SAILSBURY ROAD SOLAR FARM

FLOOD RISK ASSESSMENT

LOW CARBON

PART 2 OF 3

APPENDICES 4 - 6

Document Reference: L515-DOC01-FRA-ISSUE 1

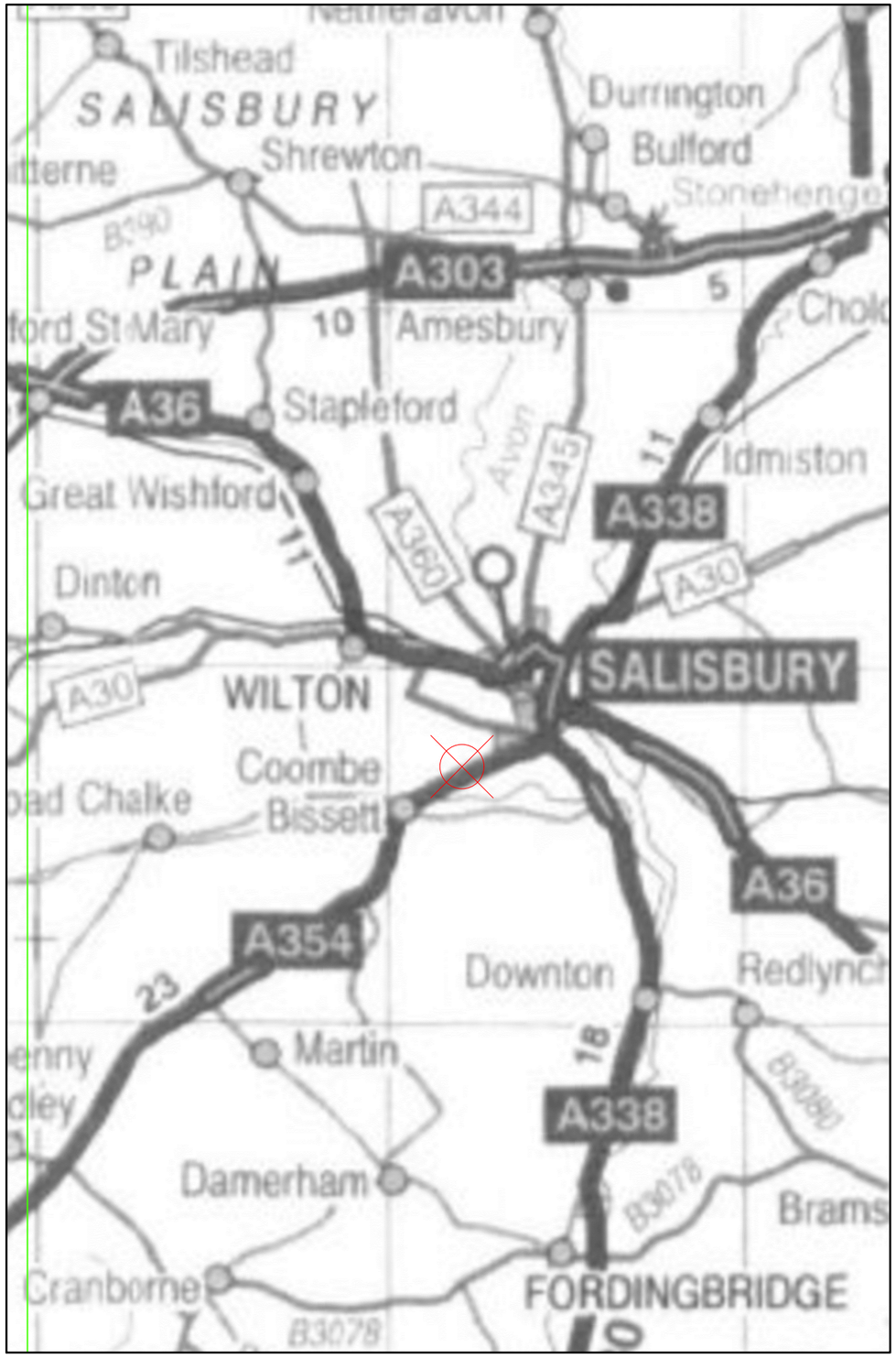
NOVEMBER 2023

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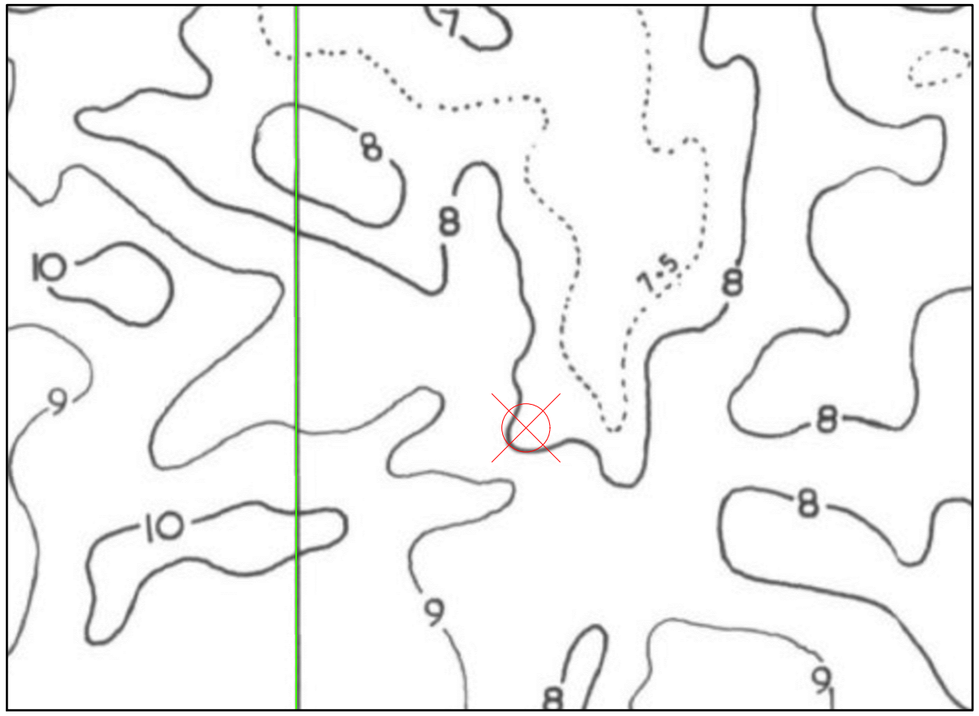
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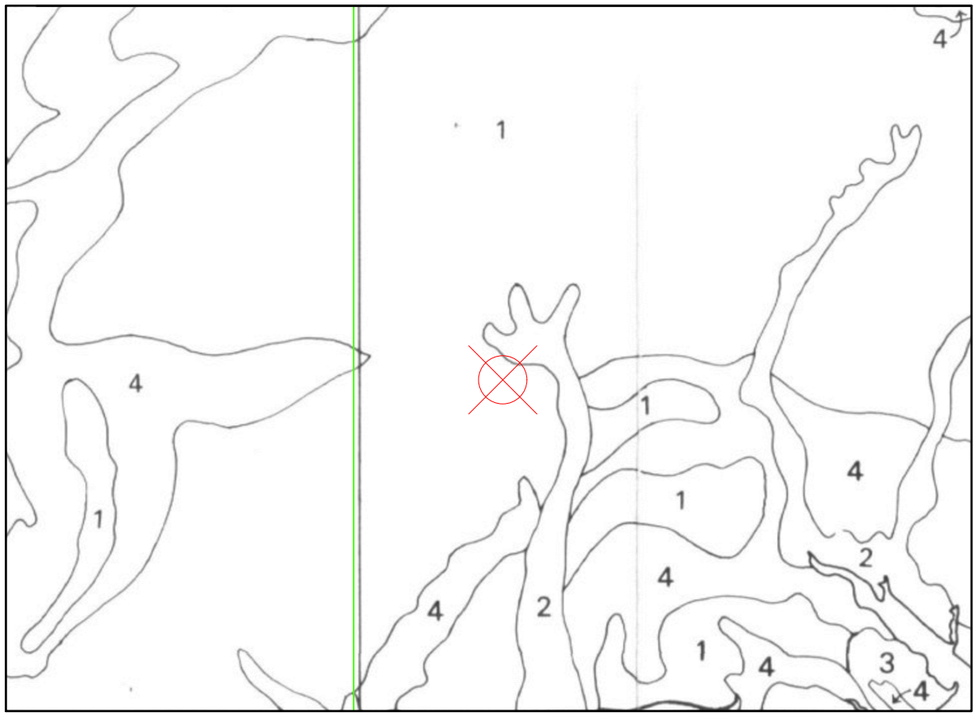
Appendix 4



Location Plan



Standard Average Annual Rainfall (SAAR) (in hundreds of mm)



Winter Rain Acceptance Potential (WRAP)

PFA consulting

Stratton Park House, Wanborough Road
Swindon, SN3 4HG

Telephone
01793 828000

Website
www.pfaplc.com

NOTES

1. Standard Average Annual Rainfall (SAAR) and Winter Rain Acceptance Potential (WRAP) map extracts shown on this drawing are reproduced from the maps contained in Volume V of the Flood Studies Report – NERC:1975.

Soil Classification			
Soil Class (WRAP)	Soil Index (IoH)	SPR (FEH)	St (ADAS)
1	0.15	10	0.1
2	0.30	30	0.5
3	0.40	37	0.8
4	0.45	47	1.0
5	0.50	53	1.3

Rev	Date	Description	Drawn	Check
#	29/10/21	First Issue	SJC	CS

Status
FOR INFORMATION

Client
Low Carbon

Project
Sailsbury Road Solar Farm

Drawing Title
SAAR and WRAP Maps

Drawing No.
L515/06

Date: November 2023 | Scale: NTS @ A3

E-Mail: sconcannon@pfaplc.com

Appendix 5

Low Carbon
C/O DWD
6 New Bridge Street
London
EC4V 6AB

Geotechnical Investigations Limited
Unit 1
Far Hill Farm
Fairford
Gloucestershire
GL7 4PZ

6th September 2023

Soakaway tests at Beech Tree Solar Farm, Coombe Bissett, Salisbury – GI1812

Geotechnical Investigations Limited (this Company) was instructed via email by Chloe Desgrand of DWD on behalf of Low Carbon (the Client) on 15th May 2023, to undertake a ground investigation at the above site.

The sitework was conducted on the 4th September 2023 and comprised the excavation of three (3) soakaways pits referenced TP01 to TP03. One (1) trial pit was also excavated close to TP03 (referenced TP03A) for the purpose of groundwater monitoring.

The exploratory hole locations were set out by this company using the plan provided by DWD and are shown in figure 1.

Service information was obtained and reviewed by this company in advance of the siteworks. A CAT (cable avoidance tool) was used by a suitably qualified engineer at each exploratory location prior to commencing the excavations.

The soakaway pits were excavated using a Kubota tracked excavator and a 0.40m wide bucket, provided by this company. The materials arising were logged by an engineering geologist to BS5930.

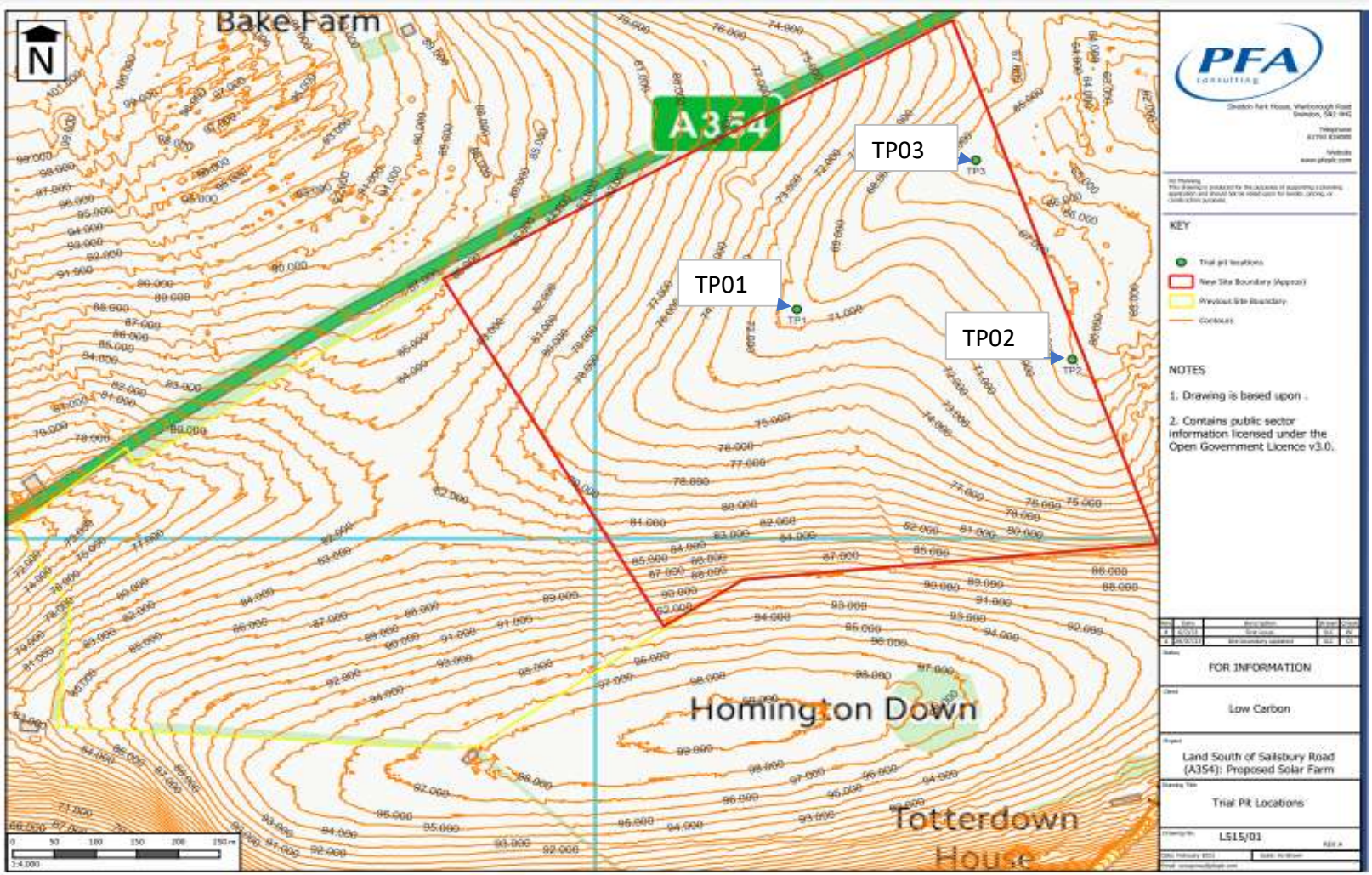
A supply of potable water (provided by this company) was used to rapidly fill each soakaway pit. The soakaway tests (one (1) test within TP01 & TP02 and three (3) tests within TP03) were conducted in accordance with BRE DG 365 (2016) and the result for each test are attached.

On completion the trial pits were backfilled with arisings and the surface was left slightly proud to accommodate future settlement.

Photographs of the excavations and reinstatement were taken and are attached to this letter.

This written report has been prepared by Geotechnical Investigations Limited solely for the benefit of Low Carbon. It shall not be relied upon or transferred to any third party without the prior written authorisation of Geotechnical Investigations Limited.

Robert Ewens, Director, BSC (Hons) PGC FGS



Drawing provided by PFA Consulting
Not to scale

GEOTECHNICAL INVESTIGATIONS LIMITED

CLIENT DWD
SITE Beech Tree Solar Farm
CONTRACT GI1812
Figure 1.

GEOTECHNICAL INVESTIGATIONS LIMITED

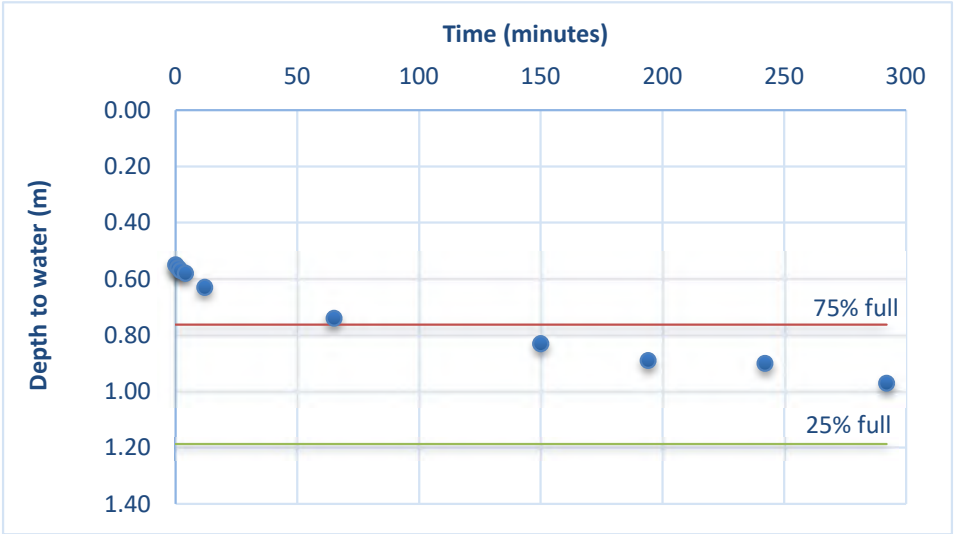
Soakaway Test

CLIENT DWD
SITE Beech Tree Solar Farm, Coombe Bissett,
CONTRACT GI1812
DATE 04/09/2023
HOLE ID TP01

TEST 1

LENGTH	1.10	m
BREADTH	0.40	m
DEPTH	1.40	m
WATER LEVEL PRE TEST	Dry	
FILL LEVEL To 100%	0.55	m
v_{p75-25}	0.19	m^3
a_{p50}	1.72	m^2
t_{p75-25}	*	min

soil infiltration rate, *f* = * ms^{-1}



Remarks

Soakaway test carried out in general accordance with BRE DG 365 (2016).
Trial pit excavated under archaeological supervision.
Trial pit logged at ground level using material at surface.
* unable to calculate infiltration rate due to insufficient fall in water level.

Geological Description (BS5930 2015 & CIRIA c574)

0.00-0.55m	Dark brown slightly gravelly sandy SILT. Gravel is mainly flint with occasional chalk. Rare bone fragments.
0.55-1.10m	Light brown very silty subangular to subrounded fine to coarse GRAVEL of chalk and occasional cobbles of flint.
0.55-1.10m	Structureless CHALK composed of off-white silty angular fine to coarse GRAVEL. Grade Dc.

GEOTECHNICAL INVESTIGATIONS LIMITED

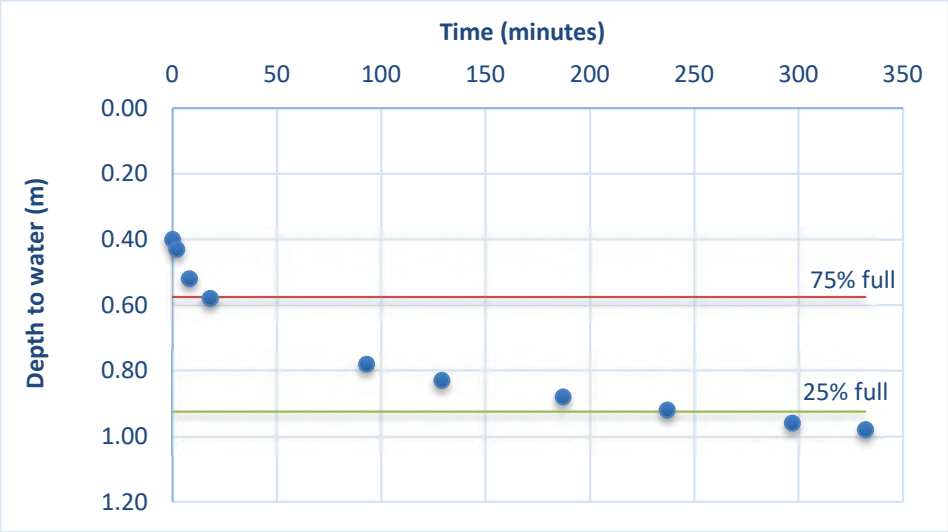
Soakaway Test

CLIENT DWD
SITE Beech Tree Solar Farm, Coombe Bissett,
CONTRACT GI1812
DATE 04/09/2023
HOLE ID TP02

TEST 1

LENGTH	1.00	m
BREADTH	0.40	m
DEPTH	1.10	m
WATER LEVEL PRE TEST	Dry	
FILL LEVEL To 100%	0.40	m
v_{p75-25}	0.14	m^3
a_{p50}	1.38	m^2
t_{p75-25}	227.3	min

soil infiltration rate, *f* = **7.44** **x 10^-6 ms^{-1}**



Remarks

Soakaway test carried out in general accordance with BRE DG 365 (2016).
Trial pit excavated under archaeological supervision prior to site works.
Trial pit logged at ground level using material at surface.

Geological Description (BS5930 2015 & CIRIA c574)

0.00-0.25m	Dark brown slightly gravelly sandy SILT. Gravel is mainly flint with occasional chalk.
0.25-0.90m	Structureless CHALK composed of gravelly off-white SILT. Gravel is angular fine to coarse chalk. Grade Dm.
0.90-1.10m	Structureless CHALK composed of off-white silty angular fine to coarse GRAVEL. Grade Dc.

GEOTECHNICAL INVESTIGATIONS LIMITED

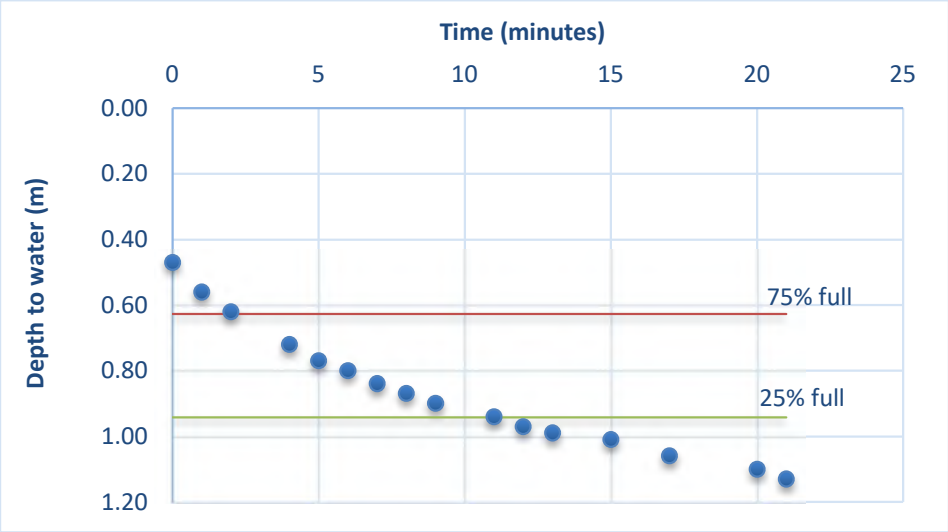
Soakaway Test

CLIENT DWD
SITE Beech Tree Solar Farm, Coombe Bissett,
CONTRACT GI1812
DATE 04/09/2023
HOLE ID TP03

TEST 1

LENGTH	1.00	m
BREADTH	0.40	m
DEPTH	1.10	m
WATER LEVEL PRE TEST	Dry	
FILL LEVEL To 100%	0.47	m
v_{p75-25}	0.13	m^3
a_{p50}	1.28	m^2
t_{p75-25}	8.9	min

soil infiltration rate, *f* = **1.83** **x 10^-4 ms^{-1}**



Remarks

Soakaway test carried out in general accordance with BRE DG 365 (2016).
Trial pit excavated under archaeological supervision.
Trial pit logged at ground level using material at surface.

Geological Description (BS5930 2015 & CIRIA c574)

0.00-0.25m	Dark brown slightly gravelly sandy SILT. Gravel is mainly flint with occasional chalk.
0.25-0.50m	Light brown very silty subangular to subrounded fine to coarse GRAVEL of chalk and occasional cobbles of flint.
0.50-1.10m	Structureless CHALK composed of gravelly off-white SILT. Gravel is angular fine to coarse chalk. Grade Dm.
1.10-1.35m	Structureless CHALK composed of off-white silty angular fine to coarse GRAVEL with occasional flint cobbles. Grade Dc.

GEOTECHNICAL INVESTIGATIONS LIMITED

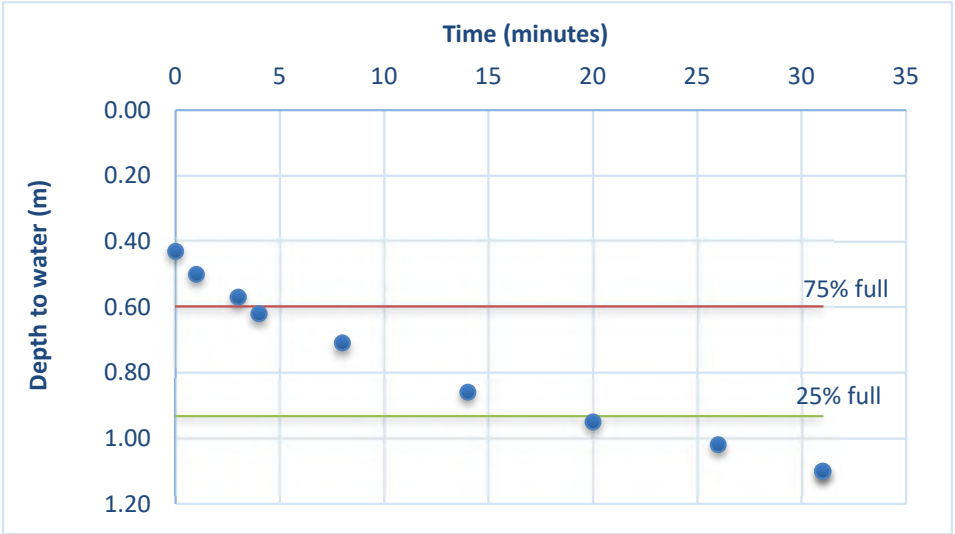
Soakaway Test

CLIENT DWD
SITE Beech Tree Solar Farm, Coombe Bissett,
CONTRACT GI1812
DATE 04/09/2023
HOLE ID TP03

TEST 2

LENGTH	1.00	m
BREADTH	0.40	m
DEPTH	1.10	m
WATER LEVEL PRE TEST	Dry	
FILL LEVEL To 100%	0.43	m
v_{p75-25}	0.13	m^3
a_{p50}	1.34	m^2
t_{p75-25}	15.3	min

soil infiltration rate, *f* = **1.09** **x 10^-4 ms^{-1}**



Remarks

Soakaway test carried out in general accordance with BRE DG 365 (2016).
Trial pit excavated under archaeological supervision.
Trial pit logged at ground level using material at surface.

Geological Description (BS5930 2015 & CIRIA c574)

0.00-0.25m	Dark brown slightly gravelly sandy SILT. Gravel is mainly flint with occasional chalk.
0.25-0.50m	Light brown very silty subangular to subrounded fine to coarse GRAVEL of chalk and occasional cobbles of flint.
0.50-1.10m	Structureless CHALK composed of gravelly off-white SILT. Gravel is angular fine to coarse chalk. Grade Dm.
1.10-1.35m	Structureless CHALK composed of off-white silty angular fine to coarse GRAVEL with occasional flint cobbles. Grade Dc.

GEOTECHNICAL INVESTIGATIONS LIMITED

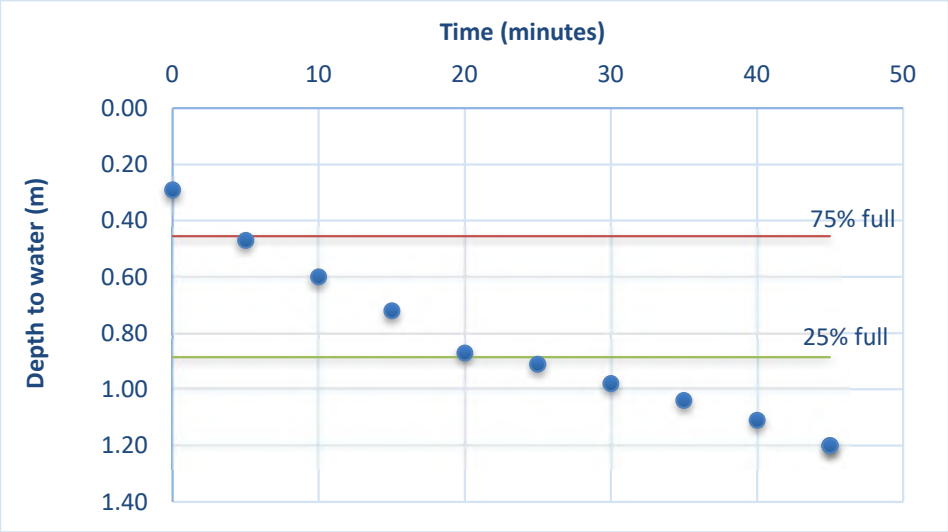
Soakaway Test

CLIENT	DWD
SITE	Beech Tree Solar Farm, Coombe Bissett,
CONTRACT	GI1812
DATE	04/09/2023
HOLE ID	TP03

TEST 3

LENGTH	1.00	m
BREADTH	0.40	m
DEPTH	1.10	m
WATER LEVEL PRE TEST	Dry	
FILL LEVEL To 100%	0.24	m
v_{p75-25}	0.17	m^3
a_{p50}	1.60	m^2
t_{p75-25}	17.3	min

soil infiltration rate, *f* = **1.03** **x 10^-4 ms^{-1}**



Remarks

Soakaway test carried out in general accordance with BRE DG 365 (2016).
Trial pit excavated under archaeological supervision.
Trial pit logged at ground level using material at surface.

Geological Description (BS5930 2015 & CIRIA c574)

0.00-0.25m	Dark brown slightly gravelly sandy SILT. Gravel is mainly flint with occasional chalk.
0.25-0.50m	Light brown very silty subangular to subrounded fine to coarse GRAVEL of chalk and occasional cobbles of flint.
0.50-1.10m	Structureless CHALK composed of gravelly off-white SILT. Gravel is angular fine to coarse chalk. Grade Dm.
1.10-1.35m	Structureless CHALK composed of off-white silty angular fine to coarse GRAVEL with occasional flint cobbles. Grade Dc.

GEOTECHNICAL INVESTIGATIONS LIMITED

Trial Pit

CLIENT	DWD
SITE	Beech Tree Solar Farm, Coombe Bissett, Salisbury
CONTRACT	GI1812
DATE	04/09/2023
HOLE ID	TP03A

LENGTH	1.80	m
BREADTH	0.40	m
DEPTH	2.10	m
WATER RECORD	Dry	

Geological Description (BS5930 2015 & CIRIA c574)

0.00-0.25m	Dark brown slightly gravelly sandy SILT. Gravel is mainly flint with occasional chalk.
0.25-0.50m	Light brown very silty subangular to subrounded fine to coarse GRAVEL of chalk and occasional cobbles of flint.
0.50-1.10m	Structureless CHALK composed of gravelly off-white SILT. Gravel is angular fine to coarse chalk. Grade Dm.
1.10-2.10m	Structureless CHALK composed of off-white silty angular fine to coarse GRAVEL with occasional flint cobbles. Grade Dc.

GEOTECHNICAL INVESTIGATIONS LIMITED

CLIENT: DWD

SITE: Beech Tree Solar Farm, Coombe Bissett, Salisbury

CONTRACT NUMBER: GI1812



GI1812 TP01 Precondition



GI1812 TP01.01 1.40m.



GI1812 TP01.02 1.40m.



GI1812 TP01.03 1.40m.



GI1812 TP01 Postcondition



GI1812 TP02 Precondition



GI1812 TP02.01 1.10m.



GI1812 TP02.02 1.10m.



GI1812 TP02.03 1.10m.



GI1812 TP02 Postconditon



GI1812 TP03 & TP03A Precondition



GI1812 TP03.01 1.30m.



GI1812 TP03.02 1.30m.



GI1812 TP03.03 1.30m.



GI1812 TP03A.01 2.10m.



GI1812 TP03A.02 2.10m.



GI1812 TP03A.03 2.10m.



GI1812 TP03 & TP03A Postcondition

Appendix 6

ICP SUDS Mean Annual Flood

Input

Return Period (years)	1	Soil	0.150
Area (ha)	35.500	Urban	0.000
SAAR (mm)	800	Region Number	Region 7

Results l/s

QBAR Rural	16.8
QBAR Urban	16.8
Q1 year	14.3
Q1 year	14.3
Q30 years	38.1
Q100 years	53.6

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ICP SUDS Mean Annual Flood

Input

Return Period (years)	1	Soil	0.150
Area (ha)	35.500	Urban	0.001
SAAR (mm)	800	Region Number	Region 7

Results l/s

QBAR Rural	16.8
QBAR Urban	16.9
Q1 year	14.3
Q1 year	14.3
Q30 years	38.2
Q100 years	53.7

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