WILSON BAILEY
GEOTECHNICAL & ENVIRONMENTAL

Carters Barn
Sherrington
Wiltshire
BA12 0SN
Tel: 01985 850882

17 November 2018

Your ref:
Planning ref:
Our ref: J17038dbc06c

Chris Gardiner
Crest Nicholson Regeneration
Crest House
Pycroft Road
Chertsey
Surrey
KT16 9GN

Dear Mr Gardiner,

RE: ELMSBROOK DEVELOPMENT BICESTER PHASES 3 & 4

UPDATED SOAKAGE TESTING REPORT

Further to your instruction we have carried out additional soakage testing in locations across this site that have been selected by the Civil Engineers. Soakage testing has been carried out in accordance with BRE365.

This letter report is provided in accordance with our standard terms, conditions and limitations.

Selected Photographic Records of the Works

The table overleaf provides a summary of the results of testing at each of the locations indicated on the site plan that was provided by the Civil Engineers and set out on site by the Ground Workers.

Where necessary within hard strata the trial pits were excavated using a mechanical excavator with breaker and ripper that was provided by the Ground Workers.

Test Locations indicated as being within areas of adoptable roads

Test Location Reference	Test result (m/s)
TP 1	1.1e-4m/s in fragmented Cornbrash to 1.00 m
TP 2	>5e-4m/s in fragmented Cornbrash to 1.00 m
TP 3	1.9e-4m/s in fragmented Cornbrash to 1.50 m
TP 4	>5e-4m/s in fragmented Cornbrash to 1.00 m
TP 5	>5e-4m/s in fragmented Cornbrash to 1.00 m
TP 6	5.7e-5m/s in fragmented Cornbrash and sand to 1.40 m
TP 7	>5e-4m/s in fragmented Cornbrash to 1.20 m
TP 8	2.2e-5m/s in fragmented Cornbrash to 1.00 m

Test Locations indicated as being within areas of garden and parking

Test Location Reference	Test result (m/s)
TP 1	4.1e-6m/s in clayey fragmented Cornbrash to 1.50m
TP 2	7.5e-5m/s in fragmented Cornbrash at 0.80 m
TP 3	>5e-4m/s in fragmented Cornbrash to 0.80 m.
TP 4	4.7e-5m/s in fragmented Cornbrash to 0.60m
TP 5	3.9e-5/s in fragmented Cornbrash to 0.50 m.
TP 6	3.0e-4m/s in fragmented Cornbrash to 1.50 m. 8.6e-6m/s in limestone with clay below
TP 7	2.6e-5m/s in fragmented Cornbrash to 0.80 m
TP 8	1.7e-5m/s in limestone below 1.20 m
TP 9	2.3e-5m/s in fragmented Cornbrash to 1.00 m
TP 10	1.9e-4m/s in fragmented Cornbrash to 0.80 m 8.7e-7m/s in clay and limestone below
TP 11	>5e-4m/s in fragmented Cornbrash to 1.05 m
TP 12	1.7e-5m/s in fragmented Cornbrash to 1.00 m
TP 13	2.6e-5m/s in fragmented Cornbrash to 1.10 m
TP 14	1.9e-5m/s in fragmented Cornbrash to 0.80 m
TP 15	3.1e-5m/s in fragmented Cornbrash to 0.60 m
TP 16	2.8e-5m/s in fragmented Cornbrash to 0.80 m

The ground conditions at this site have been found to comprise highly permeable fragmented Cornbrash Limestone overlying a low to negligibly permeable dark grey limestone and stiff dark grey clay.

Testing has been carried out within the deeper lower permeability clay and limestone layers and has been successful in a number of locations. In other locations, either no-infiltration has been encountered at depth, or slight seepages of groundwater have been encountered at the interface between the fragmented limestone and the underlying limestone and clay and masked any low achievable rates of infiltration in these lower levels. As discussed with the Civil Engineers, soakaways should be designed to discharge at shallow depth into the near surface soils with an appropriate volume of storage provided at shallow depth.

We trust that this letter and enclosures provide sufficient information although please do not hesitate to contact me should you have any queries or questions.

Yours sincerely
Wilson Bailey Partnership

Dominic Brightman
BSc MSc DIC FGS CGeol ARSM

NOTES

1. THIS DRAWING IS COPYRIGHT.

2. DO NOT SCALE THIS DRAWING.
THE CONTRACTOR IS TO BRING TO THE NOTICE OF THE ENGINEER ANY DISCREPANCIES CONTAINED IN THIS DRAWING PRIOR TO WORK COMMENCEMENT.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST SUB-CONTRACTORS DRAWINGS AND THE SPECIFICATION.

4. ALL SETTING OUT TO BE IN ACCORDANCE WITH THE ENGINEERS DRAWINGS. CONTRACTOR TO CHECK AND IDENTIFY ANY DISCREPANCIES TO ENGINEER. DIMENSIONS MUST NOT BE SCALED.

5. THIS DRAWING HAS BEEN PRODUCED BASED UPON LAYOUTS COMPILED AND SUPPLIED BY THE ARCHITECT AND HIGHWAYS ENGINEER IN ELECTRONIC FORMAT. NO RESPONSIBILITY IS TAKEN FOR ANY INACCURACIES AND/OR OMISSIONS IN THE INFORMATION AS SUPPLIED.

1 SOAKAWAY PIT TEST LOCATION, PIT TO BE 2.5m DEEP

1 PERMEABLE PAVING TEST LOCATION, PIT TO BE 0.6m DEEP AND WITHIN CORNBRASH

NOTE: SHOULD THERE BE NO DROP IN WATER LEVEL AFTER A 1 HOUR PERIOD THEN TEST TO BE ABANDONED AND MOVED TO A NEW POSITION APPROX 10M AWAY.

HEALTH & SAFETY:

ALL WORKS TO BE CARRIED OUT BY A CONTRACTOR COMPETENT TO UNDERTAKE THE CONSTRUCTION OF WORKS AS INDICATED ON THIS DRAWING. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE JOB SPECIFIC RISK ASSESSMENT. THE HAZARDS NOTED ARE IN ADDITION TO THE NORMAL HAZARDS AND RISKS FACED BY A COMPETENT CONTRACTOR WHEN DEALING WITH THE TYPE OF WORKS DETAILED ON THIS DRAWING.

Rev.	Description.	Date.	Initial.
T1	NOTE ADDED FOR ACO'S TO GARAGES, TENDER ISSUE	13.12.17	DC

Drawing Status: PRELIMINARY

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Site:	ELMSBROOK, BICESTER
Address:	PHASE 3 & 4
Drg Title:	SOAKAWAY TEST LOCATIONS
Scale:	NTS
Page Size:	A1
Drawn:	DC
Date:	MAY 18
Checked:	MD
Drawing No:	14790TA-3270
Revision:	P1

WILSON BAILEY
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Carters Barn
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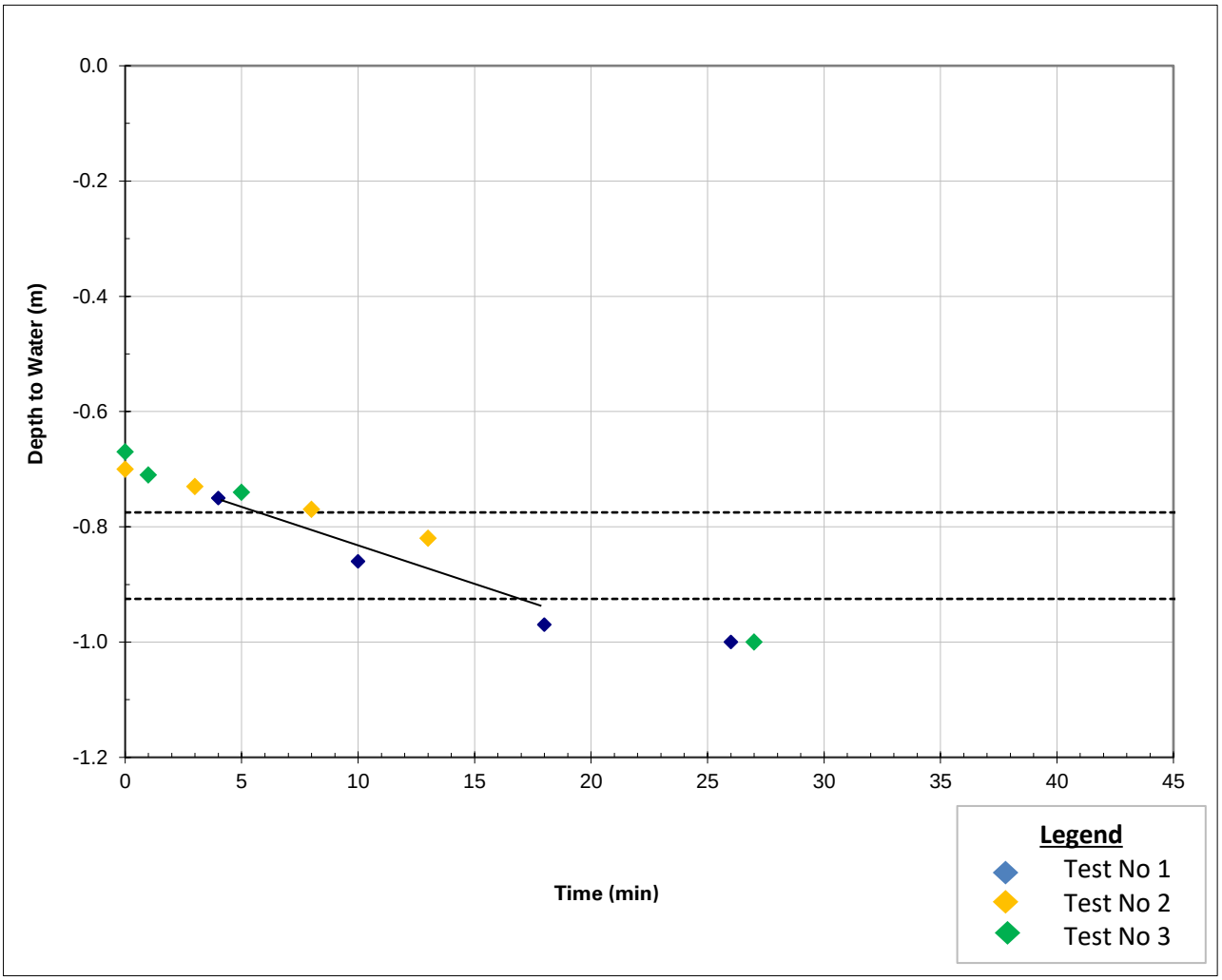
BA12 0SN

Soakage Test Results

Site Elmsbrook Development Phases 3 & 4, Bicester

Client Crest Nicholson Regeneration

Trial Pit No.	1	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1



Design Soakage Rate	1.1E-04	m/s	(based on linear portion of graph as shown)
	9.69	m/day	

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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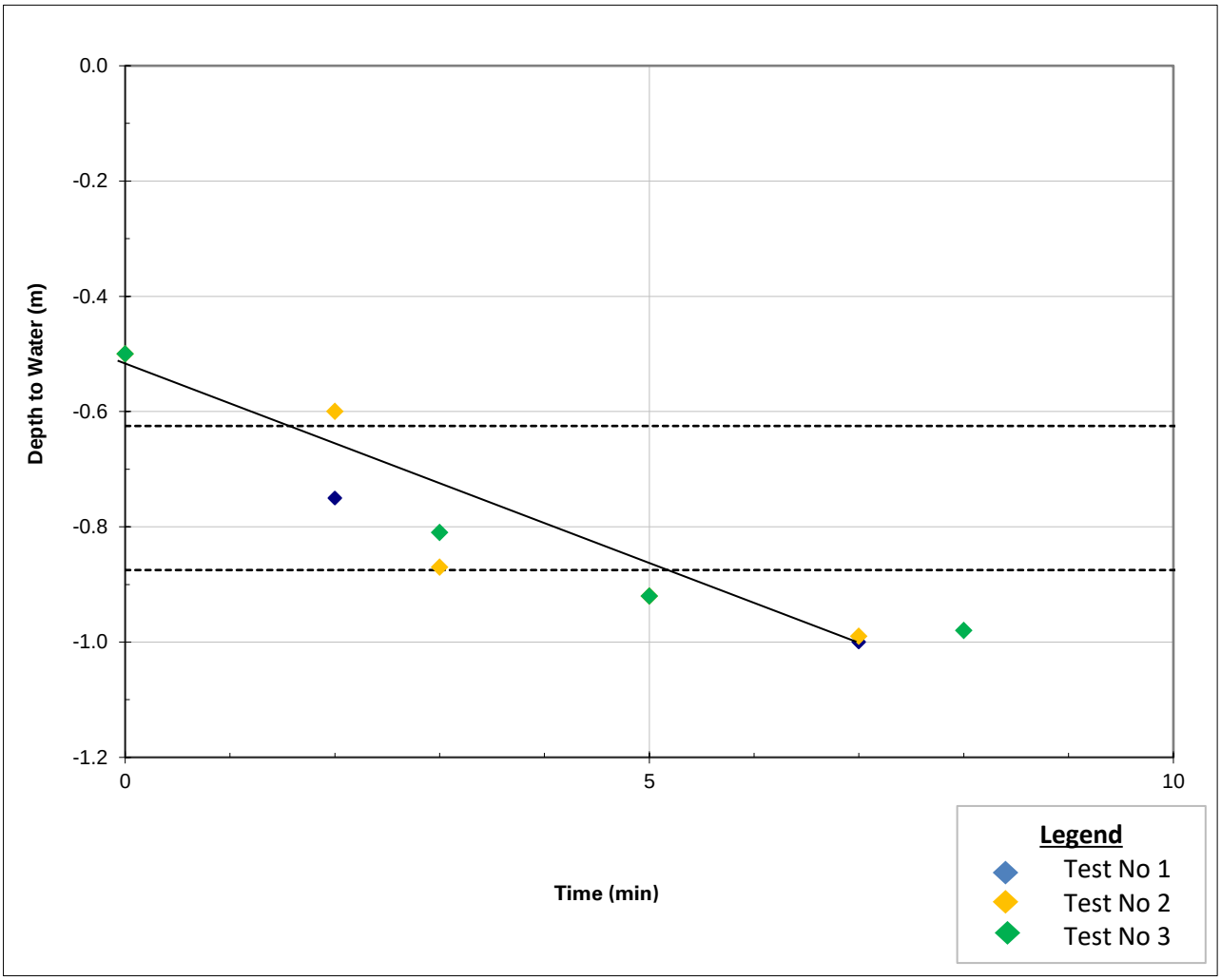
Soakage Test Results

Site Elmsbrook Development Phases 3 & 4, Bicester

Client Crest Nicholson Regeneration

Trial Pit No.	2	Pit Length (m)	1.4
	road	Pit Width (m)	0.6
		Pit Depth (m)	1



Design Soakage Rate	5.4E-04	m/s	(based on linear portion of graph as shown)
	46.96	m/day	

Notes

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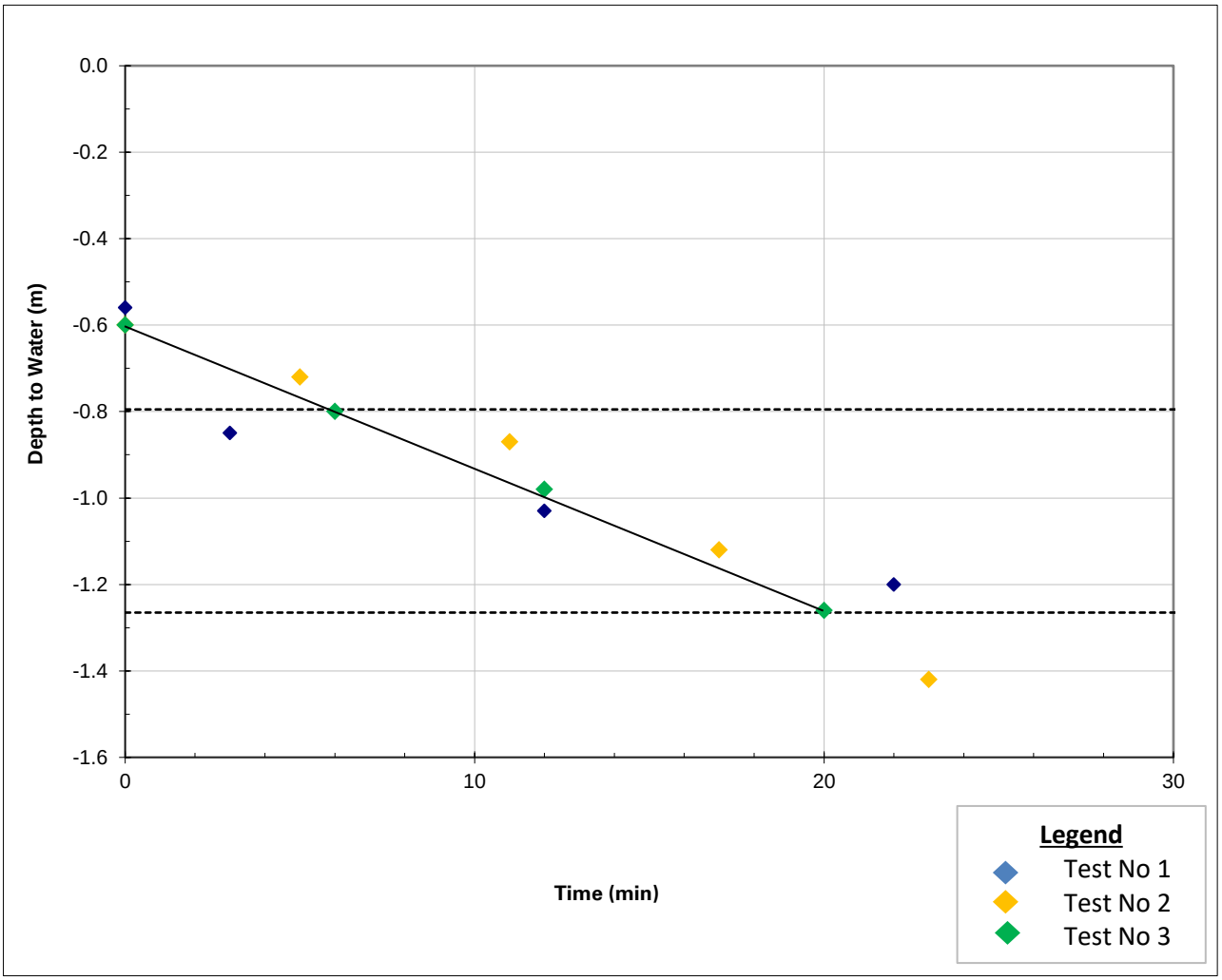
Soakage Test Results

Site Elmsbrook Development Phases 3 & 4, Bicester

Client Crest Nicholson Regeneration

Trial Pit No.	3	Pit Length (m)	1.4
	road	Pit Width (m)	0.6
		Pit Depth (m)	1.5



Design Soakage Rate 1.4E-04 m/s (based on linear portion of graph as shown)
12.31 m/day

Notes

Trial pit log presented separately
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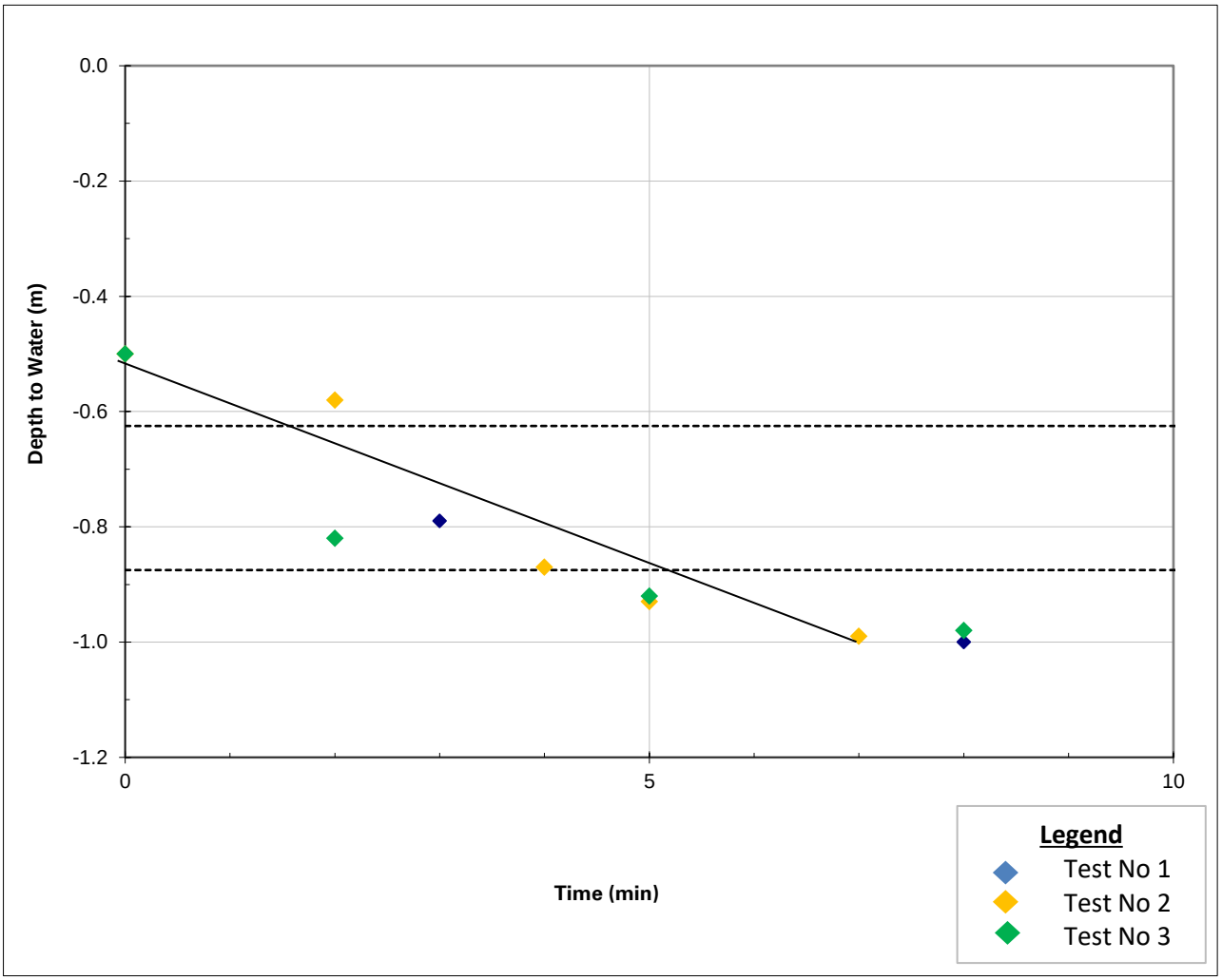
Soakage Test Results

Site Elmsbrook Development Phases 3 & 4, Bicester

Client Crest Nicholson Regeneration

Trial Pit No.	4	Pit Length (m)	1.4
	road	Pit Width (m)	0.6
		Pit Depth (m)	1



Design Soakage Rate 5.4E-04 m/s (based on linear portion of graph as shown)
46.96 m/day

Notes

Trial pit log presented separately
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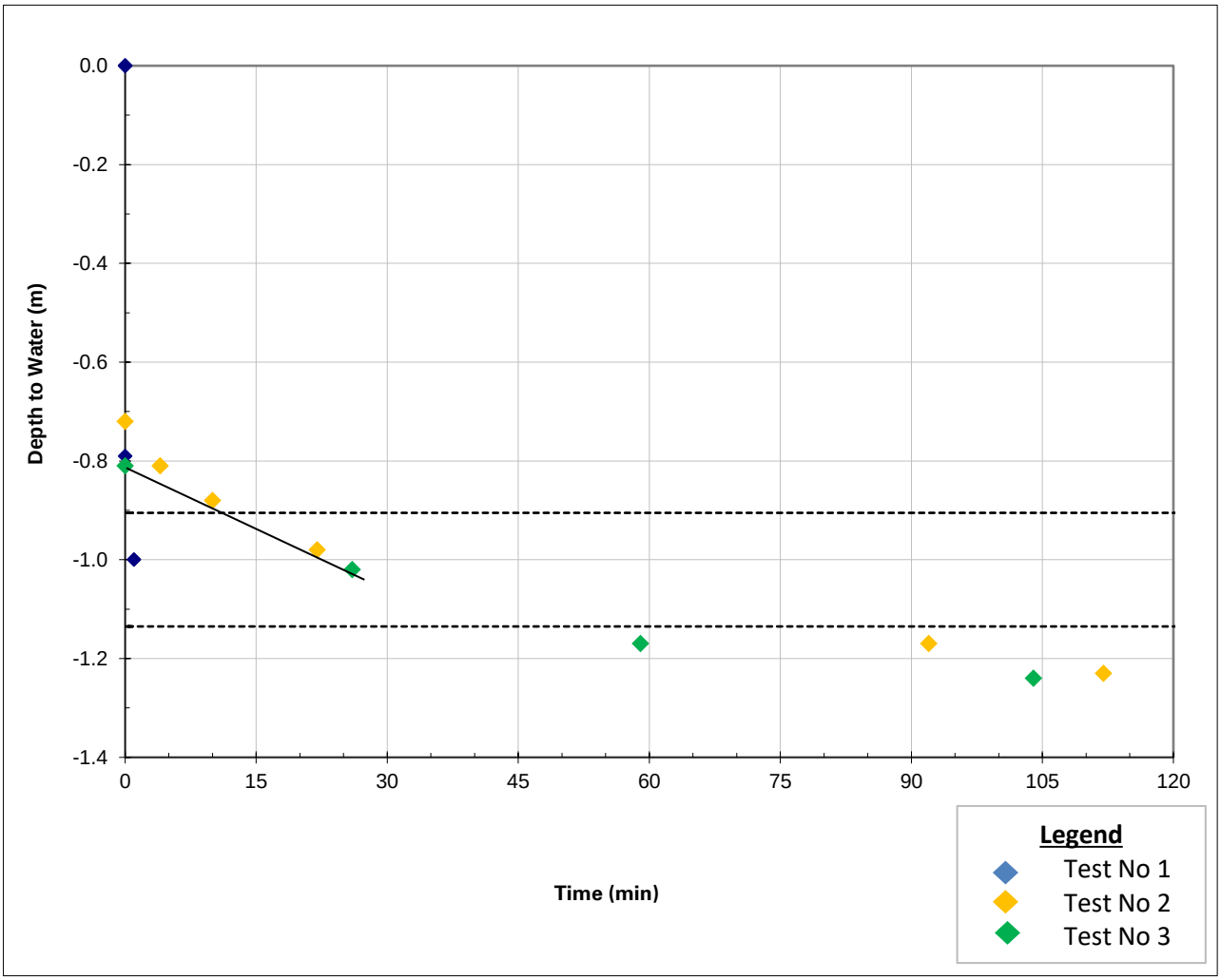
Soakage Test Results

Site Elmsbrook Development Phases 3 & 4, Bicester

Client Crest Nicholson Regeneration

Trial Pit No.	5	Pit Length (m)	1.4
	road	Pit Width (m)	0.6
		Pit Depth (m)	1.25



Design Soakage Rate 8.7E-04 m/s (based on linear portion of graph as shown)
74.93 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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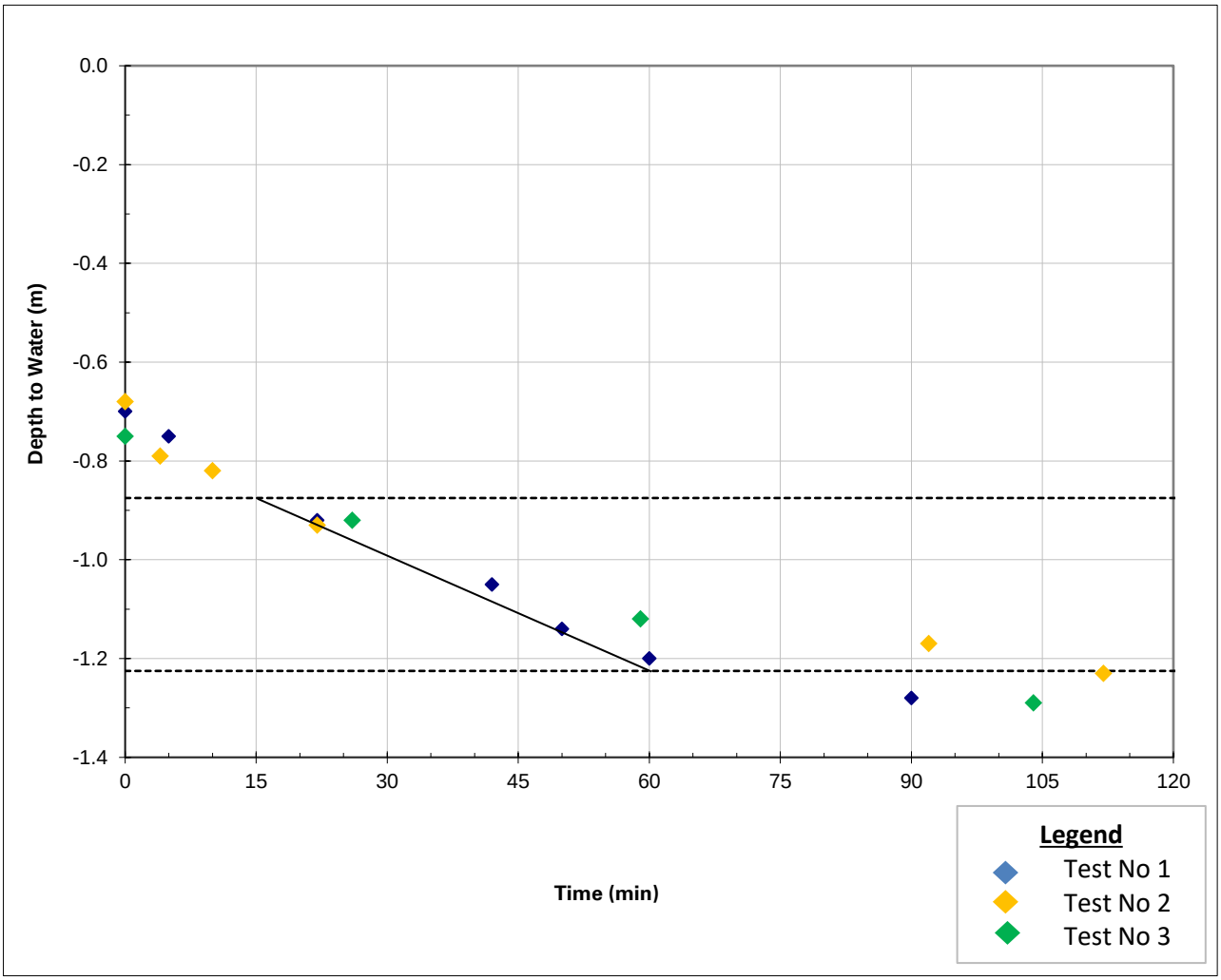
Soakage Test Results

Site Bicester Development Site

Client Crest Nicholson Regeneration

Trial Pit No.	6	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.4



Design Soakage Rate 5.7E-05 m/s (based on linear portion of graph as shown)
4.92 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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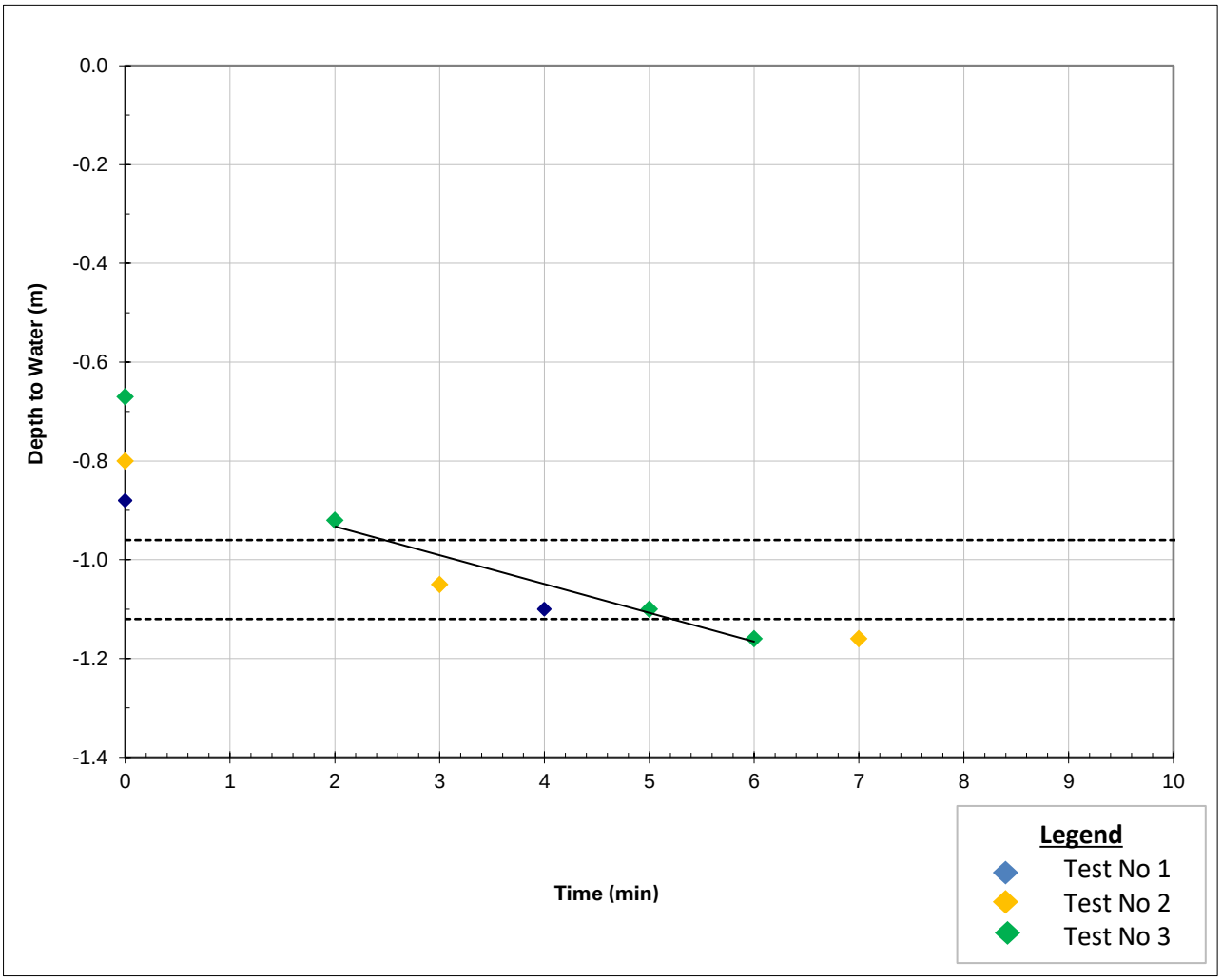
Soakage Test Results

Site Bicester Development Site

Client Crest Nicholson Regeneration

Trial Pit No.	1	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.2



Design Soakage Rate	5.6E-04	m/s	(based on linear portion of graph as shown)
	48.49	m/day	

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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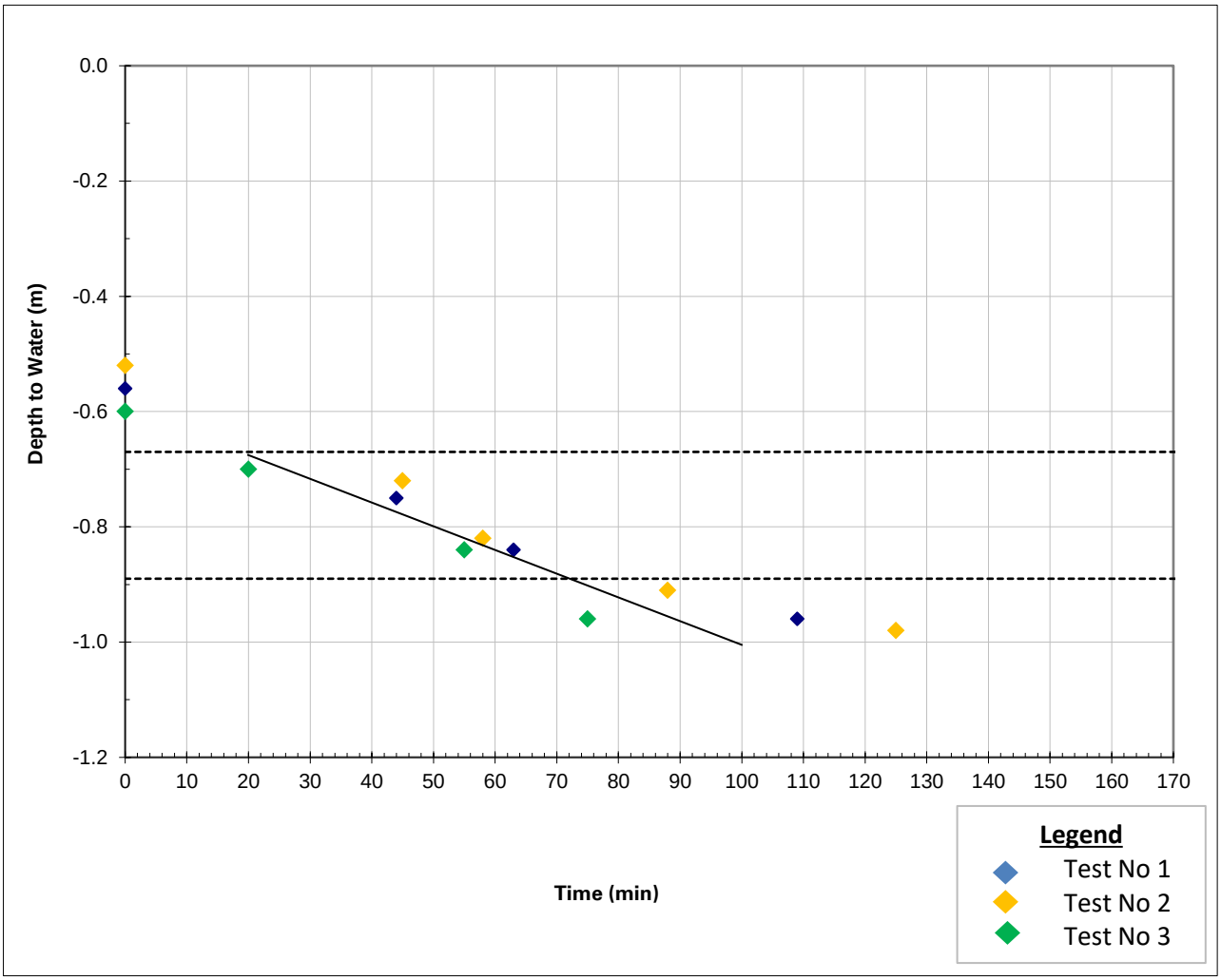
Soakage Test Results

Site Elmsbrook Development Phases 3 & 4, Bicester

Client Crest Nicholson Regeneration

Trial Pit No.	8	Pit Length (m)	1.4
	road	Pit Width (m)	0.6
		Pit Depth (m)	1.0



Design Soakage Rate	2.2E-05	m/s	(based on linear portion of graph as shown)
	1.93	m/day	

Notes

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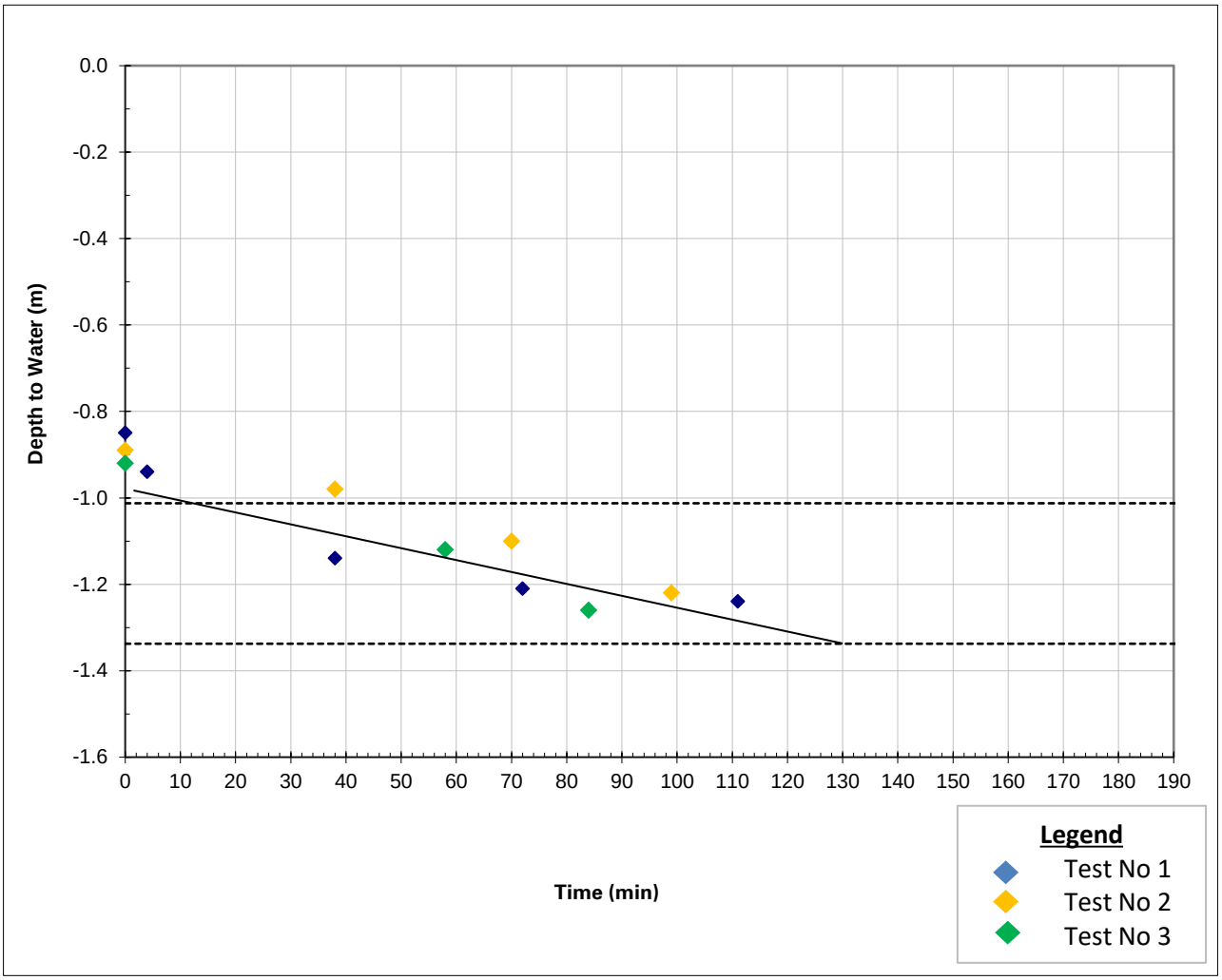
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	1	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.5



Design Soakage Rate	4.2E-06	m/s	(based on linear portion of graph as shown)
	0.36	m/day	

Notes

Trial pit log presented separately
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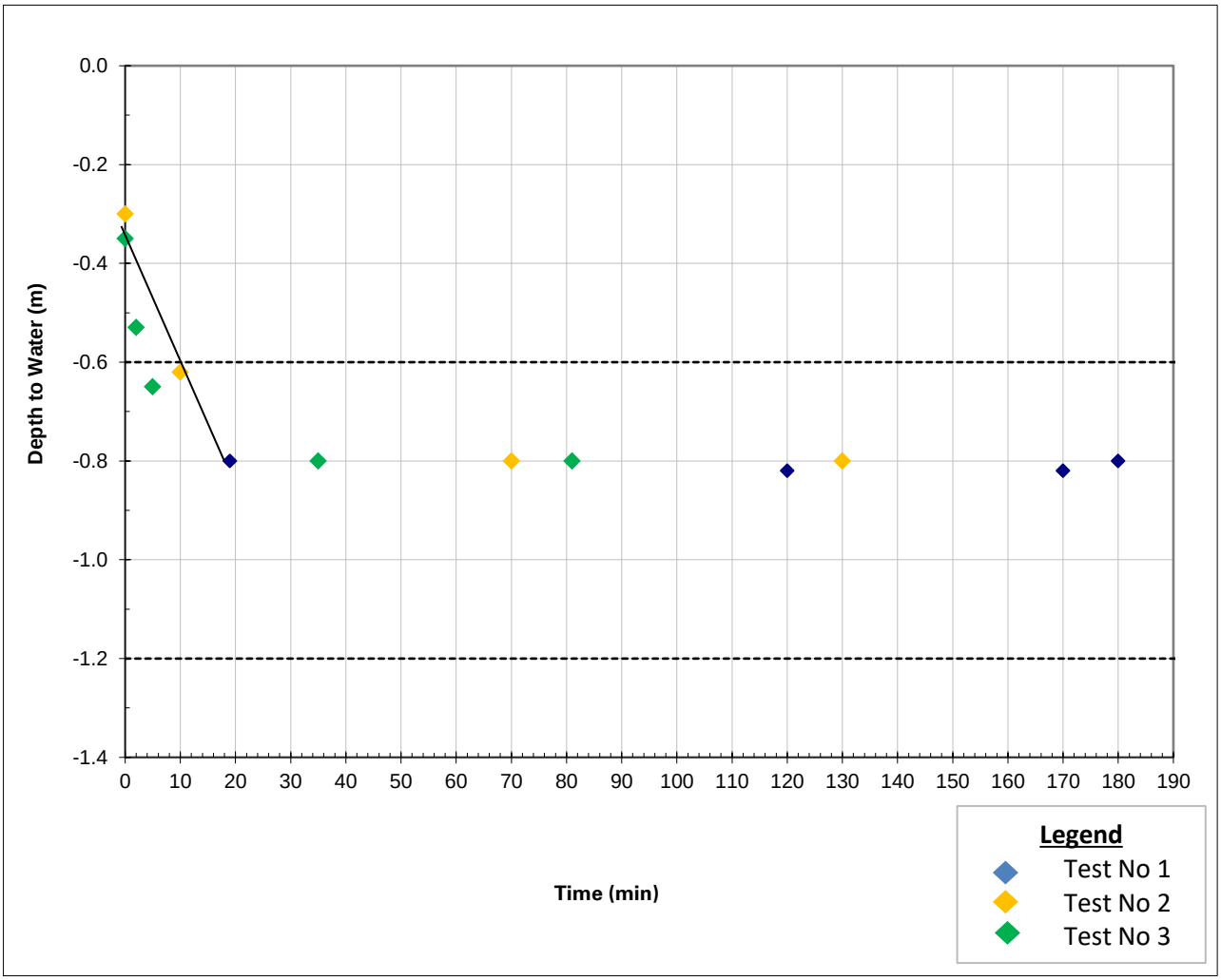
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	2	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.5



Design Soakage Rate	7.5E-05	m/s	(based on linear portion of graph as shown)
	6.52	m/day	

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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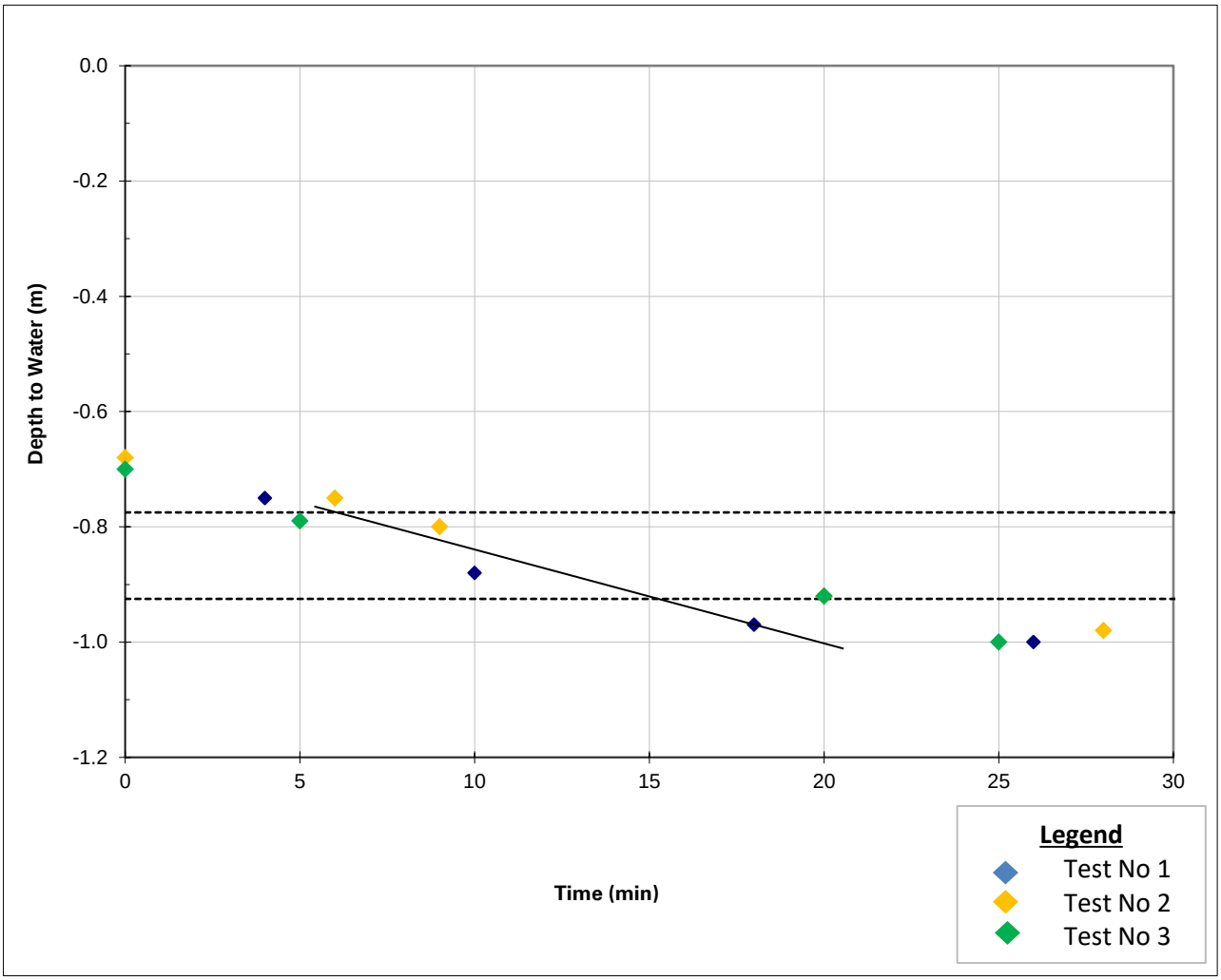
Soakage Test Results

Site Elmsbrook Development Phases 3 & 4, Bicester

Client Crest Nicholson

Trial Pit No.	3	Pit Length (m)	2.2
		Pit Width (m)	0.6
		Pit Depth (m)	1



Design Soakage Rate	1.9E-04	m/s	(based on linear portion of graph as shown)
	16.34	m/day	

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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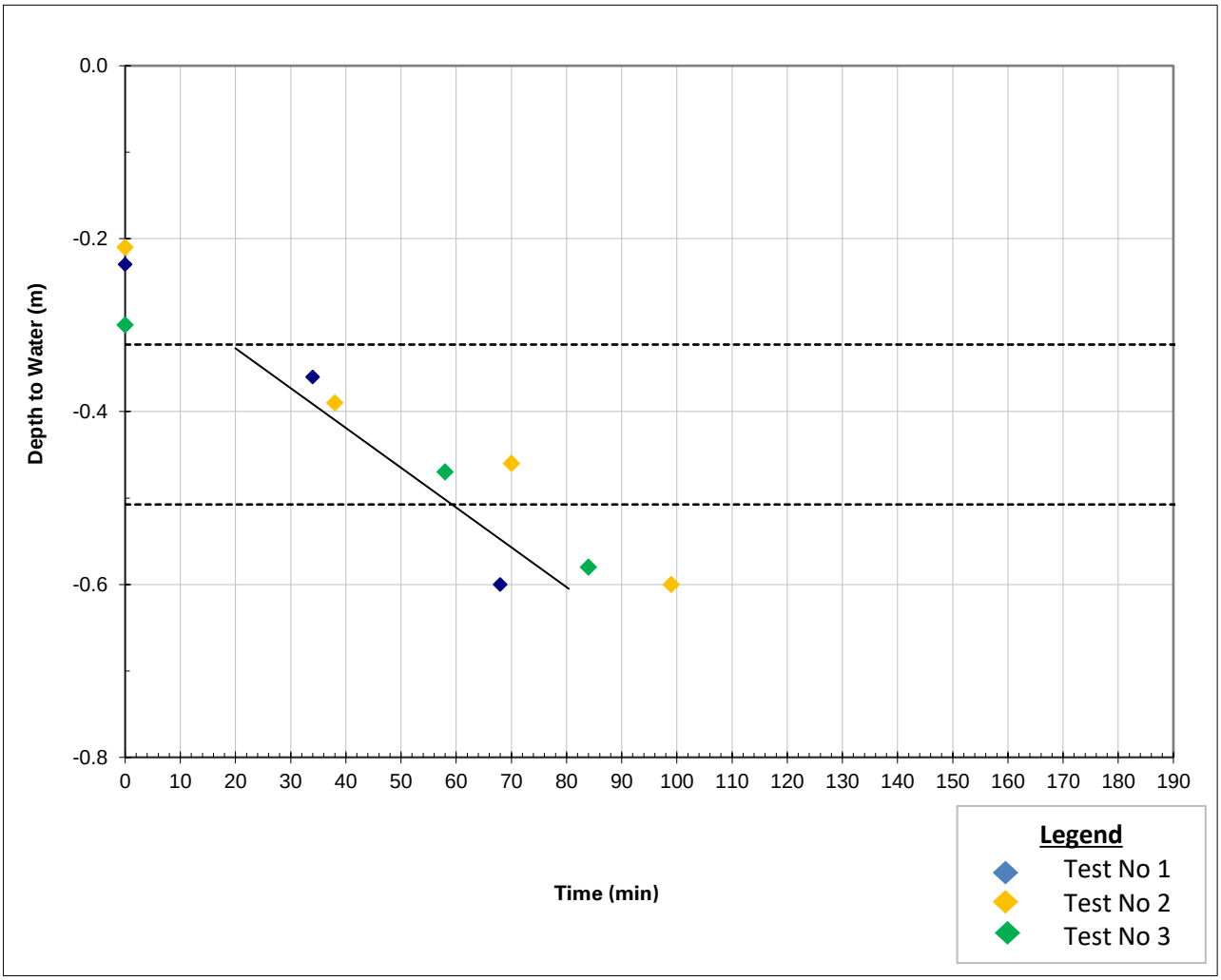
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	4	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	0.6



Design Soakage Rate 4.7E-05 m/s (based on linear portion of graph as shown)
4.03 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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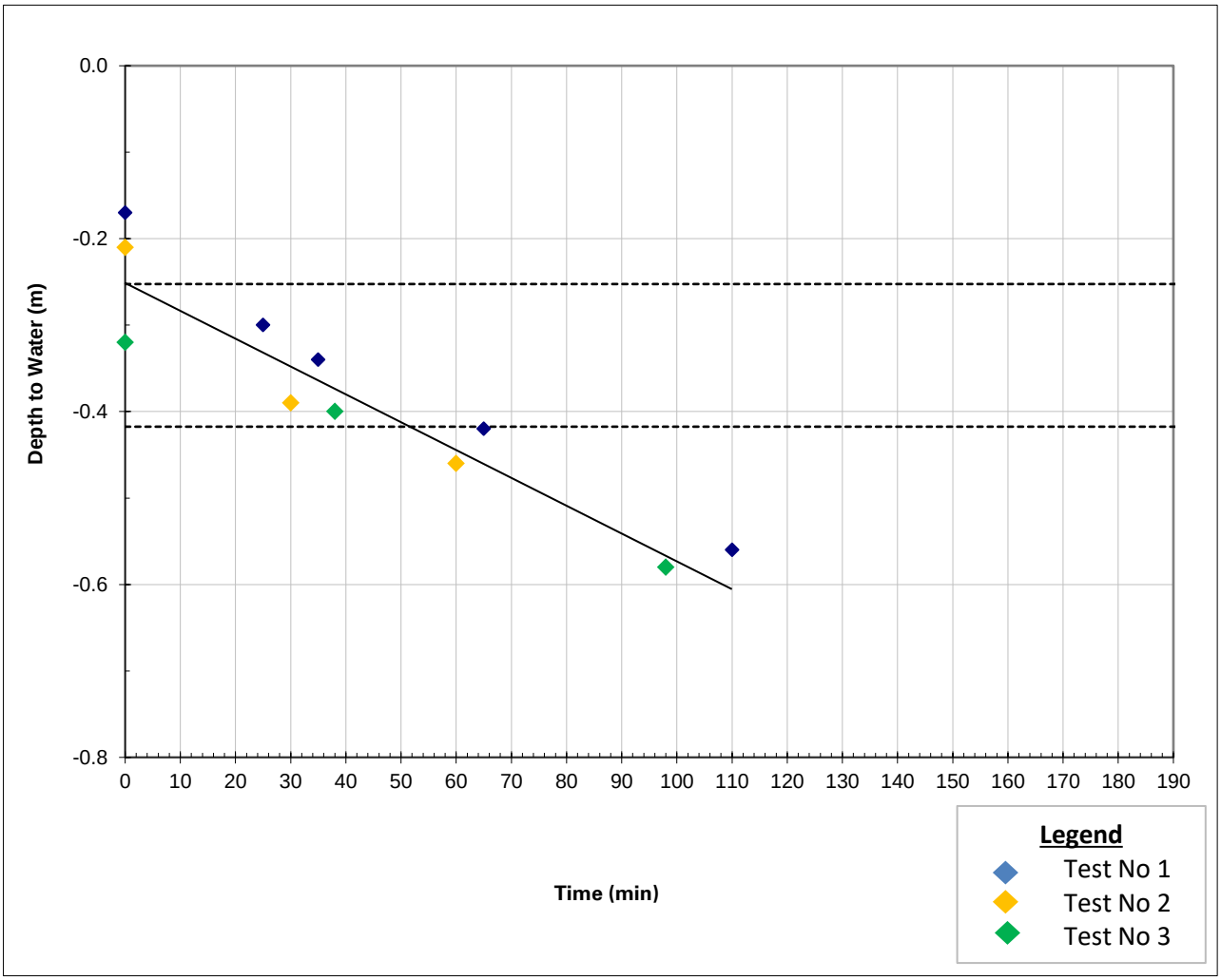
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	5	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	0.5



Design Soakage Rate 3.9E-05 m/s (based on linear portion of graph as shown)
3.37 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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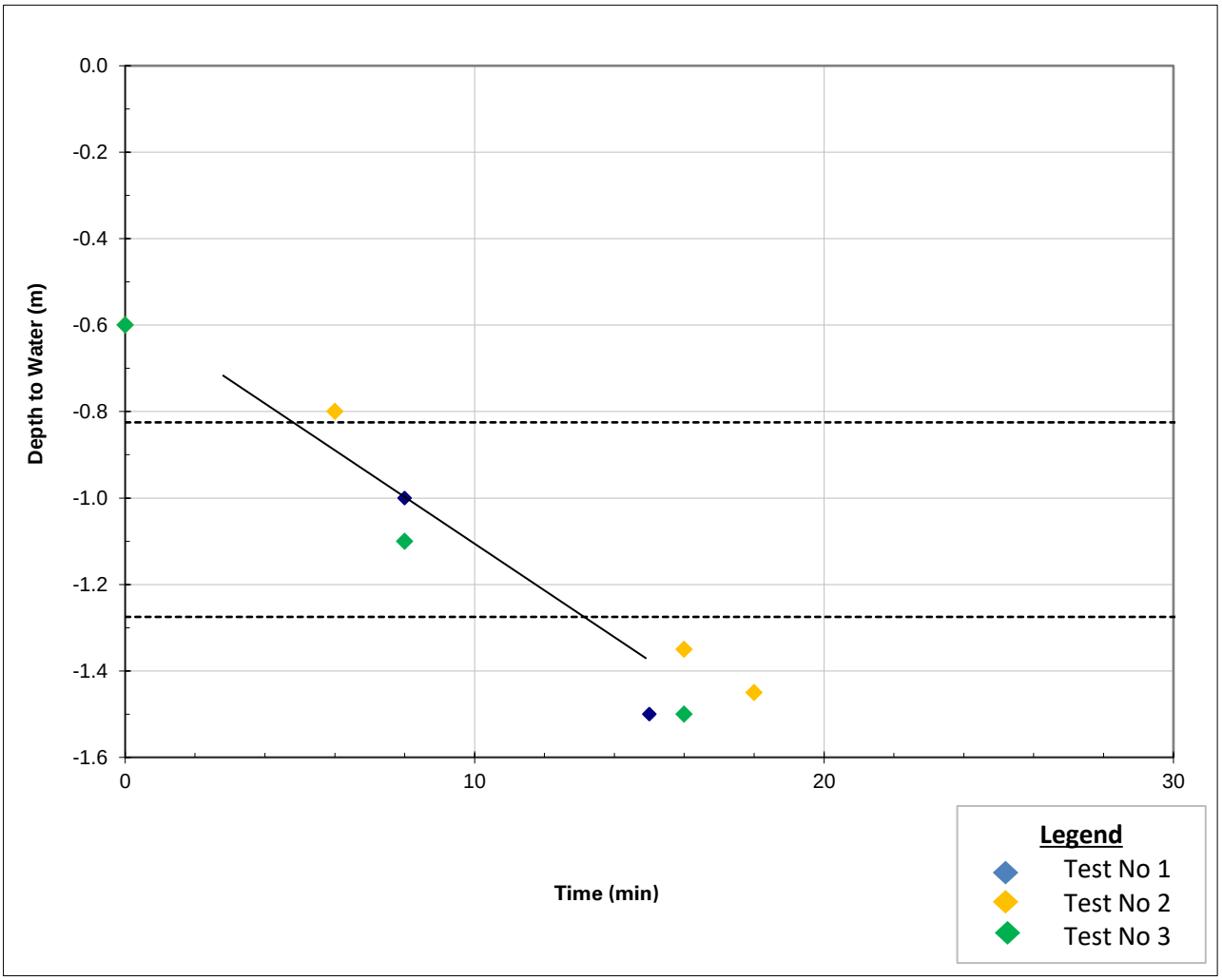
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	6	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.5



Design Soakage Rate 3.2E-04 m/s (based on linear portion of graph as shown)
27.49 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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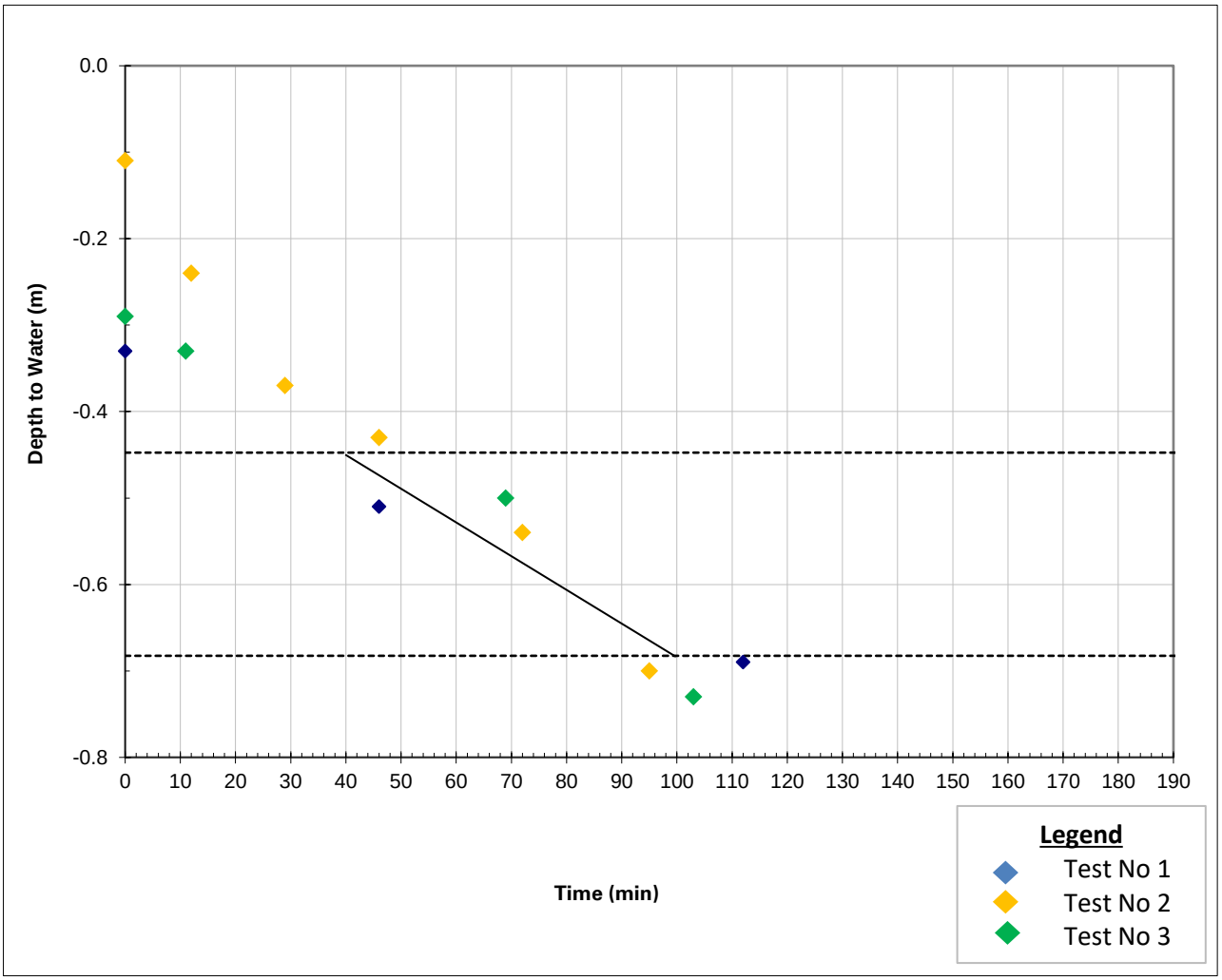
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	7	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	0.8



Design Soakage Rate 2.6E-05 m/s (based on linear portion of graph as shown)
2.23 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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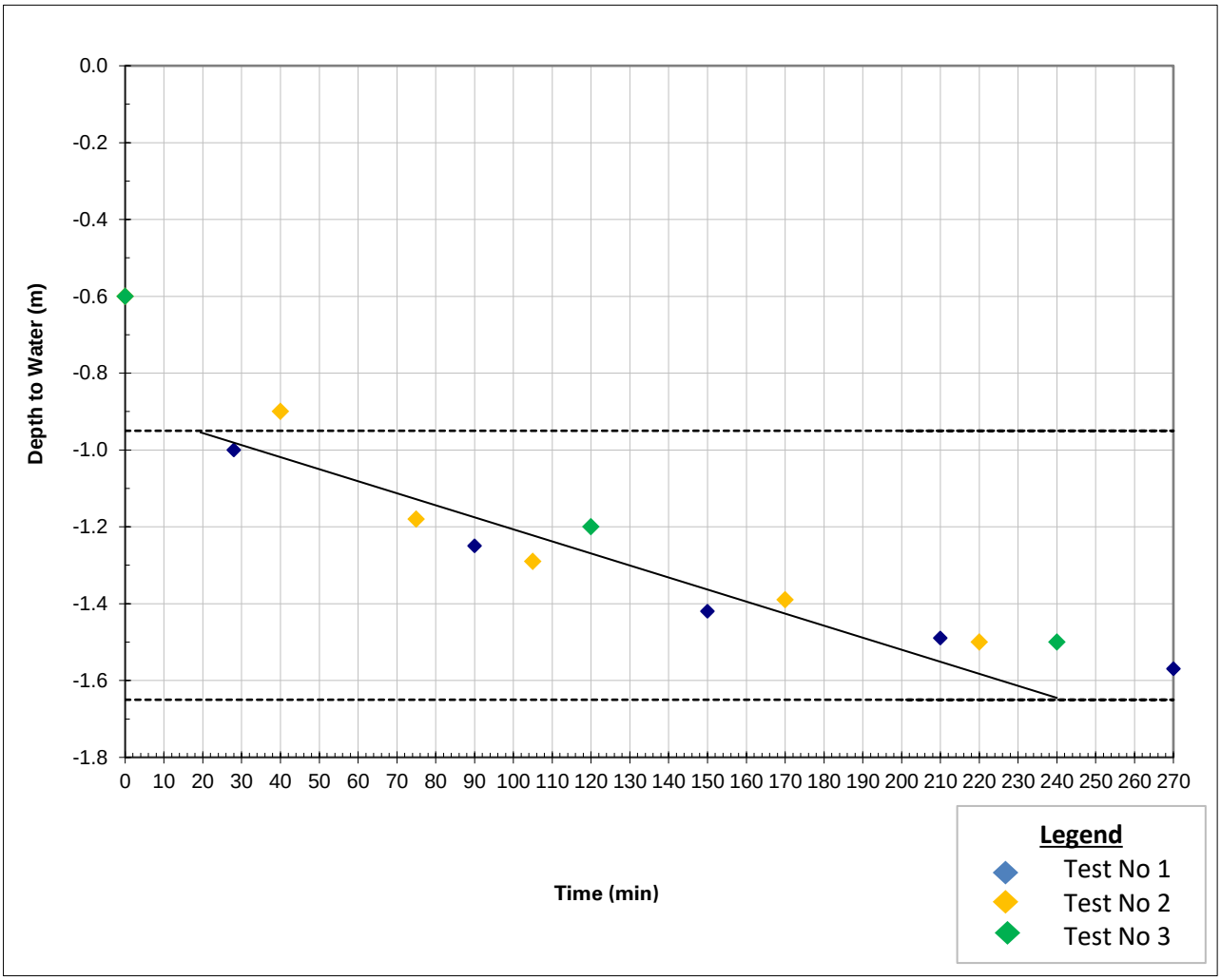
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	8	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	2.0



Design Soakage Rate 1.7E-05 m/s (based on linear portion of graph as shown)
1.48 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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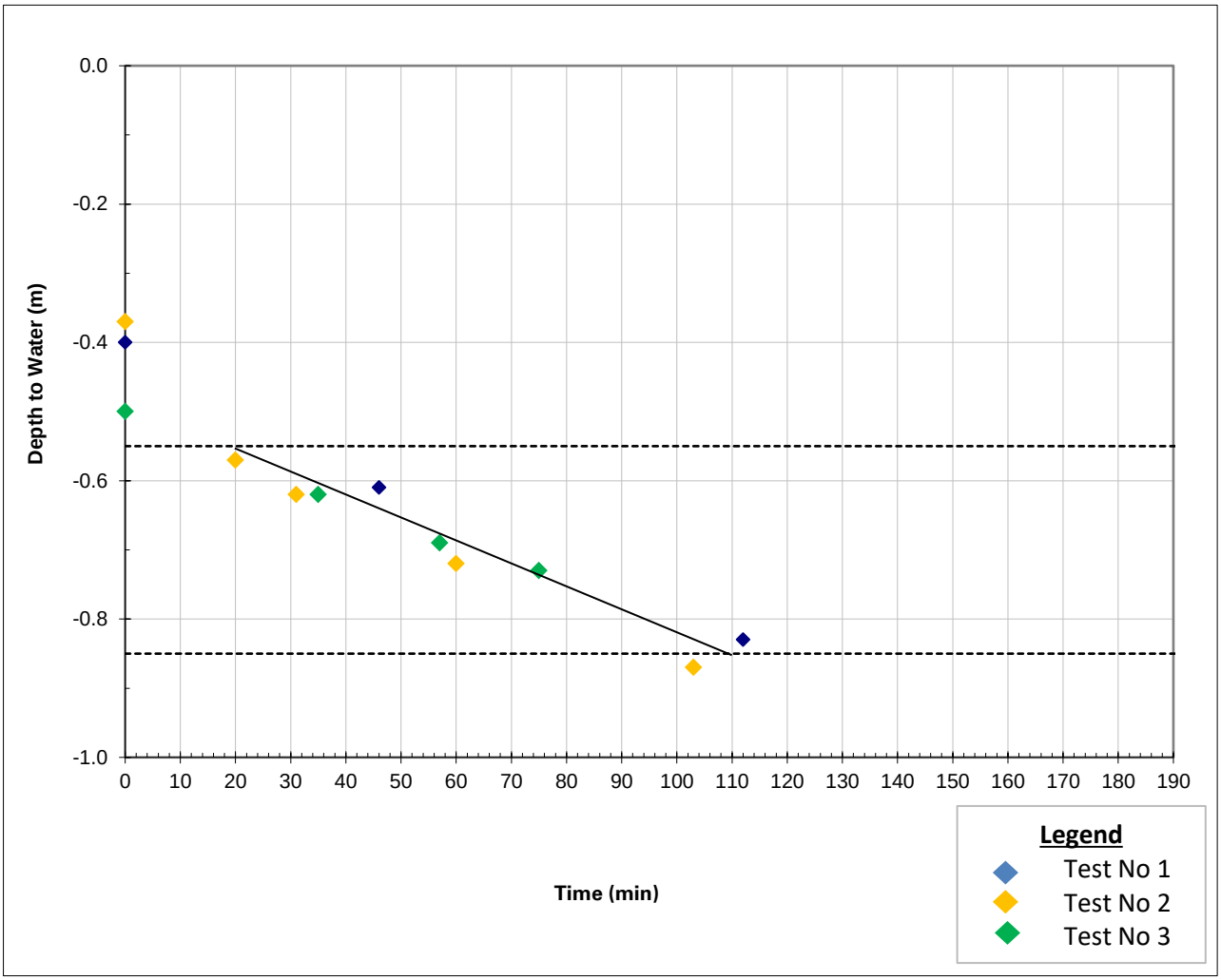
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	9	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.0



Design Soakage Rate 2.3E-05 m/s (based on linear portion of graph as shown)
1.98 m/day

Notes

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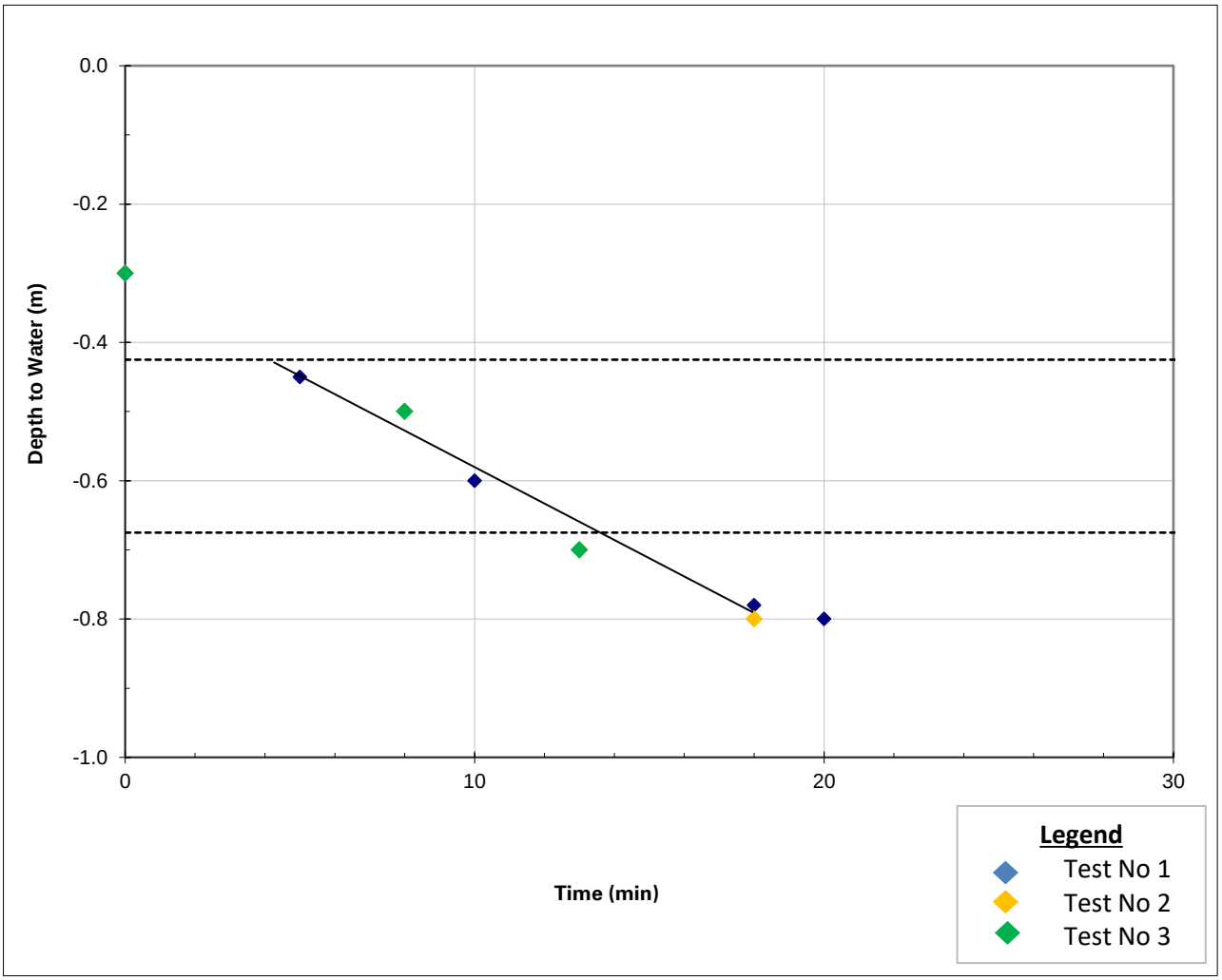
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	10	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	0.8



Design Soakage Rate	1.9E-04	m/s	(based on linear portion of graph as shown)
	16.43	m/day	

Notes

Trial pit log presented separately
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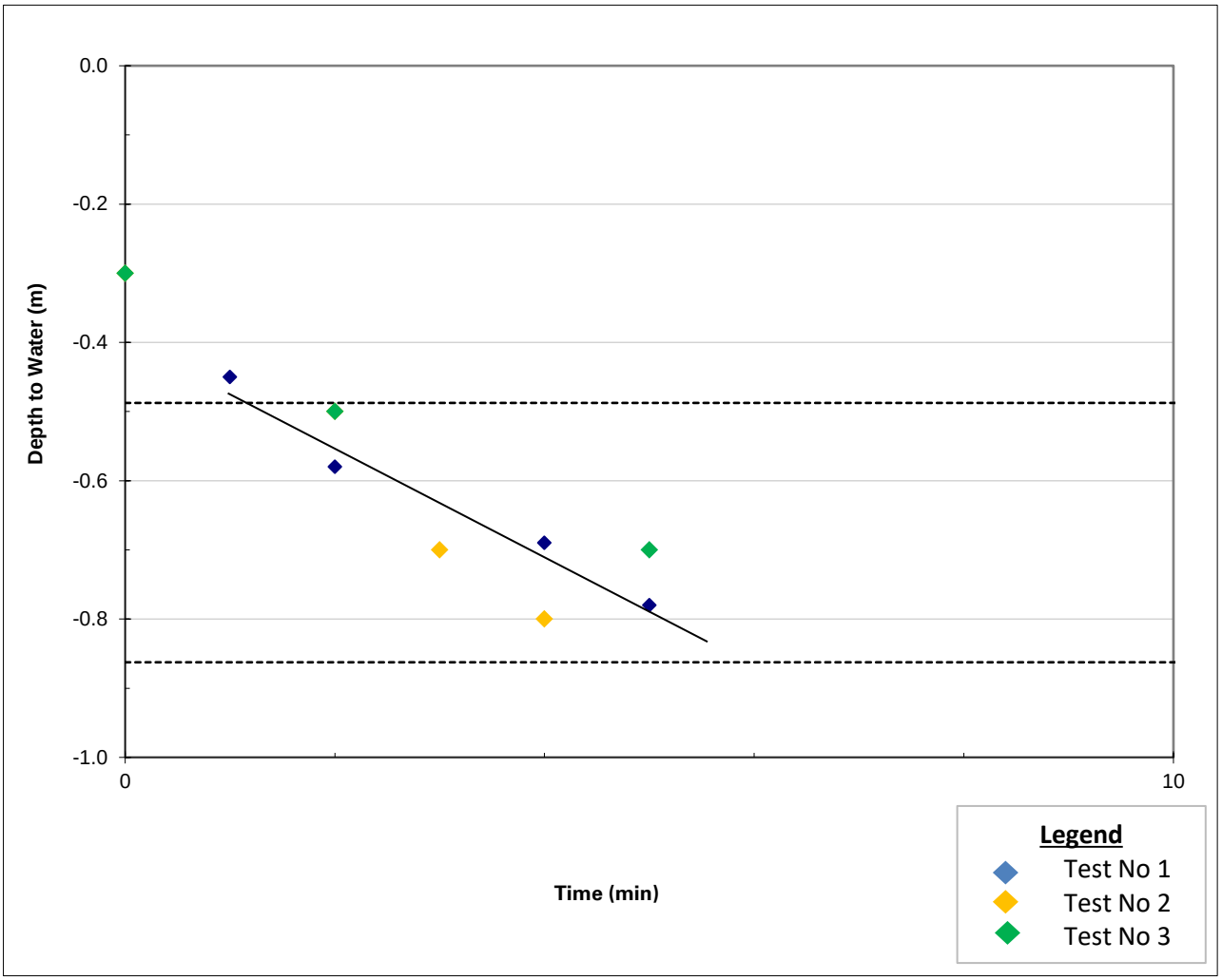
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	11	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.1



Design Soakage Rate	4.9E-04	m/s	(based on linear portion of graph as shown)
	42.59	m/day	

Notes

Trial pit log presented separately
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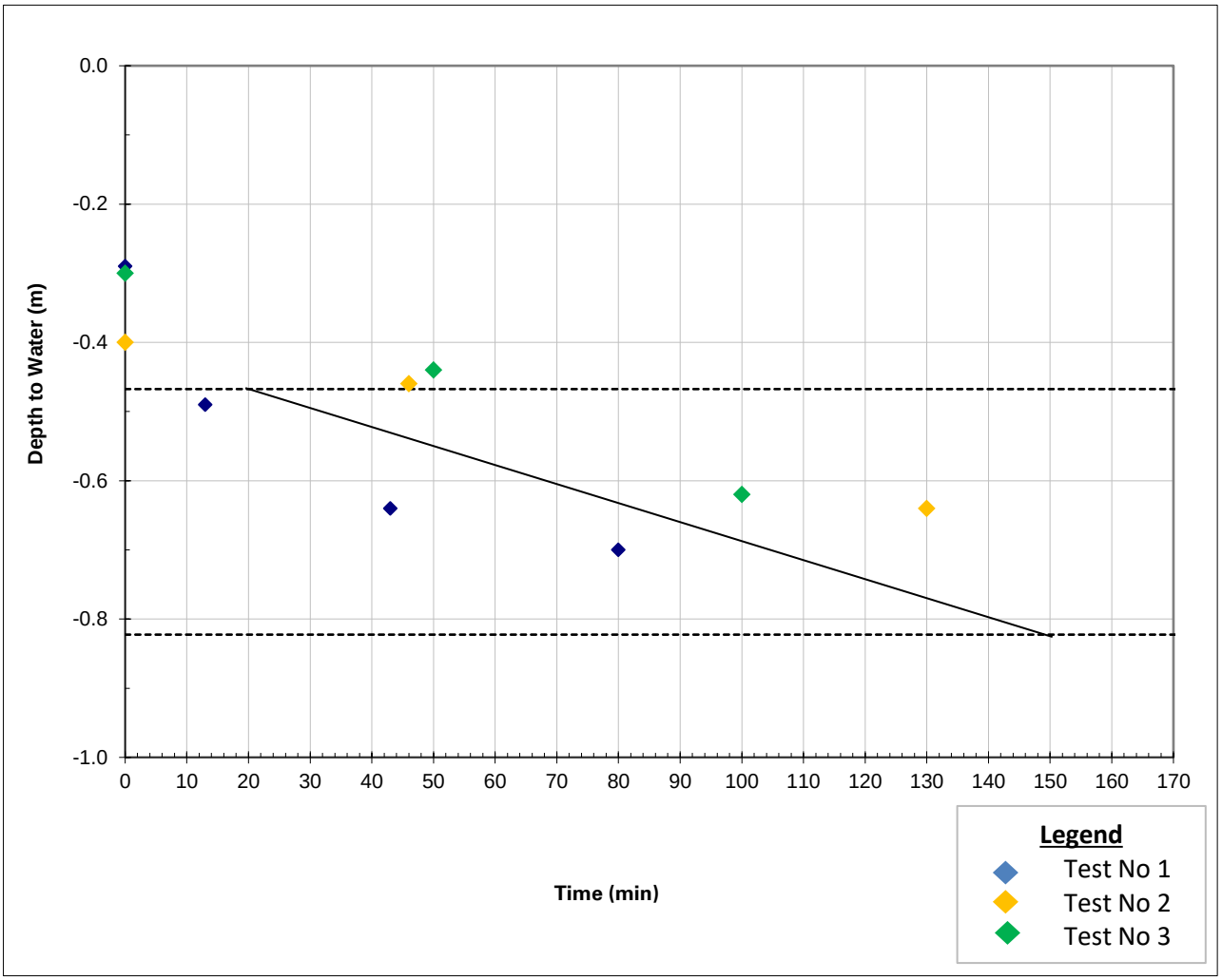
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	12	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.0



Design Soakage Rate 1.7E-05 m/s (based on linear portion of graph as shown)
1.44 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

WILSON BAILEY
GEOTECHNICAL & ENVIRONMENTAL

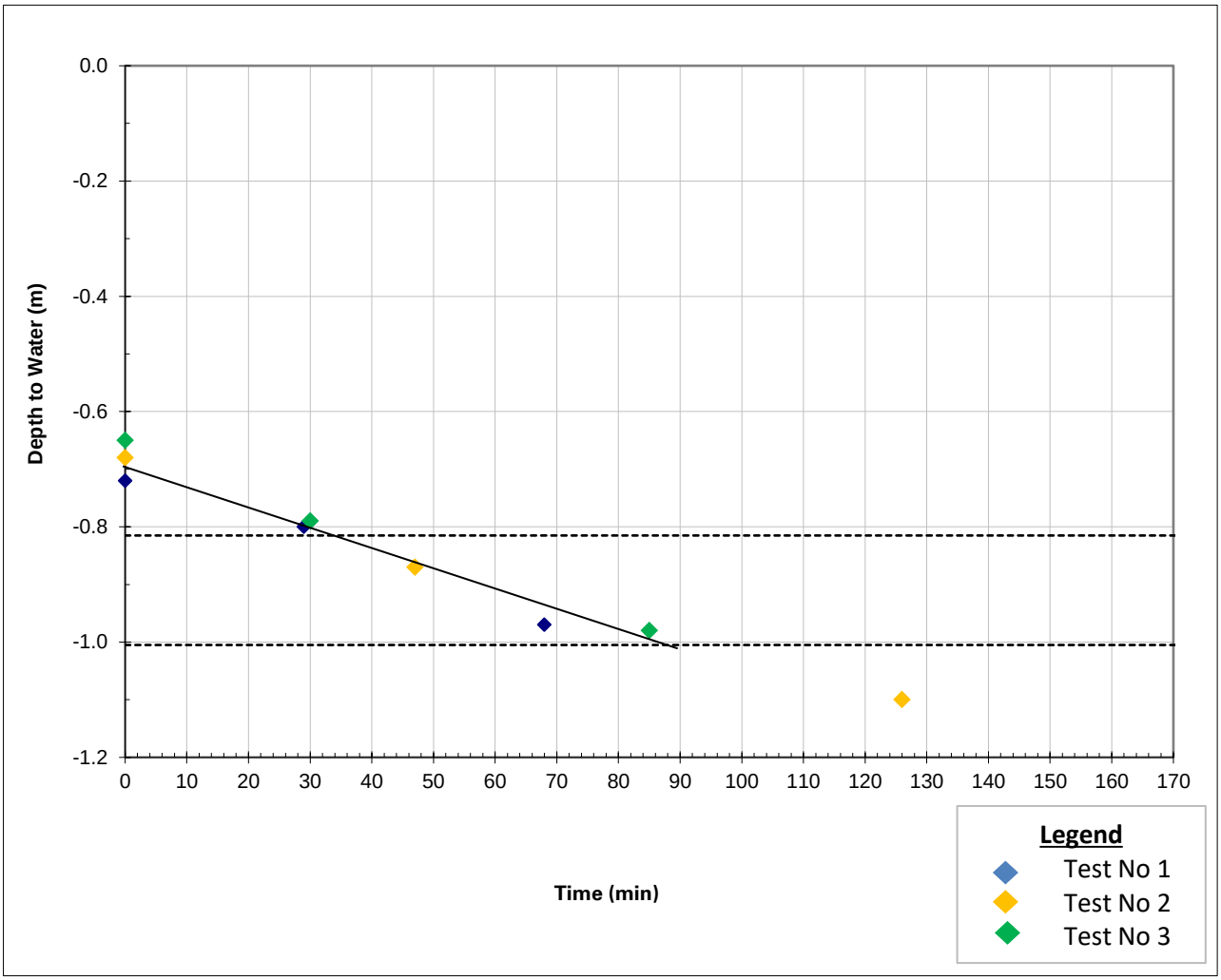
Carters Barn
Sherrington
Wiltshire
BA12 0SN

Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	13	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	1.1



Design Soakage Rate 2.6E-05 m/s (based on linear portion of graph as shown)
2.24 m/day

Notes

Trial pit log presented separately
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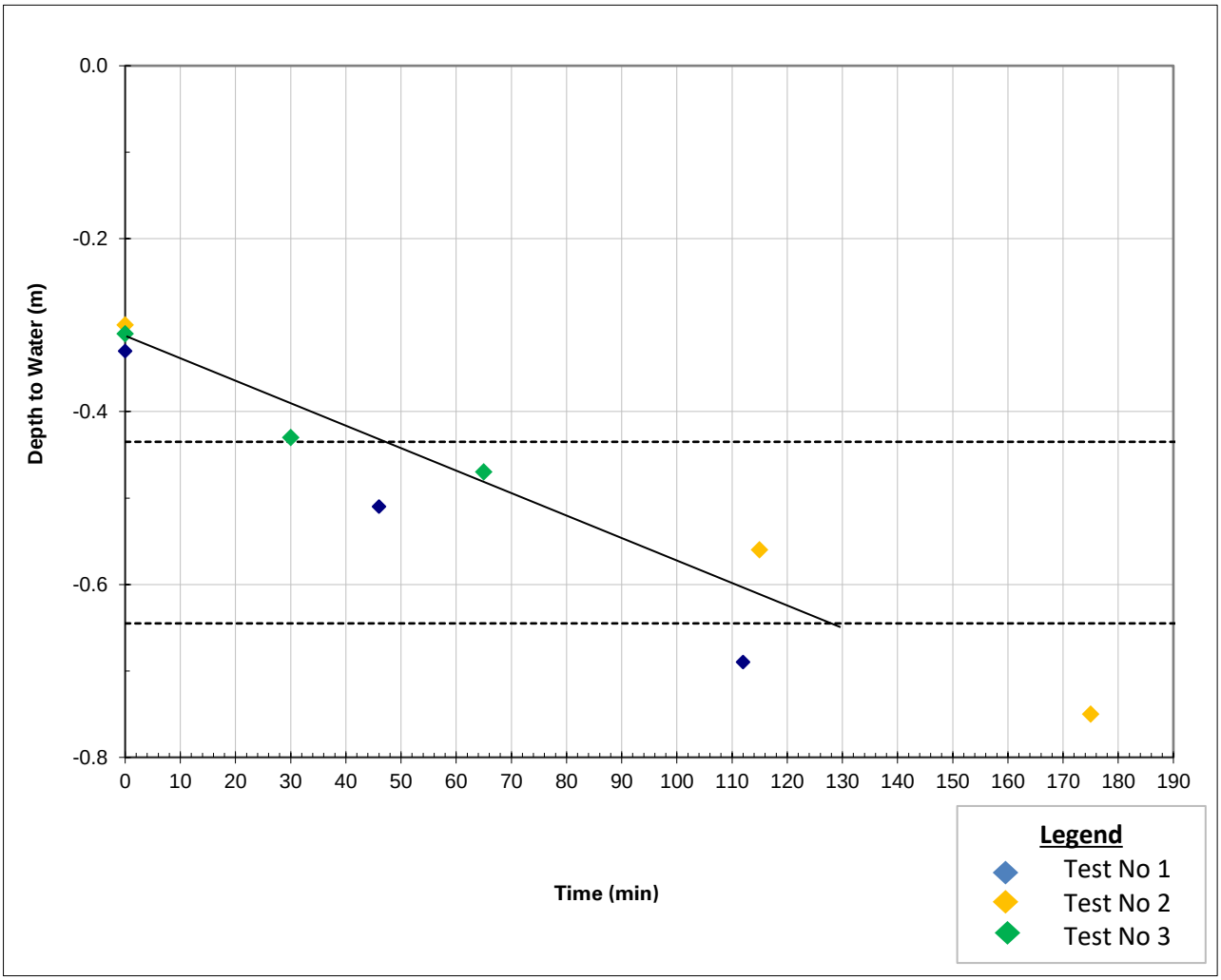
Soakage Test Results

Site Elmsbrook Development Phase 3 & 4

Client Crest Nicholson Regeneration

Trial Pit No.	14	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	0.8



Design Soakage Rate 1.9E-05 m/s (based on linear portion of graph as shown)
1.68 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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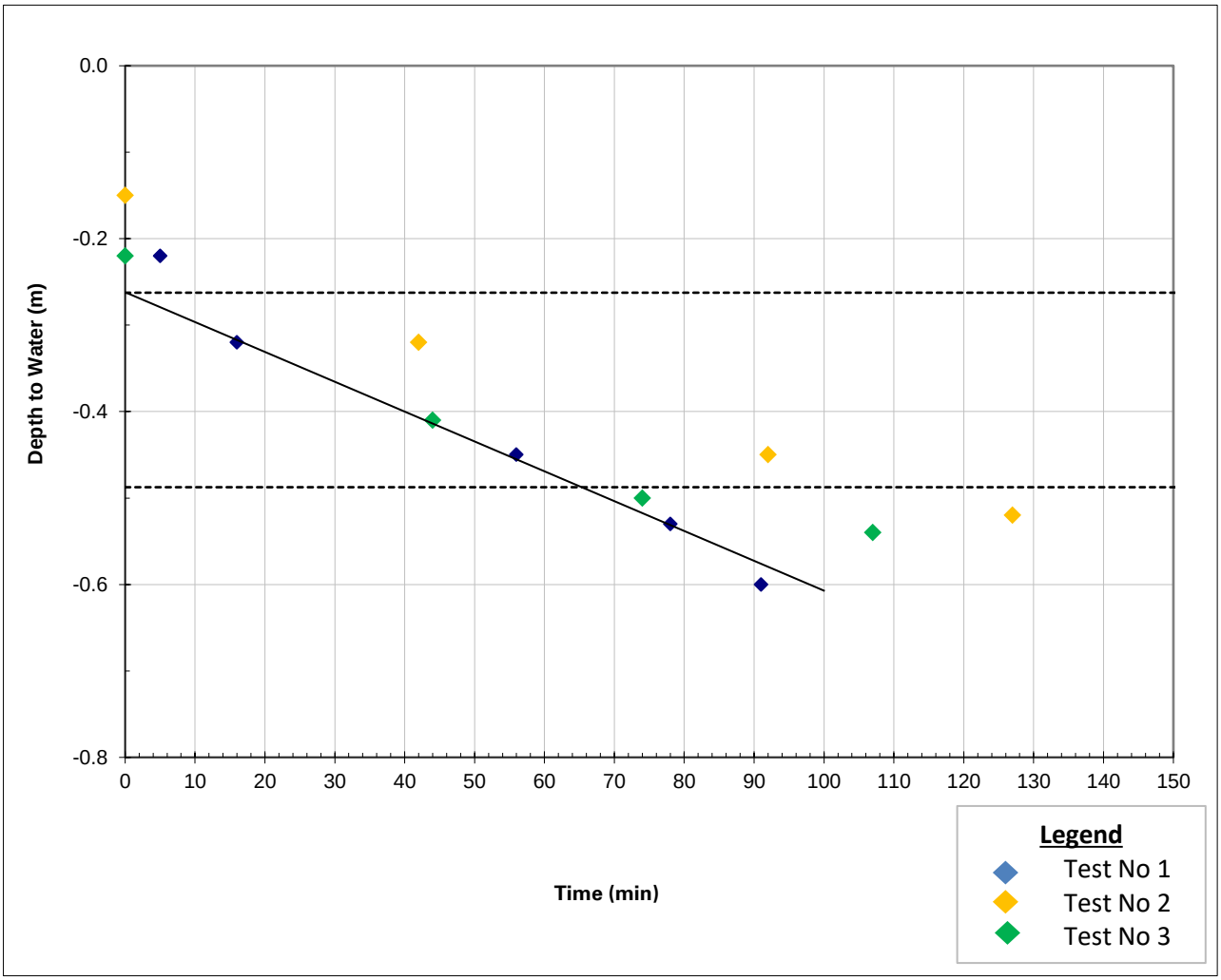
Soakage Test Results

Site Whitchurch Development Site

Client Crest Nicholson Regeneration

Trial Pit No.	15	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	0.6



Design Soakage Rate 3.1E-05 m/s (based on linear portion of graph as shown)
2.66 m/day

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills

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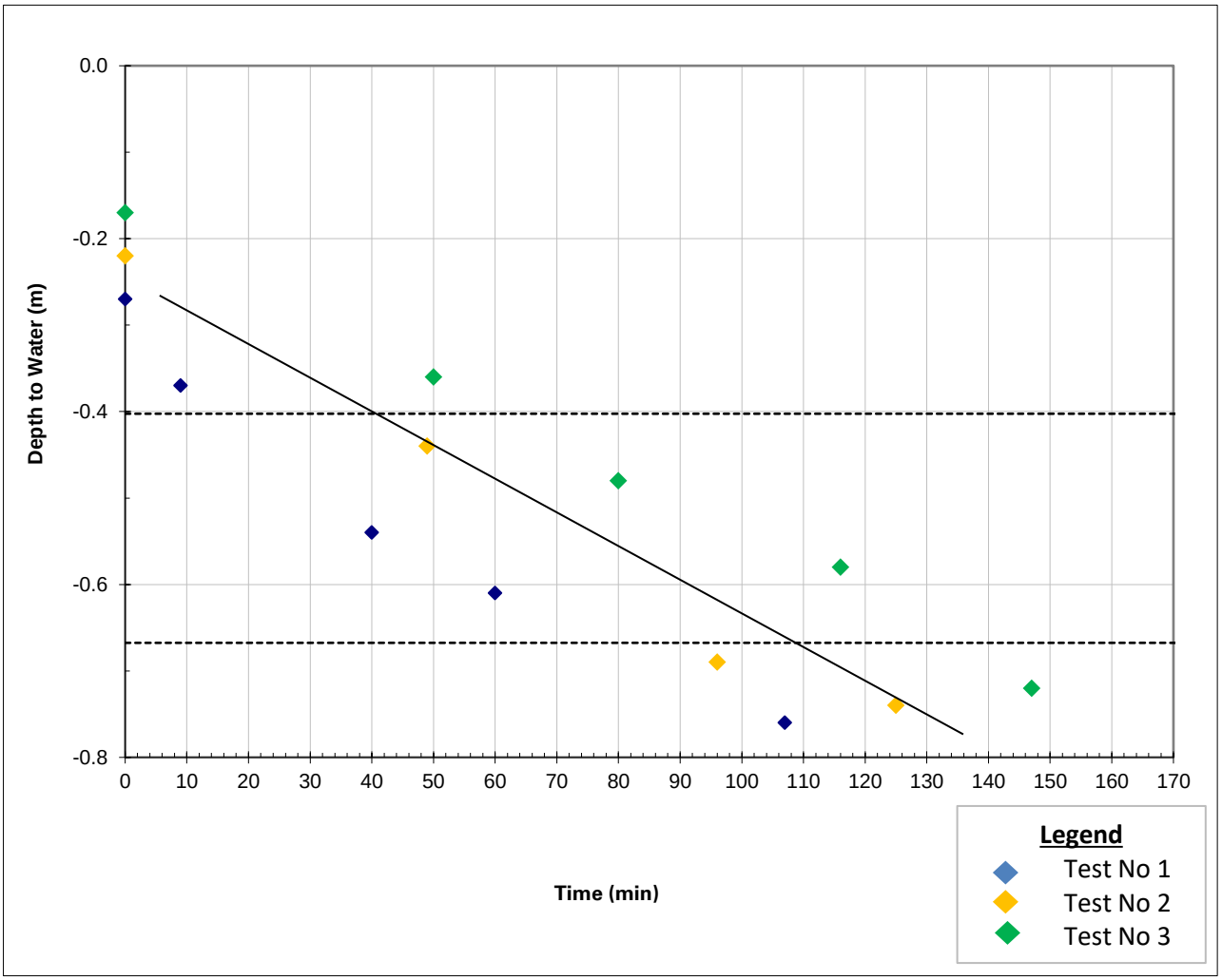
Soakage Test Results

Site Whitchurch Development Site

Client Crest Nicholson Regeneration

Trial Pit No.	16	Pit Length (m)	1.4
		Pit Width (m)	0.6
		Pit Depth (m)	0.8



Design Soakage Rate	2.8E-05	m/s	(based on linear portion of graph as shown)
	2.46	m/day	

Notes

Trial pit log presented separately
Soakage test carried out in accordance with requirements of BRE365 with three completed fills