William Stukeley Primary School

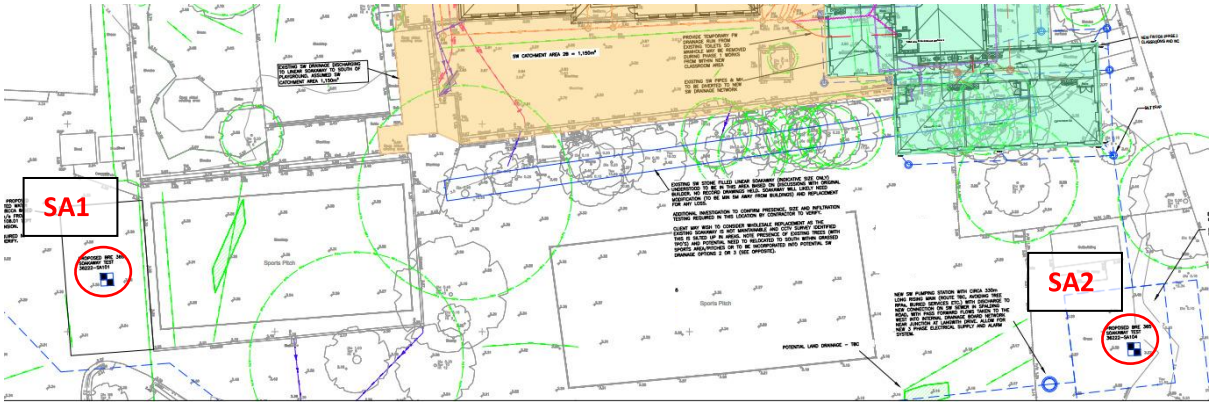
Infiltration Testing 25th January 2023 – Trials Report and Results

Introduction

As part of a proposed redevelopment scheme that the school are undertaking it has become apparent that there will need to be wide-ranging changes to the existing Surface Water drainage system, both to accommodate flows from new impermeable areas and also to reroute drainage affected by the creation of extensions. In addition, it has been recognised that the existing soakaway that deals with a large proportion of the school's run-off is becoming life expired and will in all likelihood require major renovation or replacement in the medium term.

Consequently, the engineering consultancy chosen to investigate this work, Kier, have recommended that to comply with the hierarchy of surface water disposal options, infiltration testing would be required in two locations to ascertain whether it would be possible to use soakaways in preference to discharging rainwater run-off to the sewerage network.

The locations chosen – see red-circled locations below - were selected on the basis that SA1 would provide information on the possibility of allowing discharge to ground for a permeably surfaced playground extension and the other, SA2, would provide information on a location for a large soakaway which could – in part or even in total – replace the existing, failing soakaway.



Procedure

The test was carried out in accordance with BRE 365. The weather was overcast with very occasional light showers. The Test pit details were as below:

SA1

Base of test pit – 750mm begl

Pit dimensions (mm) – 400 x 400 x 445dp

SA2

Base of pit – 1250mm begl

Pit dimensions (mm) – 400 x 400 x 450dp

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Results

SA1

A positive result was obtained on all three occasions that the test was repeated and yielded the results:

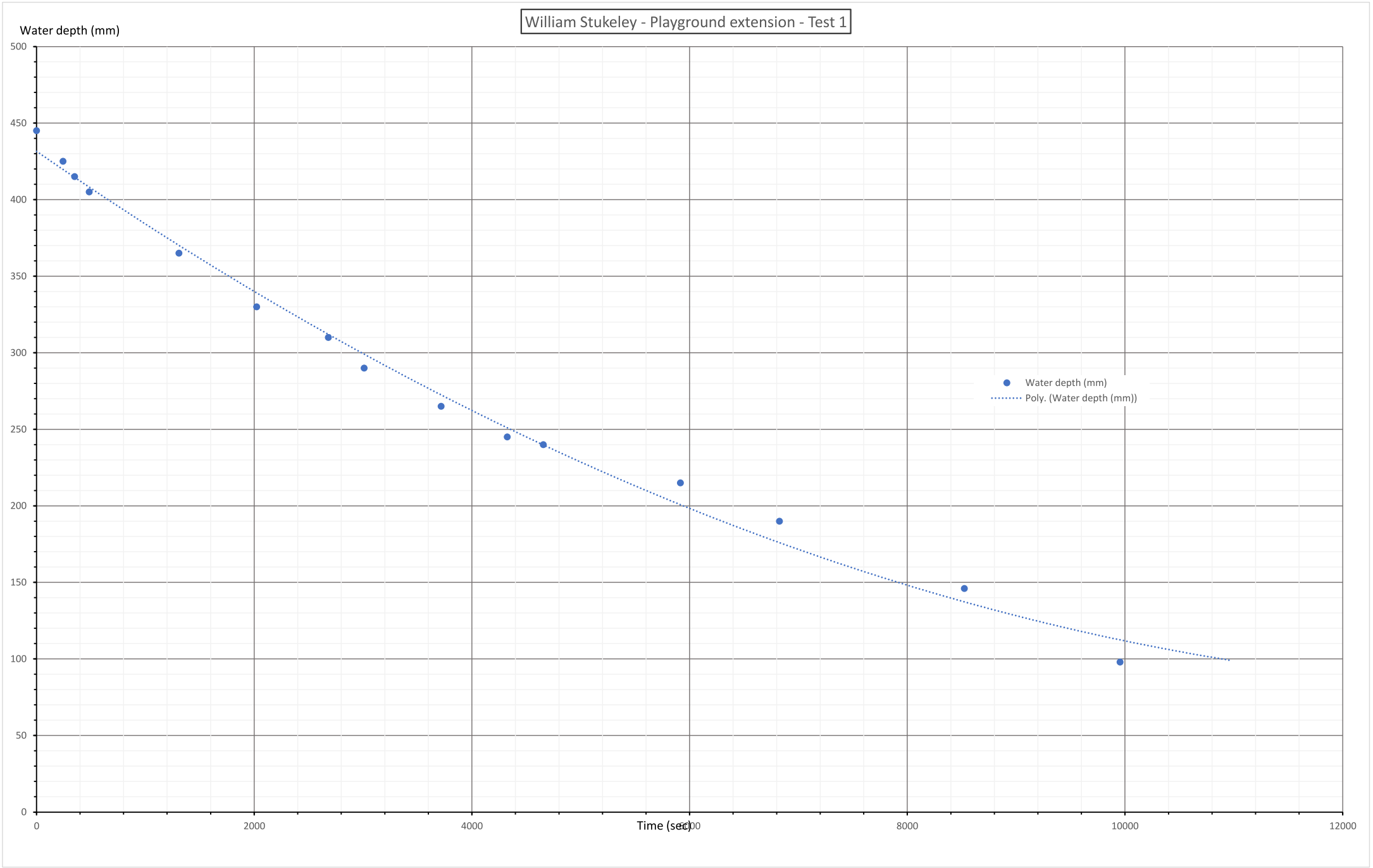
Test 1 - 2.84 x 10^{-5} m/s
Test 2 - 1.99 x 10^{-5} m/s
Test 3 - 2.36 x 10^{-5} m/s

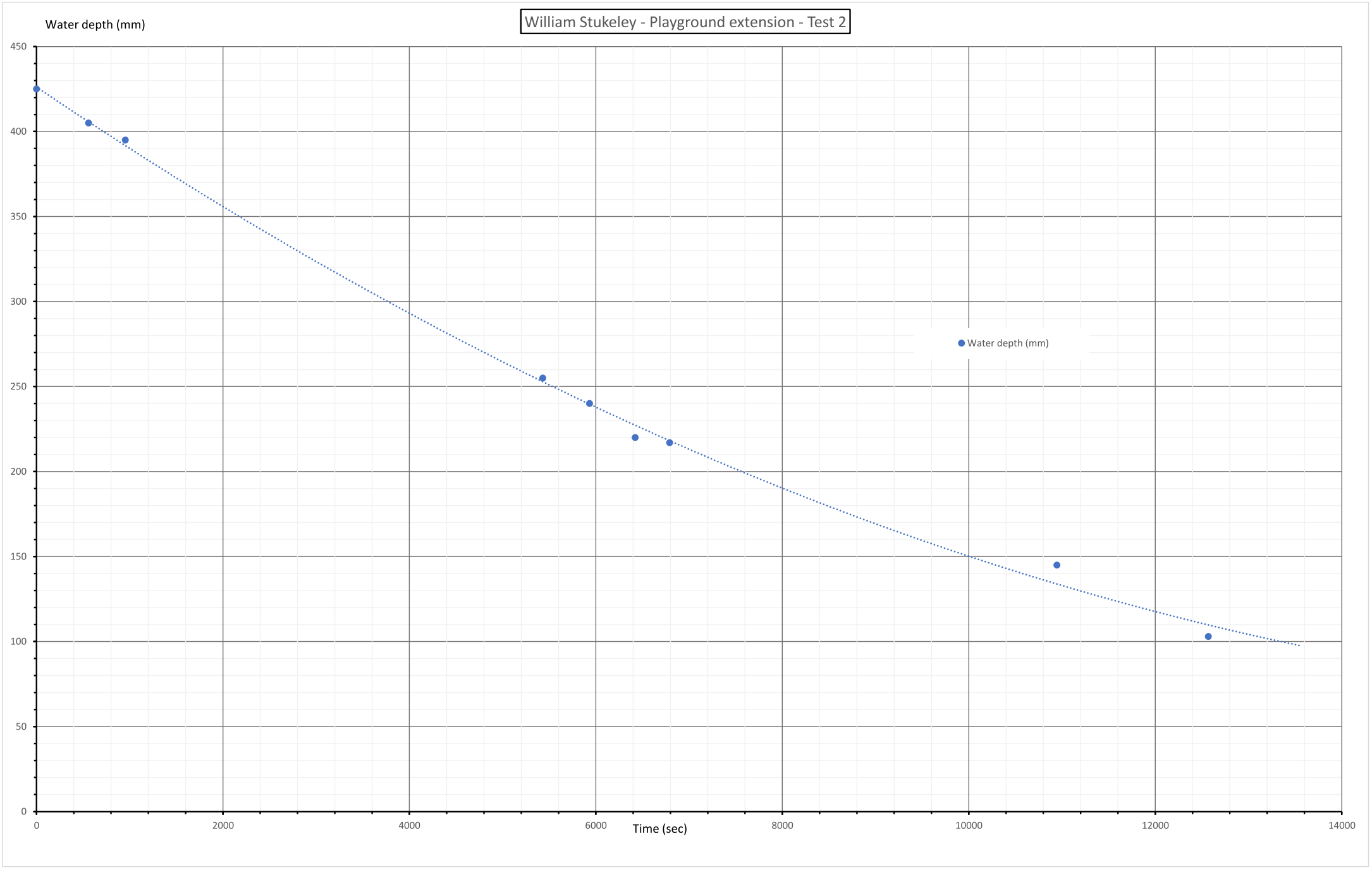
See attached Infiltration vs Time graphs in Appendix A.

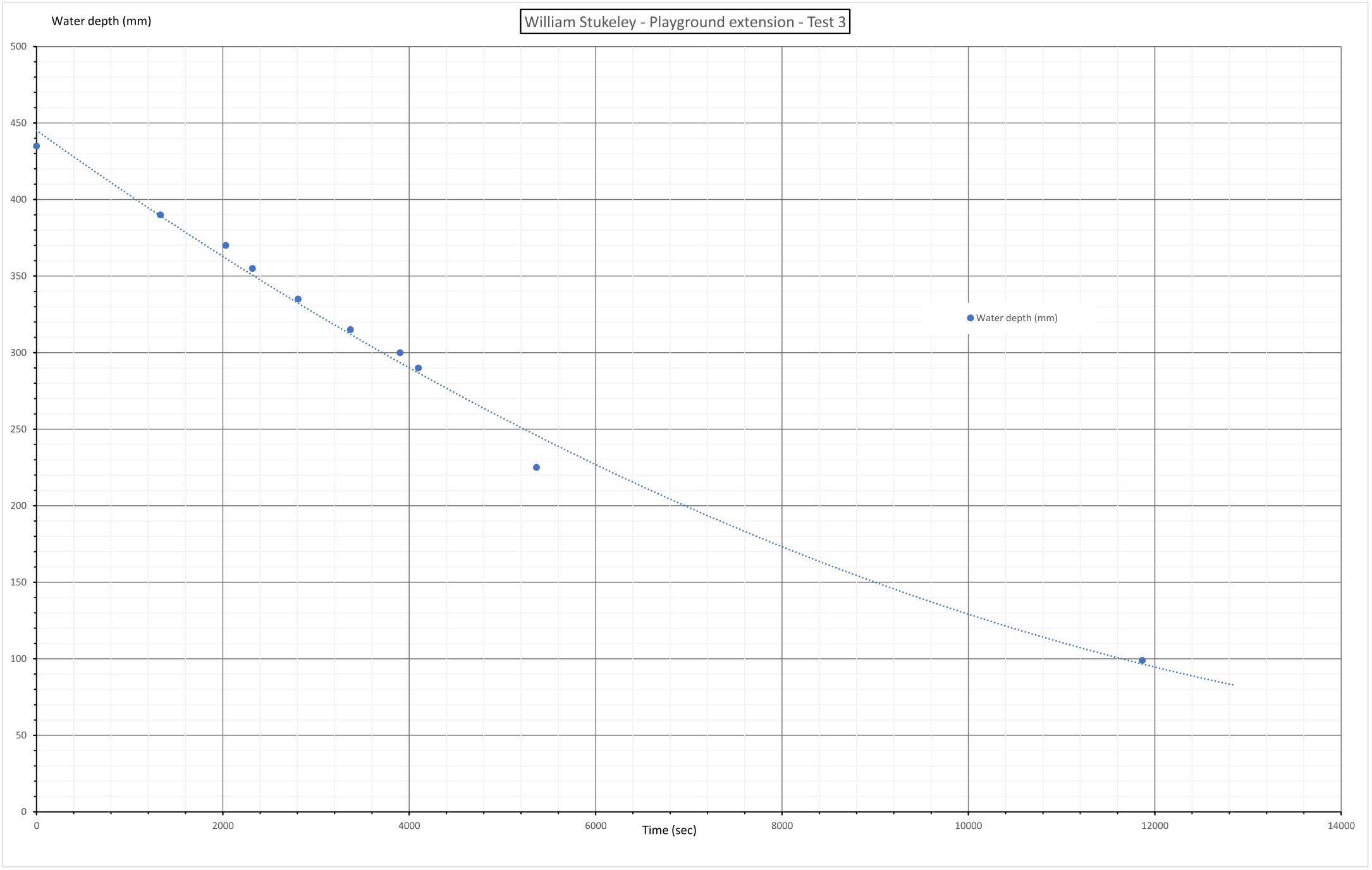
SA2

This location failed to yield a positive result and in 6 hours the water level failed to drop sufficiently to consider that a test had actually commenced, which in this instance would have required a level drop of 112mm from commencement of test. It was decided that this counted as a failure to infiltrate and that this location was unsuitable for use of soakaways.

Appendix A – Infiltration graphs


William Stukeley - Playground extension - Test 1
Water depth (mm)
500
450
400
350
300
250
200
150
100
50
0
0
2000
4000
6000
8000
10000
12000
Time (sec)
Water depth (mm)
Poly. (Water depth (mm))


William Stukeley - Playground extension - Test 2
Water depth (mm)
450
400
350
300
250
200
150
100
50
0
0
2000
4000
6000
8000
10000
12000
14000
Time (sec)
Water depth (mm)


Water depth (mm)
William Stukeley - Playground extension - Test 3
500
450
400
350
300
250
200
150
100
50
0
0
2000
4000
6000
8000
10000
12000
14000
Time (sec)
Water depth (mm)