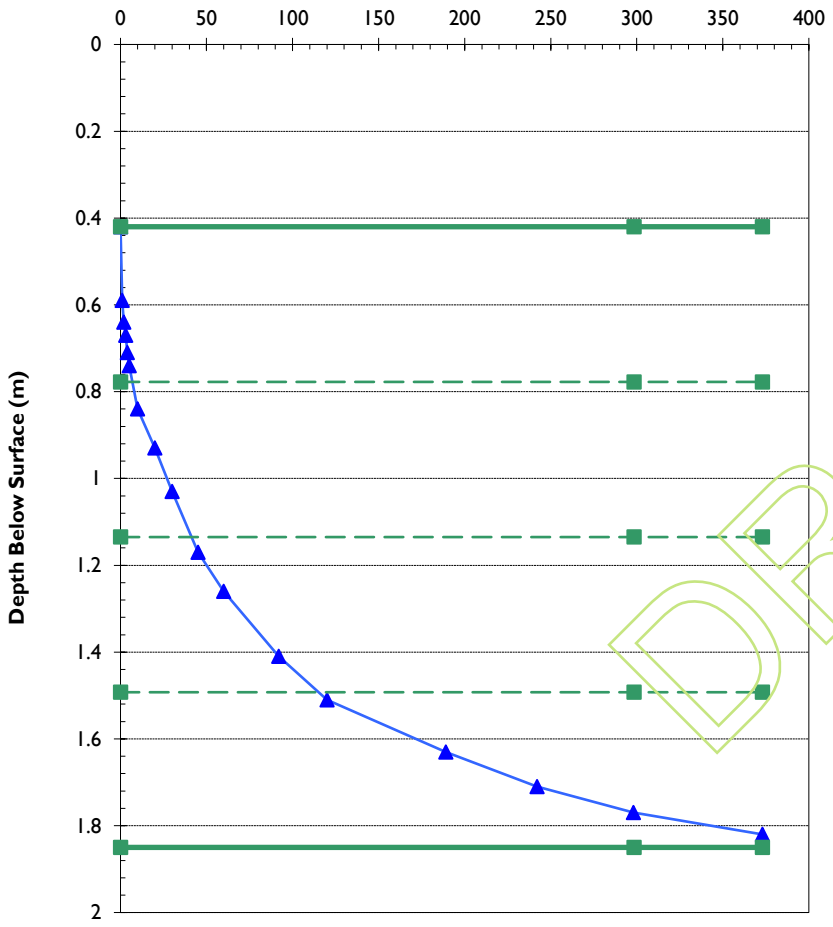
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP319
Test No:	Test No 1

ıitial)



Pit Length (m)	1.65
Pit Width (m)	0.48
Depth to Pit Base (m)	1.85
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.42
Max Water Dropdown during Test (m)	1.4
Total Soakage Test Time (min)	373
Mean Internal Discharge Area (m2)	3.8379
Discharge Rate (litre/min)	5.2324324
Soakage Rate (litre/m2/min)	1.3633582
BRE Soil Infiltration Rate (m/sec)	2.272E-05

Comments:

Pit was nearly emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

DRAFT

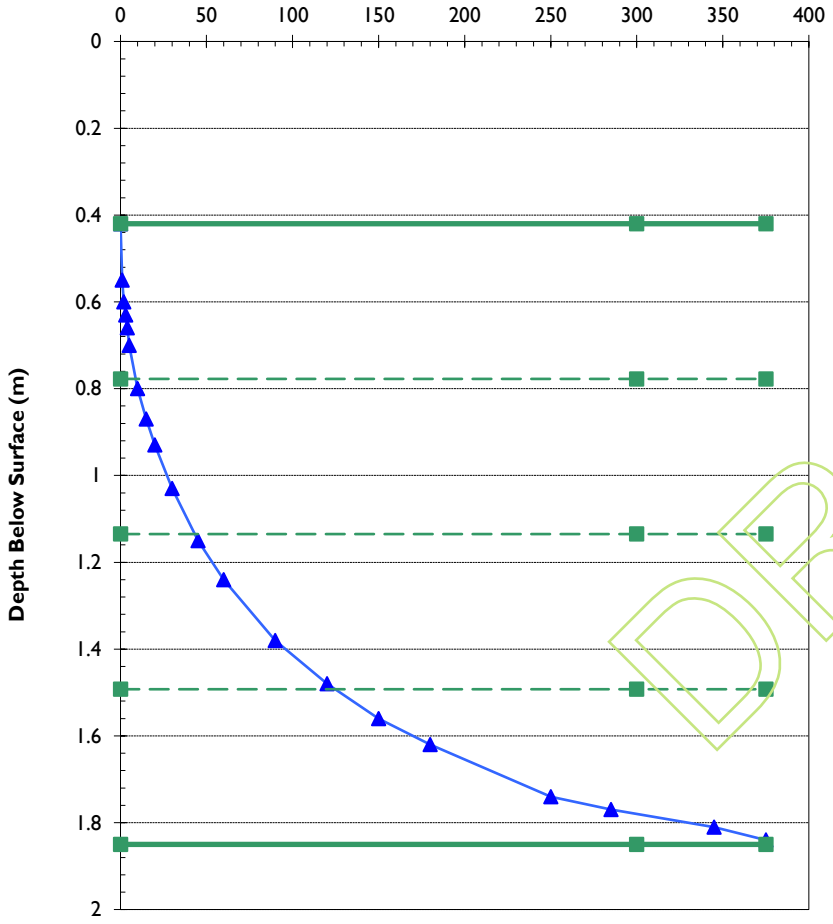
BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP319
Test No:	Test No 2

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.65
Pit Width (m)	0.48
Depth to Pit Base (m)	1.85
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.42
Max Water Dropdown during Test (m)	1.42
Total Soakage Test Time (min)	375
Mean Internal Discharge Area (m2)	3.8379
Discharge Rate (litre/min)	4.8896276
Soakage Rate (litre/m2/min)	1.2740373
BRE Soil Infiltration Rate (m/sec)	2.123E-05

Comments:

Pit was nearly emptied at finish of test.

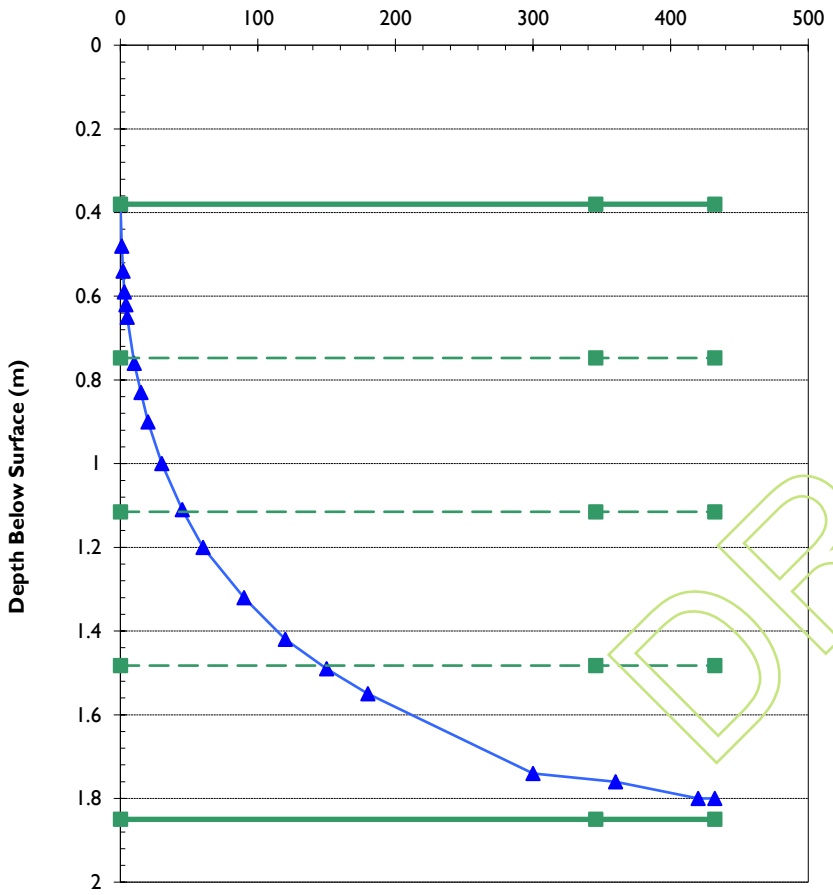
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	08/07/19

DRAFT

BRE Digest 365 - Soakage Test

(epeated)

Test Hole No:	TP319
Test No:	Test No 3



Pit Length (m)	1.65
Pit Width (m)	0.48
Depth to Pit Base (m)	1.85
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.38
Max Water Dropdown during Test (m)	1.42
Total Soakage Test Time (min)	432
Mean Internal Discharge Area (m2)	3.9231
Discharge Rate (litre/min)	4.2381033
Soakage Rate (litre/m2/min)	1.0802945
BRE Soil Infiltration Rate (m/sec)	1.8E-05

Comments:

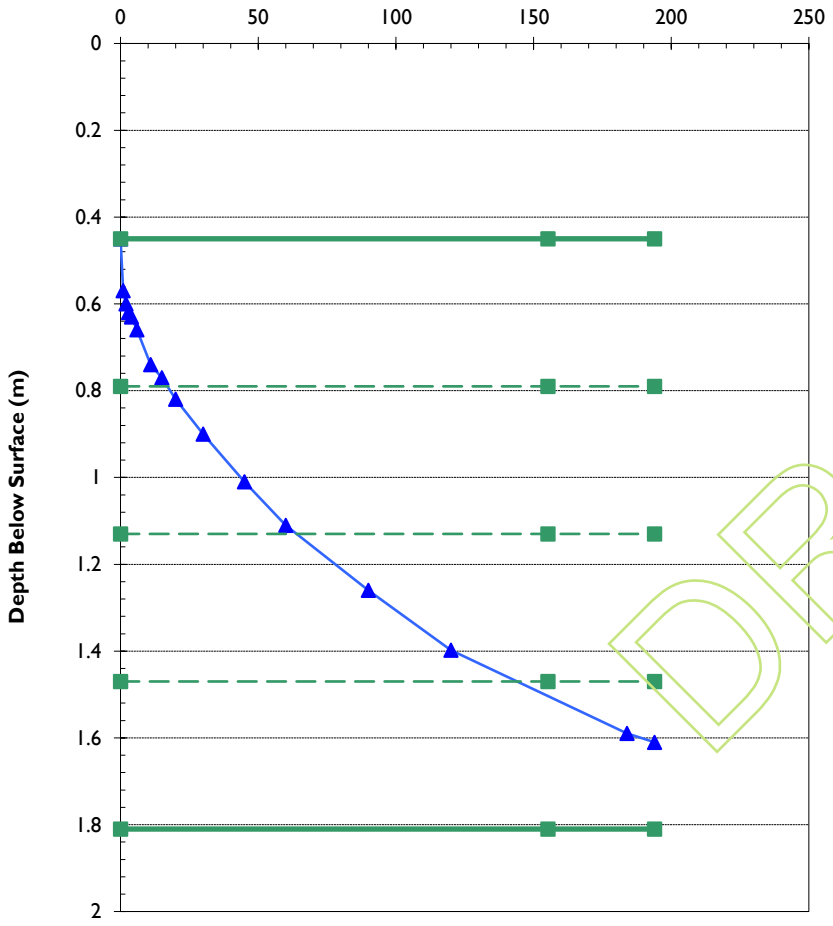
Pit was nearly emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	09/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP323
Test No:	Test No 1



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.81
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.45
Max Water Dropdown during Test (m)	1.16
Total Soakage Test Time (min)	194
Mean Internal Discharge Area (m2)	3.8234
Discharge Rate (litre/min)	4.3787717
Soakage Rate (litre/m2/min)	1.145256
BRE Soil Infiltration Rate (m/sec)	1.909E-05

Comments:

Pit was nearly emptied at finish of test.

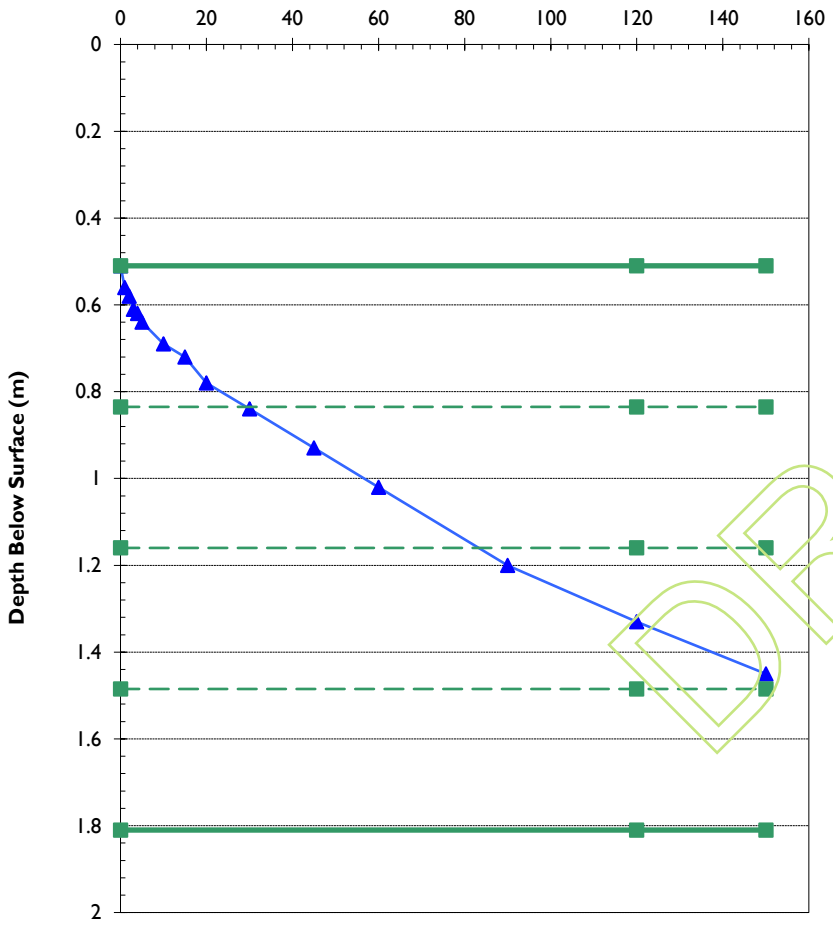
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	08/07/19

DRAFT

BRE Digest 365 - Soakage Test

(repeated)

Test Hole No:	TP323
Test No:	Test No 2



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.81
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.51
Max Water Dropdown during Test (m)	0.94
Total Soakage Test Time (min)	150
Mean Internal Discharge Area (m2)	3.76815
Discharge Rate (litre/min)	4.16232
Soakage Rate (litre/m2/min)	1.1046057
BRE Soil Infiltration Rate (m/sec)	1.841E-05

Comments:

Water level fell to 50% -- 25% max water depth,
Result not compliant with BRE365 requirement

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	08/07/19

DRAFT

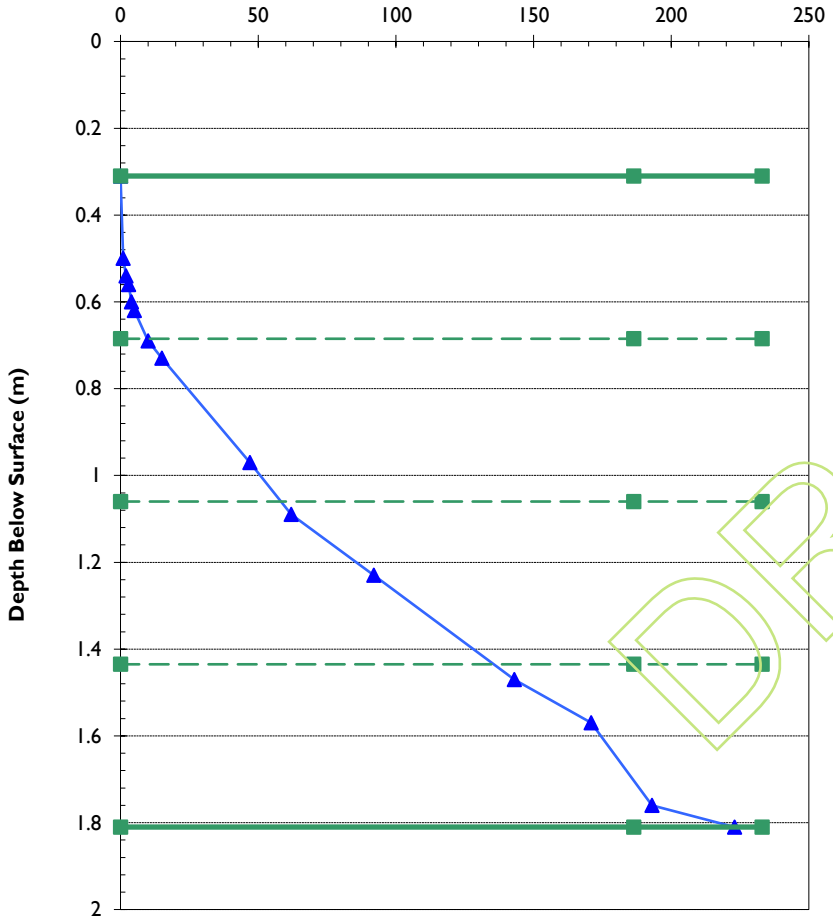
BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP323
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.74
Pit Width (m)	0.47
Depth to Pit Base (m)	1.81
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	100%

Depth of Water at Start of Test (m)	0.31
Max Water Dropdown during Test (m)	1.5
Total Soakage Test Time (min)	233
Mean Internal Discharge Area (m2)	4.1328
Discharge Rate (litre/min)	4.8709636
Soakage Rate (litre/m2/min)	1.178611
BRE Soil Infiltration Rate (m/sec)	1.964E-05

Comments:

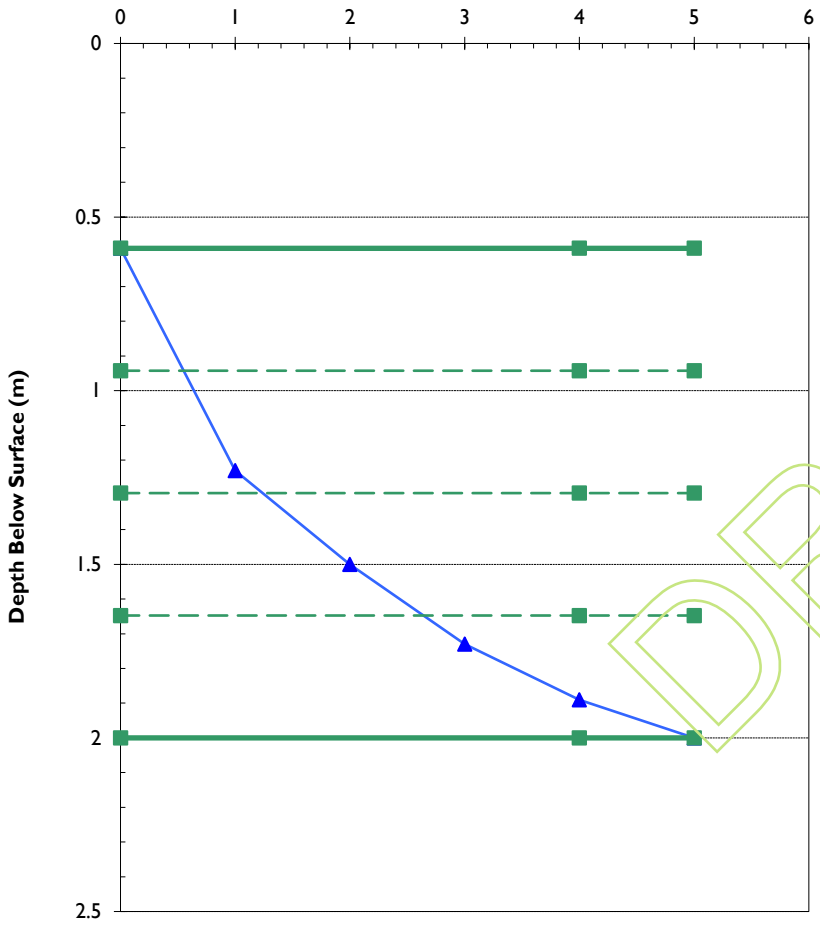
Pit was emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	09/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP401
Test No:	Test No 1



Pit Length (m)	2.15
Pit Width (m)	0.53
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.59
Max Water Dropdown during Test (m)	1.41
Total Soakage Test Time (min)	5
Mean Internal Discharge Area (m2)	4.9183
Discharge Rate (litre/min)	134.49821
Soakage Rate (litre/m2/min)	27.346485
BRE Soil Infiltration Rate (m/sec)	0.0004558

Comments:

Pit was emptied at finish of test.

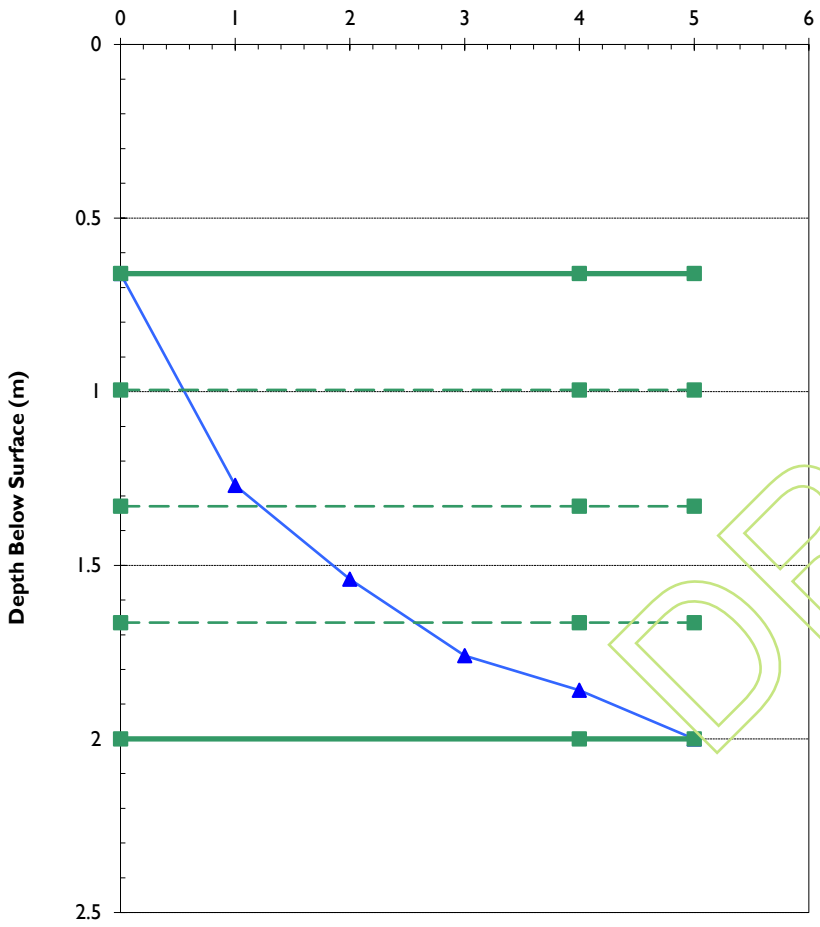
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	01/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP401
Test No:	Test No 2



Pit Length (m)	2.15
Pit Width (m)	0.53
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.66
Max Water Dropdown during Test (m)	1.34
Total Soakage Test Time (min)	5
Mean Internal Discharge Area (m2)	4.7307
Discharge Rate (litre/min)	132.34896
Soakage Rate (litre/m2/min)	27.976613
BRE Soil Infiltration Rate (m/sec)	0.0004663

Comments:

Pit was emptied at finish of test.

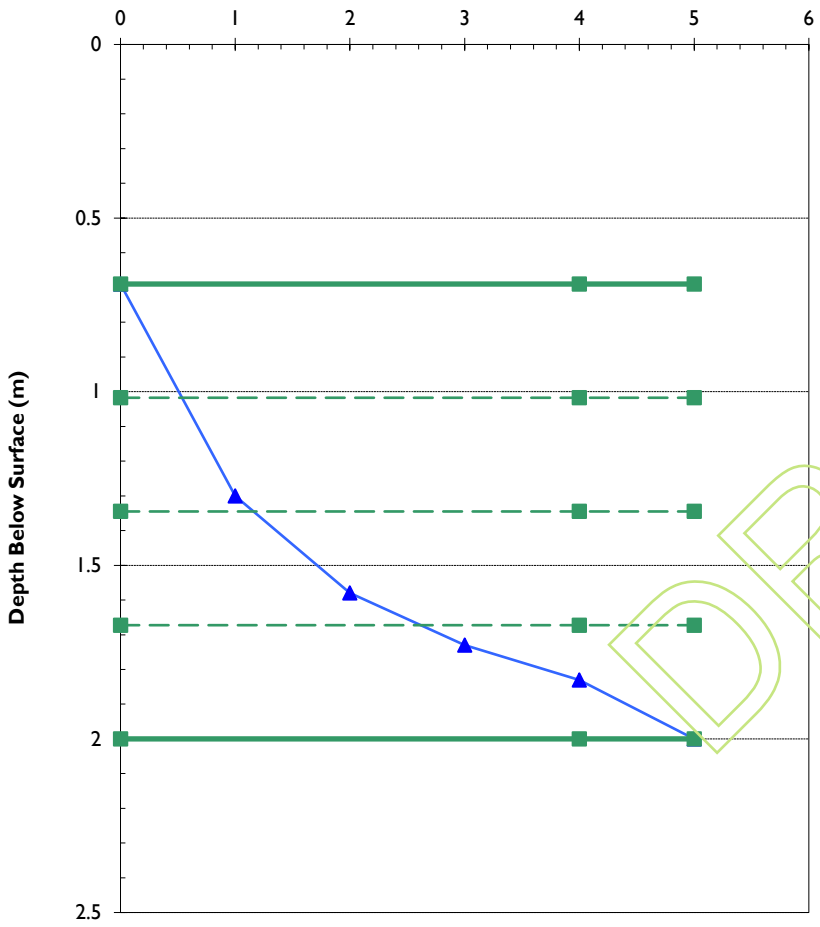
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	01/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP401
Test No:	Test No 3



Pit Length (m)	2.15
Pit Width (m)	0.53
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.69
Max Water Dropdown during Test (m)	1.31
Total Soakage Test Time (min)	5
Mean Internal Discharge Area (m2)	4.6503
Discharge Rate (litre/min)	125.60473
Soakage Rate (litre/m2/min)	27.010026
BRE Soil Infiltration Rate (m/sec)	0.0004502

Comments:

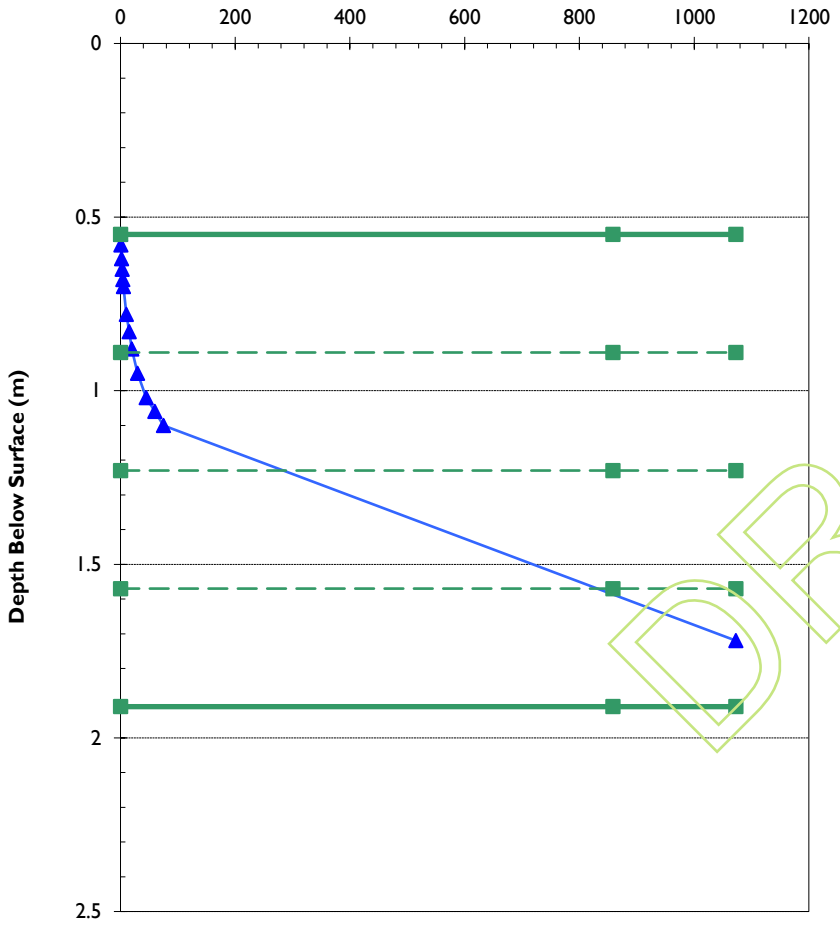
Pit was emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	01/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP402
Test No:	Test No 1



Pit Length (m)	1.9
Pit Width (m)	0.55
Depth to Pit Base (m)	1.91
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.55
Max Water Dropdown during Test (m)	1.17
Total Soakage Test Time (min)	1073
Mean Internal Discharge Area (m2)	4.377
Discharge Rate (litre/min)	0.307004
Soakage Rate (litre/m2/min)	0.0701403
BRE Soil Infiltration Rate (m/sec)	1.169E-06

Comments:

Pit was nearly emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	01/07/19

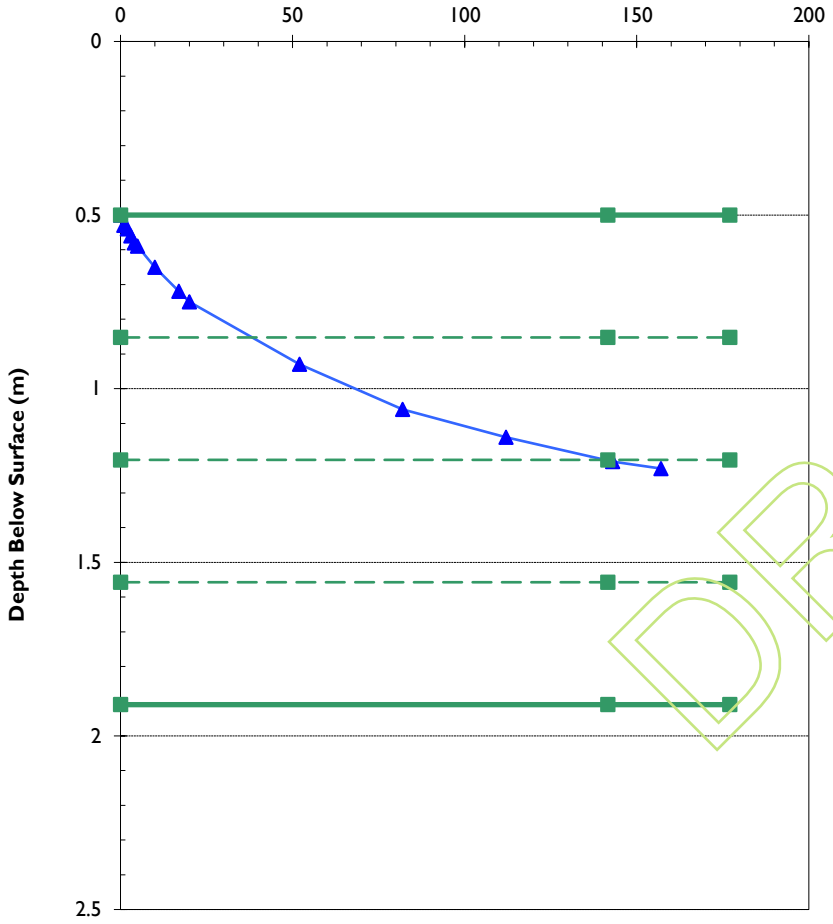
DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP402
Test No:	Test No 2

Filling to Max Water Depth (min)



Pit Length (m)	1.9
Pit Width (m)	0.55
Depth to Pit Base (m)	1.91
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	0.73
Total Soakage Test Time (min)	177
Mean Internal Discharge Area (m2)	5.301875
Discharge Rate (litre/min)	1.0838514
Soakage Rate (litre/m2/min)	0.2044279
BRE Soil Infiltration Rate (m/sec)	3.407E-06

Comments:

Water level fell to 50% -- 25% max water depth,
Result not compliant with BRE365 requirement

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	01/07/19

DRAFT

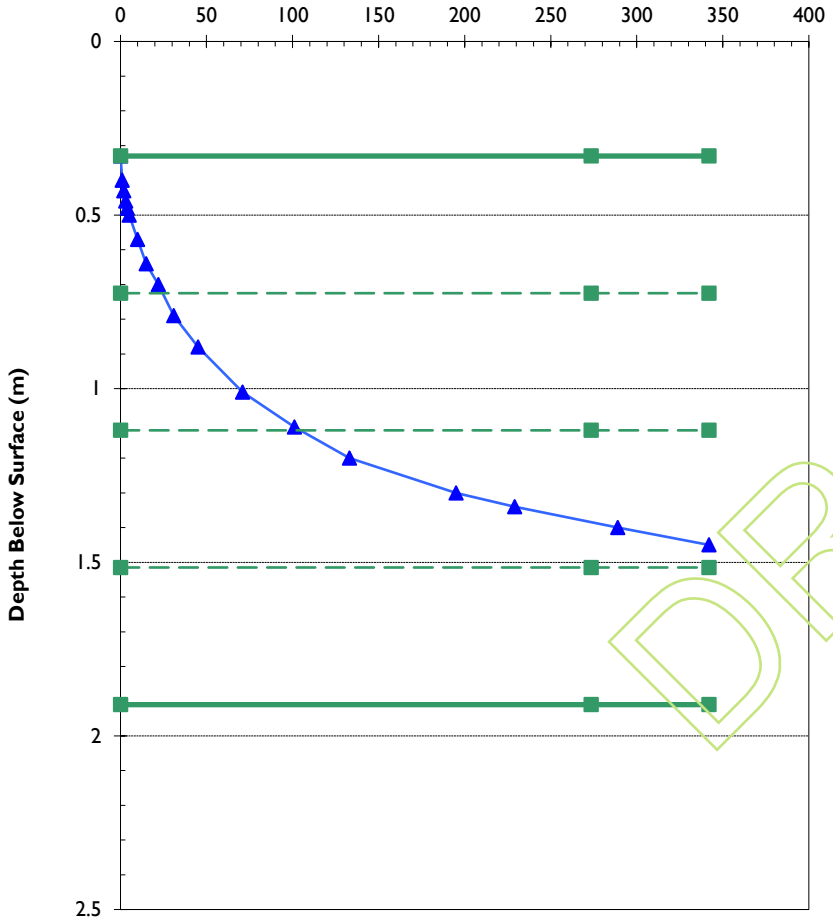
BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP402
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.9
Pit Width (m)	0.55
Depth to Pit Base (m)	1.91
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.33
Max Water Dropdown during Test (m)	1.12
Total Soakage Test Time (min)	342
Mean Internal Discharge Area (m2)	5.07525
Discharge Rate (litre/min)	0.8351772
Soakage Rate (litre/m2/min)	0.1645588
BRE Soil Infiltration Rate (m/sec)	2.743E-06

Comments:

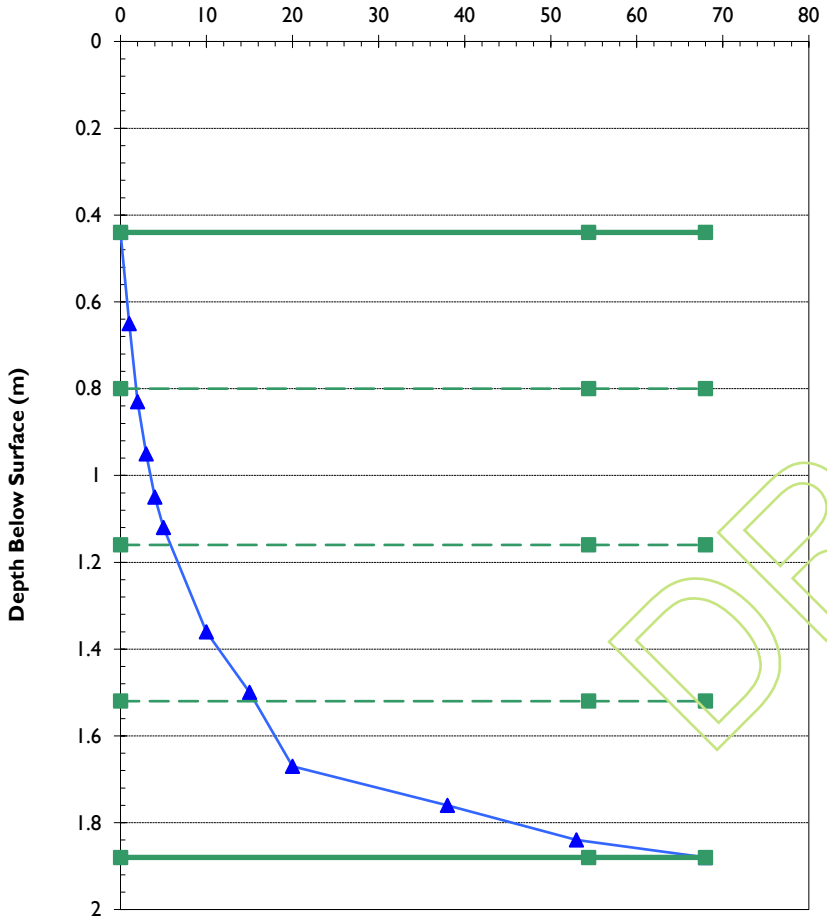
Water level fell to 50% -- 25% max water depth,
Result not compliant with BRE365 requirement

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	04/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP403
Test No:	Test No 1



Pit Length (m)	1.9
Pit Width (m)	0.34
Depth to Pit Base (m)	1.88
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.44
Max Water Dropdown during Test (m)	1.44
Total Soakage Test Time (min)	68
Mean Internal Discharge Area (m2)	3.8716
Discharge Rate (litre/min)	11.835199
Soakage Rate (litre/m2/min)	3.0569271
BRE Soil Infiltration Rate (m/sec)	5.095E-05

Comments:

Pit was emptied at finish of test.

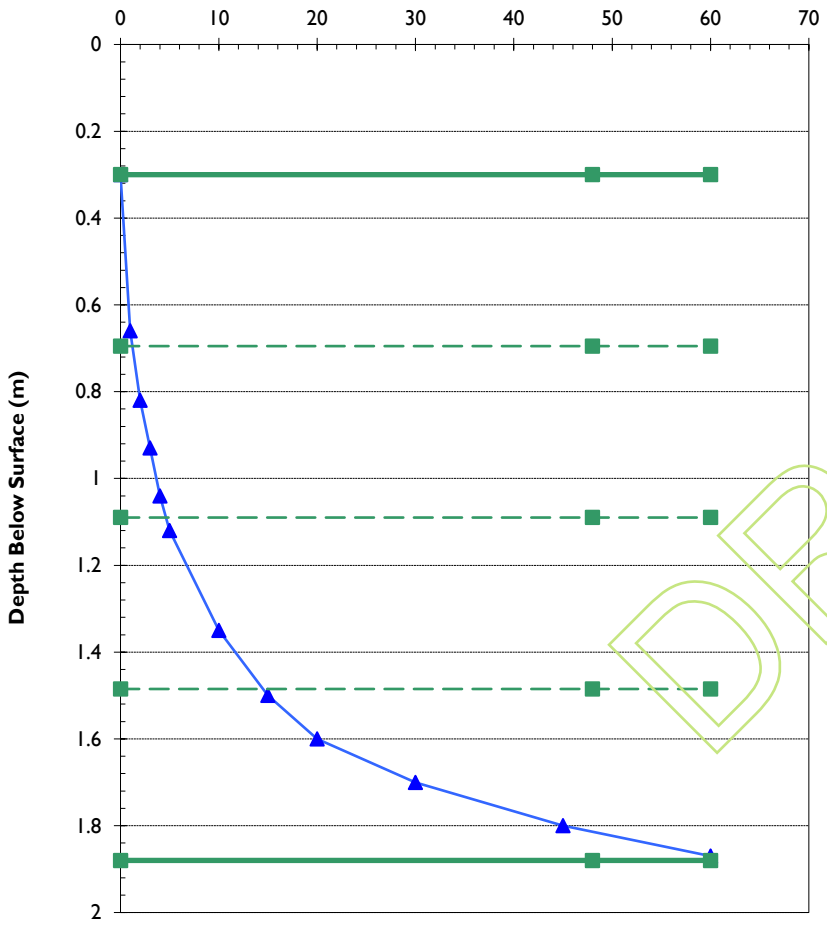
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	02/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP403
Test No:	Test No 2



Pit Length (m)	1.9
Pit Width (m)	0.34
Depth to Pit Base (m)	1.88
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.3
Max Water Dropdown during Test (m)	1.57
Total Soakage Test Time (min)	60
Mean Internal Discharge Area (m2)	4.1852
Discharge Rate (litre/min)	13.44896
Soakage Rate (litre/m2/min)	3.2134569
BRE Soil Infiltration Rate (m/sec)	5.356E-05

Comments:

Pit was nearly emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	02/07/19

DRAFT

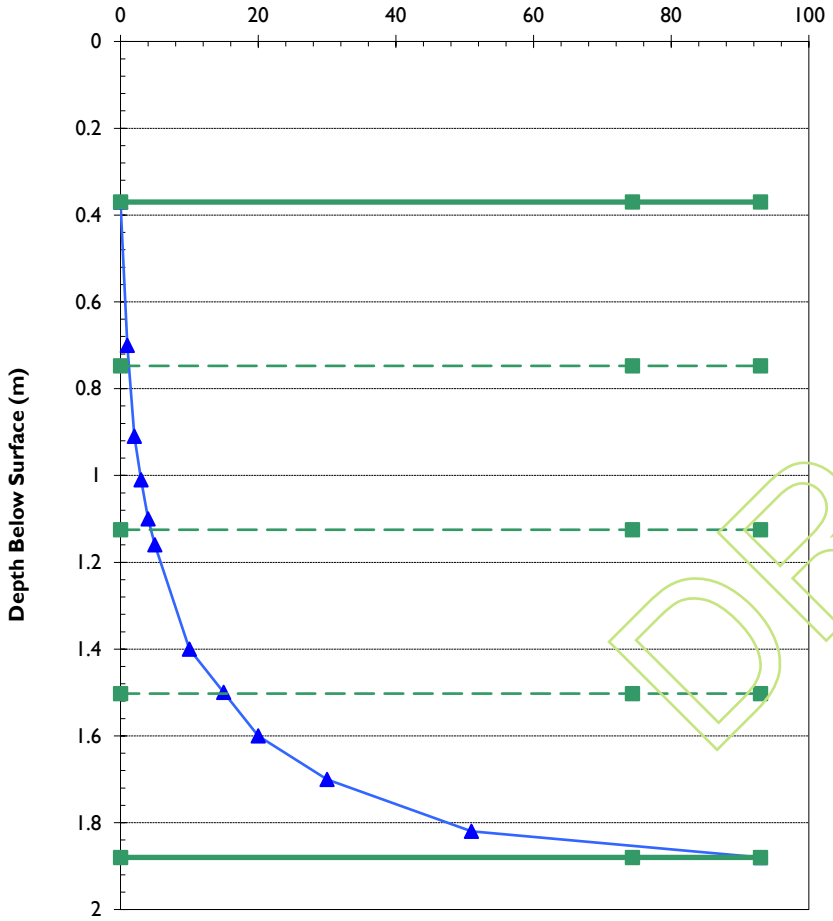
BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP403
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.9
Pit Width (m)	0.34
Depth to Pit Base (m)	1.88
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.37
Max Water Dropdown during Test (m)	1.51
Total Soakage Test Time (min)	93
Mean Internal Discharge Area (m2)	4.0284
Discharge Rate (litre/min)	12.282023
Soakage Rate (litre/m2/min)	3.0488589
BRE Soil Infiltration Rate (m/sec)	5.081E-05

Comments:

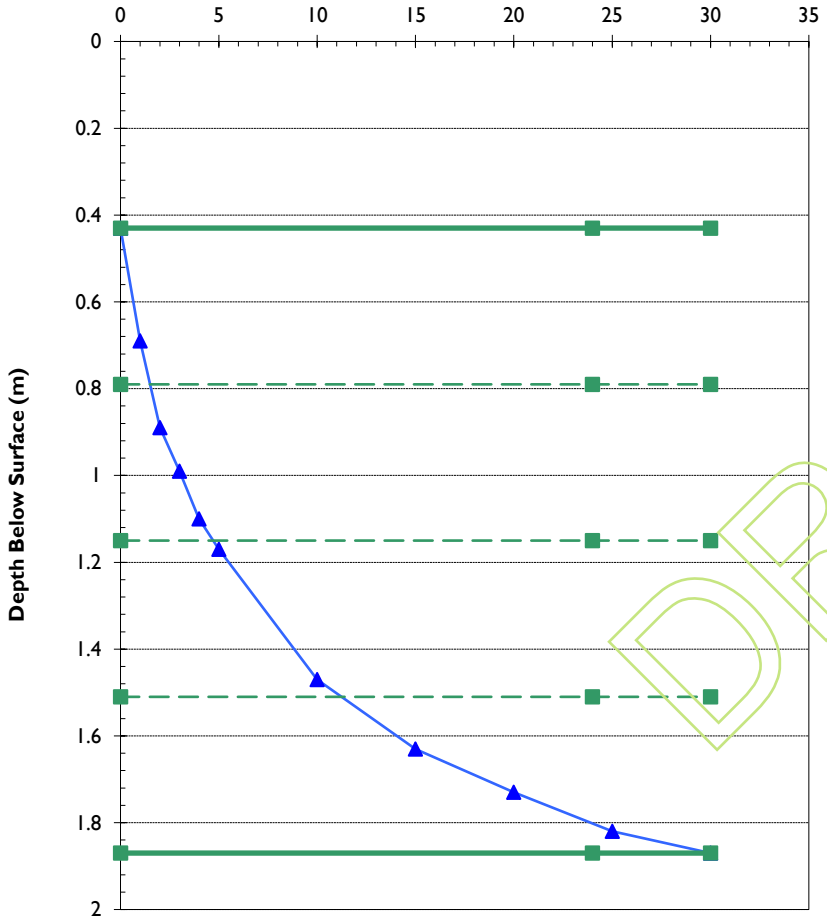
Pit was emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	02/07/19

DRAFT

BRE Digest 365 - Soakage Test

Test Hole No:	TP404
Test No:	Test No 1



Pit Length (m)	2.2
Pit Width (m)	0.55
Depth to Pit Base (m)	1.87
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.43
Max Water Dropdown during Test (m)	1.44
Total Soakage Test Time (min)	30
Mean Internal Discharge Area (m2)	5.17
Discharge Rate (litre/min)	31.273846
Soakage Rate (litre/m2/min)	6.0490998
BRE Soil Infiltration Rate (m/sec)	0.0001008

Comments:

Pit was emptied at finish of test.

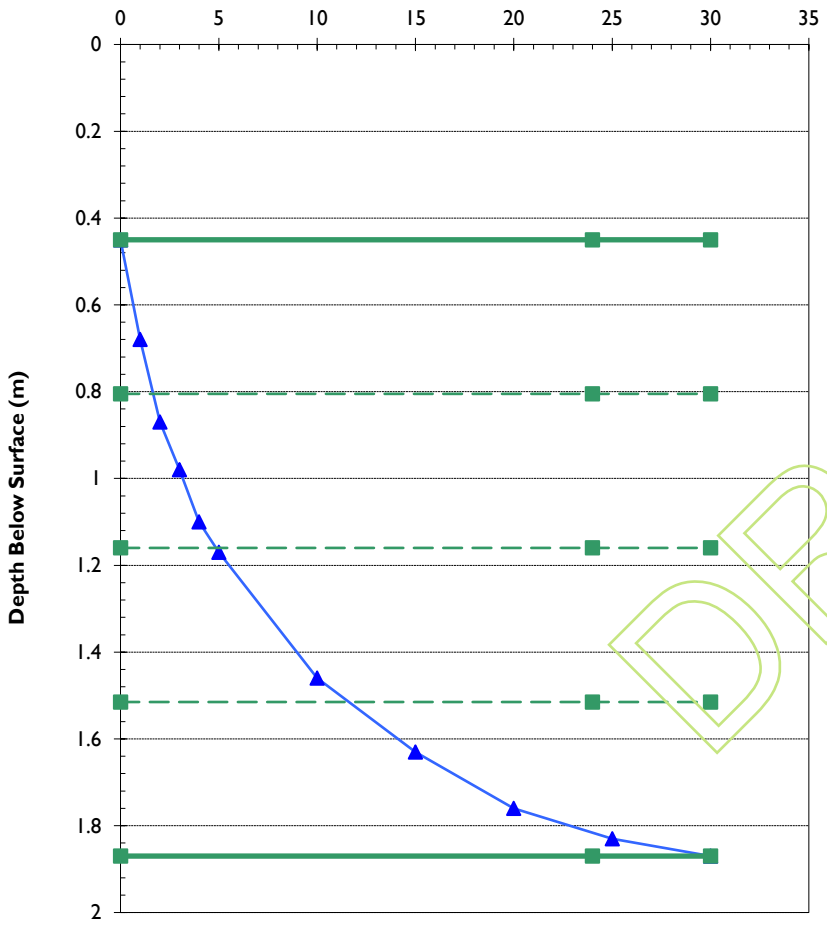
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP404
Test No:	Test No 2



Pit Length (m)	2.2
Pit Width (m)	0.55
Depth to Pit Base (m)	1.87
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.45
Max Water Dropdown during Test (m)	1.42
Total Soakage Test Time (min)	30
Mean Internal Discharge Area (m2)	5.115
Discharge Rate (litre/min)	30.190008
Soakage Rate (litre/m2/min)	5.9022498
BRE Soil Infiltration Rate (m/sec)	9.837E-05

Comments:

Pit was emptied at finish of test.

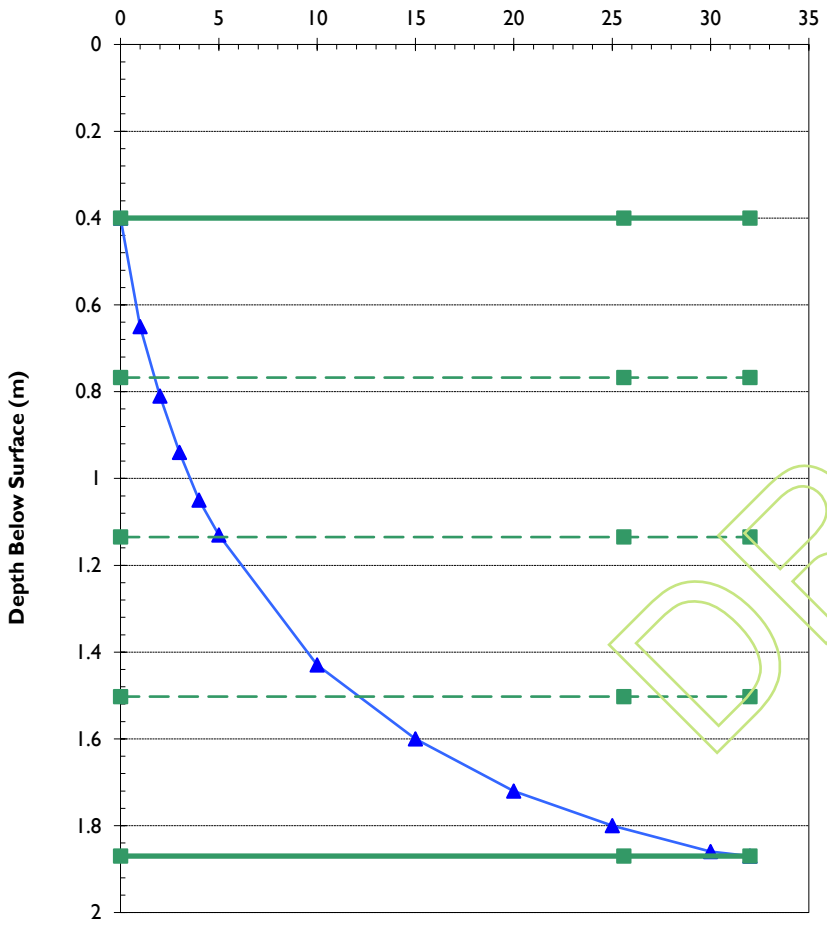
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

DRAFT

BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP404
Test No:	Test No 3



Pit Length (m)	2.2
Pit Width (m)	0.55
Depth to Pit Base (m)	1.87
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.4
Max Water Dropdown during Test (m)	1.47
Total Soakage Test Time (min)	32
Mean Internal Discharge Area (m2)	5.2525
Discharge Rate (litre/min)	29.935868
Soakage Rate (litre/m2/min)	5.6993562
BRE Soil Infiltration Rate (m/sec)	9.499E-05

Comments:

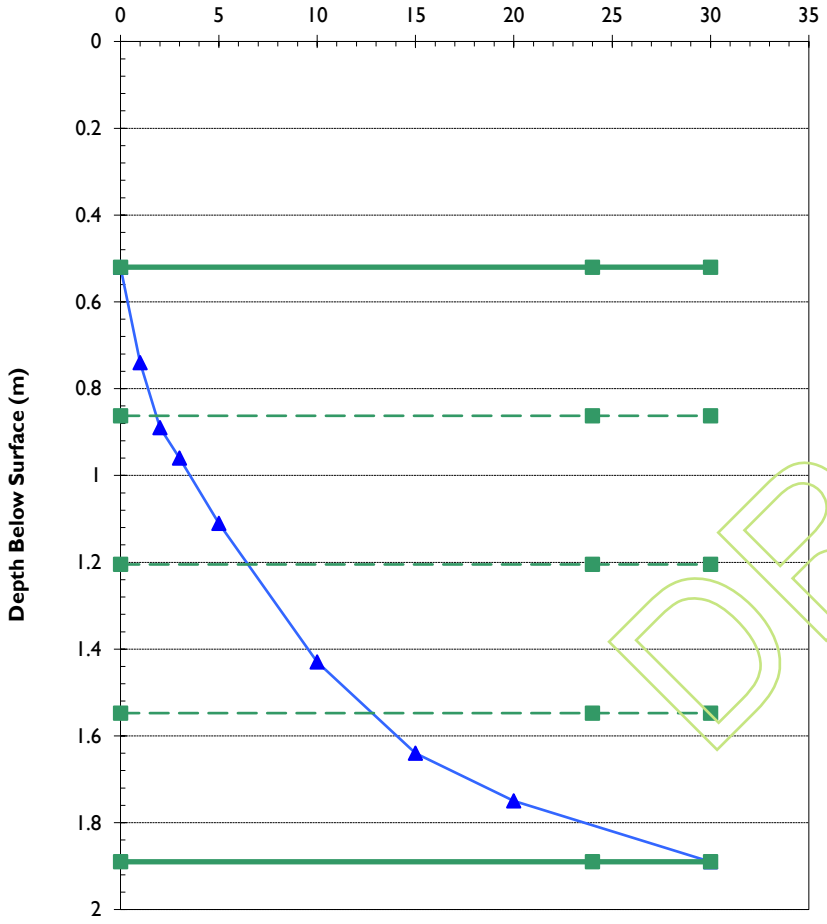
Pit was emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

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BRE Digest 365 - Soakage Test

Test Hole No:	TP405
Test No:	Test No 1



Pit Length (m)	1.9
Pit Width (m)	0.32
Depth to Pit Base (m)	1.89
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.52
Max Water Dropdown during Test (m)	1.37
Total Soakage Test Time (min)	30
Mean Internal Discharge Area (m2)	3.6494
Discharge Rate (litre/min)	13.274623
Soakage Rate (litre/m2/min)	3.6374809
BRE Soil Infiltration Rate (m/sec)	6.062E-05

Comments:

Pit was emptied at finish of test.

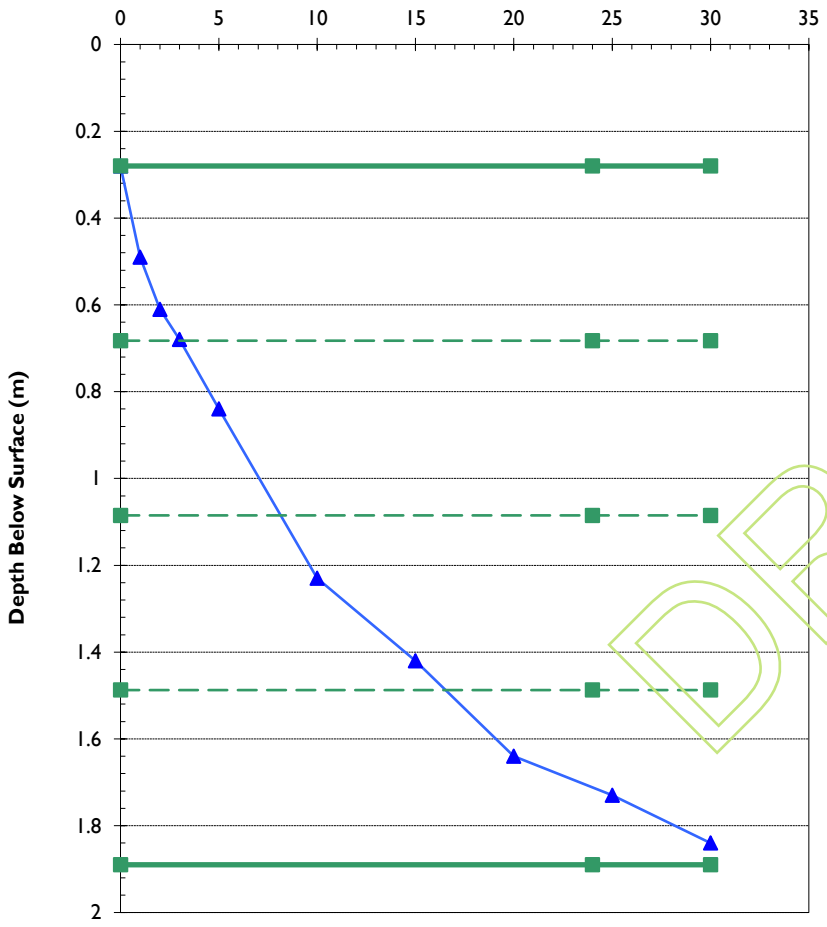
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

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BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP405
Test No:	Test No 2



Pit Length (m)	1.9
Pit Width (m)	0.32
Depth to Pit Base (m)	1.89
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.28
Max Water Dropdown during Test (m)	1.56
Total Soakage Test Time (min)	30
Mean Internal Discharge Area (m2)	4.1822
Discharge Rate (litre/min)	12.686515
Soakage Rate (litre/m2/min)	3.033455
BRE Soil Infiltration Rate (m/sec)	5.056E-05

Comments:

Pit was nearly emptied at finish of test.

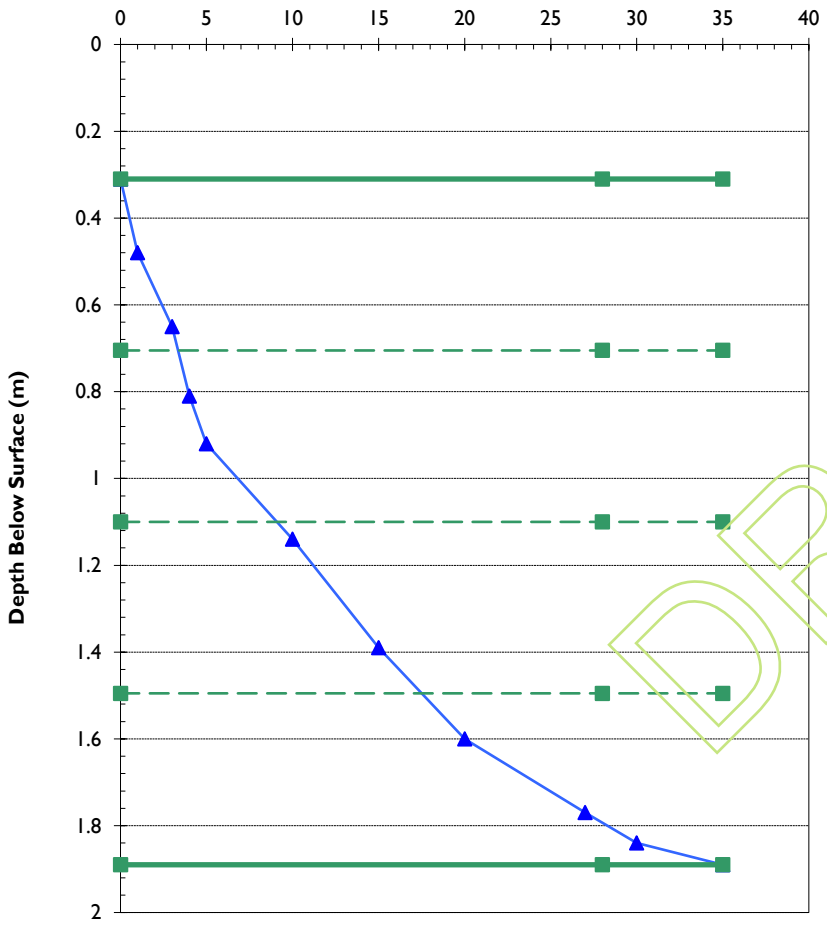
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

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BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP405
Test No:	Test No 3



Pit Length (m)	1.9
Pit Width (m)	0.32
Depth to Pit Base (m)	1.89
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.31
Max Water Dropdown during Test (m)	1.58
Total Soakage Test Time (min)	35
Mean Internal Discharge Area (m2)	4.1156
Discharge Rate (litre/min)	11.875461
Soakage Rate (litre/m2/min)	2.8854751
BRE Soil Infiltration Rate (m/sec)	4.809E-05

Comments:

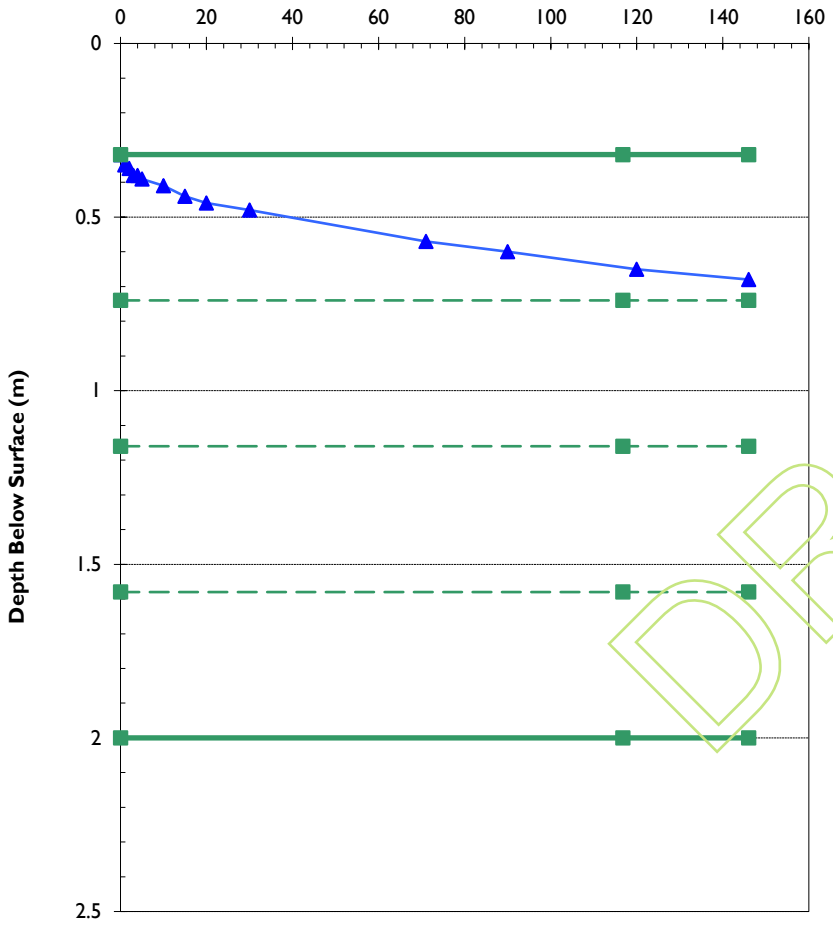
Pit was emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

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BRE Digest 365 - Soakage Test

Test Hole No:	TP406
Test No:	Test No 1



Pit Length (m)	1.8
Pit Width (m)	0.53
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.32
Max Water Dropdown during Test (m)	0.36
Total Soakage Test Time (min)	146
Mean Internal Discharge Area (m2)	7.3149
Discharge Rate (litre/min)	0.4821016
Soakage Rate (litre/m2/min)	0.0659068
BRE Soil Infiltration Rate (m/sec)	1.098E-06

Comments:

Water level did not fall to 75% max water depth,
Result not compliant with BRE365 requirement

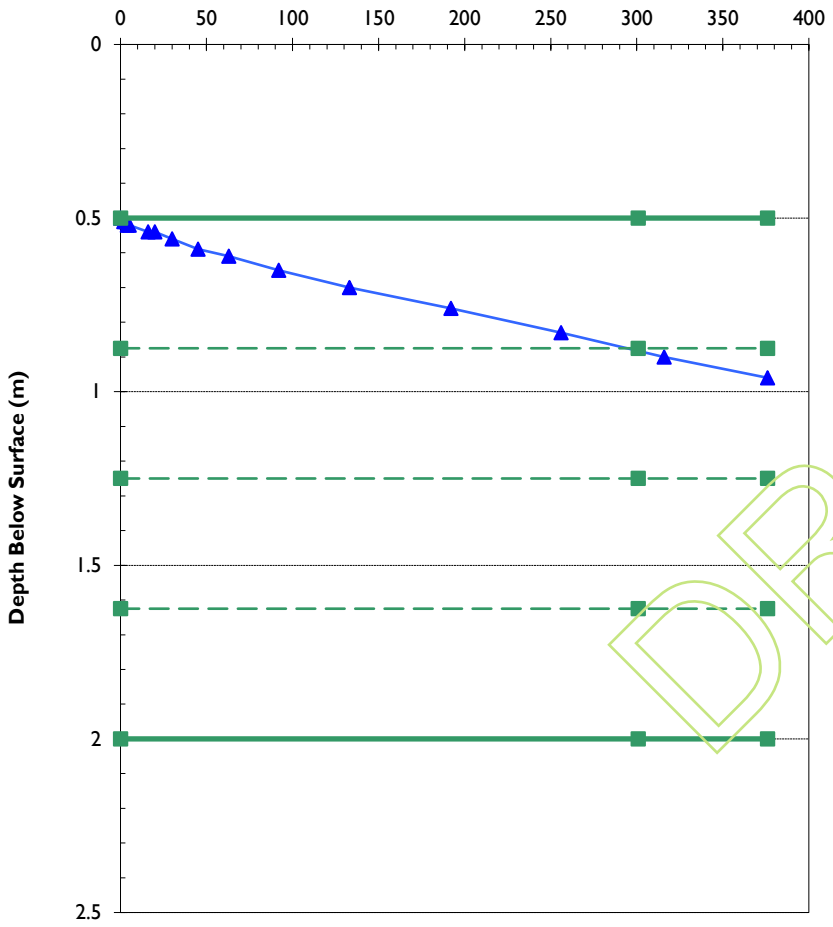
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

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BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP406
Test No:	Test No 2



Pit Length (m)	1.8
Pit Width (m)	0.53
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	0.46
Total Soakage Test Time (min)	376
Mean Internal Discharge Area (m2)	6.06835
Discharge Rate (litre/min)	0.358386
Soakage Rate (litre/m2/min)	0.0590582
BRE Soil Infiltration Rate (m/sec)	9.843E-07

Comments:

Water level fell to 75% -- 50% max water depth,
Result not compliant with BRE365 requirement

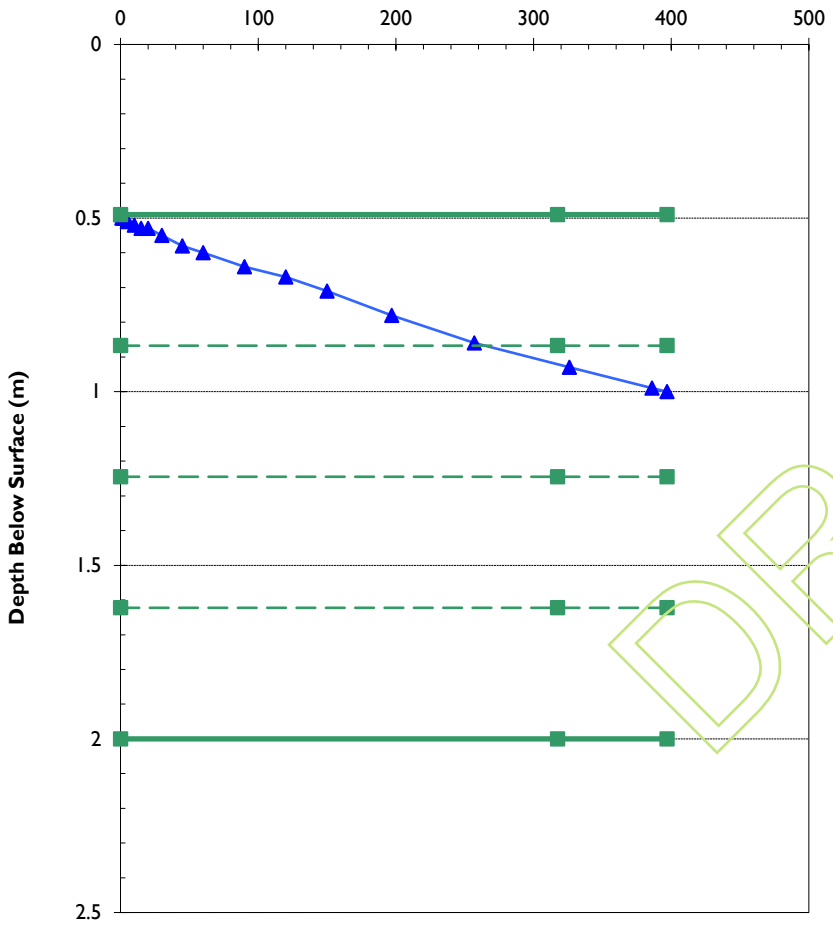
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	08/07/19

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BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP406
Test No:	Test No 3



Pit Length (m)	1.8
Pit Width (m)	0.53
Depth to Pit Base (m)	2
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.49
Max Water Dropdown during Test (m)	0.51
Total Soakage Test Time (min)	397
Mean Internal Discharge Area (m2)	5.922725
Discharge Rate (litre/min)	0.3336302
Soakage Rate (litre/m2/min)	0.0563305
BRE Soil Infiltration Rate (m/sec)	9.388E-07

Comments:

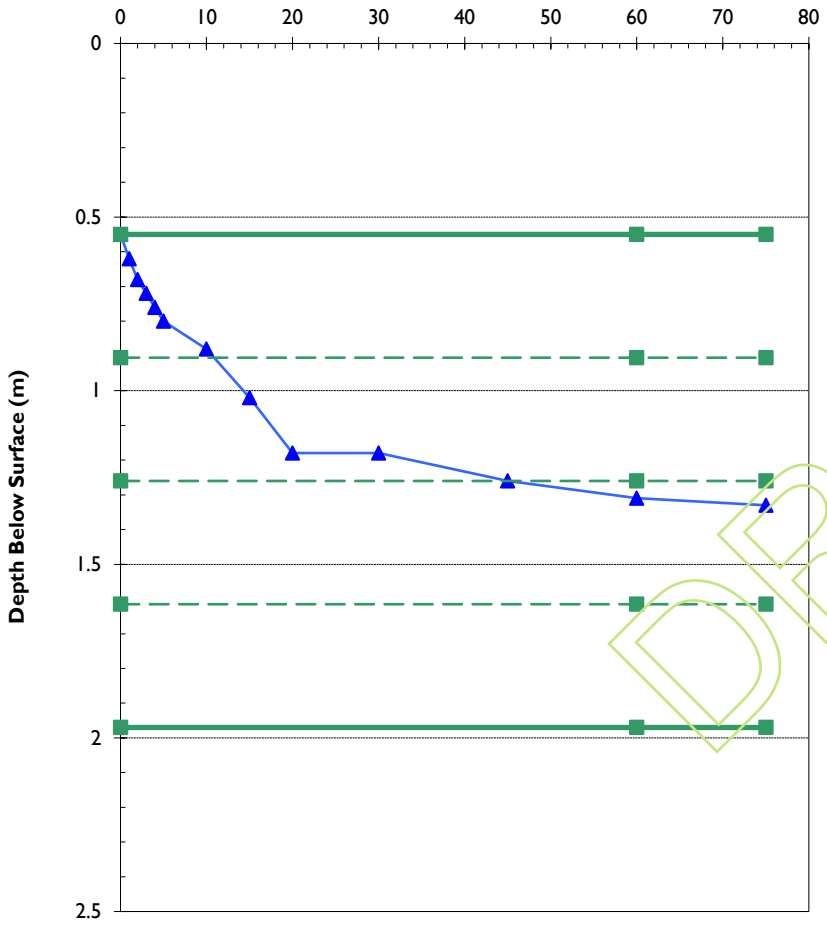
Water level fell to 75% -- 50% max water depth,
Result not compliant with BRE365 requirement

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	09/07/19

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BRE Digest 365 - Soakage Test

Test Hole No:	TP407
Test No:	Test No 1



Pit Length (m)	1.83
Pit Width (m)	0.5
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.55
Max Water Dropdown during Test (m)	0.78
Total Soakage Test Time (min)	75
Mean Internal Discharge Area (m2)	4.88765
Discharge Rate (litre/min)	2.1231058
Soakage Rate (litre/m2/min)	0.4343817
BRE Soil Infiltration Rate (m/sec)	7.24E-06

Comments:

Water level fell to 50% -- 25% max water depth,
Result not compliant with BRE365 requirement

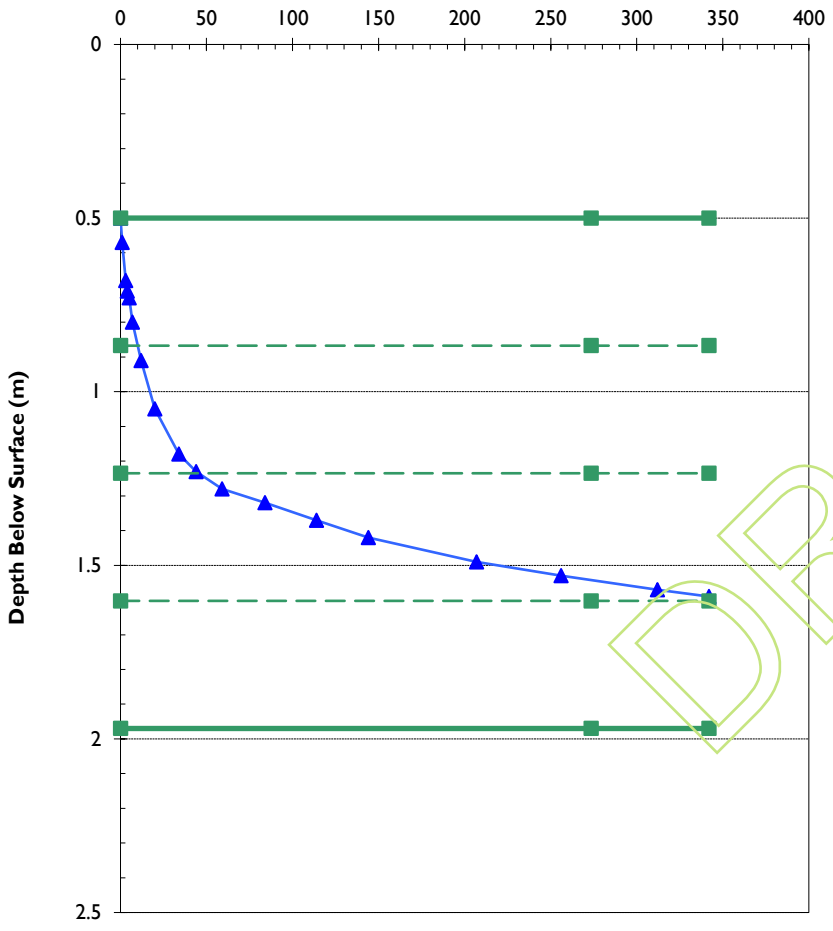
Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	05/07/19

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BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP407
Test No:	Test No 2



Pit Length (m)	1.83
Pit Width (m)	0.5
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.5
Max Water Dropdown during Test (m)	1.09
Total Soakage Test Time (min)	342
Mean Internal Discharge Area (m2)	4.369225
Discharge Rate (litre/min)	0.6970727
Soakage Rate (litre/m2/min)	0.1595415
BRE Soil Infiltration Rate (m/sec)	2.659E-06

Comments:

Water level fell to 50% -- 25% max water depth,
Result not compliant with BRE365 requirement

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	08/07/19

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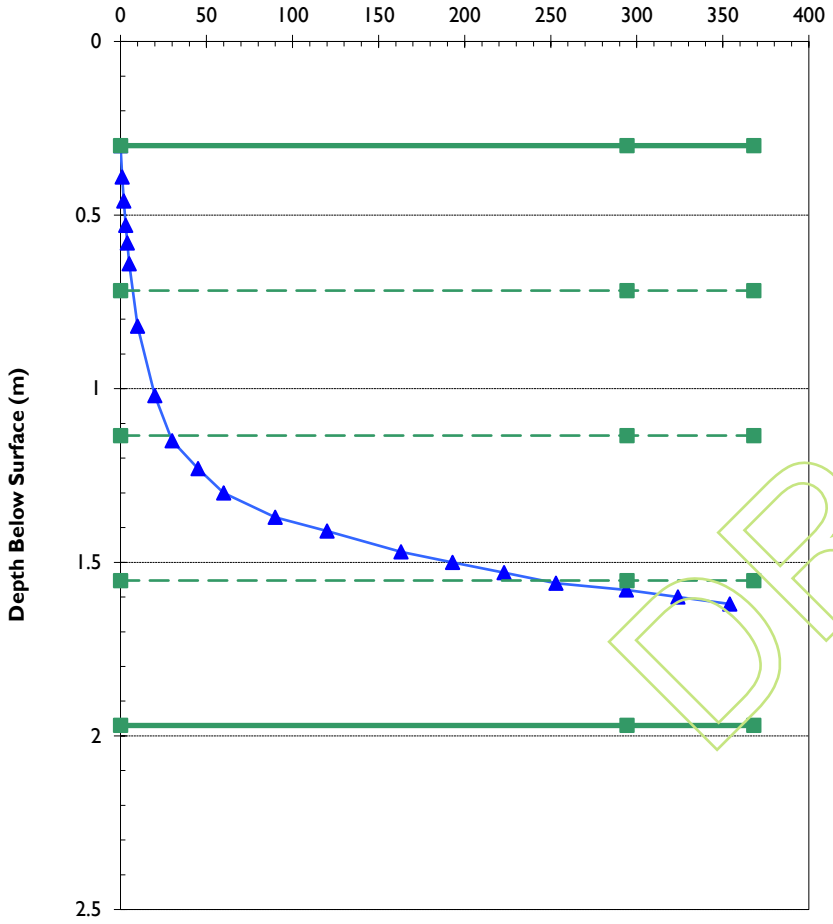
BRE Digest 365 - Soakage Test

(Repeated)

Test Hole No:	TP407
Test No:	Test No 3

leap environmental

Filling to Max Water Depth (min)



Pit Length (m)	1.83
Pit Width (m)	0.5
Depth to Pit Base (m)	1.97
Depth to Top of Permeable Soils (m)	
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	0.3
Voids Assumed for Granular Fill (%)	35%

Depth of Water at Start of Test (m)	0.3
Max Water Dropdown during Test (m)	1.33
Total Soakage Test Time (min)	368
Mean Internal Discharge Area (m2)	4.8061
Discharge Rate (litre/min)	1.1219294
Soakage Rate (litre/m2/min)	0.2334386
BRE Soil Infiltration Rate (m/sec)	3.891E-06

Comments:

Pit was nearly emptied at finish of test.

Client:	Dandara Home
Site:	Fontwell Avenue
Tested By:	ADC/KT
Test Date:	09/07/19

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Results of BRE Digest 365 Soakage Tests

Site : Fontwell Avenue
Client : Dandara Home
O S Reference :

Tested By : ADC/KT
Test Date : 10/07/2019

Hole Number	Test Number	Hole Depth m	Test Soakage Rate litre/m2/min	Design Soakage Rate litre/m2/min	Design Soakage Rate m/sec	End Water Level	Remarks
TP401	No 1	2	27.35	27.35	0.000450167	Empty pit.	
TP401	No 2	2	27.98			Empty pit.	
TP401	No 3	2	27.01			Empty pit.	
TP402	No 1	1.91	0.07	0.07	1.169E-06	Nearly empty pit.	
TP402	No 2	1.91	0.20			Pit was not emptie	
TP402	No 3	1.91	0.16			Pit was not emptie	
TP403	No 1	1.88	3.06	3.06	5.08143E-05	Empty pit.	
TP403	No 2	1.88	3.21			Nearly empty pit.	
TP403	No 3	1.88	3.05			Empty pit.	
TP404	No 1	1.87	6.05	5.90	9.49893E-05	Empty pit.	
TP404	No 2	1.87	5.90			Empty pit.	
TP404	No 3	1.87	5.70			Empty pit.	
TP405	No 1	1.89	3.64	3.03	4.80913E-05	Empty pit.	
TP405	No 2	1.89	3.03			Nearly empty pit.	

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TP405	No 3	1.89	2.89			Empty pit.	
TP406	No 1	2	0.07	0.06	9.38842E-07	Pit was not emptie	
TP406	No 2	2	0.06			Pit was not emptie	
TP406	No 3	2	0.06			Pit was not emptie	
TP407	No 1	1.97	0.43	0.16	2.65903E-06	Pit was not emptie	
TP407	No 2	1.97	0.16			Nearly empty pit.	
TP407	No 3	1.97	0.23			Nearly empty pit.	
TP305	No 1	1.83	0.37	0.37	6.11446E-06	Nearly empty pit.	
TP305	No 2	1.83	0.51			Nearly empty pit.	
TP305	No 3	1.83	0.44			Pit was not emptie	
TP303	No 1	1.9	1.53	1.28	2.14005E-05	Nearly empty pit.	
TP303	No 2	1.9	1.28			Nearly empty pit.	
TP303	No 3	1.9	1.45			Nearly empty pit.	
TP304	No 1	1.89	5.91	5.58	9.30476E-05	Empty pit.	
TP304	No 2	1.89	5.58			Empty pit.	
TP304	No 3	1.89	6.21			Empty pit.	
TP311	No 1	1.9	26.69	23.53	0.000368289	Empty pit.	

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TP311	No 2	1.9	23.53			Empty pit.	
TP311	No 3	1.9	22.10			Empty pit.	
TP319	No 1	1.85	1.36	1.27	1.80049E-05	Nearly empty pit.	
TP319	No 2	1.85	1.27			Nearly empty pit.	
TP319	No 3	1.85	1.08			Nearly empty pit.	
TP323	No 1	1.81	1.15	1.10	1.84101E-05	Nearly empty pit.	
TP323	No 2	1.81	1.10			Pit was not emptie	
TP323	No 3	1.81	1.18			Empty pit.	
Mean Value of All Calculated Soakage Rates :				5.60 9.0315E-05	litre/m2/min m/sec		

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Appendix (C)

Proposed Site Layout

HARD SURFACING KEY

- GREY HERRINGBONE PAVING
- RED HERRINGBONE PAVING
- BUFF HERRINGBONE PAVING
- GREY TEGULAR PAVING
- RED TEGULAR PAVING
- BUFF TEGULAR PAVING
- GRAVEL SURFACE
- GRASSCRETE



SITE LAYOUT 1:500

Schedule of Accommodation. Private

Code	Housetype	No.
BT	Belmont - 2 Bed F.O.G.	6
V	Vyne - 2 Bed House	23
V1	Vyne Sp - 3 Bed House	10
C	Charleston - 3 Bed House	61
C2	Charleston Sp - 3 Bed House	36
F	Farringford - 3 Bed House	22
F1	Farringford - 3 Bed House	4
F+	Farringford Sp - 3 Bed House	4
F2	Farringford Sp - 3 Bed House	2
P	Parham - 3 Bed Townhouse	31
P2	Parham - 3 Bed Townhouse	9
OB	Osbourne - 4 Bed House	19
W	Woburn - 4 Bed House	2
BY	Bletchley - 4 Bed Townhouse	6
J	2 Bed Maisonette	2
Block F	2 Bed Flat	8
Block G	2 Bed Flat	11
Block H	2 Bed Flat (inc. 4 no. LTH)	24
		280

Affordable (Shared Ownership)

Code	Housetype	No.
BT	Belmont - 2 Bed F.O.G.	1
V	Vyne - 2 Bed House	17
C	Charleston - 3 Bed House	9
F	Farringford - 3 Bed House	3
P	Parham - 3 Bed Townhouse	6
Block B	2 Bed Flat (inc. 2 no. LTH)	6
Block C	1 Bed Flat	9
Block C	2 Bed Flat	9
		60

Affordable (Rented)

Code	Housetype	No.
BT	Belmont - 2 Bed F.O.G.	4
V	Vyne - 2 Bed House	18
C	Charleston - 3 Bed House	1
P	Parham - 3 Bed Townhouse	2
BY	Bletchley - 4 Bed Townhouse	3
Block B	1 Bed Flat	6
Block D	1 Bed Flat (inc. 4 no. LTH)	8
Block D	2 Bed Flat	4
Block E	1 Bed Flat	5
Block E	2 Bed Flat	3
Block J	1 Bed Flat	2
Block J	2 Bed Flat (inc. 2 no. LTH)	4
		60

TOTAL		400

KEY

- SITE BOUNDARY
- 1.8m BRICK SCREEN WALL
- 1.8m CLOSE BOARD FENCE
- 1.2m 3 BAR CLEFT RAIL FENCE
- 1.2m RAILINGS
- 0.6m HIGH TIMBER POSTS
- TURF TO GARDENS
- BLOCK PAVED SURFACE (REFER TO HARD SURFACING KEY)
- INDICATIVE TREE PLANTING
- EXISTING TREES TO BE RETAINED
- EXISTING TREES TO BE REMOVED
- ROOT PROTECTION AREA
- EXISTING SHRUB PLANTING
- INDICATIVE SHRUB PLANTING
- GATE
- DOOR AND PATIO TO REAR ACCESS
- DOOR/LEVEL THRESHOLD AND PATH IN CONCRETE SLABS
- INTEGRAL GARAGE PARKING
- ACTIVE FRONTAGE / ADDITIONAL WINDOW
- PRIVATE UNITS
- AFFORDABLE UNITS
- BUILDING TO BE REMOVED

Rev.	Date	Description	Drawn	Checked
J	17-01-20	Minor amendments and hard surfacing key added.	BAS	DGP
H	15-01-20	Layout updated in line with F & OB house types, flats landscaping.	DGP	DGP
G	09-01-20	Layout re-planned.	BAS	DGP
F	12-06-19	Plots 104,116, 133, 153, 156, 158, 222-224, 249, 250, 277, 292-294, 297-299, 307, 308, 319, 320, 333-335, 365 & 366 amended in line with clients comments.	DGP	DGP
E	17-05-19	Plots 40, 41, 236, 276, 277 & 278 adjusted. Road fronting plot 278 amended and 6No removed from plot 327.	DGP	DGP
D	15-05-19	Footpath / cycle link widened and partially amended.	DGP	DGP
C	09-05-19	Roadscapes revised in village edge character area. Landscaping updated. Position of plots 42-45, 72-75, 235, 278-280, 368-369 & stores to plots 19-39, 121-129 amended to suit drainage requirements.	BAS	DGP

Client: dandara

aap architecture

Project: Land south of Arundel Road, Fontwell, West Sussex.

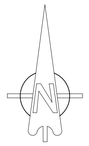
Drawing Title: Planning Layout Sheet 1 of 3

Scale	1:500 @ A0	Drawn	DGP
Checked	AAP		
Date	October 2018	File	P1549 Layout
Drawing Status			
Drg.No.	P1549.11	Rev.	J
	PLANNING		

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ARUN DISTRICT COUNCIL PLANNING



HARD SURFACING KEY

- GREY HERRINGBONE PAVING
- RED HERRINGBONE PAVING
- BUFF HERRINGBONE PAVING
- GREY TEGULAR PAVING
- RED TEGULAR PAVING
- BUFF TEGULAR PAVING
- GRAVEL SURFACE
- GRASSCRETE



SITE LAYOUT 1:500

Schedule of Accommodation.
Private

Code	Housetype	No.
BT	Belmont - 2 Bed F.O.G.	6
V	Vyne - 2 Bed House	23
V1	Vyne Sp - 3 Bed House	10
C	Charleston - 3 Bed House	61
C2	Charleston Sp - 3 Bed House	36
F	Farringford - 3 Bed House	22
F1	Farringford - 3 Bed House	4
F+	Farringford Sp - 3 Bed House	4
F2	Farringford Sp - 3 Bed House	2
P	Parham - 3 Bed Townhouse	31
P2	Parham - 3 Bed Townhouse	9
OB	Osbourne - 4 Bed House	19
W	Woburn - 4 Bed House	2
BY	Bletchley - 4 Bed Townhouse	6
J	2 Bed Maisonette	2
Block F	2 Bed Flat	8
Block G	2 Bed Flat	11
Block H	2 Bed Flat (inc. 4 no. LTH)	24
		280

Affordable (Shared Ownership)

Code	Housetype	No.
BT	Belmont - 2 Bed F.O.G.	1
V	Vyne - 2 Bed House	17
C	Charleston - 3 Bed House	9
F	Farringford - 3 Bed House	3
P	Parham - 3 Bed Townhouse	6
Block B	2 Bed Flat (inc. 2 no. LTH)	6
Block C	1 Bed Flat	9
Block C	2 Bed Flat	9
		60

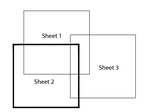
Affordable (Rented)

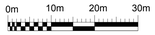
Code	Housetype	No.
BT	Belmont - 2 Bed F.O.G.	4
V	Vyne - 2 Bed House	18
C	Charleston - 3 Bed House	1
P	Parham - 3 Bed Townhouse	2
BY	Bletchley - 4 Bed Townhouse	3
Block B	1 Bed Flat	6
Block D	1 Bed Flat (inc. 4 no. LTH)	8
Block D	2 Bed Flat	4
Block E	1 Bed Flat	5
Block E	2 Bed Flat	3
Block J	1 Bed Flat	2
Block J	2 Bed Flat (inc. 2 no. LTH)	4
		60

TOTAL	400

KEY

- SITE BOUNDARY
- 1.8m BRICK SCREEN WALL
- 1.8m CLOSE BOARD FENCE
- 1.2m 3 BAR CLEFT RAIL FENCE
- 1.2m RAILINGS
- 0.6m HIGH TIMBER POSTS
- TURF TO GARDENS
- BLOCK PAVED SURFACE (REFER TO HARD SURFACING KEY)
- INDICATIVE TREE PLANTING
- EXISTING TREES TO BE RETAINED
- EXISTING TREES TO BE REMOVED
- ROOT PROTECTION AREA
- EXISTING SHRUB PLANTING
- INDICATIVE SHRUB PLANTING
- GATE
- DOOR AND PATIO TO REAR ACCESS
- DOOR/LEVEL THRESHOLD AND PATH IN CONCRETE SLABS
- INTEGRAL GARAGE PARKING
- ACTIVE FRONTAGE / ADDITIONAL WINDOW
- PRIVATE UNITS
- AFFORDABLE UNITS
- BUILDING TO BE REMOVED





Rev.	Date	Description	Drawn	Checked
J	20-01-20	Minor amendments and hard surfacing key added. Emergency fire tender access added to front of plots 198-203.	BAS	DGP
H	15-01-20	Layout updated in line with F & OB house types, flats landscaping.	DGP	DGP
G	09-01-20	Layout re-positioned.	BAS	DGP
F	12-06-19	Plots 104,116, 133, 153, 156, 158, 222-224, 249, 250, 277, 292-294, 297-299, 307, 308, 319, 320, 333-335, 365 & 366 amended in line with clients comments	DGP	DGP
E	17-05-19	Plots 40, 41, 276, 277 & 278 adjusted. Road fronting plot 278 amended and SW removed from plot 327.	DGP	DGP
D	15-05-19	Hopper Bus bay added and parking amended.	DGP	DGP
C	09-05-19	Roofscapes revised in village edge character area. Landscaping updated. Position of plots 42-45, 72-75, 235, 278-280, 368-369 & stores to plots 19-39, 121-129 amended to suit drainage requirements.	BAS	DGP

Client: dandara

aap architecture

Project
Land south of Arundel Road,
Fontwell, West Sussex.

Drawing Title
Planning Layout
Sheet 2 of 3

Scale	1:500 @ A0	Drawn	DGP
Checked	AAP		
Date	October 2018	File	P1549 Layout
Drawing Status			
Drg.No.	P1549.21	Rev.	J
	PLANNING		

AAP Architecture Ltd
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TOTAL		400

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- GRAVEL SURFACE
- GRASSCRETE

Sheet 1 / Sheet 2 / Sheet 3

0m 10m 20m 30m

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Client: dandara

aap architecture

Project
Land south of Arundel Road,
Fontwell, West Sussex.

Drawing Title
Planning Layout
Sheet 3 of 3

Scale 1:500 @ A0 | Drawn DGP | Checked AAP
Date October 2018 | File P1549 Layout | Drawing Status
Drg.No. P1549.31 | Rev. H | PLANNING

AAP Architecture Ltd
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ARUN DISTRICT COUNCIL 16/04/2019

Appendix (D)

Proposed Surface Water Strategy

N

EMPLOYMENT AREA

NOTES

1. Site Layout and boundary based on AAP Architecture Proposed Site Layout, drawing numbers P1549.11 Revision K, P1549.21 Revision K and P1549.31 Revision J received on 21/01/2020.
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5. Location of sewers & lateral drains to be in accordance with the WRC Guide Sewers for Adoption 6th Edition & addendum and specific requirements of ICOSA water.
6. Backfilling of drain trenches adjacent to dwelling or other structure to be in accordance with BS8301-Fig. 9.
7. Access fittings & inspection chambers as table below:-

TYPE	DEPTH RANGE	DESCRIPTION
3	0.6m to 3.0m	min. 450mm diameter Flexible or Rigid access chamber (Non Entry) in areas subject to vehicle loading
4	0.6m to 3.0m	min. 450mm diameter Flexible / Rigid access chamber (Non Entry) in areas subject to light vehicle loading
5	0.6m to 1.0m	min. 450mm diameter Flexible / Rigid access chamber (Non Entry)

TYPE	DEPTH RANGE	DESCRIPTION
6	0.6m to 1.0m	min. 450mm diameter Flexible / Rigid access chamber (Non Entry)
7	0.6m to 2.0m	min. 450 or 450x450mm diameter Flexible access chamber (Non Entry)
8	0.0m to 0.6m	min. 190 or 225x150mm diameter Flexible access chamber (Non Entry)
RE		Rodding point at head of drain

LOCATION	CODE	COVER QRADE
Road	R	D400
Driveway	D	B125
Garden	G	A15

8. As an alternative to the construction of domestic drainage chambers deeper than 1.0m, the "Osma Non - entry Inspection Chamber", 500mm dia. polypropylene chamber to a maximum depth of 3.0m may be used subject to the approval of the local building inspector or the NHBC inspector.
9. Cover levels indicated on the Drainage Schedules are nominal & may be adjusted to suit finished ground levels as necessary.
10. Generally inspection chamber covers should be Grade D400 in trafficked areas Grade B125 in parking areas and occasional traffic and A15 in pedestrian only areas.
11. Rainwater downpipes to be connected direct to drain using an appropriate adaptor & removable section of downpipe to permit rodding access.
12. The positions of SVP's, stub stacks, WC outlets, Back inlet gullies etc. & rainwater downpipes are to be accurately located from the house type working drawings.
13. Generally FW drains are to be laid to falls of 1 in 40, SW drains are to be laid to falls of 1 in 60, both in 100mm diameter pipes, unless stated otherwise, or where a schedule is provided. Connections to Adoptable sewers to be 150mm diameter.
14. Gullies situated in areas accessible to wheeled vehicles to be of suitable construction for trafficked areas.
15. Where land drain is identified on the Architect's details, connect into nearest SW stystem.
16. This drawing should be read in conjunction with the Architect's and Structural Engineer's design drawings and specification.
17. An allowance to be made for all inspection chambers or manholes upstream of attenuation tanks or permeable pavements to have a 500mm sump catch pit within the chamber for silt control
18. ***ANY VARIANCE OR DISCREPANCY MUST BE REPORTED BACK TO RCP ENGINEERING BEFORE WORK BEGINS.***

KEY

- Site Boundary
- Proposed Permeable Paving
- Trench Soakaways with 10m offset to structures
- Cellular Storage
- Soakaway10m offset
- Root Protection Areas
- Tree Protection Fencing

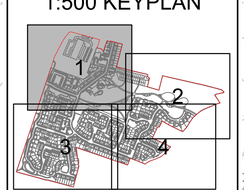
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SCALE BAR 1:500 at A1

CDM NOTES

1. EXISTING SERVICES. Depth of existing services must be determined prior to works commencing. The contractor is responsible for establishing underground services in accordance with HSE Guidance note HS (G) 47. Any services which would be within the proposed construction layers must be lowered to below the sub-base.

1:500 KEYPLAN



Rev.	Date	Details	By	Chkd	Appd
B	23.01.20	Updated to latest Site Layout key updated.	GD	LD	TRS
A	17.05.19	Updated to latest Site Layout received 17.05.19, key updated.	WD	LD	TRS

Client:- dandara

Site:-
Fontwell
Eastergate
Arundel

Drawing Title:-
PROPOSED
SURFACE WATER
DRAINAGE STRATEGY
Sheet 1 of 4

Date: May 2019 | Scales: 1:500 at A1
Drawn: WD | Checked: LD | Approved: TRS

Drawing No.
DAN/E4736/031 B

FOR INFORMATION ONLY

Rogers Cory Partnership
Architectural and Civil Consultants
The Old School Old School Road
Hook Hampshire RG27 9NJ
T: 01256 769269 E: mail@rcpconsultants.co.uk W: rcpconsultants.co.uk

NOTES

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7. Access fittings & inspection chambers as table below:-

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RE		Rodding point at head of drain

LOCATION	CODE	COVER GRADE
Road	R	D400
Driveway	D	B125
Garden	G	A15

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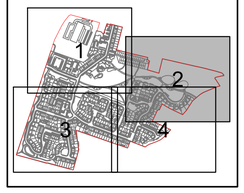
0m 5m 10m 20m 30m 40m 50m

SCALE BAR 1:500 at A1

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A	17.05.19	Updated to latest Site Layout received 17.05.19. key updated.	WD	LD	TRS

Client:- dandara

Site:-
Fontwell
Eastergate
Arundel

Drawing Title:-
PROPOSED
SURFACE WATER
DRAINAGE STRATEGY
Sheet 2 of 4

Date: May 2019 | Scales: 1:500 at A1
Drawn: WD | Checked: LD | Approved: TRS

Drawing No.
DAN/E4736/032 B

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Client:- dandara

Site:- Fontwell Eastergate Arundel

Drawing Title:- PROPOSED SURFACE WATER DRAINAGE STRATEGY

Sheet 3 of 4

Date: May 2019 | Scales: 1:500 at A1

Drawn: WD | Checked: LD | Approved: TRS

Drawing No. DAN/E4736/033 B

FOR INFORMATION ONLY

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3	0.6m to 3.0m	min. 450mm diameter Flexible or Rigid access chamber (Non Entry) in areas subject to vehicle loading
4	0.6m to 3.0m	min. 450mm diameter Flexible / Rigid access chamber (Non Entry) in areas subject to light vehicle loading
5	0.6m to 1.0m	min. 450mm diameter Flexible / Rigid access chamber (Non Entry)

TYPE	DEPTH RANGE	DESCRIPTION
6	0.6m to 1.0m	min. 450mm diameter Flexible / Rigid access chamber (Non Entry)
7	0.6m to 2.0m	min. 450 or 450x450mm diameter Flexible access chamber (Non Entry)
8	0.0m to 0.6m	min. 190 or 225x100mm diameter Flexible access chamber (Non Entry)
RE		Rodding point at head of drain

LOCATION	CODE	COVER GRADE
Road	R	D400
Driveway	D	B125
Garden	G	A15

8. As an alternative to the construction of domestic drainage chambers deeper than 1.0m, the "Osma Non - entry Inspection Chamber", 500mm dia. polypropylene chamber to a maximum depth of 3.0m may be used subject to the approval of the local building inspector or the NHBC inspector.
9. Cover levels indicated on the Drainage Schedules are nominal & may be adjusted to suit finished ground levels as necessary.
10. Generally inspection chamber covers should be Grade D400 in trafficked areas Grade B125 in parking areas and occasional traffic and A15 in pedestrian only areas.
11. Rainwater downpipes to be connected direct to drain using an appropriate adaptor & removable section of downpipe to permit rodding access.
12. The positions of SVP's, stub stacks, WC outlets, Back inlet gullies etc. & rainwater downpipes are to be accurately located from the house type working drawings.
13. Generally FW drains are to be laid to falls of 1 in 40, SW drains are to be laid to falls of 1 in 60, both in 100mm diameter pipes, unless stated otherwise, or where a schedule is provided. Connections to Adoptable sewers to be 150mm diameter.
14. Gullies situated in areas accessible to wheeled vehicles to be of suitable construction for trafficked areas.
15. Where land drain is identified on the Architect's details, connect into nearest SW stystem.
16. This drawing should be read in conjunction with the Architect's and Structural Engineer's design drawings and specification.
17. An allowance to be made for all inspection chambers or manholes upstream of attenuation tanks or permeable pavements to have a 500mm sump catch pit within the chamber for silt control
18. ***ANY VARIANCE OR DISCREPANCY MUST BE REPORTED BACK TO RCP ENGINEERING BEFORE WORK BEGINS.***

KEY

- Site Boundary
- Proposed Permeable Paving
- Trench Soakaways with 10m offset to structures
- Cellular Storage
- Soakaway10m offset
- Root Protection Areas
- Tree Protection Fencing

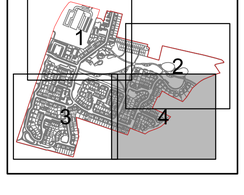
0m 5m 10m 20m 30m 40m 50m

SCALE BAR 1:500 at A1

CDM NOTES

1. EXISTING SERVICES. Depth of existing services must be determined prior to works commencing. The contractor is responsible for establishing underground services in accordance with HSE Guidance note HS (G) 47. Any services which would be within the proposed construction layers must be lowered to below the sub-base.

1:500 KEYPLAN



Rev.	Date	Details	By	Chkd	Appd
B	23.01.20	Updated to latest Site Layout received 23.01.20, key updated.	GD	LD	TRS
A	17.05.19	Updated to latest Site Layout received 17.05.19, key updated.	WD	LD	TRS

Client:- dandara

Site:- Fontwell Eastergate Arundel

Drawing Title:- PROPOSED SURFACE WATER DRAINAGE STRATEGY

Sheet 4 of 4

Date: May 2019 | Scales: 1:500 at A1

Drawn: WD | Checked: LD | Approved: TRS

Drawing No. DAN/E4736/034 B

FOR INFORMATION ONLY

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Architectural and Civil Consultants
The Old School Old School Road
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Appendix (E)

Micro Drainage Calculations

Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 819 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	29.002	0.302	0.1	4.0	O K
30 min Summer	29.094	0.394	0.1	5.2	O K
60 min Summer	29.191	0.491	0.1	6.5	O K
120 min Summer	29.289	0.589	0.1	7.8	O K
180 min Summer	29.343	0.643	0.1	8.5	O K
240 min Summer	29.377	0.677	0.1	9.0	O K
360 min Summer	29.417	0.717	0.1	9.5	O K
480 min Summer	29.436	0.736	0.1	9.7	O K
600 min Summer	29.443	0.743	0.1	9.8	O K
720 min Summer	29.446	0.746	0.1	9.9	O K
960 min Summer	29.448	0.748	0.1	9.9	O K
1440 min Summer	29.438	0.738	0.1	9.8	O K
2160 min Summer	29.409	0.709	0.1	9.4	O K
2880 min Summer	29.378	0.678	0.1	9.0	O K
4320 min Summer	29.315	0.615	0.1	8.1	O K
5760 min Summer	29.256	0.556	0.1	7.4	O K
7200 min Summer	29.202	0.502	0.1	6.6	O K
8640 min Summer	29.153	0.453	0.1	6.0	O K
10080 min Summer	29.109	0.409	0.1	5.4	O K
15 min Winter	29.038	0.338	0.1	4.4	O K
30 min Winter	29.142	0.442	0.1	5.8	O K
60 min Winter	29.252	0.552	0.1	7.3	O K
120 min Winter	29.364	0.664	0.1	8.8	O K
180 min Winter	29.427	0.727	0.1	9.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	34
60 min Summer	34.733	0.0	64
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	242
360 min Summer	9.767	0.0	362
480 min Summer	7.922	0.0	480
600 min Summer	6.730	0.0	572
720 min Summer	5.890	0.0	622
960 min Summer	4.770	0.0	750
1440 min Summer	3.540	0.0	1010
2160 min Summer	2.625	0.0	1428
2880 min Summer	2.123	0.0	1844
4320 min Summer	1.572	0.0	2676
5760 min Summer	1.270	0.0	3464
7200 min Summer	1.076	0.0	4248
8640 min Summer	0.940	0.0	5016
10080 min Summer	0.839	0.0	5752
15 min Winter	82.824	0.0	19
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	120
180 min Winter	16.130	0.0	180

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	29.467	0.767	0.1	10.2	O K
360 min Winter	29.517	0.817	0.1	10.8	O K
480 min Winter	29.543	0.843	0.1	11.2	O K
600 min Winter	29.556	0.856	0.1	11.3	O K
720 min Winter	29.561	0.861	0.1	11.4	O K
960 min Winter	29.559	0.859	0.1	11.4	O K
1440 min Winter	29.546	0.846	0.1	11.2	O K
2160 min Winter	29.502	0.802	0.1	10.6	O K
2880 min Winter	29.452	0.752	0.1	9.9	O K
4320 min Winter	29.354	0.654	0.1	8.7	O K
5760 min Winter	29.265	0.565	0.1	7.5	O K
7200 min Winter	29.187	0.487	0.1	6.4	O K
8640 min Winter	29.118	0.418	0.1	5.5	O K
10080 min Winter	29.058	0.358	0.1	4.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	238
360 min Winter	9.767	0.0	352
480 min Winter	7.922	0.0	464
600 min Winter	6.730	0.0	574
720 min Winter	5.890	0.0	678
960 min Winter	4.770	0.0	780
1440 min Winter	3.540	0.0	1082
2160 min Winter	2.625	0.0	1540
2880 min Winter	2.123	0.0	1992
4320 min Winter	1.572	0.0	2856
5760 min Winter	1.270	0.0	3688
7200 min Winter	1.076	0.0	4472
8640 min Winter	0.940	0.0	5272
10080 min Winter	0.839	0.0	6048

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.026

Time (mins) From:	To:	Area (ha)
0	4	0.026

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Model Details

Storage is Online Cover Level (m) 30.500

Complex Structure

Trench Soakaway

Infiltration Coefficient Base (m/hr)	0.16500	Trench Width (m)	2.0
Infiltration Coefficient Side (m/hr)	0.16500	Trench Length (m)	7.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	28.700	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 1066 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	29.194	0.494	0.1	6.5	O K
30 min Summer	29.360	0.660	0.1	8.7	O K
60 min Summer	29.536	0.836	0.1	11.1	O K
120 min Summer	29.711	1.011	0.1	13.4	O K
180 min Summer	29.804	1.104	0.2	14.6	O K
240 min Summer	29.860	1.160	0.2	15.4	O K
360 min Summer	29.927	1.227	0.2	16.3	O K
480 min Summer	29.962	1.262	0.2	16.7	O K
600 min Summer	29.978	1.278	0.2	17.0	O K
720 min Summer	29.982	1.282	0.2	17.0	O K
960 min Summer	29.980	1.280	0.2	17.0	O K
1440 min Summer	29.962	1.262	0.2	16.7	O K
2160 min Summer	29.914	1.214	0.2	16.1	O K
2880 min Summer	29.858	1.158	0.2	15.4	O K
4320 min Summer	29.753	1.053	0.2	14.0	O K
5760 min Summer	29.662	0.962	0.1	12.7	O K
7200 min Summer	29.580	0.880	0.1	11.7	O K
8640 min Summer	29.508	0.808	0.1	10.7	O K
10080 min Summer	29.443	0.743	0.1	9.8	O K
15 min Winter	29.254	0.554	0.1	7.3	O K
30 min Winter	29.439	0.739	0.1	9.8	O K
60 min Winter	29.638	0.938	0.1	12.4	O K
120 min Winter	29.837	1.137	0.2	15.1	O K
180 min Winter	29.944	1.244	0.2	16.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	34
60 min Summer	58.567	0.0	64
120 min Summer	36.294	0.0	124
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	242
360 min Summer	16.006	0.0	362
480 min Summer	12.864	0.0	480
600 min Summer	10.849	0.0	600
720 min Summer	9.435	0.0	702
960 min Summer	7.561	0.0	808
1440 min Summer	5.523	0.0	1056
2160 min Summer	4.026	0.0	1472
2880 min Summer	3.213	0.0	1876
4320 min Summer	2.333	0.0	2720
5760 min Summer	1.857	0.0	3520
7200 min Summer	1.555	0.0	4320
8640 min Summer	1.347	0.0	5104
10080 min Summer	1.192	0.0	5856
15 min Winter	135.580	0.0	19
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	62
120 min Winter	36.294	0.0	122
180 min Winter	27.017	0.0	180

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	30.009	1.309	0.2	17.4	O K
360 min Winter	30.090	1.390	0.2	18.4	O K
480 min Winter	30.135	1.435	0.2	19.0	O K
600 min Winter	30.159	1.459	0.2	19.4	O K
720 min Winter	30.170	1.470	0.2	19.5	O K
960 min Winter	30.168	1.468	0.2	19.5	O K
1440 min Winter	30.143	1.443	0.2	19.1	O K
2160 min Winter	30.080	1.380	0.2	18.3	O K
2880 min Winter	30.002	1.302	0.2	17.3	O K
4320 min Winter	29.847	1.147	0.2	15.2	O K
5760 min Winter	29.715	1.015	0.1	13.5	O K
7200 min Winter	29.600	0.900	0.1	11.9	O K
8640 min Winter	29.500	0.800	0.1	10.6	O K
10080 min Winter	29.413	0.713	0.1	9.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	238
360 min Winter	16.006	0.0	354
480 min Winter	12.864	0.0	468
600 min Winter	10.849	0.0	580
720 min Winter	9.435	0.0	688
960 min Winter	7.561	0.0	894
1440 min Winter	5.523	0.0	1112
2160 min Winter	4.026	0.0	1580
2880 min Winter	3.213	0.0	2044
4320 min Winter	2.333	0.0	2900
5760 min Winter	1.857	0.0	3752
7200 min Winter	1.555	0.0	4608
8640 min Winter	1.347	0.0	5368
10080 min Winter	1.192	0.0	6160

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.026

Time (mins) From:	To:	Area (ha)
0	4	0.026

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Model Details

Storage is Online Cover Level (m) 30.500

Complex Structure

Trench Soakaway

Infiltration Coefficient Base (m/hr)	0.16500	Trench Width (m)	2.0
Infiltration Coefficient Side (m/hr)	0.16500	Trench Length (m)	7.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	28.700	Cap Infiltration Depth (m)	1.600

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 457 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	24.093	0.393	0.3	10.3	O K
30 min Summer	24.203	0.503	0.4	13.5	O K
60 min Summer	24.315	0.615	0.4	16.7	O K
120 min Summer	24.422	0.722	0.5	19.7	O K
180 min Summer	24.473	0.773	0.5	21.2	O K
240 min Summer	24.500	0.800	0.5	21.9	O K
360 min Summer	24.523	0.823	0.5	22.6	O K
480 min Summer	24.535	0.835	0.5	22.9	O K
600 min Summer	24.541	0.841	0.5	23.1	O K
720 min Summer	24.543	0.843	0.5	23.2	O K
960 min Summer	24.538	0.838	0.5	23.0	O K
1440 min Summer	24.511	0.811	0.5	22.3	O K
2160 min Summer	24.459	0.759	0.5	20.8	O K
2880 min Summer	24.410	0.710	0.5	19.4	O K
4320 min Summer	24.326	0.626	0.4	17.0	O K
5760 min Summer	24.257	0.557	0.4	15.0	O K
7200 min Summer	24.201	0.501	0.4	13.4	O K
8640 min Summer	24.153	0.453	0.3	12.1	O K
10080 min Summer	24.112	0.412	0.3	10.9	O K
15 min Winter	24.137	0.437	0.3	11.6	O K
30 min Winter	24.261	0.561	0.4	15.1	O K
60 min Winter	24.389	0.689	0.5	18.8	O K
120 min Winter	24.511	0.811	0.5	22.3	O K
180 min Winter	24.571	0.871	0.6	24.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	33
60 min Summer	34.733	0.0	62
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	240
360 min Summer	9.767	0.0	314
480 min Summer	7.922	0.0	378
600 min Summer	6.730	0.0	440
720 min Summer	5.890	0.0	506
960 min Summer	4.770	0.0	646
1440 min Summer	3.540	0.0	924
2160 min Summer	2.625	0.0	1336
2880 min Summer	2.123	0.0	1732
4320 min Summer	1.572	0.0	2508
5760 min Summer	1.270	0.0	3288
7200 min Summer	1.076	0.0	4032
8640 min Summer	0.940	0.0	4760
10080 min Summer	0.839	0.0	5544
15 min Winter	82.824	0.0	19
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	120
180 min Winter	16.130	0.0	178

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	24.605	0.905	0.6	24.9	O K
360 min Winter	24.634	0.934	0.6	25.8	O K
480 min Winter	24.643	0.943	0.6	26.0	O K
600 min Winter	24.649	0.949	0.6	26.2	O K
720 min Winter	24.648	0.948	0.6	26.2	O K
960 min Winter	24.635	0.935	0.6	25.8	O K
1440 min Winter	24.589	0.889	0.6	24.5	O K
2160 min Winter	24.509	0.809	0.5	22.2	O K
2880 min Winter	24.435	0.735	0.5	20.1	O K
4320 min Winter	24.316	0.616	0.4	16.7	O K
5760 min Winter	24.224	0.524	0.4	14.1	O K
7200 min Winter	24.152	0.452	0.3	12.0	O K
8640 min Winter	24.093	0.393	0.3	10.3	O K
10080 min Winter	24.045	0.345	0.3	9.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	234
360 min Winter	9.767	0.0	340
480 min Winter	7.922	0.0	388
600 min Winter	6.730	0.0	462
720 min Winter	5.890	0.0	540
960 min Winter	4.770	0.0	694
1440 min Winter	3.540	0.0	994
2160 min Winter	2.625	0.0	1424
2880 min Winter	2.123	0.0	1844
4320 min Winter	1.572	0.0	2640
5760 min Winter	1.270	0.0	3408
7200 min Winter	1.076	0.0	4184
8640 min Winter	0.940	0.0	4928
10080 min Winter	0.839	0.0	5656

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.068

Time (mins) From:	To:	Area (ha)
0	4	0.068

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Model Details

Storage is Online Cover Level (m) 25.900

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.15300	Trench Width (m)	0.5
Infiltration Coefficient Side (m/hr)	0.15300	Trench Length (m)	60.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	23.700	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 518 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	24.326	0.626	0.4	17.0	O K
30 min Summer	24.523	0.823	0.5	22.6	O K
60 min Summer	24.727	1.027	0.6	28.4	O K
120 min Summer	24.917	1.217	0.7	33.8	O K
180 min Summer	25.003	1.303	0.8	36.3	O K
240 min Summer	25.043	1.343	0.8	37.4	O K
360 min Summer	25.073	1.373	0.8	38.3	O K
480 min Summer	25.086	1.386	0.8	38.6	O K
600 min Summer	25.091	1.391	0.8	38.8	O K
720 min Summer	25.091	1.391	0.8	38.8	O K
960 min Summer	25.078	1.378	0.8	38.4	O K
1440 min Summer	25.030	1.330	0.8	37.1	O K
2160 min Summer	24.941	1.241	0.8	34.5	O K
2880 min Summer	24.854	1.154	0.7	32.0	O K
4320 min Summer	24.707	1.007	0.6	27.8	O K
5760 min Summer	24.593	0.893	0.6	24.6	O K
7200 min Summer	24.501	0.801	0.5	22.0	O K
8640 min Summer	24.426	0.726	0.5	19.8	O K
10080 min Summer	24.363	0.663	0.5	18.1	O K
15 min Winter	24.398	0.698	0.5	19.0	O K
30 min Winter	24.620	0.920	0.6	25.4	O K
60 min Winter	24.850	1.150	0.7	31.9	O K
120 min Winter	25.066	1.366	0.8	38.1	O K
180 min Winter	25.166	1.466	0.9	40.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	33
60 min Summer	58.567	0.0	64
120 min Summer	36.294	0.0	122
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	240
360 min Summer	16.006	0.0	332
480 min Summer	12.864	0.0	386
600 min Summer	10.849	0.0	450
720 min Summer	9.435	0.0	514
960 min Summer	7.561	0.0	654
1440 min Summer	5.523	0.0	924
2160 min Summer	4.026	0.0	1340
2880 min Summer	3.213	0.0	1732
4320 min Summer	2.333	0.0	2512
5760 min Summer	1.857	0.0	3288
7200 min Summer	1.555	0.0	4040
8640 min Summer	1.347	0.0	4760
10080 min Summer	1.192	0.0	5544
15 min Winter	135.580	0.0	19
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	62
120 min Winter	36.294	0.0	120
180 min Winter	27.017	0.0	178

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	25.215	1.515	0.9	42.3	O K
360 min Winter	25.257	1.557	0.9	43.5	O K
480 min Winter	25.262	1.562	0.9	43.7	O K
600 min Winter	25.266	1.566	0.9	43.8	O K
720 min Winter	25.261	1.561	0.9	43.6	O K
960 min Winter	25.236	1.536	0.9	42.9	O K
1440 min Winter	25.155	1.455	0.9	40.6	O K
2160 min Winter	25.023	1.323	0.8	36.8	O K
2880 min Winter	24.901	1.201	0.7	33.4	O K
4320 min Winter	24.702	1.002	0.6	27.7	O K
5760 min Winter	24.553	0.853	0.6	23.5	O K
7200 min Winter	24.439	0.739	0.5	20.2	O K
8640 min Winter	24.349	0.649	0.4	17.6	O K
10080 min Winter	24.275	0.575	0.4	15.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	234
360 min Winter	16.006	0.0	342
480 min Winter	12.864	0.0	402
600 min Winter	10.849	0.0	468
720 min Winter	9.435	0.0	544
960 min Winter	7.561	0.0	700
1440 min Winter	5.523	0.0	996
2160 min Winter	4.026	0.0	1428
2880 min Winter	3.213	0.0	1844
4320 min Winter	2.333	0.0	2640
5760 min Winter	1.857	0.0	3456
7200 min Winter	1.555	0.0	4184
8640 min Winter	1.347	0.0	4936
10080 min Winter	1.192	0.0	5744

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.068

Time (mins) From:	To:	Area (ha)
0	4	0.068

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Model Details

Storage is Online Cover Level (m) 25.900

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.15300	Trench Width (m)	0.5
Infiltration Coefficient Side (m/hr)	0.15300	Trench Length (m)	60.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	23.700	Cap Infiltration Depth (m)	1.600

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 192 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	24.097	0.397	0.7	9.1	O K
30 min Summer	24.206	0.506	0.7	11.7	O K
60 min Summer	24.305	0.605	0.8	14.1	O K
120 min Summer	24.372	0.672	0.9	15.7	O K
180 min Summer	24.389	0.689	0.9	16.1	O K
240 min Summer	24.394	0.694	0.9	16.2	O K
360 min Summer	24.390	0.690	0.9	16.1	O K
480 min Summer	24.376	0.676	0.9	15.7	O K
600 min Summer	24.358	0.658	0.8	15.3	O K
720 min Summer	24.340	0.640	0.8	14.9	O K
960 min Summer	24.303	0.603	0.8	14.0	O K
1440 min Summer	24.235	0.535	0.8	12.4	O K
2160 min Summer	24.147	0.447	0.7	10.3	O K
2880 min Summer	24.075	0.375	0.6	8.6	O K
4320 min Summer	23.966	0.266	0.6	6.0	O K
5760 min Summer	23.888	0.188	0.5	4.2	O K
7200 min Summer	23.832	0.132	0.5	2.8	O K
8640 min Summer	23.791	0.091	0.4	1.9	O K
10080 min Summer	23.764	0.064	0.4	1.2	O K
15 min Winter	24.145	0.445	0.7	10.3	O K
30 min Winter	24.269	0.569	0.8	13.2	O K
60 min Winter	24.383	0.683	0.9	15.9	O K
120 min Winter	24.468	0.768	0.9	17.9	O K
180 min Winter	24.489	0.789	0.9	18.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	18
30 min Summer	54.698	0.0	33
60 min Summer	34.733	0.0	62
120 min Summer	21.518	0.0	120
180 min Summer	16.130	0.0	152
240 min Summer	13.106	0.0	184
360 min Summer	9.767	0.0	252
480 min Summer	7.922	0.0	322
600 min Summer	6.730	0.0	390
720 min Summer	5.890	0.0	460
960 min Summer	4.770	0.0	596
1440 min Summer	3.540	0.0	866
2160 min Summer	2.625	0.0	1252
2880 min Summer	2.123	0.0	1616
4320 min Summer	1.572	0.0	2376
5760 min Summer	1.270	0.0	3064
7200 min Summer	1.076	0.0	3816
8640 min Summer	0.940	0.0	4496
10080 min Summer	0.839	0.0	5144
15 min Winter	82.824	0.0	18
30 min Winter	54.698	0.0	32
60 min Winter	34.733	0.0	60
120 min Winter	21.518	0.0	116
180 min Winter	16.130	0.0	168

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	24.492	0.792	1.0	18.5	O K
360 min Winter	24.484	0.784	0.9	18.3	O K
480 min Winter	24.461	0.761	0.9	17.8	O K
600 min Winter	24.433	0.733	0.9	17.1	O K
720 min Winter	24.404	0.704	0.9	16.4	O K
960 min Winter	24.346	0.646	0.8	15.0	O K
1440 min Winter	24.243	0.543	0.8	12.6	O K
2160 min Winter	24.119	0.419	0.7	9.7	O K
2880 min Winter	24.024	0.324	0.6	7.4	O K
4320 min Winter	23.889	0.189	0.5	4.2	O K
5760 min Winter	23.801	0.101	0.4	2.1	O K
7200 min Winter	23.751	0.051	0.4	0.9	O K
8640 min Winter	23.744	0.044	0.3	0.7	O K
10080 min Winter	23.740	0.040	0.3	0.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	192
360 min Winter	9.767	0.0	268
480 min Winter	7.922	0.0	346
600 min Winter	6.730	0.0	422
720 min Winter	5.890	0.0	494
960 min Winter	4.770	0.0	638
1440 min Winter	3.540	0.0	912
2160 min Winter	2.625	0.0	1316
2880 min Winter	2.123	0.0	1700
4320 min Winter	1.572	0.0	2424
5760 min Winter	1.270	0.0	3120
7200 min Winter	1.076	0.0	3672
8640 min Winter	0.940	0.0	4352
10080 min Winter	0.839	0.0	5088

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.062

Time (mins) From:	To:	Area (ha)
0	4	0.062

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Model Details

Storage is Online Cover Level (m) 25.900

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.52200	Trench Width (m)	1.0
Infiltration Coefficient Side (m/hr)	0.52200	Trench Length (m)	25.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	23.700	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 251 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	24.350	0.650	0.8	15.1	O K
30 min Summer	24.551	0.851	1.0	19.9	O K
60 min Summer	24.743	1.043	1.1	24.5	O K
120 min Summer	24.885	1.185	1.2	27.8	O K
180 min Summer	24.920	1.220	1.3	28.7	O K
240 min Summer	24.927	1.227	1.3	28.8	O K
360 min Summer	24.923	1.223	1.3	28.8	O K
480 min Summer	24.905	1.205	1.3	28.3	O K
600 min Summer	24.878	1.178	1.2	27.7	O K
720 min Summer	24.847	1.147	1.2	26.9	O K
960 min Summer	24.784	1.084	1.2	25.4	O K
1440 min Summer	24.670	0.970	1.1	22.7	O K
2160 min Summer	24.531	0.831	1.0	19.4	O K
2880 min Summer	24.419	0.719	0.9	16.8	O K
4320 min Summer	24.248	0.548	0.8	12.7	O K
5760 min Summer	24.125	0.425	0.7	9.8	O K
7200 min Summer	24.032	0.332	0.6	7.6	O K
8640 min Summer	23.961	0.261	0.6	5.9	O K
10080 min Summer	23.903	0.203	0.5	4.5	O K
15 min Winter	24.428	0.728	0.9	17.0	O K
30 min Winter	24.656	0.956	1.1	22.4	O K
60 min Winter	24.875	1.175	1.2	27.6	O K
120 min Winter	25.046	1.346	1.4	31.7	O K
180 min Winter	25.094	1.394	1.4	32.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	18
30 min Summer	91.216	0.0	33
60 min Summer	58.567	0.0	62
120 min Summer	36.294	0.0	120
180 min Summer	27.017	0.0	166
240 min Summer	21.749	0.0	194
360 min Summer	16.006	0.0	258
480 min Summer	12.864	0.0	328
600 min Summer	10.849	0.0	398
720 min Summer	9.435	0.0	466
960 min Summer	7.561	0.0	606
1440 min Summer	5.523	0.0	868
2160 min Summer	4.026	0.0	1260
2880 min Summer	3.213	0.0	1644
4320 min Summer	2.333	0.0	2380
5760 min Summer	1.857	0.0	3120
7200 min Summer	1.555	0.0	3824
8640 min Summer	1.347	0.0	4584
10080 min Summer	1.192	0.0	5256
15 min Winter	135.580	0.0	18
30 min Winter	91.216	0.0	32
60 min Winter	58.567	0.0	62
120 min Winter	36.294	0.0	118
180 min Winter	27.017	0.0	172

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	25.094	1.394	1.4	32.8	O K
360 min Winter	25.087	1.387	1.4	32.6	O K
480 min Winter	25.057	1.357	1.4	31.9	O K
600 min Winter	25.017	1.317	1.3	31.0	O K
720 min Winter	24.972	1.272	1.3	29.9	O K
960 min Winter	24.879	1.179	1.2	27.7	O K
1440 min Winter	24.713	1.013	1.1	23.8	O K
2160 min Winter	24.520	0.820	1.0	19.2	O K
2880 min Winter	24.372	0.672	0.9	15.7	O K
4320 min Winter	24.161	0.461	0.7	10.7	O K
5760 min Winter	24.019	0.319	0.6	7.3	O K
7200 min Winter	23.918	0.218	0.5	4.9	O K
8640 min Winter	23.843	0.143	0.5	3.1	O K
10080 min Winter	23.787	0.087	0.4	1.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	204
360 min Winter	16.006	0.0	274
480 min Winter	12.864	0.0	352
600 min Winter	10.849	0.0	428
720 min Winter	9.435	0.0	502
960 min Winter	7.561	0.0	646
1440 min Winter	5.523	0.0	926
2160 min Winter	4.026	0.0	1340
2880 min Winter	3.213	0.0	1728
4320 min Winter	2.333	0.0	2468
5760 min Winter	1.857	0.0	3224
7200 min Winter	1.555	0.0	3960
8640 min Winter	1.347	0.0	4664
10080 min Winter	1.192	0.0	5344

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.062

Time (mins) From:	To:	Area (ha)
0	4	0.062

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Model Details

Storage is Online Cover Level (m) 25.900

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.52200	Trench Width (m)	1.0
Infiltration Coefficient Side (m/hr)	0.52200	Trench Length (m)	25.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	23.700	Cap Infiltration Depth (m)	1.600

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 427 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	25.415	0.115	0.1	2.7	O K
30 min Summer	25.446	0.146	0.1	3.5	O K
60 min Summer	25.478	0.178	0.1	4.3	O K
120 min Summer	25.508	0.208	0.1	5.1	O K
180 min Summer	25.522	0.222	0.1	5.5	O K
240 min Summer	25.528	0.228	0.1	5.6	O K
360 min Summer	25.533	0.233	0.1	5.7	O K
480 min Summer	25.534	0.234	0.1	5.8	O K
600 min Summer	25.533	0.233	0.1	5.8	O K
720 min Summer	25.532	0.232	0.1	5.7	O K
960 min Summer	25.527	0.227	0.1	5.6	O K
1440 min Summer	25.513	0.213	0.1	5.2	O K
2160 min Summer	25.492	0.192	0.1	4.7	O K
2880 min Summer	25.471	0.171	0.1	4.2	O K
4320 min Summer	25.435	0.135	0.1	3.2	O K
5760 min Summer	25.406	0.106	0.1	2.5	O K
7200 min Summer	25.383	0.083	0.1	1.9	O K
8640 min Summer	25.366	0.066	0.1	1.5	O K
10080 min Summer	25.355	0.055	0.1	1.2	O K
15 min Winter	25.428	0.128	0.1	3.0	O K
30 min Winter	25.463	0.163	0.1	4.0	O K
60 min Winter	25.500	0.200	0.1	4.9	O K
120 min Winter	25.535	0.235	0.1	5.8	O K
180 min Winter	25.552	0.252	0.1	6.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	33
60 min Summer	34.733	0.0	62
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	240
360 min Summer	9.767	0.0	326
480 min Summer	7.922	0.0	386
600 min Summer	6.730	0.0	450
720 min Summer	5.890	0.0	516
960 min Summer	4.770	0.0	654
1440 min Summer	3.540	0.0	926
2160 min Summer	2.625	0.0	1340
2880 min Summer	2.123	0.0	1732
4320 min Summer	1.572	0.0	2504
5760 min Summer	1.270	0.0	3224
7200 min Summer	1.076	0.0	3896
8640 min Summer	0.940	0.0	4584
10080 min Summer	0.839	0.0	5240
15 min Winter	82.824	0.0	18
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	120
180 min Winter	16.130	0.0	178

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	25.561	0.261	0.1	6.5	O K
360 min Winter	25.568	0.268	0.1	6.6	O K
480 min Winter	25.568	0.268	0.1	6.6	O K
600 min Winter	25.567	0.267	0.1	6.6	O K
720 min Winter	25.564	0.264	0.1	6.5	O K
960 min Winter	25.556	0.256	0.1	6.3	O K
1440 min Winter	25.535	0.235	0.1	5.8	O K
2160 min Winter	25.502	0.202	0.1	4.9	O K
2880 min Winter	25.470	0.170	0.1	4.1	O K
4320 min Winter	25.416	0.116	0.1	2.8	O K
5760 min Winter	25.377	0.077	0.1	1.7	O K
7200 min Winter	25.352	0.052	0.1	1.1	O K
8640 min Winter	25.345	0.045	0.1	0.9	O K
10080 min Winter	25.341	0.041	0.1	0.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	234
360 min Winter	9.767	0.0	344
480 min Winter	7.922	0.0	444
600 min Winter	6.730	0.0	476
720 min Winter	5.890	0.0	554
960 min Winter	4.770	0.0	710
1440 min Winter	3.540	0.0	1010
2160 min Winter	2.625	0.0	1448
2880 min Winter	2.123	0.0	1848
4320 min Winter	1.572	0.0	2596
5760 min Winter	1.270	0.0	3288
7200 min Winter	1.076	0.0	3824
8640 min Winter	0.940	0.0	4496
10080 min Winter	0.839	0.0	5152

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.018

Time (mins) From:	To:	Area (ha)
0	4	0.018

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Model Details

Storage is Online Cover Level (m) 27.300

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.13640	Trench Width (m)	1.5
Infiltration Coefficient Side (m/hr)	0.13640	Trench Length (m)	18.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.000
Invert Level (m)	25.300	Cap Infiltration Depth (m)	1.000

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 660 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	25.483	0.183	0.1	4.5	O K
30 min Summer	25.541	0.241	0.1	6.0	O K
60 min Summer	25.601	0.301	0.1	7.5	O K
120 min Summer	25.658	0.358	0.2	9.0	O K
180 min Summer	25.685	0.385	0.2	9.7	O K
240 min Summer	25.699	0.399	0.2	10.0	O K
360 min Summer	25.712	0.412	0.2	10.3	O K
480 min Summer	25.714	0.414	0.2	10.4	O K
600 min Summer	25.712	0.412	0.2	10.3	O K
720 min Summer	25.709	0.409	0.2	10.3	O K
960 min Summer	25.701	0.401	0.2	10.1	O K
1440 min Summer	25.682	0.382	0.2	9.6	O K
2160 min Summer	25.651	0.351	0.2	8.8	O K
2880 min Summer	25.622	0.322	0.1	8.0	O K
4320 min Summer	25.569	0.269	0.1	6.7	O K
5760 min Summer	25.523	0.223	0.1	5.5	O K
7200 min Summer	25.485	0.185	0.1	4.5	O K
8640 min Summer	25.453	0.153	0.1	3.7	O K
10080 min Summer	25.426	0.126	0.1	3.0	O K
15 min Winter	25.505	0.205	0.1	5.0	O K
30 min Winter	25.570	0.270	0.1	6.7	O K
60 min Winter	25.638	0.338	0.2	8.4	O K
120 min Winter	25.704	0.404	0.2	10.1	O K
180 min Winter	25.736	0.436	0.2	10.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	34
60 min Summer	58.567	0.0	64
120 min Summer	36.294	0.0	122
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	242
360 min Summer	16.006	0.0	360
480 min Summer	12.864	0.0	468
600 min Summer	10.849	0.0	516
720 min Summer	9.435	0.0	578
960 min Summer	7.561	0.0	704
1440 min Summer	5.523	0.0	980
2160 min Summer	4.026	0.0	1388
2880 min Summer	3.213	0.0	1792
4320 min Summer	2.333	0.0	2596
5760 min Summer	1.857	0.0	3352
7200 min Summer	1.555	0.0	4104
8640 min Summer	1.347	0.0	4840
10080 min Summer	1.192	0.0	5544
15 min Winter	135.580	0.0	19
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	62
120 min Winter	36.294	0.0	120
180 min Winter	27.017	0.0	178

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	25.753	0.453	0.2	11.4	O K
360 min Winter	25.771	0.471	0.2	11.8	O K
480 min Winter	25.777	0.477	0.2	12.0	O K
600 min Winter	25.775	0.475	0.2	12.0	O K
720 min Winter	25.770	0.470	0.2	11.8	O K
960 min Winter	25.761	0.461	0.2	11.6	O K
1440 min Winter	25.735	0.435	0.2	10.9	O K
2160 min Winter	25.689	0.389	0.2	9.8	O K
2880 min Winter	25.646	0.346	0.2	8.6	O K
4320 min Winter	25.568	0.268	0.1	6.6	O K
5760 min Winter	25.503	0.203	0.1	5.0	O K
7200 min Winter	25.451	0.151	0.1	3.6	O K
8640 min Winter	25.409	0.109	0.1	2.6	O K
10080 min Winter	25.376	0.076	0.1	1.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	236
360 min Winter	16.006	0.0	350
480 min Winter	12.864	0.0	460
600 min Winter	10.849	0.0	566
720 min Winter	9.435	0.0	660
960 min Winter	7.561	0.0	748
1440 min Winter	5.523	0.0	1054
2160 min Winter	4.026	0.0	1512
2880 min Winter	3.213	0.0	1936
4320 min Winter	2.333	0.0	2768
5760 min Winter	1.857	0.0	3568
7200 min Winter	1.555	0.0	4256
8640 min Winter	1.347	0.0	4936
10080 min Winter	1.192	0.0	5640

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.018

Time (mins) From:	To:	Area (ha)
0	4	0.018

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Model Details

Storage is Online Cover Level (m) 27.300

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.13640	Trench Width (m)	1.5
Infiltration Coefficient Side (m/hr)	0.13640	Trench Length (m)	18.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.000
Invert Level (m)	25.300	Cap Infiltration Depth (m)	1.000

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 6 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	23.769	0.469	29.4	12.0	O K
30 min Summer	23.762	0.462	29.1	11.8	O K
60 min Summer	23.672	0.372	26.4	9.5	O K
120 min Summer	23.521	0.221	21.8	5.7	O K
180 min Summer	23.425	0.125	18.9	3.2	O K
240 min Summer	23.368	0.068	17.1	1.7	O K
360 min Summer	23.342	0.042	13.8	1.1	O K
480 min Summer	23.334	0.034	11.4	0.9	O K
600 min Summer	23.329	0.029	9.5	0.7	O K
720 min Summer	23.325	0.025	8.4	0.6	O K
960 min Summer	23.321	0.021	6.9	0.5	O K
1440 min Summer	23.315	0.015	5.1	0.4	O K
2160 min Summer	23.311	0.011	3.7	0.3	O K
2880 min Summer	23.309	0.009	3.1	0.2	O K
4320 min Summer	23.307	0.007	2.4	0.2	O K
5760 min Summer	23.306	0.006	1.9	0.2	O K
7200 min Summer	23.305	0.005	1.7	0.1	O K
8640 min Summer	23.304	0.004	1.4	0.1	O K
10080 min Summer	23.304	0.004	1.2	0.1	O K
15 min Winter	23.829	0.529	31.2	13.5	O K
30 min Winter	23.787	0.487	29.9	12.5	O K
60 min Winter	23.644	0.344	25.5	8.8	O K
120 min Winter	23.444	0.144	19.4	3.7	O K
180 min Winter	23.350	0.050	16.5	1.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	12
30 min Summer	54.698	0.0	21
60 min Summer	34.733	0.0	36
120 min Summer	21.518	0.0	68
180 min Summer	16.130	0.0	96
240 min Summer	13.106	0.0	126
360 min Summer	9.767	0.0	184
480 min Summer	7.922	0.0	242
600 min Summer	6.730	0.0	306
720 min Summer	5.890	0.0	360
960 min Summer	4.770	0.0	480
1440 min Summer	3.540	0.0	730
2160 min Summer	2.625	0.0	1068
2880 min Summer	2.123	0.0	1444
4320 min Summer	1.572	0.0	2184
5760 min Summer	1.270	0.0	2904
7200 min Summer	1.076	0.0	3536
8640 min Summer	0.940	0.0	4360
10080 min Summer	0.839	0.0	5128
15 min Winter	82.824	0.0	13
30 min Winter	54.698	0.0	22
60 min Winter	34.733	0.0	38
120 min Winter	21.518	0.0	68
180 min Winter	16.130	0.0	92

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	23.341	0.041	13.5	1.0	O K
360 min Winter	23.330	0.030	10.0	0.8	O K
480 min Winter	23.325	0.025	8.2	0.6	O K
600 min Winter	23.321	0.021	7.0	0.5	O K
720 min Winter	23.318	0.018	6.1	0.5	O K
960 min Winter	23.315	0.015	4.9	0.4	O K
1440 min Winter	23.311	0.011	3.7	0.3	O K
2160 min Winter	23.308	0.008	2.7	0.2	O K
2880 min Winter	23.307	0.007	2.2	0.2	O K
4320 min Winter	23.305	0.005	1.7	0.1	O K
5760 min Winter	23.304	0.004	1.4	0.1	O K
7200 min Winter	23.304	0.004	1.2	0.1	O K
8640 min Winter	23.303	0.003	1.1	0.1	O K
10080 min Winter	23.303	0.003	0.9	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	122
360 min Winter	9.767	0.0	182
480 min Winter	7.922	0.0	244
600 min Winter	6.730	0.0	302
720 min Winter	5.890	0.0	358
960 min Winter	4.770	0.0	490
1440 min Winter	3.540	0.0	724
2160 min Winter	2.625	0.0	1088
2880 min Winter	2.123	0.0	1472
4320 min Winter	1.572	0.0	2096
5760 min Winter	1.270	0.0	3040
7200 min Winter	1.076	0.0	3544
8640 min Winter	0.940	0.0	4200
10080 min Winter	0.839	0.0	5096

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.174

Time (mins) From:	To:	Area (ha)
0	4	0.174

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Model Details

Storage is Online Cover Level (m) 25.200

Complex Structure

Cellular Storage

Invert Level (m) 23.300 Safety Factor 10.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	8.0	0.0	1.600	8.0	0.0

Trench Soakaway

Infiltration Coefficient Base (m/hr)	1.80700	Trench Width (m)	1.0
Infiltration Coefficient Side (m/hr)	1.80000	Trench Length (m)	60.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.30	Cap Volume Depth (m)	1.600
Invert Level (m)	23.300	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 7 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	24.189	0.889	42.2	22.8	O K
30 min Summer	24.231	0.931	43.5	23.8	O K
60 min Summer	24.125	0.825	40.2	21.1	O K
120 min Summer	23.906	0.606	33.5	15.5	O K
180 min Summer	23.738	0.438	28.4	11.2	O K
240 min Summer	23.618	0.318	24.8	8.1	O K
360 min Summer	23.463	0.163	20.0	4.2	O K
480 min Summer	23.375	0.075	17.4	1.9	O K
600 min Summer	23.347	0.047	15.5	1.2	O K
720 min Summer	23.341	0.041	13.5	1.0	O K
960 min Summer	23.333	0.033	10.9	0.8	O K
1440 min Summer	23.324	0.024	7.9	0.6	O K
2160 min Summer	23.317	0.017	5.7	0.4	O K
2880 min Summer	23.314	0.014	4.7	0.4	O K
4320 min Summer	23.310	0.010	3.4	0.3	O K
5760 min Summer	23.308	0.008	2.7	0.2	O K
7200 min Summer	23.307	0.007	2.4	0.2	O K
8640 min Summer	23.306	0.006	2.1	0.2	O K
10080 min Summer	23.306	0.006	1.9	0.2	O K
15 min Winter	24.303	1.003	45.7	25.7	O K
30 min Winter	24.305	1.005	45.7	25.7	O K
60 min Winter	24.116	0.816	39.9	20.9	O K
120 min Winter	23.812	0.512	30.7	13.1	O K
180 min Winter	23.618	0.318	24.7	8.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	13
30 min Summer	91.216	0.0	21
60 min Summer	58.567	0.0	38
120 min Summer	36.294	0.0	68
180 min Summer	27.017	0.0	98
240 min Summer	21.749	0.0	130
360 min Summer	16.006	0.0	188
480 min Summer	12.864	0.0	248
600 min Summer	10.849	0.0	300
720 min Summer	9.435	0.0	364
960 min Summer	7.561	0.0	480
1440 min Summer	5.523	0.0	732
2160 min Summer	4.026	0.0	1064
2880 min Summer	3.213	0.0	1456
4320 min Summer	2.333	0.0	2124
5760 min Summer	1.857	0.0	2840
7200 min Summer	1.555	0.0	3672
8640 min Summer	1.347	0.0	4272
10080 min Summer	1.192	0.0	5016
15 min Winter	135.580	0.0	13
30 min Winter	91.216	0.0	22
60 min Winter	58.567	0.0	38
120 min Winter	36.294	0.0	70
180 min Winter	27.017	0.0	102

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	23.488	0.188	20.8	4.8	O K
360 min Winter	23.350	0.050	16.5	1.3	O K
480 min Winter	23.340	0.040	13.3	1.0	O K
600 min Winter	23.334	0.034	11.2	0.9	O K
720 min Winter	23.329	0.029	9.7	0.8	O K
960 min Winter	23.324	0.024	7.9	0.6	O K
1440 min Winter	23.317	0.017	5.7	0.4	O K
2160 min Winter	23.313	0.013	4.2	0.3	O K
2880 min Winter	23.310	0.010	3.4	0.3	O K
4320 min Winter	23.308	0.008	2.6	0.2	O K
5760 min Winter	23.306	0.006	2.1	0.2	O K
7200 min Winter	23.305	0.005	1.7	0.1	O K
8640 min Winter	23.305	0.005	1.6	0.1	O K
10080 min Winter	23.304	0.004	1.4	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	132
360 min Winter	16.006	0.0	182
480 min Winter	12.864	0.0	242
600 min Winter	10.849	0.0	304
720 min Winter	9.435	0.0	358
960 min Winter	7.561	0.0	476
1440 min Winter	5.523	0.0	716
2160 min Winter	4.026	0.0	1064
2880 min Winter	3.213	0.0	1492
4320 min Winter	2.333	0.0	2160
5760 min Winter	1.857	0.0	2776
7200 min Winter	1.555	0.0	3624
8640 min Winter	1.347	0.0	4488
10080 min Winter	1.192	0.0	5240

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.174

Time (mins) From:	To:	Area (ha)
0	4	0.174

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Model Details

Storage is Online Cover Level (m) 25.200

Complex Structure

Trench Soakaway

Infiltration Coefficient Base (m/hr)	1.80700	Trench Width (m)	1.0
Infiltration Coefficient Side (m/hr)	1.80000	Trench Length (m)	60.0
Safety Factor	2.0	Slope (1:X)	0.0
Porosity	0.30	Cap Volume Depth (m)	1.600
Invert Level (m)	23.300	Cap Infiltration Depth (m)	1.600

Cellular Storage

Invert Level (m)	23.300	Safety Factor	10.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	8.0	0.0	1.600	8.0	0.0

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 791 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	22.258	0.308	0.2	8.7	O K
30 min Summer	22.351	0.401	0.2	11.4	O K
60 min Summer	22.449	0.499	0.2	14.2	O K
120 min Summer	22.549	0.599	0.3	17.1	O K
180 min Summer	22.603	0.653	0.3	18.7	O K
240 min Summer	22.638	0.688	0.3	19.7	O K
360 min Summer	22.678	0.728	0.3	20.9	O K
480 min Summer	22.696	0.746	0.3	21.4	O K
600 min Summer	22.704	0.754	0.3	21.6	O K
720 min Summer	22.709	0.759	0.3	21.8	O K
960 min Summer	22.714	0.764	0.3	21.9	O K
1440 min Summer	22.708	0.758	0.3	21.7	O K
2160 min Summer	22.682	0.732	0.3	21.0	O K
2880 min Summer	22.651	0.701	0.3	20.1	O K
4320 min Summer	22.591	0.641	0.3	18.3	O K
5760 min Summer	22.535	0.585	0.2	16.7	O K
7200 min Summer	22.485	0.535	0.2	15.3	O K
8640 min Summer	22.441	0.491	0.2	14.0	O K
10080 min Summer	22.400	0.450	0.2	12.8	O K
15 min Winter	22.295	0.345	0.2	9.8	O K
30 min Winter	22.399	0.449	0.2	12.8	O K
60 min Winter	22.510	0.560	0.2	16.0	O K
120 min Winter	22.623	0.673	0.3	19.3	O K
180 min Winter	22.687	0.737	0.3	21.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	34
60 min Summer	34.733	0.0	64
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	242
360 min Summer	9.767	0.0	360
480 min Summer	7.922	0.0	480
600 min Summer	6.730	0.0	550
720 min Summer	5.890	0.0	606
960 min Summer	4.770	0.0	732
1440 min Summer	3.540	0.0	996
2160 min Summer	2.625	0.0	1408
2880 min Summer	2.123	0.0	1840
4320 min Summer	1.572	0.0	2640
5760 min Summer	1.270	0.0	3456
7200 min Summer	1.076	0.0	4248
8640 min Summer	0.940	0.0	5008
10080 min Summer	0.839	0.0	5752
15 min Winter	82.824	0.0	19
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	120
180 min Winter	16.130	0.0	180

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	22.727	0.777	0.3	22.3	O K
360 min Winter	22.777	0.827	0.3	23.7	O K
480 min Winter	22.802	0.852	0.3	24.5	O K
600 min Winter	22.815	0.865	0.3	24.8	O K
720 min Winter	22.819	0.869	0.3	25.0	O K
960 min Winter	22.821	0.871	0.3	25.0	O K
1440 min Winter	22.811	0.861	0.3	24.7	O K
2160 min Winter	22.770	0.820	0.3	23.5	O K
2880 min Winter	22.721	0.771	0.3	22.1	O K
4320 min Winter	22.627	0.677	0.3	19.4	O K
5760 min Winter	22.546	0.596	0.3	17.0	O K
7200 min Winter	22.475	0.525	0.2	15.0	O K
8640 min Winter	22.413	0.463	0.2	13.2	O K
10080 min Winter	22.359	0.409	0.2	11.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	238
360 min Winter	9.767	0.0	352
480 min Winter	7.922	0.0	462
600 min Winter	6.730	0.0	572
720 min Winter	5.890	0.0	672
960 min Winter	4.770	0.0	760
1440 min Winter	3.540	0.0	1068
2160 min Winter	2.625	0.0	1532
2880 min Winter	2.123	0.0	1964
4320 min Winter	1.572	0.0	2812
5760 min Winter	1.270	0.0	3640
7200 min Winter	1.076	0.0	4464
8640 min Winter	0.940	0.0	5272
10080 min Winter	0.839	0.0	6048

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.057

Time (mins) From:	To:	Area (ha)
0	4	0.057

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Model Details

Storage is Online Cover Level (m) 23.850

Complex Structure

Trench Soakaway

Infiltration Coefficient Base (m/hr)	0.18940	Trench Width (m)	1.0
Infiltration Coefficient Side (m/hr)	0.18940	Trench Length (m)	21.5
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	21.950	Cap Infiltration Depth (m)	1.600

Cellular Storage

Invert Level (m)	21.950	Safety Factor	10.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	9.0	0.0	1.600	9.0	0.0

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 899 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	26.609	0.209	0.5	19.3	O K
30 min Summer	26.668	0.268	0.5	25.3	O K
60 min Summer	26.730	0.330	0.5	31.6	O K
120 min Summer	26.793	0.393	0.5	37.9	O K
180 min Summer	26.827	0.427	0.5	41.5	O K
240 min Summer	26.850	0.450	0.5	43.7	O K
360 min Summer	26.876	0.476	0.5	46.4	O K
480 min Summer	26.889	0.489	0.5	47.7	O K
600 min Summer	26.894	0.494	0.5	48.2	O K
720 min Summer	26.895	0.495	0.5	48.3	O K
960 min Summer	26.893	0.493	0.5	48.1	O K
1440 min Summer	26.883	0.483	0.5	47.1	O K
2160 min Summer	26.863	0.463	0.5	45.1	O K
2880 min Summer	26.842	0.442	0.5	42.9	O K
4320 min Summer	26.798	0.398	0.5	38.5	O K
5760 min Summer	26.756	0.356	0.5	34.2	O K
7200 min Summer	26.716	0.316	0.5	30.1	O K
8640 min Summer	26.679	0.279	0.5	26.4	O K
10080 min Summer	26.645	0.245	0.5	23.0	O K
15 min Winter	26.632	0.232	0.5	21.7	O K
30 min Winter	26.699	0.299	0.5	28.4	O K
60 min Winter	26.769	0.369	0.5	35.5	O K
120 min Winter	26.841	0.441	0.5	42.8	O K
180 min Winter	26.882	0.482	0.5	47.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	34
60 min Summer	34.733	0.0	64
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	242
360 min Summer	9.767	0.0	362
480 min Summer	7.922	0.0	480
600 min Summer	6.730	0.0	600
720 min Summer	5.890	0.0	686
960 min Summer	4.770	0.0	798
1440 min Summer	3.540	0.0	1052
2160 min Summer	2.625	0.0	1468
2880 min Summer	2.123	0.0	1876
4320 min Summer	1.572	0.0	2684
5760 min Summer	1.270	0.0	3512
7200 min Summer	1.076	0.0	4256
8640 min Summer	0.940	0.0	5016
10080 min Summer	0.839	0.0	5752
15 min Winter	82.824	0.0	19
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	122
180 min Winter	16.130	0.0	180

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	26.909	0.509	0.5	49.7	O K
360 min Winter	26.942	0.542	0.6	53.0	O K
480 min Winter	26.960	0.560	0.6	54.9	O K
600 min Winter	26.970	0.570	0.6	55.9	O K
720 min Winter	26.974	0.574	0.6	56.3	O K
960 min Winter	26.973	0.573	0.6	56.2	O K
1440 min Winter	26.959	0.559	0.6	54.7	O K
2160 min Winter	26.930	0.530	0.6	51.8	O K
2880 min Winter	26.896	0.496	0.5	48.3	O K
4320 min Winter	26.826	0.426	0.5	41.3	O K
5760 min Winter	26.760	0.360	0.5	34.7	O K
7200 min Winter	26.700	0.300	0.5	28.6	O K
8640 min Winter	26.646	0.246	0.5	23.1	O K
10080 min Winter	26.598	0.198	0.5	18.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	238
360 min Winter	9.767	0.0	354
480 min Winter	7.922	0.0	468
600 min Winter	6.730	0.0	580
720 min Winter	5.890	0.0	688
960 min Winter	4.770	0.0	896
1440 min Winter	3.540	0.0	1122
2160 min Winter	2.625	0.0	1580
2880 min Winter	2.123	0.0	2044
4320 min Winter	1.572	0.0	2900
5760 min Winter	1.270	0.0	3752
7200 min Winter	1.076	0.0	4544
8640 min Winter	0.940	0.0	5280
10080 min Winter	0.839	0.0	6048

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.127

Time (mins) From:	To:	Area (ha)
0	4	0.127

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Model Details

Storage is Online Cover Level (m) 28.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.13600	Trench Width (m)	3.0
Infiltration Coefficient Side (m/hr)	0.13600	Trench Length (m)	35.5
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.200
Invert Level (m)	26.400	Cap Infiltration Depth (m)	1.200

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 1352 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	26.733	0.333	0.5	31.9	O K
30 min Summer	26.839	0.439	0.5	42.6	O K
60 min Summer	26.952	0.552	0.6	54.1	O K
120 min Summer	27.067	0.667	0.6	65.7	O K
180 min Summer	27.128	0.728	0.6	71.9	O K
240 min Summer	27.166	0.766	0.6	75.7	O K
360 min Summer	27.215	0.815	0.6	80.6	O K
480 min Summer	27.242	0.842	0.6	83.4	O K
600 min Summer	27.258	0.858	0.6	85.0	O K
720 min Summer	27.265	0.865	0.6	85.7	O K
960 min Summer	27.265	0.865	0.6	85.7	O K
1440 min Summer	27.246	0.846	0.6	83.8	O K
2160 min Summer	27.211	0.811	0.6	80.3	O K
2880 min Summer	27.175	0.775	0.6	76.7	O K
4320 min Summer	27.109	0.709	0.6	70.0	O K
5760 min Summer	27.049	0.649	0.6	63.8	O K
7200 min Summer	26.992	0.592	0.6	58.1	O K
8640 min Summer	26.941	0.541	0.6	52.9	O K
10080 min Summer	26.893	0.493	0.5	48.1	O K
15 min Winter	26.771	0.371	0.5	35.7	O K
30 min Winter	26.890	0.490	0.5	47.8	O K
60 min Winter	27.018	0.618	0.6	60.8	O K
120 min Winter	27.149	0.749	0.6	73.9	O K
180 min Winter	27.220	0.820	0.6	81.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	34
60 min Summer	58.567	0.0	64
120 min Summer	36.294	0.0	124
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	242
360 min Summer	16.006	0.0	362
480 min Summer	12.864	0.0	482
600 min Summer	10.849	0.0	602
720 min Summer	9.435	0.0	720
960 min Summer	7.561	0.0	952
1440 min Summer	5.523	0.0	1172
2160 min Summer	4.026	0.0	1556
2880 min Summer	3.213	0.0	1964
4320 min Summer	2.333	0.0	2808
5760 min Summer	1.857	0.0	3632
7200 min Summer	1.555	0.0	4400
8640 min Summer	1.347	0.0	5192
10080 min Summer	1.192	0.0	5960
15 min Winter	135.580	0.0	19
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	64
120 min Winter	36.294	0.0	122
180 min Winter	27.017	0.0	180

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	27.264	0.864	0.6	85.6	O K
360 min Winter	27.322	0.922	0.7	91.5	O K
480 min Winter	27.357	0.957	0.7	95.1	O K
600 min Winter	27.379	0.979	0.7	97.2	O K
720 min Winter	27.392	0.992	0.7	98.5	O K
960 min Winter	27.400	1.000	0.7	99.4	O K
1440 min Winter	27.382	0.982	0.7	97.5	O K
2160 min Winter	27.339	0.939	0.7	93.2	O K
2880 min Winter	27.290	0.890	0.7	88.3	O K
4320 min Winter	27.194	0.794	0.6	78.6	O K
5760 min Winter	27.104	0.704	0.6	69.4	O K
7200 min Winter	27.021	0.621	0.6	61.0	O K
8640 min Winter	26.946	0.546	0.6	53.4	O K
10080 min Winter	26.877	0.477	0.5	46.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	240
360 min Winter	16.006	0.0	356
480 min Winter	12.864	0.0	472
600 min Winter	10.849	0.0	586
720 min Winter	9.435	0.0	700
960 min Winter	7.561	0.0	922
1440 min Winter	5.523	0.0	1328
2160 min Winter	4.026	0.0	1664
2880 min Winter	3.213	0.0	2132
4320 min Winter	2.333	0.0	3028
5760 min Winter	1.857	0.0	3920
7200 min Winter	1.555	0.0	4752
8640 min Winter	1.347	0.0	5544
10080 min Winter	1.192	0.0	6360

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.127

Time (mins) From:	To:	Area (ha)
0	4	0.127

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Model Details

Storage is Online Cover Level (m) 28.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.13600	Trench Width (m)	3.0
Infiltration Coefficient Side (m/hr)	0.13600	Trench Length (m)	35.5
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.200
Invert Level (m)	26.400	Cap Infiltration Depth (m)	1.200

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 997 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	25.575	0.325	0.3	14.1	O K
30 min Summer	25.671	0.421	0.3	18.4	O K
60 min Summer	25.772	0.522	0.3	23.1	O K
120 min Summer	25.877	0.627	0.3	27.9	O K
180 min Summer	25.937	0.687	0.4	30.6	O K
240 min Summer	25.976	0.726	0.4	32.4	O K
360 min Summer	26.024	0.774	0.4	34.6	O K
480 min Summer	26.051	0.801	0.4	35.8	O K
600 min Summer	26.064	0.814	0.4	36.4	O K
720 min Summer	26.070	0.820	0.4	36.7	O K
960 min Summer	26.075	0.825	0.4	36.9	O K
1440 min Summer	26.072	0.822	0.4	36.8	O K
2160 min Summer	26.051	0.801	0.4	35.8	O K
2880 min Summer	26.023	0.773	0.4	34.5	O K
4320 min Summer	25.968	0.718	0.4	32.0	O K
5760 min Summer	25.915	0.665	0.3	29.6	O K
7200 min Summer	25.865	0.615	0.3	27.3	O K
8640 min Summer	25.820	0.570	0.3	25.2	O K
10080 min Summer	25.777	0.527	0.3	23.3	O K
15 min Winter	25.612	0.362	0.3	15.8	O K
30 min Winter	25.720	0.470	0.3	20.7	O K
60 min Winter	25.835	0.585	0.3	26.0	O K
120 min Winter	25.955	0.705	0.4	31.4	O K
180 min Winter	26.023	0.773	0.4	34.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	34
60 min Summer	34.733	0.0	64
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	242
360 min Summer	9.767	0.0	362
480 min Summer	7.922	0.0	480
600 min Summer	6.730	0.0	600
720 min Summer	5.890	0.0	688
960 min Summer	4.770	0.0	800
1440 min Summer	3.540	0.0	1054
2160 min Summer	2.625	0.0	1472
2880 min Summer	2.123	0.0	1876
4320 min Summer	1.572	0.0	2720
5760 min Summer	1.270	0.0	3520
7200 min Summer	1.076	0.0	4320
8640 min Summer	0.940	0.0	5104
10080 min Summer	0.839	0.0	5856
15 min Winter	82.824	0.0	19
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	122
180 min Winter	16.130	0.0	180

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	26.069	0.819	0.4	36.6	O K
360 min Winter	26.128	0.878	0.4	39.3	O K
480 min Winter	26.162	0.912	0.4	40.8	O K
600 min Winter	26.182	0.932	0.4	41.8	O K
720 min Winter	26.193	0.943	0.4	42.3	O K
960 min Winter	26.199	0.949	0.4	42.5	O K
1440 min Winter	26.193	0.943	0.4	42.3	O K
2160 min Winter	26.162	0.912	0.4	40.9	O K
2880 min Winter	26.119	0.869	0.4	38.9	O K
4320 min Winter	26.031	0.781	0.4	34.9	O K
5760 min Winter	25.950	0.700	0.4	31.2	O K
7200 min Winter	25.876	0.626	0.3	27.8	O K
8640 min Winter	25.810	0.560	0.3	24.8	O K
10080 min Winter	25.750	0.500	0.3	22.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	238
360 min Winter	9.767	0.0	354
480 min Winter	7.922	0.0	468
600 min Winter	6.730	0.0	578
720 min Winter	5.890	0.0	688
960 min Winter	4.770	0.0	894
1440 min Winter	3.540	0.0	1112
2160 min Winter	2.625	0.0	1580
2880 min Winter	2.123	0.0	2044
4320 min Winter	1.572	0.0	2936
5760 min Winter	1.270	0.0	3752
7200 min Winter	1.076	0.0	4608
8640 min Winter	0.940	0.0	5440
10080 min Winter	0.839	0.0	6160

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.092

Time (mins) From:	To:	Area (ha)
0	4	0.092

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Model Details

Storage is Online Cover Level (m) 27.250

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.13600	Trench Width (m)	1.5
Infiltration Coefficient Side (m/hr)	0.13600	Trench Length (m)	32.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	25.250	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 1258 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	25.773	0.523	0.3	23.1	O K
30 min Summer	25.945	0.695	0.4	31.0	O K
60 min Summer	26.129	0.879	0.4	39.3	O K
120 min Summer	26.315	1.065	0.4	47.8	O K
180 min Summer	26.415	1.165	0.5	52.4	O K
240 min Summer	26.477	1.227	0.5	55.2	O K
360 min Summer	26.556	1.306	0.5	58.8	O K
480 min Summer	26.601	1.351	0.5	60.9	O K
600 min Summer	26.626	1.376	0.5	62.0	O K
720 min Summer	26.638	1.388	0.5	62.6	O K
960 min Summer	26.641	1.391	0.5	62.7	O K
1440 min Summer	26.632	1.382	0.5	62.3	O K
2160 min Summer	26.597	1.347	0.5	60.7	O K
2880 min Summer	26.549	1.299	0.5	58.5	O K
4320 min Summer	26.450	1.200	0.5	54.0	O K
5760 min Summer	26.361	1.111	0.5	49.9	O K
7200 min Summer	26.282	1.032	0.4	46.3	O K
8640 min Summer	26.213	0.963	0.4	43.2	O K
10080 min Summer	26.150	0.900	0.4	40.3	O K
15 min Winter	25.835	0.585	0.3	25.9	O K
30 min Winter	26.027	0.777	0.4	34.7	O K
60 min Winter	26.234	0.984	0.4	44.1	O K
120 min Winter	26.445	1.195	0.5	53.8	O K
180 min Winter	26.560	1.310	0.5	59.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	34
60 min Summer	58.567	0.0	64
120 min Summer	36.294	0.0	124
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	242
360 min Summer	16.006	0.0	362
480 min Summer	12.864	0.0	482
600 min Summer	10.849	0.0	600
720 min Summer	9.435	0.0	720
960 min Summer	7.561	0.0	876
1440 min Summer	5.523	0.0	1112
2160 min Summer	4.026	0.0	1512
2880 min Summer	3.213	0.0	1932
4320 min Summer	2.333	0.0	2764
5760 min Summer	1.857	0.0	3576
7200 min Summer	1.555	0.0	4392
8640 min Summer	1.347	0.0	5184
10080 min Summer	1.192	0.0	5952
15 min Winter	135.580	0.0	19
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	64
120 min Winter	36.294	0.0	122
180 min Winter	27.017	0.0	180

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	26.631	1.381	0.5	62.2	O K
360 min Winter	26.724	1.474	0.6	66.5	O K
480 min Winter	26.780	1.530	0.6	69.0	O K
600 min Winter	26.813	1.563	0.6	70.6	O K
720 min Winter	26.832	1.582	0.6	71.4	O K
960 min Winter	26.845	1.595	0.6	72.0	O K
1440 min Winter	26.826	1.576	0.6	71.1	O K
2160 min Winter	26.782	1.532	0.6	69.1	O K
2880 min Winter	26.718	1.468	0.5	66.2	O K
4320 min Winter	26.576	1.326	0.5	59.7	O K
5760 min Winter	26.445	1.195	0.5	53.8	O K
7200 min Winter	26.334	1.084	0.5	48.7	O K
8640 min Winter	26.236	0.986	0.4	44.2	O K
10080 min Winter	26.149	0.899	0.4	40.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	238
360 min Winter	16.006	0.0	356
480 min Winter	12.864	0.0	470
600 min Winter	10.849	0.0	584
720 min Winter	9.435	0.0	694
960 min Winter	7.561	0.0	912
1440 min Winter	5.523	0.0	1152
2160 min Winter	4.026	0.0	1604
2880 min Winter	3.213	0.0	2076
4320 min Winter	2.333	0.0	2980
5760 min Winter	1.857	0.0	3816
7200 min Winter	1.555	0.0	4680
8640 min Winter	1.347	0.0	5528
10080 min Winter	1.192	0.0	6264

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.092

Time (mins) From:	To:	Area (ha)
0	4	0.092

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Model Details

Storage is Online Cover Level (m) 27.250

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.13600	Trench Width (m)	1.5
Infiltration Coefficient Side (m/hr)	0.13600	Trench Length (m)	32.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	25.250	Cap Infiltration Depth (m)	1.600

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 909 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	26.325	0.325	0.4	20.4	O K
30 min Summer	26.420	0.420	0.5	26.8	O K
60 min Summer	26.521	0.521	0.5	33.5	O K
120 min Summer	26.623	0.623	0.5	40.2	O K
180 min Summer	26.680	0.680	0.6	44.0	O K
240 min Summer	26.716	0.716	0.6	46.5	O K
360 min Summer	26.760	0.760	0.6	49.4	O K
480 min Summer	26.782	0.782	0.6	50.9	O K
600 min Summer	26.792	0.792	0.6	51.5	O K
720 min Summer	26.795	0.795	0.6	51.7	O K
960 min Summer	26.796	0.796	0.6	51.8	O K
1440 min Summer	26.785	0.785	0.6	51.1	O K
2160 min Summer	26.757	0.757	0.6	49.2	O K
2880 min Summer	26.726	0.726	0.6	47.1	O K
4320 min Summer	26.666	0.666	0.5	43.1	O K
5760 min Summer	26.607	0.607	0.5	39.2	O K
7200 min Summer	26.552	0.552	0.5	35.5	O K
8640 min Summer	26.502	0.502	0.5	32.2	O K
10080 min Summer	26.456	0.456	0.5	29.1	O K
15 min Winter	26.362	0.362	0.4	22.9	O K
30 min Winter	26.470	0.470	0.5	30.1	O K
60 min Winter	26.583	0.583	0.5	37.6	O K
120 min Winter	26.700	0.700	0.6	45.4	O K
180 min Winter	26.767	0.767	0.6	49.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	34
60 min Summer	34.733	0.0	64
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	242
360 min Summer	9.767	0.0	362
480 min Summer	7.922	0.0	480
600 min Summer	6.730	0.0	600
720 min Summer	5.890	0.0	668
960 min Summer	4.770	0.0	780
1440 min Summer	3.540	0.0	1038
2160 min Summer	2.625	0.0	1452
2880 min Summer	2.123	0.0	1872
4320 min Summer	1.572	0.0	2684
5760 min Summer	1.270	0.0	3512
7200 min Summer	1.076	0.0	4320
8640 min Summer	0.940	0.0	5096
10080 min Summer	0.839	0.0	5848
15 min Winter	82.824	0.0	19
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	122
180 min Winter	16.130	0.0	180

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	26.810	0.810	0.6	52.7	O K
360 min Winter	26.864	0.864	0.6	56.3	O K
480 min Winter	26.895	0.895	0.6	58.3	O K
600 min Winter	26.911	0.911	0.6	59.4	O K
720 min Winter	26.919	0.919	0.6	59.9	O K
960 min Winter	26.918	0.918	0.6	59.9	O K
1440 min Winter	26.905	0.905	0.6	59.0	O K
2160 min Winter	26.863	0.863	0.6	56.2	O K
2880 min Winter	26.814	0.814	0.6	53.0	O K
4320 min Winter	26.718	0.718	0.6	46.6	O K
5760 min Winter	26.629	0.629	0.5	40.6	O K
7200 min Winter	26.548	0.548	0.5	35.2	O K
8640 min Winter	26.475	0.475	0.5	30.4	O K
10080 min Winter	26.411	0.411	0.5	26.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	238
360 min Winter	9.767	0.0	354
480 min Winter	7.922	0.0	466
600 min Winter	6.730	0.0	578
720 min Winter	5.890	0.0	686
960 min Winter	4.770	0.0	884
1440 min Winter	3.540	0.0	1100
2160 min Winter	2.625	0.0	1576
2880 min Winter	2.123	0.0	2020
4320 min Winter	1.572	0.0	2896
5760 min Winter	1.270	0.0	3744
7200 min Winter	1.076	0.0	4544
8640 min Winter	0.940	0.0	5360
10080 min Winter	0.839	0.0	6152

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.134

Time (mins) From:	To:	Area (ha)
0	4	0.134

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Model Details

Storage is Online Cover Level (m) 28.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.16700	Trench Width (m)	2.0
Infiltration Coefficient Side (m/hr)	0.16700	Trench Length (m)	35.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	26.000	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 1191 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	26.524	0.524	0.5	33.6	O K
30 min Summer	26.694	0.694	0.6	45.0	O K
60 min Summer	26.877	0.877	0.6	57.1	O K
120 min Summer	27.060	1.060	0.7	69.3	O K
180 min Summer	27.158	1.158	0.7	75.9	O K
240 min Summer	27.218	1.218	0.7	79.8	O K
360 min Summer	27.293	1.293	0.8	84.8	O K
480 min Summer	27.334	1.334	0.8	87.6	O K
600 min Summer	27.356	1.356	0.8	89.0	O K
720 min Summer	27.365	1.365	0.8	89.6	O K
960 min Summer	27.363	1.363	0.8	89.5	O K
1440 min Summer	27.345	1.345	0.8	88.3	O K
2160 min Summer	27.299	1.299	0.8	85.2	O K
2880 min Summer	27.243	1.243	0.7	81.5	O K
4320 min Summer	27.139	1.139	0.7	74.6	O K
5760 min Summer	27.047	1.047	0.7	68.5	O K
7200 min Summer	26.965	0.965	0.7	63.0	O K
8640 min Summer	26.892	0.892	0.6	58.2	O K
10080 min Summer	26.825	0.825	0.6	53.7	O K
15 min Winter	26.585	0.585	0.5	37.7	O K
30 min Winter	26.777	0.777	0.6	50.5	O K
60 min Winter	26.982	0.982	0.7	64.1	O K
120 min Winter	27.190	1.190	0.7	78.0	O K
180 min Winter	27.303	1.303	0.8	85.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	34
60 min Summer	58.567	0.0	64
120 min Summer	36.294	0.0	124
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	242
360 min Summer	16.006	0.0	362
480 min Summer	12.864	0.0	482
600 min Summer	10.849	0.0	600
720 min Summer	9.435	0.0	720
960 min Summer	7.561	0.0	858
1440 min Summer	5.523	0.0	1110
2160 min Summer	4.026	0.0	1496
2880 min Summer	3.213	0.0	1928
4320 min Summer	2.333	0.0	2764
5760 min Summer	1.857	0.0	3576
7200 min Summer	1.555	0.0	4392
8640 min Summer	1.347	0.0	5184
10080 min Summer	1.192	0.0	5952
15 min Winter	135.580	0.0	19
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	62
120 min Winter	36.294	0.0	122
180 min Winter	27.017	0.0	180

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	27.373	1.373	0.8	90.1	O K
360 min Winter	27.462	1.462	0.8	96.1	O K
480 min Winter	27.515	1.515	0.8	99.6	O K
600 min Winter	27.545	1.545	0.8	101.6	O K
720 min Winter	27.561	1.561	0.9	102.7	O K
960 min Winter	27.568	1.568	0.9	103.1	O K
1440 min Winter	27.542	1.542	0.8	101.4	O K
2160 min Winter	27.486	1.486	0.8	97.6	O K
2880 min Winter	27.411	1.411	0.8	92.7	O K
4320 min Winter	27.257	1.257	0.8	82.4	O K
5760 min Winter	27.124	1.124	0.7	73.6	O K
7200 min Winter	27.006	1.006	0.7	65.8	O K
8640 min Winter	26.903	0.903	0.6	58.9	O K
10080 min Winter	26.810	0.810	0.6	52.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	238
360 min Winter	16.006	0.0	354
480 min Winter	12.864	0.0	470
600 min Winter	10.849	0.0	584
720 min Winter	9.435	0.0	694
960 min Winter	7.561	0.0	908
1440 min Winter	5.523	0.0	1142
2160 min Winter	4.026	0.0	1604
2880 min Winter	3.213	0.0	2072
4320 min Winter	2.333	0.0	2980
5760 min Winter	1.857	0.0	3808
7200 min Winter	1.555	0.0	4680
8640 min Winter	1.347	0.0	5456
10080 min Winter	1.192	0.0	6256

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.134

Time (mins) From:	To:	Area (ha)
0	4	0.134

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Model Details

Storage is Online Cover Level (m) 28.000

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.16700	Trench Width (m)	2.0
Infiltration Coefficient Side (m/hr)	0.16700	Trench Length (m)	35.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	26.000	Cap Infiltration Depth (m)	1.600

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 1071 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	26.142	0.292	0.3	17.5	O K
30 min Summer	26.234	0.384	0.3	23.0	O K
60 min Summer	26.331	0.481	0.4	28.8	O K
120 min Summer	26.432	0.582	0.4	34.9	O K
180 min Summer	26.491	0.641	0.4	38.4	O K
240 min Summer	26.530	0.680	0.4	40.7	O K
360 min Summer	26.580	0.730	0.4	43.7	O K
480 min Summer	26.608	0.758	0.5	45.4	O K
600 min Summer	26.625	0.775	0.5	46.4	O K
720 min Summer	26.633	0.783	0.5	46.9	O K
960 min Summer	26.642	0.792	0.5	47.4	O K
1440 min Summer	26.648	0.798	0.5	47.7	O K
2160 min Summer	26.637	0.787	0.5	47.1	O K
2880 min Summer	26.617	0.767	0.5	45.9	O K
4320 min Summer	26.569	0.719	0.4	43.0	O K
5760 min Summer	26.523	0.673	0.4	40.3	O K
7200 min Summer	26.479	0.629	0.4	37.7	O K
8640 min Summer	26.439	0.589	0.4	35.3	O K
10080 min Summer	26.402	0.552	0.4	33.0	O K
15 min Winter	26.178	0.328	0.3	19.6	O K
30 min Winter	26.280	0.430	0.3	25.7	O K
60 min Winter	26.390	0.540	0.4	32.3	O K
120 min Winter	26.505	0.655	0.4	39.2	O K
180 min Winter	26.572	0.722	0.4	43.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	34
60 min Summer	34.733	0.0	64
120 min Summer	21.518	0.0	124
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	242
360 min Summer	9.767	0.0	362
480 min Summer	7.922	0.0	480
600 min Summer	6.730	0.0	600
720 min Summer	5.890	0.0	712
960 min Summer	4.770	0.0	812
1440 min Summer	3.540	0.0	1066
2160 min Summer	2.625	0.0	1472
2880 min Summer	2.123	0.0	1900
4320 min Summer	1.572	0.0	2724
5760 min Summer	1.270	0.0	3520
7200 min Summer	1.076	0.0	4328
8640 min Summer	0.940	0.0	5104
10080 min Summer	0.839	0.0	5856
15 min Winter	82.824	0.0	19
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	122
180 min Winter	16.130	0.0	180

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	26.617	0.767	0.5	45.9	O K
360 min Winter	26.676	0.826	0.5	49.4	O K
480 min Winter	26.712	0.862	0.5	51.6	O K
600 min Winter	26.734	0.884	0.5	52.9	O K
720 min Winter	26.747	0.897	0.5	53.7	O K
960 min Winter	26.758	0.908	0.5	54.3	O K
1440 min Winter	26.760	0.910	0.5	54.4	O K
2160 min Winter	26.742	0.892	0.5	53.4	O K
2880 min Winter	26.709	0.859	0.5	51.4	O K
4320 min Winter	26.634	0.784	0.5	46.9	O K
5760 min Winter	26.563	0.713	0.4	42.6	O K
7200 min Winter	26.498	0.648	0.4	38.8	O K
8640 min Winter	26.440	0.590	0.4	35.3	O K
10080 min Winter	26.388	0.538	0.4	32.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	238
360 min Winter	9.767	0.0	354
480 min Winter	7.922	0.0	468
600 min Winter	6.730	0.0	580
720 min Winter	5.890	0.0	690
960 min Winter	4.770	0.0	896
1440 min Winter	3.540	0.0	1112
2160 min Winter	2.625	0.0	1580
2880 min Winter	2.123	0.0	2044
4320 min Winter	1.572	0.0	2936
5760 min Winter	1.270	0.0	3800
7200 min Winter	1.076	0.0	4608
8640 min Winter	0.940	0.0	5440
10080 min Winter	0.839	0.0	6248

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.114

Time (mins) From:	To:	Area (ha)
0	4	0.114

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Model Details

Storage is Online Cover Level (m) 27.750

Complex Structure

Cellular Storage

Invert Level (m) 25.850 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	40.0	0.0	1.600	40.0	0.0	1.601	0.0	0.0

Trench Soakaway

Infiltration Coefficient Base (m/hr)	0.27400	Trench Width (m)	1.0
Infiltration Coefficient Side (m/hr)	0.27400	Trench Length (m)	23.0
Safety Factor	10.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	25.850	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 1289 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	26.330	0.480	0.4	28.7	O K
30 min Summer	26.492	0.642	0.4	38.5	O K
60 min Summer	26.667	0.817	0.5	48.9	O K
120 min Summer	26.844	0.994	0.5	59.5	O K
180 min Summer	26.941	1.091	0.6	65.3	O K
240 min Summer	27.001	1.151	0.6	68.9	O K
360 min Summer	27.078	1.228	0.6	73.5	O K
480 min Summer	27.123	1.273	0.6	76.2	O K
600 min Summer	27.149	1.299	0.6	77.8	O K
720 min Summer	27.163	1.313	0.7	78.6	O K
960 min Summer	27.170	1.320	0.7	79.0	O K
1440 min Summer	27.169	1.319	0.7	79.0	O K
2160 min Summer	27.147	1.297	0.6	77.6	O K
2880 min Summer	27.110	1.260	0.6	75.4	O K
4320 min Summer	27.026	1.176	0.6	70.4	O K
5760 min Summer	26.944	1.094	0.6	65.5	O K
7200 min Summer	26.871	1.021	0.5	61.1	O K
8640 min Summer	26.809	0.959	0.5	57.4	O K
10080 min Summer	26.752	0.902	0.5	54.0	O K
15 min Winter	26.388	0.538	0.4	32.2	O K
30 min Winter	26.570	0.720	0.4	43.1	O K
60 min Winter	26.766	0.916	0.5	54.8	O K
120 min Winter	26.967	1.117	0.6	66.8	O K
180 min Winter	27.077	1.227	0.6	73.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	34
60 min Summer	58.567	0.0	64
120 min Summer	36.294	0.0	124
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	242
360 min Summer	16.006	0.0	362
480 min Summer	12.864	0.0	482
600 min Summer	10.849	0.0	600
720 min Summer	9.435	0.0	720
960 min Summer	7.561	0.0	876
1440 min Summer	5.523	0.0	1110
2160 min Summer	4.026	0.0	1512
2880 min Summer	3.213	0.0	1928
4320 min Summer	2.333	0.0	2764
5760 min Summer	1.857	0.0	3576
7200 min Summer	1.555	0.0	4392
8640 min Summer	1.347	0.0	5184
10080 min Summer	1.192	0.0	5952
15 min Winter	135.580	0.0	19
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	64
120 min Winter	36.294	0.0	122
180 min Winter	27.017	0.0	180

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	27.145	1.295	0.6	77.5	O K
360 min Winter	27.236	1.386	0.7	82.9	O K
480 min Winter	27.290	1.440	0.7	86.2	O K
600 min Winter	27.324	1.474	0.7	88.2	O K
720 min Winter	27.344	1.494	0.7	89.4	O K
960 min Winter	27.359	1.509	0.7	90.3	O K
1440 min Winter	27.349	1.499	0.7	89.7	O K
2160 min Winter	27.316	1.466	0.7	87.7	O K
2880 min Winter	27.263	1.413	0.7	84.6	O K
4320 min Winter	27.142	1.292	0.6	77.3	O K
5760 min Winter	27.025	1.175	0.6	70.3	O K
7200 min Winter	26.922	1.072	0.6	64.1	O K
8640 min Winter	26.833	0.983	0.5	58.9	O K
10080 min Winter	26.756	0.906	0.5	54.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	238
360 min Winter	16.006	0.0	356
480 min Winter	12.864	0.0	470
600 min Winter	10.849	0.0	584
720 min Winter	9.435	0.0	694
960 min Winter	7.561	0.0	912
1440 min Winter	5.523	0.0	1142
2160 min Winter	4.026	0.0	1600
2880 min Winter	3.213	0.0	2072
4320 min Winter	2.333	0.0	2944
5760 min Winter	1.857	0.0	3808
7200 min Winter	1.555	0.0	4680
8640 min Winter	1.347	0.0	5456
10080 min Winter	1.192	0.0	6256

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.114

Time (mins) From:	To:	Area (ha)
0	4	0.114

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Model Details

Storage is Online Cover Level (m) 27.750

Complex Structure

Trench Soakaway

Infiltration Coefficient Base (m/hr)	0.27400	Trench Width (m)	1.0
Infiltration Coefficient Side (m/hr)	0.27400	Trench Length (m)	23.0
Safety Factor	10.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	25.850	Cap Infiltration Depth (m)	1.600

Cellular Storage

Invert Level (m)	25.850	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	40.0	0.0	1.600	40.0	0.0	1.601	0.0	0.0

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 928 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	25.696	0.296	0.3	13.9	O K
30 min Summer	25.787	0.387	0.3	18.2	O K
60 min Summer	25.883	0.483	0.3	22.8	O K
120 min Summer	25.980	0.580	0.4	27.4	O K
180 min Summer	26.035	0.635	0.4	30.0	O K
240 min Summer	26.071	0.671	0.4	31.7	O K
360 min Summer	26.114	0.714	0.4	33.7	O K
480 min Summer	26.136	0.736	0.4	34.8	O K
600 min Summer	26.147	0.747	0.4	35.3	O K
720 min Summer	26.150	0.750	0.4	35.5	O K
960 min Summer	26.152	0.752	0.4	35.5	O K
1440 min Summer	26.144	0.744	0.4	35.1	O K
2160 min Summer	26.118	0.718	0.4	33.9	O K
2880 min Summer	26.089	0.689	0.4	32.6	O K
4320 min Summer	26.031	0.631	0.4	29.8	O K
5760 min Summer	25.974	0.574	0.4	27.1	O K
7200 min Summer	25.920	0.520	0.3	24.6	O K
8640 min Summer	25.871	0.471	0.3	22.2	O K
10080 min Summer	25.826	0.426	0.3	20.1	O K
15 min Winter	25.732	0.332	0.3	15.6	O K
30 min Winter	25.834	0.434	0.3	20.4	O K
60 min Winter	25.942	0.542	0.3	25.6	O K
120 min Winter	26.054	0.654	0.4	30.9	O K
180 min Winter	26.118	0.718	0.4	33.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	19
30 min Summer	54.698	0.0	34
60 min Summer	34.733	0.0	64
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	182
240 min Summer	13.106	0.0	242
360 min Summer	9.767	0.0	362
480 min Summer	7.922	0.0	480
600 min Summer	6.730	0.0	600
720 min Summer	5.890	0.0	674
960 min Summer	4.770	0.0	790
1440 min Summer	3.540	0.0	1042
2160 min Summer	2.625	0.0	1468
2880 min Summer	2.123	0.0	1876
4320 min Summer	1.572	0.0	2720
5760 min Summer	1.270	0.0	3512
7200 min Summer	1.076	0.0	4320
8640 min Summer	0.940	0.0	5096
10080 min Summer	0.839	0.0	5848
15 min Winter	82.824	0.0	19
30 min Winter	54.698	0.0	33
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	122
180 min Winter	16.130	0.0	180

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	26.160	0.760	0.4	35.9	O K
360 min Winter	26.213	0.813	0.4	38.4	O K
480 min Winter	26.243	0.843	0.4	39.9	O K
600 min Winter	26.259	0.859	0.4	40.6	O K
720 min Winter	26.268	0.868	0.4	41.0	O K
960 min Winter	26.269	0.869	0.4	41.1	O K
1440 min Winter	26.257	0.857	0.4	40.5	O K
2160 min Winter	26.220	0.820	0.4	38.8	O K
2880 min Winter	26.174	0.774	0.4	36.6	O K
4320 min Winter	26.081	0.681	0.4	32.2	O K
5760 min Winter	25.994	0.594	0.4	28.1	O K
7200 min Winter	25.915	0.515	0.3	24.3	O K
8640 min Winter	25.844	0.444	0.3	20.9	O K
10080 min Winter	25.781	0.381	0.3	17.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	238
360 min Winter	9.767	0.0	354
480 min Winter	7.922	0.0	468
600 min Winter	6.730	0.0	578
720 min Winter	5.890	0.0	686
960 min Winter	4.770	0.0	892
1440 min Winter	3.540	0.0	1110
2160 min Winter	2.625	0.0	1576
2880 min Winter	2.123	0.0	2020
4320 min Winter	1.572	0.0	2900
5760 min Winter	1.270	0.0	3752
7200 min Winter	1.076	0.0	4544
8640 min Winter	0.940	0.0	5360
10080 min Winter	0.839	0.0	6152

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.091

Time (mins) From:	To:	Area (ha)
0	4	0.091

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Model Details

Storage is Online Cover Level (m) 27.500

Complex Structure

Cellular Storage

Invert Level (m) 25.400 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	20.0	0.0	1.600	20.0	0.0	1.601	0.0	0.0

Trench Soakaway

Infiltration Coefficient Base (m/hr)	0.27400	Trench Width (m)	2.5
Infiltration Coefficient Side (m/hr)	0.27400	Trench Length (m)	12.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	25.400	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 1257 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	25.885	0.485	0.3	22.9	O K
30 min Summer	26.047	0.647	0.4	30.6	O K
60 min Summer	26.221	0.821	0.4	38.8	O K
120 min Summer	26.396	0.996	0.4	47.2	O K
180 min Summer	26.491	1.091	0.5	51.6	O K
240 min Summer	26.549	1.149	0.5	54.4	O K
360 min Summer	26.622	1.222	0.5	57.9	O K
480 min Summer	26.663	1.263	0.5	59.8	O K
600 min Summer	26.686	1.286	0.5	60.9	O K
720 min Summer	26.696	1.296	0.5	61.4	O K
960 min Summer	26.696	1.296	0.5	61.4	O K
1440 min Summer	26.680	1.280	0.5	60.6	O K
2160 min Summer	26.637	1.237	0.5	58.6	O K
2880 min Summer	26.586	1.186	0.5	56.1	O K
4320 min Summer	26.488	1.088	0.5	51.5	O K
5760 min Summer	26.400	1.000	0.4	47.3	O K
7200 min Summer	26.321	0.921	0.4	43.6	O K
8640 min Summer	26.251	0.851	0.4	40.2	O K
10080 min Summer	26.186	0.786	0.4	37.2	O K
15 min Winter	25.943	0.543	0.3	25.6	O K
30 min Winter	26.126	0.726	0.4	34.3	O K
60 min Winter	26.321	0.921	0.4	43.6	O K
120 min Winter	26.520	1.120	0.5	53.1	O K
180 min Winter	26.629	1.229	0.5	58.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	34
60 min Summer	58.567	0.0	64
120 min Summer	36.294	0.0	124
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	242
360 min Summer	16.006	0.0	362
480 min Summer	12.864	0.0	482
600 min Summer	10.849	0.0	600
720 min Summer	9.435	0.0	720
960 min Summer	7.561	0.0	894
1440 min Summer	5.523	0.0	1124
2160 min Summer	4.026	0.0	1516
2880 min Summer	3.213	0.0	1932
4320 min Summer	2.333	0.0	2764
5760 min Summer	1.857	0.0	3576
7200 min Summer	1.555	0.0	4392
8640 min Summer	1.347	0.0	5184
10080 min Summer	1.192	0.0	5952
15 min Winter	135.580	0.0	19
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	62
120 min Winter	36.294	0.0	122
180 min Winter	27.017	0.0	180

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	26.696	1.296	0.5	61.4	O K
360 min Winter	26.783	1.383	0.5	65.5	O K
480 min Winter	26.835	1.435	0.5	68.0	O K
600 min Winter	26.866	1.466	0.6	69.5	O K
720 min Winter	26.884	1.484	0.6	70.3	O K
960 min Winter	26.894	1.494	0.6	70.8	O K
1440 min Winter	26.869	1.469	0.6	69.6	O K
2160 min Winter	26.818	1.418	0.5	67.2	O K
2880 min Winter	26.749	1.349	0.5	63.9	O K
4320 min Winter	26.606	1.206	0.5	57.1	O K
5760 min Winter	26.478	1.078	0.5	51.1	O K
7200 min Winter	26.365	0.965	0.4	45.6	O K
8640 min Winter	26.264	0.864	0.4	40.9	O K
10080 min Winter	26.173	0.773	0.4	36.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	238
360 min Winter	16.006	0.0	356
480 min Winter	12.864	0.0	470
600 min Winter	10.849	0.0	584
720 min Winter	9.435	0.0	696
960 min Winter	7.561	0.0	914
1440 min Winter	5.523	0.0	1166
2160 min Winter	4.026	0.0	1620
2880 min Winter	3.213	0.0	2076
4320 min Winter	2.333	0.0	2984
5760 min Winter	1.857	0.0	3856
7200 min Winter	1.555	0.0	4688
8640 min Winter	1.347	0.0	5528
10080 min Winter	1.192	0.0	6352

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.091

Time (mins) From:	To:	Area (ha)
0	4	0.091

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Model Details

Storage is Online Cover Level (m) 27.500

Complex Structure

Trench Soakaway

Infiltration Coefficient Base (m/hr)	0.27400	Trench Width (m)	2.5
Infiltration Coefficient Side (m/hr)	0.27400	Trench Length (m)	12.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	25.400	Cap Infiltration Depth (m)	1.600

Cellular Storage

Invert Level (m)	25.400	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	20.0	0.0	1.600	20.0	0.0	1.601	0.0	0.0

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 270 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	23.718	0.318	1.7	26.8	O K
30 min Summer	23.809	0.409	1.8	34.6	O K
60 min Summer	23.894	0.494	1.8	41.9	O K
120 min Summer	23.960	0.560	1.9	47.5	O K
180 min Summer	23.980	0.580	1.9	49.2	O K
240 min Summer	23.982	0.582	1.9	49.4	O K
360 min Summer	23.977	0.577	1.9	49.0	O K
480 min Summer	23.966	0.566	1.9	48.0	O K
600 min Summer	23.953	0.553	1.9	46.9	O K
720 min Summer	23.939	0.539	1.9	45.7	O K
960 min Summer	23.909	0.509	1.8	43.1	O K
1440 min Summer	23.847	0.447	1.8	37.8	O K
2160 min Summer	23.759	0.359	1.7	30.3	O K
2880 min Summer	23.681	0.281	1.7	23.7	O K
4320 min Summer	23.563	0.163	1.6	13.6	O K
5760 min Summer	23.489	0.089	1.6	7.2	O K
7200 min Summer	23.453	0.053	1.6	4.1	O K
8640 min Summer	23.445	0.045	1.4	3.5	O K
10080 min Summer	23.440	0.040	1.2	3.0	O K
15 min Winter	23.758	0.358	1.7	30.2	O K
30 min Winter	23.861	0.461	1.8	39.0	O K
60 min Winter	23.960	0.560	1.9	47.5	O K
120 min Winter	24.043	0.643	1.9	54.6	O K
180 min Winter	24.073	0.673	2.0	57.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	18
30 min Summer	54.698	0.0	33
60 min Summer	34.733	0.0	62
120 min Summer	21.518	0.0	122
180 min Summer	16.130	0.0	180
240 min Summer	13.106	0.0	212
360 min Summer	9.767	0.0	276
480 min Summer	7.922	0.0	342
600 min Summer	6.730	0.0	412
720 min Summer	5.890	0.0	482
960 min Summer	4.770	0.0	618
1440 min Summer	3.540	0.0	892
2160 min Summer	2.625	0.0	1276
2880 min Summer	2.123	0.0	1648
4320 min Summer	1.572	0.0	2376
5760 min Summer	1.270	0.0	3048
7200 min Summer	1.076	0.0	3672
8640 min Summer	0.940	0.0	4400
10080 min Summer	0.839	0.0	5072
15 min Winter	82.824	0.0	18
30 min Winter	54.698	0.0	32
60 min Winter	34.733	0.0	62
120 min Winter	21.518	0.0	118
180 min Winter	16.130	0.0	176

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	24.080	0.680	2.0	57.8	O K
360 min Winter	24.071	0.671	1.9	56.9	O K
480 min Winter	24.056	0.656	1.9	55.7	O K
600 min Winter	24.036	0.636	1.9	54.0	O K
720 min Winter	24.013	0.613	1.9	52.1	O K
960 min Winter	23.965	0.565	1.9	47.9	O K
1440 min Winter	23.866	0.466	1.8	39.4	O K
2160 min Winter	23.731	0.331	1.7	27.9	O K
2880 min Winter	23.619	0.219	1.7	18.3	O K
4320 min Winter	23.471	0.071	1.6	5.7	O K
5760 min Winter	23.444	0.044	1.4	3.4	O K
7200 min Winter	23.437	0.037	1.2	2.8	O K
8640 min Winter	23.433	0.033	1.0	2.4	O K
10080 min Winter	23.429	0.029	0.9	2.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	13.106	0.0	230
360 min Winter	9.767	0.0	292
480 min Winter	7.922	0.0	368
600 min Winter	6.730	0.0	446
720 min Winter	5.890	0.0	522
960 min Winter	4.770	0.0	674
1440 min Winter	3.540	0.0	954
2160 min Winter	2.625	0.0	1360
2880 min Winter	2.123	0.0	1728
4320 min Winter	1.572	0.0	2336
5760 min Winter	1.270	0.0	2944
7200 min Winter	1.076	0.0	3672
8640 min Winter	0.940	0.0	4320
10080 min Winter	0.839	0.0	5128

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.182

Time (mins) From:	To:	Area (ha)
0	4	0.182

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Model Details

Storage is Online Cover Level (m) 25.600

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.60840	Trench Width (m)	10.0
Infiltration Coefficient Side (m/hr)	0.60840	Trench Length (m)	9.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	23.400	Cap Infiltration Depth (m)	1.600

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 437 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	23.927	0.527	1.9	44.6	O K
30 min Summer	24.096	0.696	2.0	59.1	O K
60 min Summer	24.266	0.866	2.1	73.6	O K
120 min Summer	24.414	1.014	2.2	86.3	O K
180 min Summer	24.472	1.072	2.2	91.2	O K
240 min Summer	24.490	1.090	2.2	92.8	O K
360 min Summer	24.486	1.086	2.2	92.5	O K
480 min Summer	24.470	1.070	2.2	91.1	O K
600 min Summer	24.450	1.050	2.2	89.3	O K
720 min Summer	24.427	1.027	2.2	87.5	O K
960 min Summer	24.384	0.984	2.1	83.7	O K
1440 min Summer	24.300	0.900	2.1	76.5	O K
2160 min Summer	24.180	0.780	2.0	66.3	O K
2880 min Summer	24.070	0.670	1.9	56.9	O K
4320 min Summer	23.881	0.481	1.8	40.7	O K
5760 min Summer	23.734	0.334	1.7	28.1	O K
7200 min Summer	23.622	0.222	1.7	18.6	O K
8640 min Summer	23.541	0.141	1.6	11.7	O K
10080 min Summer	23.486	0.086	1.6	7.0	O K
15 min Winter	23.991	0.591	1.9	50.2	O K
30 min Winter	24.183	0.783	2.0	66.6	O K
60 min Winter	24.378	0.978	2.1	83.2	O K
120 min Winter	24.552	1.152	2.3	98.1	O K
180 min Winter	24.626	1.226	2.3	104.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	19
30 min Summer	91.216	0.0	33
60 min Summer	58.567	0.0	62
120 min Summer	36.294	0.0	122
180 min Summer	27.017	0.0	182
240 min Summer	21.749	0.0	240
360 min Summer	16.006	0.0	330
480 min Summer	12.864	0.0	388
600 min Summer	10.849	0.0	452
720 min Summer	9.435	0.0	518
960 min Summer	7.561	0.0	654
1440 min Summer	5.523	0.0	926
2160 min Summer	4.026	0.0	1340
2880 min Summer	3.213	0.0	1732
4320 min Summer	2.333	0.0	2504
5760 min Summer	1.857	0.0	3224
7200 min Summer	1.555	0.0	3896
8640 min Summer	1.347	0.0	4584
10080 min Summer	1.192	0.0	5240
15 min Winter	135.580	0.0	18
30 min Winter	91.216	0.0	33
60 min Winter	58.567	0.0	62
120 min Winter	36.294	0.0	120
180 min Winter	27.017	0.0	178

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	24.656	1.256	2.3	107.0	O K
360 min Winter	24.668	1.268	2.3	108.0	O K
480 min Winter	24.647	1.247	2.3	106.2	O K
600 min Winter	24.622	1.222	2.3	104.1	O K
720 min Winter	24.594	1.194	2.3	101.7	O K
960 min Winter	24.532	1.132	2.2	96.4	O K
1440 min Winter	24.406	1.006	2.2	85.6	O K
2160 min Winter	24.225	0.825	2.0	70.1	O K
2880 min Winter	24.062	0.662	1.9	56.2	O K
4320 min Winter	23.796	0.396	1.8	33.5	O K
5760 min Winter	23.602	0.202	1.6	16.9	O K
7200 min Winter	23.477	0.077	1.6	6.2	O K
8640 min Winter	23.447	0.047	1.4	3.6	O K
10080 min Winter	23.441	0.041	1.3	3.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.749	0.0	234
360 min Winter	16.006	0.0	344
480 min Winter	12.864	0.0	442
600 min Winter	10.849	0.0	476
720 min Winter	9.435	0.0	552
960 min Winter	7.561	0.0	706
1440 min Winter	5.523	0.0	1010
2160 min Winter	4.026	0.0	1444
2880 min Winter	3.213	0.0	1844
4320 min Winter	2.333	0.0	2596
5760 min Winter	1.857	0.0	3288
7200 min Winter	1.555	0.0	3888
8640 min Winter	1.347	0.0	4352
10080 min Winter	1.192	0.0	5136

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.182

Time (mins) From:	To:	Area (ha)
0	4	0.182

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Model Details

Storage is Online Cover Level (m) 25.600

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.60840	Trench Width (m)	10.0
Infiltration Coefficient Side (m/hr)	0.60840	Trench Length (m)	9.0
Safety Factor	10.0	Slope (1:X)	1000.0
Porosity	0.95	Cap Volume Depth (m)	1.600
Invert Level (m)	23.400	Cap Infiltration Depth (m)	1.600

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Summary of Results for 10 year Return Period (+50%)

Half Drain Time : 166 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	21.071	0.171	13.1	138.2	O K
30 min Summer	21.114	0.214	13.6	176.5	O K
60 min Summer	21.151	0.251	14.0	210.1	O K
120 min Summer	21.172	0.272	14.3	230.3	O K
180 min Summer	21.176	0.276	14.3	234.1	O K
240 min Summer	21.176	0.276	14.3	233.7	O K
360 min Summer	21.170	0.270	14.3	228.2	O K
480 min Summer	21.161	0.261	14.2	219.8	O K
600 min Summer	21.151	0.251	14.0	210.3	O K
720 min Summer	21.140	0.240	13.9	200.5	O K
960 min Summer	21.119	0.219	13.7	181.1	O K
1440 min Summer	21.079	0.179	13.2	145.3	O K
2160 min Summer	21.028	0.128	12.6	102.0	O K
2880 min Summer	20.991	0.091	12.2	70.7	O K
4320 min Summer	20.951	0.051	11.7	38.9	O K
5760 min Summer	20.942	0.042	9.7	31.9	O K
7200 min Summer	20.936	0.036	8.3	27.3	O K
8640 min Summer	20.932	0.032	7.3	24.0	O K
10080 min Summer	20.928	0.028	6.5	21.5	O K
15 min Winter	21.091	0.191	13.3	155.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	82.824	0.0	18
30 min Summer	54.698	0.0	32
60 min Summer	34.733	0.0	62
120 min Summer	21.518	0.0	118
180 min Summer	16.130	0.0	148
240 min Summer	13.106	0.0	180
360 min Summer	9.767	0.0	248
480 min Summer	7.922	0.0	316
600 min Summer	6.730	0.0	386
720 min Summer	5.890	0.0	454
960 min Summer	4.770	0.0	588
1440 min Summer	3.540	0.0	840
2160 min Summer	2.625	0.0	1212
2880 min Summer	2.123	0.0	1556
4320 min Summer	1.572	0.0	2204
5760 min Summer	1.270	0.0	2936
7200 min Summer	1.076	0.0	3672
8640 min Summer	0.940	0.0	4400
10080 min Summer	0.839	0.0	5136
15 min Winter	82.824	0.0	18

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Summary of Results for 10 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	21.139	0.239	13.9	199.6	O K
60 min Winter	21.181	0.281	14.4	239.1	O K
120 min Winter	21.209	0.309	14.7	266.0	Flood Risk
180 min Winter	21.214	0.314	14.8	270.2	Flood Risk
240 min Winter	21.212	0.312	14.7	268.6	Flood Risk
360 min Winter	21.203	0.303	14.6	259.8	Flood Risk
480 min Winter	21.189	0.289	14.5	246.3	O K
600 min Winter	21.173	0.273	14.3	231.0	O K
720 min Winter	21.156	0.256	14.1	215.3	O K
960 min Winter	21.123	0.223	13.7	184.8	O K
1440 min Winter	21.062	0.162	13.0	130.7	O K
2160 min Winter	20.990	0.090	12.2	70.4	O K
2880 min Winter	20.950	0.050	11.7	38.5	O K
4320 min Winter	20.938	0.038	8.7	28.9	O K
5760 min Winter	20.931	0.031	7.2	23.6	O K
7200 min Winter	20.926	0.026	6.0	20.1	O K
8640 min Winter	20.923	0.023	5.3	17.4	O K
10080 min Winter	20.921	0.021	4.7	15.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	54.698	0.0	32
60 min Winter	34.733	0.0	60
120 min Winter	21.518	0.0	116
180 min Winter	16.130	0.0	168
240 min Winter	13.106	0.0	190
360 min Winter	9.767	0.0	268
480 min Winter	7.922	0.0	344
600 min Winter	6.730	0.0	418
720 min Winter	5.890	0.0	492
960 min Winter	4.770	0.0	628
1440 min Winter	3.540	0.0	894
2160 min Winter	2.625	0.0	1236
2880 min Winter	2.123	0.0	1496
4320 min Winter	1.572	0.0	2208
5760 min Winter	1.270	0.0	2936
7200 min Winter	1.076	0.0	3680
8640 min Winter	0.940	0.0	4344
10080 min Winter	0.839	0.0	5000

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.952

Time (mins) From:	To:	Area (ha)
0	4	0.952

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Model Details

Storage is Online Cover Level (m) 21.500

Infiltration Basin Structure

Invert Level (m) 20.900 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.10700 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	749.0	0.600	1217.0

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Summary of Results for 100 year Return Period (+50%)

Half Drain Time : 269 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	21.173	0.273	14.3	230.8	O K
30 min Summer	21.247	0.347	15.2	303.6	Flood Risk
60 min Summer	21.315	0.415	15.9	373.2	Flood Risk
120 min Summer	21.364	0.464	16.5	426.3	Flood Risk
180 min Summer	21.376	0.476	16.7	439.9	Flood Risk
240 min Summer	21.375	0.475	16.6	438.5	Flood Risk
360 min Summer	21.368	0.468	16.6	430.8	Flood Risk
480 min Summer	21.358	0.458	16.4	419.6	Flood Risk
600 min Summer	21.346	0.446	16.3	407.0	Flood Risk
720 min Summer	21.334	0.434	16.2	393.7	Flood Risk
960 min Summer	21.309	0.409	15.9	367.5	Flood Risk
1440 min Summer	21.261	0.361	15.3	317.3	Flood Risk
2160 min Summer	21.194	0.294	14.5	250.9	O K
2880 min Summer	21.135	0.235	13.9	195.6	O K
4320 min Summer	21.043	0.143	12.8	114.4	O K
5760 min Summer	20.983	0.083	12.1	64.2	O K
7200 min Summer	20.952	0.052	11.7	39.9	O K
8640 min Summer	20.945	0.045	10.4	34.2	O K
10080 min Summer	20.940	0.040	9.2	30.4	O K
15 min Winter	21.203	0.303	14.6	259.6	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	135.580	0.0	18
30 min Summer	91.216	0.0	33
60 min Summer	58.567	0.0	62
120 min Summer	36.294	0.0	122
180 min Summer	27.017	0.0	180
240 min Summer	21.749	0.0	210
360 min Summer	16.006	0.0	274
480 min Summer	12.864	0.0	340
600 min Summer	10.849	0.0	410
720 min Summer	9.435	0.0	478
960 min Summer	7.561	0.0	616
1440 min Summer	5.523	0.0	882
2160 min Summer	4.026	0.0	1276
2880 min Summer	3.213	0.0	1644
4320 min Summer	2.333	0.0	2340
5760 min Summer	1.857	0.0	3008
7200 min Summer	1.555	0.0	3672
8640 min Summer	1.347	0.0	4400
10080 min Summer	1.192	0.0	5136
15 min Winter	135.580	0.0	18

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Summary of Results for 100 year Return Period (+50%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	21.285	0.385	15.6	342.3	Flood Risk
60 min Winter	21.360	0.460	16.5	422.7	Flood Risk
120 min Winter	21.418	0.518	17.1	487.6	Flood Risk
180 min Winter	21.436	0.536	17.3	507.9	Flood Risk
240 min Winter	21.437	0.537	17.4	509.5	Flood Risk
360 min Winter	21.427	0.527	17.2	497.8	Flood Risk
480 min Winter	21.415	0.515	17.1	483.5	Flood Risk
600 min Winter	21.399	0.499	16.9	465.5	Flood Risk
720 min Winter	21.381	0.481	16.7	445.9	Flood Risk
960 min Winter	21.345	0.445	16.3	405.9	Flood Risk
1440 min Winter	21.273	0.373	15.5	330.0	Flood Risk
2160 min Winter	21.175	0.275	14.3	233.2	O K
2880 min Winter	21.092	0.192	13.4	156.9	O K
4320 min Winter	20.974	0.074	12.0	57.3	O K
5760 min Winter	20.945	0.045	10.4	34.0	O K
7200 min Winter	20.938	0.038	8.7	28.6	O K
8640 min Winter	20.933	0.033	7.5	24.9	O K
10080 min Winter	20.929	0.029	6.7	22.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	91.216	0.0	32
60 min Winter	58.567	0.0	62
120 min Winter	36.294	0.0	118
180 min Winter	27.017	0.0	174
240 min Winter	21.749	0.0	228
360 min Winter	16.006	0.0	290
480 min Winter	12.864	0.0	366
600 min Winter	10.849	0.0	442
720 min Winter	9.435	0.0	520
960 min Winter	7.561	0.0	666
1440 min Winter	5.523	0.0	952
2160 min Winter	4.026	0.0	1344
2880 min Winter	3.213	0.0	1728
4320 min Winter	2.333	0.0	2376
5760 min Winter	1.857	0.0	2936
7200 min Winter	1.555	0.0	3688
8640 min Winter	1.347	0.0	4408
10080 min Winter	1.192	0.0	5072

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.300	Shortest Storm (mins)	15
Ratio R	0.348	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.952

Time (mins) From:	To:	Area (ha)
0	4	0.952

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Model Details

Storage is Online Cover Level (m) 21.500

Infiltration Basin Structure

Invert Level (m) 20.900 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.10700 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	749.0	0.600	1217.0

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Appendix (F)

Arun District Council Drainage Design Parameters

From: Laura Gibbons
To: Christian O"Brien
Cc: Leon Darrell; Terry Seymour; Chris Harrison; John Richards; Paul Cann; Sarah Burrow
Subject: RE: Fontwell - Drainage Strategy
Date: 15 October 2019 12:56:39

Hi Christian,

I have reviewed the infiltration test results, these are okay. When a revised submission is provided please include these rates on a layout drawing summarising groundwater and infiltration test results.

The following points should be used in design:

1. Closest infiltration testing results should be used in design with the worst infiltration rate used.
2. If the base of infiltrating structures is included within design, the factor of safety applied must be in accordance with the following:

Factor of Safety Table						
Size of Area to be Drained	Consequences of failure					
	No damage or inconvenience		Minor inconvenience, e.g. surface water on car park		Damage to buildings or structures or roads.	
	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75
<100 m^2	1.5	2	2	3	10	13
100m^2 to 1000m^2	1.5	2	3	4	10	13
>1000m^2	1.5	2	5	6.5	10	13

3. An allowance for the rainfall falling directly upon the infiltration basin must be included in calculations.
4. The soakaway nearest to a property should be the one serving that property.
5. 5m easement between soakaways and the red line site boundary should be provided.
6. If the infiltrating structure does not half drain in 24 hours for the 100 year plus climate change event please provide half drain time results for the 1 in 10 year plus climate change event. It is likely if this drain time is less than 24 hours that it will be accepted.
7. A minimum of 100mm freeboard will be provided between the base of infiltrating structures and maximum recorded groundwater level.
8. I note that you stated that layout revisions are to occur and this will therefore have a knock on impact upon the surface water drainage design.

The outstanding points from my previous consultation response are as follows:

1. Calculations are missing for areas 9 and 11.
2. The infiltration rate used in the design of the soakaway for area 14 appears to be incorrect (significant overestimation).
3. Soakaways for areas 24 are within 10m of existing buildings and therefore need to be moved/ re-designed.
4. Soakaways for areas 6, 7, 8, 24, 26, 31A are in close proximity to the red line boundary. Is there any opportunity to increase these easements?
5. Has the rain falling directly onto the infiltration basin been accounted for in design?
6. I presume from impermeable areas, and location that area 22 also serves plots 309-313

despite this not being stated in the plot numbers column. Please confirm.

7. The soakaway for area 26 has a modelled water depth which exceeds the crate depth.
8. Plots 322 and 323 and 332 and 333 are not draining to the soakaways adjacent to them. Have you considered swapping these over so they do?
9. The infiltration rate used for area 27 appears to be incorrect. Please review.
10. Draining plots 347-350 to area 29 seems optimistic, please demonstrate how you would get the water here.
11. The soakaway for area 30a is set too deep.
12. As discussed previously some of the soakaways as currently proposed will not work if infiltration rates are found to be near the lower end of the range observed between nearby test locations. When is infiltration testing going to be completed? I would be keen to see these results before determination of the application.
13. Some of the soakaways are located considerable distances away from the properties which they are serving. Are you confident that connections can be made and minimum falls achieved?
14. Are covenants going to be put in place to ensure householders permit access for maintenance?

Kind Regards,

Laura Gibbons, MEng, GMICE
Engineer (Drainage & Coastal)

Laura Gibbons | Engineer (Drainage & Coastal), Engineering Services, Arun District Council |
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Arun is Working in Partnership with Chichester District Council
Visit Arun's web site at http://www.arun.gov.uk/ and www.chichester.gov.uk



Save the environment - think before you print.

From: Christian O'Brien <cobrien@dandara.com>
Sent: 14 October 2019 16:06
To: Laura Gibbons <Laura.Gibbons@arun.gov.uk>
Cc: 'Leon Darrell' <Leon@rcpconsultants.co.uk>; 'Terry Seymour' <Terry@rcpconsultants.co.uk>; Chris Harrison <charrison@dandara.com>; John Richards <jrichards@dandara.com>
Subject: RE: Fontwell - Drainage Strategy

Hi Laura,

Please can you also confirm the acceptance and requirements of the following principles:
1) all hard standing areas to be permeable
2) all roof drainage to infiltration trenches, which are to be offset from proposed units, existing buildings and boundaries
3) residual roof drainage to attenuation basis in south west catchment

Kind regards,

Christian O'Brien
Engineering Manager
Dandara logo
Direct: 02382123621 • **Mobile:** 07912 243 860
HQ: 02382124061 • **E-mail**: cobrien@dandara.com • **Web**: www.dandara.com
Dandara Ltd, Roman House, South Hampshire Industrial Estate, Eddystone Road, Totton, SO40 3SA

From: Christian O'Brien
Sent: 14 October 2019 15:24
To: Laura Gibbons <Laura.Gibbons@arun.gov.uk>
Cc: Leon Darrell <Leon@rcpconsultants.co.uk>; Terry Seymour <Terry@rcpconsultants.co.uk>
Subject: Fontwell - Drainage Strategy
Importance: High

Hi Laura,

Many thanks for the meeting last week with myself and Leon at RCP with regards our site at Fontwell.

With your departure only days away, we would very much appreciate a position statement which makes it crystal clear which aspects of the drainage strategy are agreed and where there are any outstanding matters in your view.

We would also appreciate confirmation that the most recent testing results that I sent over to you are acceptable with our proposed drainage strategy and that we have acquired sufficient testing across the site to advise the detailed design of the drainage strategy, even if the layout is to change slightly.

Kind regards,

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