



OUR REF: A4610/22/LR

YOUR REF:

22nd February 2022

Mr. Paul Graveney
O/B Armistead Properties Ltd
1 Crossland Road
Chorlton-cum-Hardy
Manchester
M21 9GU

By Email (paul@pgcl.co.uk)

Dear Paul,

Soil Infiltration Rate Assessment Letter Report
59 Upper Chorlton Road, Manchester

Background and Scope of Work

A Site Investigation has been commissioned by PG Consulting, on behalf of Armistead Properties Ltd (the Client) to examine the soil infiltration rates of the ground at 59 Upper Chorlton Road.

This letter report provides information on the work undertaken including the sampling location plan, trial pit logs and soil infiltration testing results.

Reference

Earth Environmental and Geotechnical Ltd were commissioned by the client, in accordance with an email proposal dated 21st February 2021, to undertake a Geo-Environmental Investigation of the site with the following objectives:

- Assessment of ground conditions at one location for soakaway design.

Proposed Development

The proposed development includes the construction of a four-storey extension and renovation of an existing residential building, comprising flats, following the demolition of surrounding industrial units. Access to the site will be provided from Upper Chorlton Road to the west.

A development and drainage plan has been provided as Figure 1, overleaf.

Fieldwork

The fieldwork was carried out by EEG on the 8th February 2022 and comprised the logging and monitoring of one soakaway excavation to a depth of 2.00m bgl.

**CONSULTING
ENGINEERS**

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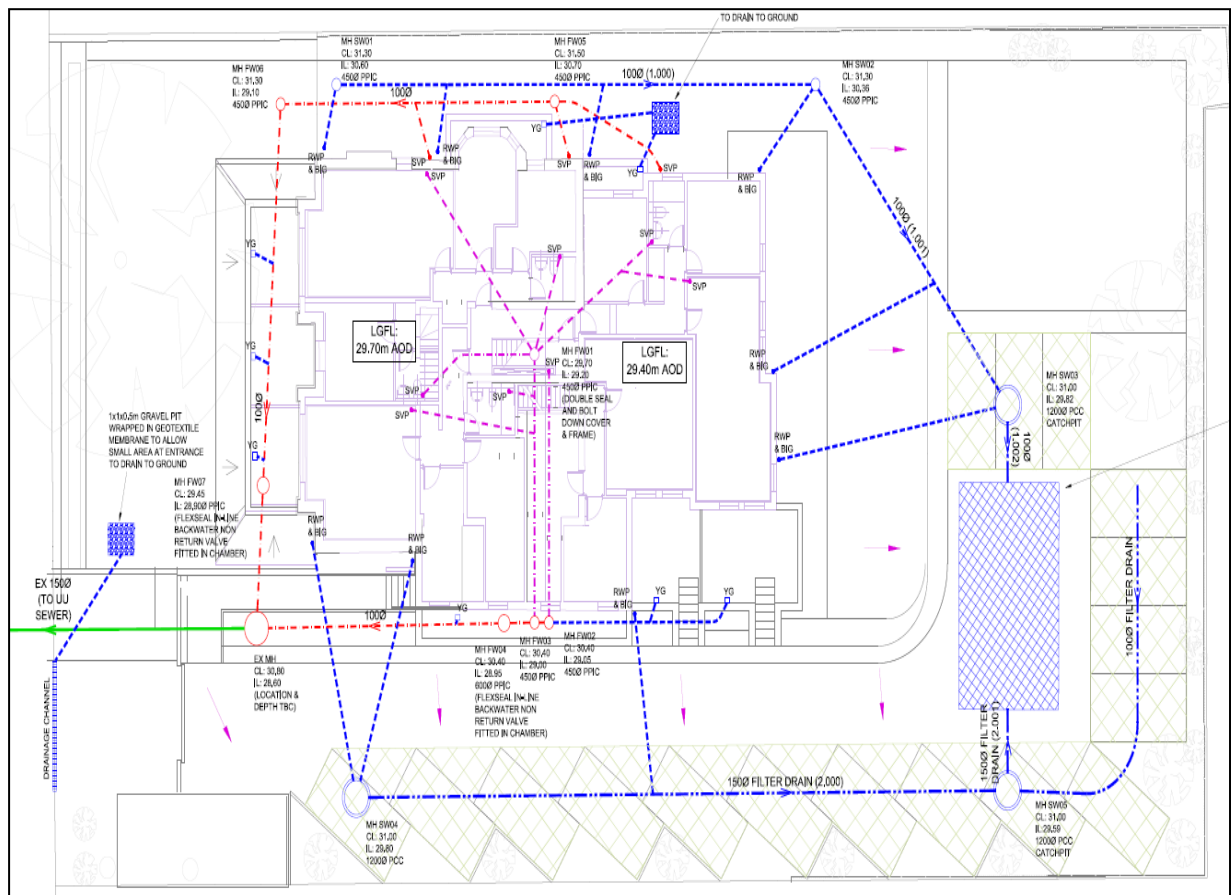
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Registered in England
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The trial pit log is presented in Appendix A and a summary of the ground conditions encountered are presented in Table 1, overleaf.

All site investigation work was supervised full time by a representative of EEG. The logging of soils and rocks has been carried out in accordance with BS5930^(2015+A1:2020) except where superseded by the soil and rock description methodology in BS EN14688-1⁽²⁰⁰²⁾, BS EN 14688-2⁽²⁰⁰⁴⁾ and BS EN 14689-1⁽²⁰⁰³⁾.

Figure 1: Proposed Development Plan

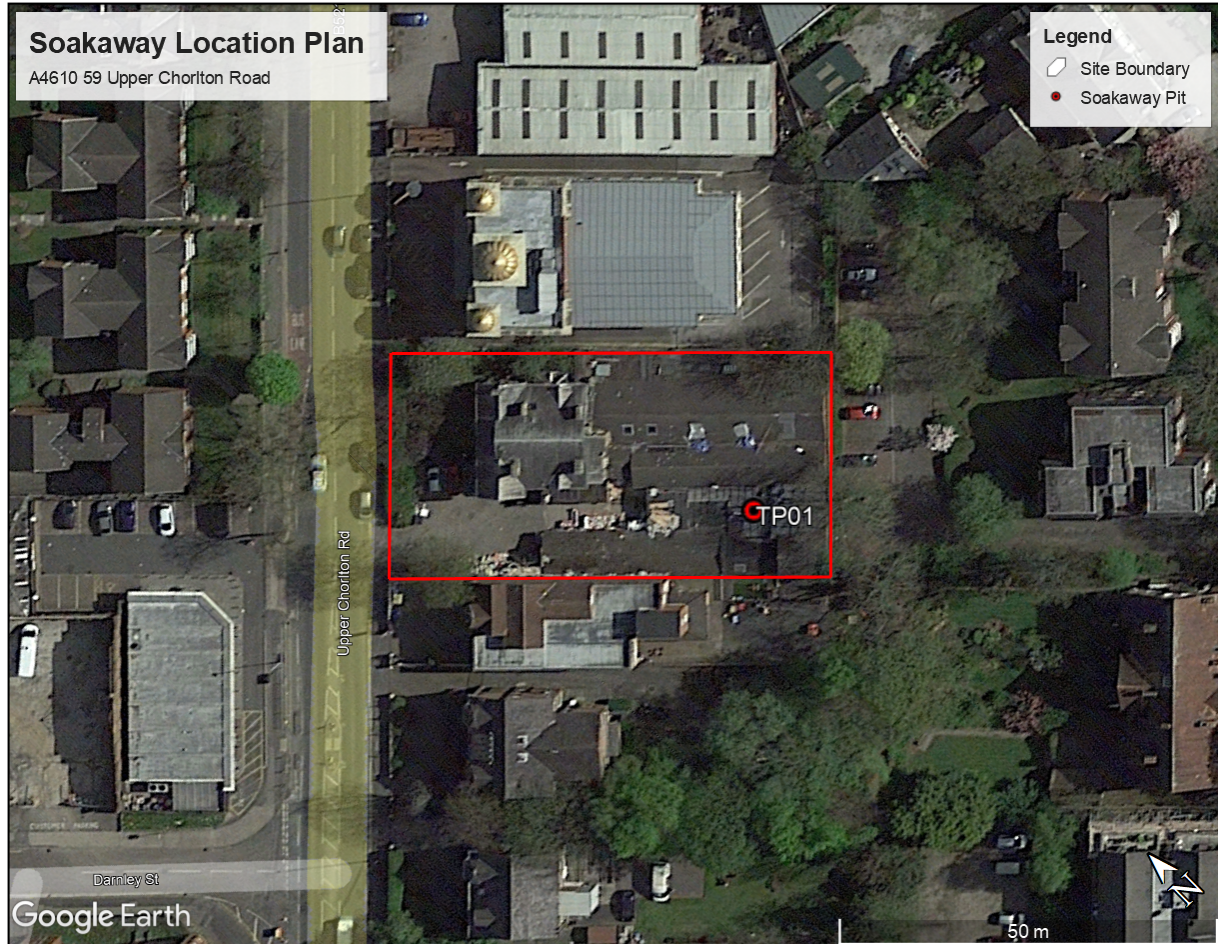


The pit was designated for infiltration/soakaway testing in accordance BRE365. Testing was carried out by filling the excavation with water from a 1000 litre bowser provided by the client.

The soil infiltration rate was calculated using the data collected from each test. The detailed testing results are presented in Appendix B with a summary in Table 2.

A soakaway testing location plan is presented in Figure 2, overleaf.

Figure 2: Soakaway Testing Plan



Ground Conditions Encountered

According to the BGS Geology of Britain Viewer, the site is underlain by superficial deposits consisting of Glaciofluvial Sheet Deposits comprising sand and gravel.

The depths of the various materials encountered in the exploratory hole are summarised in Table 1 below and with a detailed log included in Appendix A.

Table 1: Summary of Ground Conditions Encountered

Hole	Depth to Stratum (m)			Groundwater (m bgl)
	MADE GROUND	CLAY	GRAVELLY SAND	
TP01	GL-0.40	0.40-0.60	0.60-2.00	-

During the ground investigation, Made Ground containing gravel of brick, slate, mudstone and sandstone were observed in the trial pits.

No other evidence of visual or olfactory contamination was encountered during the site investigation.

Groundwater was not encountered during the field work.

Soakaway Testing

The soakaway pit was excavated into the natural strata and filled as rapidly as possible with water from a 1000 litre bowser.

Table 2 below summarises the results of the soakaway infiltration testing for each trial pit and repeat tests. An average infiltration rate for TP01, calculated from the 3no. tests was 4.29×10^{-5} metres/second.

Table 2: Soakaway Infiltration Rates

Location	Test No.	Test Depth (m bgl)	Test Duration (mins)	Fall in Water Level (m bgl)	Soil Infiltration Rate (m/s)
TP01	1	1.40 – 1.88	50	0.48	6.00×10^{-5}
TP01	2	1.30 – 1.62	82	0.68	3.99×10^{-5}
TP01	3	1.40 – 2.10	330	0.61	2.87×10^{-5}

Conclusions

The soakaway testing results revealed the Superficial Deposits encountered in the testing location is suitable for soakaway drainage with infiltration rates ranging from 2.87×10^{-5} to 6.00×10^{-5} .

Should you have any queries with respect to this letter report please do not hesitate to contact me.

Yours Sincerely,



Luke Glover
Principal GeoEnvironmental Consultant
For and on behalf of Earth Environmental & Geotechnical Ltd

Encl. Appendix A Soakaway Pit Log
Appendix B Soakaway Testing Results



APPENDIX A

SOAKAWAY PIT LOG



EARTH ENVIRONMENTAL
& GEOTECHNICAL

EARTH ENVIRONMENTAL & GEOTECHNICAL
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SOAKAWAY PIT LOG

Project Name: 59 Upper Chorlton Road

Date: 08/02/2022

Project No.: A4610

Client: Armistead Properties Ltd

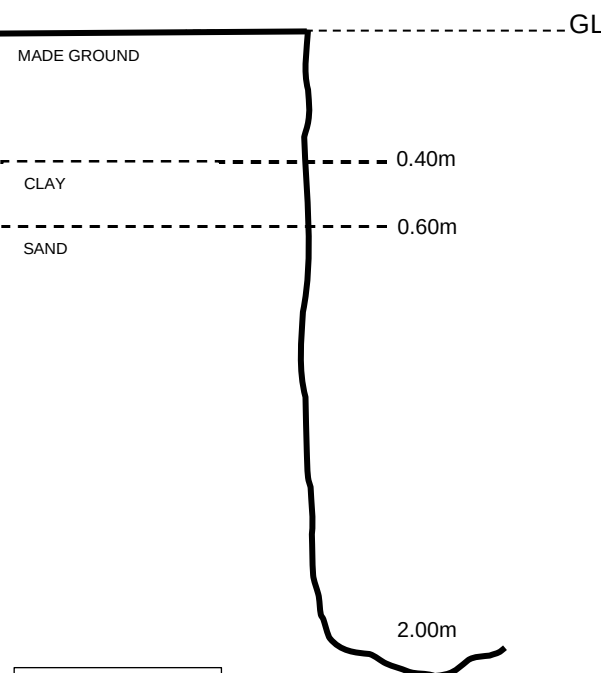
Hole Number: TP01

Logged By: A Graham

Total Depth: 2.00m bgl

Remarks:

Schematic Profile:



NOT TO SCALE

Legend	Depth (m)	Description
	0.00-0.40	MADE GROUND: Slightly silty, slightly gravelly SAND. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of brick, slate, mudstone, and sandstone. Frequent rootlets.
	0.40-0.60	Light brown CLAY
	0.60-2.00	Light brown very gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, rounded to subrounded siltstone, mudstone and sandstone. Infrequent cobble content.

Trial pit terminated at 2.00m bgl.

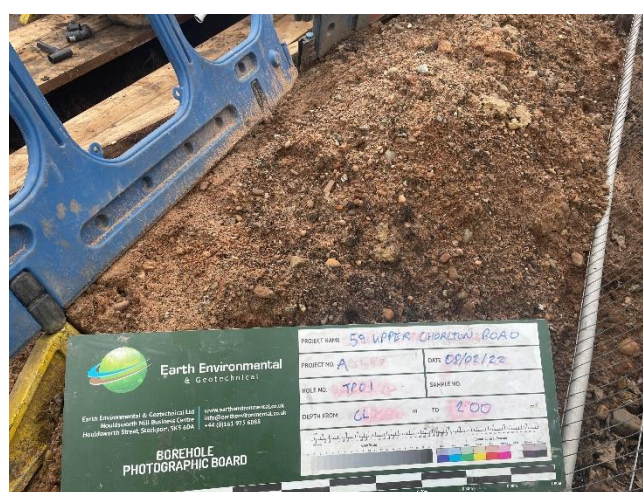
Trial pit unstable below clay.
No groundwater encountered.

ES=Environmental Sample, D=Disturbed Sample, HVR=Hand Vane Reading

Pictures:



Soakaway Pit 1: Internal view of excavation



Soakaway Pit 1: Overview of excavated soils



APPENDIX B

SOAKAWAY TESTING RESULTS



Earth Environmental
& Geotechnical Ltd

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SOAKAWAY TEST

(To: BRE 365 1991)

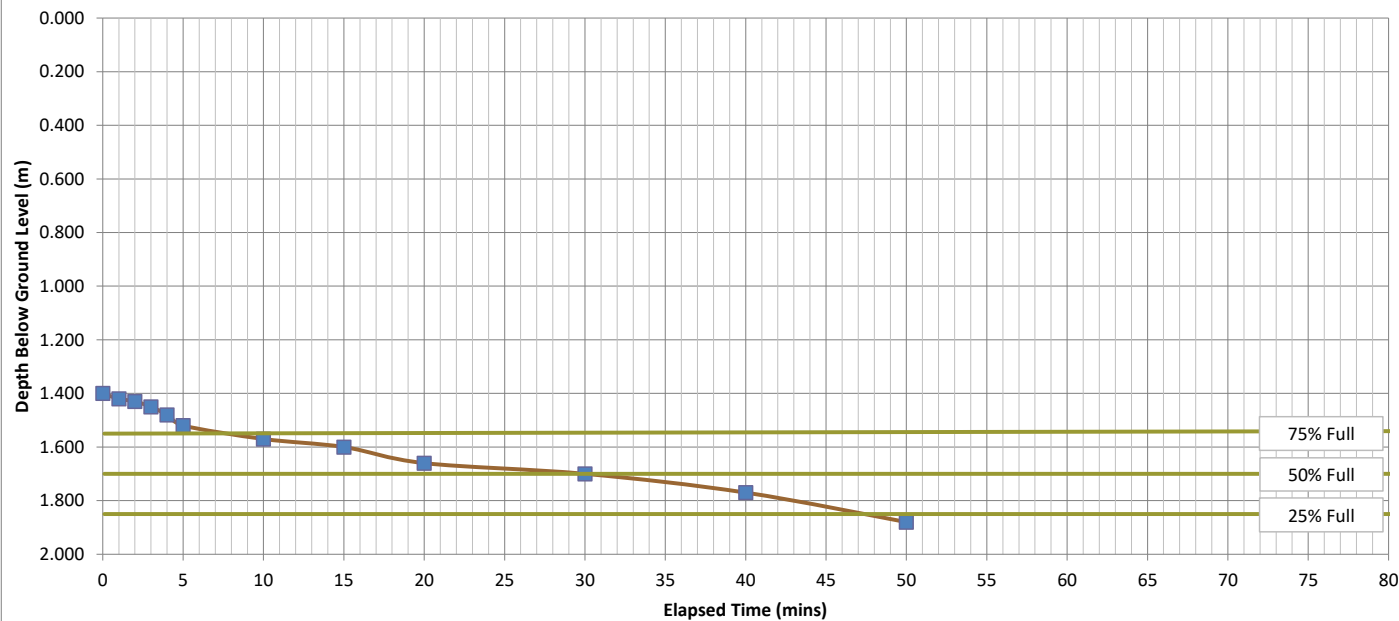
Job No: A4610
Site: 59 Upper Chorlton Road
Client: Armistead Properties Ltd

Location Reference:
Date
Geology in test section
Depth to Base of Hole
Effective Depth
Hole width
Hole length
Depth to water at start of test below ground level
Depth to water at end of test below ground level
Effective storage depth to 75% full
(Depth below GL)
Effective storage depth to 50% full
(Depth below GL)
Effective storage depth to 25% full
(Depth below GL)
Height to 50% depth
Effective Storage Volume Vp75-25
Time tp25 at which water is 75% of effective depth (minutes)
Time tp25 at which water is 25% of effective depth (minutes)
Time for water level to fall between Vp75 -25
Time for water level to fall between Vp75 -25
Internal surface area of hole up to 50% depth including base
Soil Infiltration Rate, f

SA1 Test 1	
08/02/2022	
Very Gravelly SAND	
2.00	m
0.60	m
0.80	m
1.80	m
1.40	m
1.88	m
0.45	m
1.55	m
0.30	m
1.70	m
0.15	m
1.85	m
0.30	m3
0.43	m3
8.00	mins
48.0	mins
40	mins
2400	secs
3.00	m2
6.00E-05	m/s

Assumes pit is not filled

Time Elapsed (mins)	Depth of Water below GL (m)	Measured Data
0	1.400	
1	1.420	
2	1.430	
3	1.450	
4	1.480	
5	1.520	
10	1.570	
15	1.600	
20	1.660	
30	1.700	
40	1.770	
50	1.880	





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SOAKAWAY TEST

(To: BRE 365 1991)

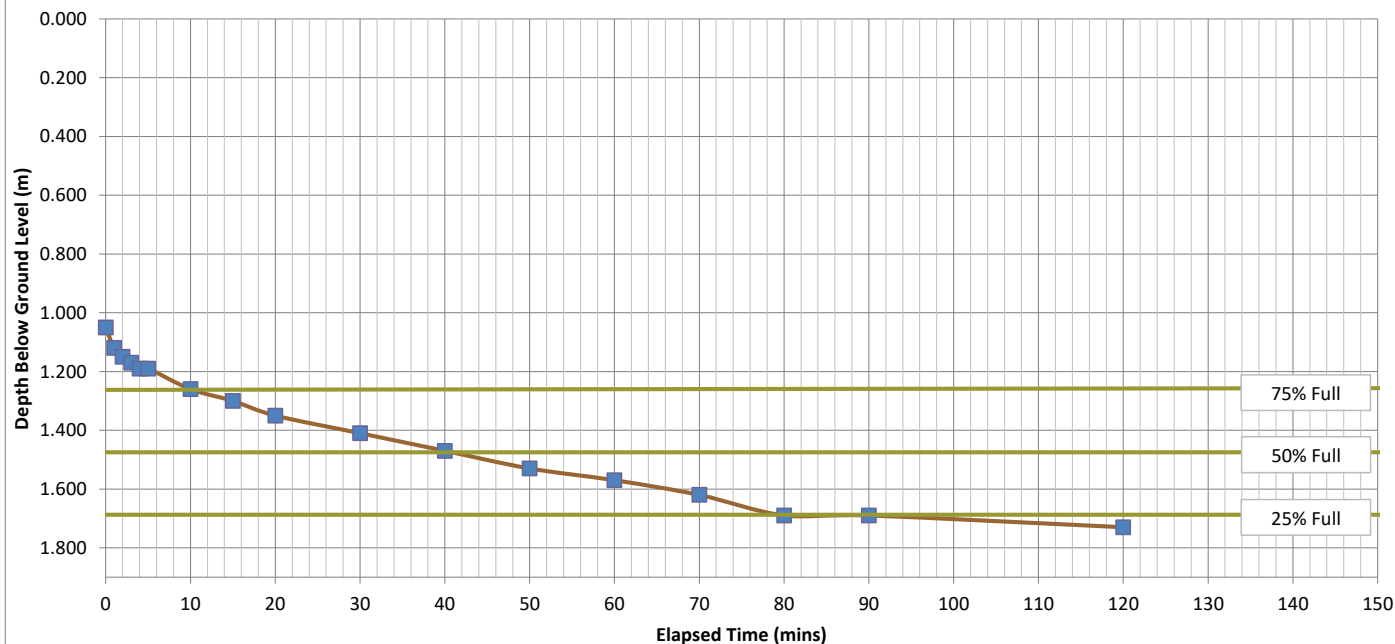
Job No: A4610
Site: 59 Upper Chorlton Road
Client: Armistead Properties Ltd

Location Reference:
Date
Geology in test section
Depth to Base of Hole
Effective Depth
Hole width
Hole length
Depth to water at start of test below ground level
Depth to water at end of test below ground level
Effective storage depth to 75% full
(Depth below GL)
Effective storage depth to 50% full
(Depth below GL)
Effective storage depth to 25% full
(Depth below GL)
Height to 50% depth
Effective Storage Volume Vp75-25
Time tp25 at which water is 75% of effective depth (minutes)
Time tp25 at which water is 25% of effective depth (minutes)
Time for water level to fall between Vp75 -25
Time for water level to fall between Vp75 -25
Internal surface area of hole up to 50% depth including base
Soil Infiltration Rate, f

SA1 Test 2	
08/02/2022	
Very Gravelly SAND	
1.90	m
0.85	m
0.80	m
1.80	m
1.05	m
1.73	m
0.64	m
1.26	m
0.43	m
1.48	m
0.21	m
1.69	m
0.43	m3
0.61	m3
10.0	mins
80.0	mins
70	mins
4200	secs
3.65	m2
3.99E-05	m/s

Assumes pit is not filled

Time Elapsed (mins)	Depth of Water below GL (m)	Measured Data
0	1.050	
1	1.120	
2	1.150	
3	1.170	
4	1.190	
5	1.190	
10	1.260	
15	1.300	
20	1.350	
30	1.410	
40	1.470	
50	1.530	
60	1.570	
70	1.620	
80	1.690	
90	1.690	
120	1.730	



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SOAKAWAY TEST

(To: BRE 365 1991)

Job No:	A4610
Site:	59 Upper Chorlton Road
Client:	Armistead Properties Ltd

SA1 Test 3	
08/02/2022	
Very Gravelly SAND	
1.80	m
0.78	m
0.80	m
1.80	m
1.02	m
1.63	m
0.59	m
1.22	m
0.39	m
1.41	m
0.20	m
1.61	m
0.39	m3
0.56	m3
20.00	mins
114.00	mins
94	mins
5640	secs
3.47	m2
2.87E-05	m/s

Assumes pit is not filled

[illegible]