Hamble Quarry: infiltration testing

Factual report

T1.02

Hamble Quarry: infiltration testing

Prepared for
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Report reference:

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Hamble Quarry: infiltration testing

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2	04/10/22	Final	Comments amended	MDM	PWH	RXD

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1 Introduction

1.1 Instruction

Stantec UK Ltd (Stantec) was commissioned by CEMEX UK Operations Ltd (CEMEX) to undertake infiltration (soakaway) testing at Hamble Quarry off Satchell Lane, Hamble-le-Rice, Southampton (the Site) to support an ongoing gravel extraction application. Instruction to proceed with Stantec's proposal 331201108P3 dated 12th May 2022 was provided by the CEMEX via email on 31st May 2022.

1.2 Background

Hamble Quarry (the Site) is an old airfield owned by Persimmon plc. (Persimmon). CEMEX UK Operations Ltd. (CEMEX) has applied to Hampshire County Council to extract sand and gravel from the Site. In the current ongoing Planning Application (with reference HCC/2021/0787 – EA112), it is proposed to restore the Site after extraction to grazing land, lowland meadow and species rich meadow with woodland and scrub edges, using imported inert restoration materials, the erection of associated plant and infrastructure and the creation of a new footpath and access onto Hamble Lane, at Hamble Airfield. A plan showing the site location and extension boundary is presented in Figure 1.

Stantec prepared a Flood Risk Assessment report (66650R2; dated November 2021) that was submitted to the County Council for review. Given that CEMEX is proposing to manage surface water through infiltration during the extraction and restoration phases, the Council requires information that demonstrates the drainage feasibility of the Site. Considering the Site characteristics and the lack of drainage information, the Council requested infiltration testing to be undertaken in accordance with the BRE 365 methodology at a depth and location commensurate with the proposed infiltration features.

1.3 Objectives

The objective of the work was to undertake soakaway testing in accordance with BRE Digest 365 (Soakaway Design) in order to inform the detailed drainage design at the Site and to address concerns raised by stakeholders to the ongoing planning application.

1.4 Scope of work

Based on the drainage design proposed within the planning application, Stantec recommended that 17no. infiltration test locations were undertaken along the inner perimeter of the Site, to cover the areas where future linear infiltration trenches and attenuation lagoons would be placed.

1.5 Scope of report

This report provides a full factual account of the site investigation works undertaken and interpretation of the infiltration testing.

1.6 Limitations

Interpretation of ground conditions within this report necessarily depends upon the extrapolation between investigated positions. Whilst we have exercised reasonable skill and care in undertaking

such an exercise, the potential remains for unforeseen ground conditions in those areas not directly investigated.

The information contained in this report is intended for the use of the Client and no responsibility can be taken by Stantec for the use of this information by any third party or for uses other than that described in this report or detailed within the terms of our engagement.

2 Preliminary works

2.1 Health and Safety

In accordance with the Construction (Design and Management) Regulations 2015 (CDM Regulations), Pre-Construction Information (PCI) was supplied by CEMEX.

To supervise the infiltration works, as well as acting as Site Manager, Stantec was appointed by CEMEX as Principal Contactor. Soakaway testing was undertaken by a competent technician from Oakland SI (appointed as a Contractor).

Stantec assumed responsibility for developing and administrating a Health and Safety Construction Phase Plan (CPP) to discharge its responsibilities under the regulations. Stantec also developed accompanying risk assessments and method statements (RA/MS), and detailed plans for a safe system of work. These were prepared based on a review of historical records and previous Site work undertaken. Copies of the CPP and RA/MS were provided to CEMEX and all involved parties, prior to the Site investigation commencing.

2.2 Ecological supervision

Vegetation clearance was undertaken a week before the intrusive works begun. The areas where the infiltration tests were proposed, as well as an access route to them, was cleared to provide safe access for the machinery and personnel. The vegetation clearance was undertaken by Lowther Forestry and supervised by a competent ecologist from Lindsay Carrington Ecological Services, both appointed by CEMEX.

Once the soakaway works started, an ecologist was also required to supervise the stripping of the topsoil at all locations. The ecologist also supervised the removal of the security bund at the entrance of the Site. The ecological report covering the ecological findings was provided to CEMEX and has been included in this report as Appendix A.

2.3 Service clearance

After receiving confirmation from the landowner that no utilities works had been carried out at the site since 2021, CEMEX provided the most recent statutory plans obtained from Technics (ref. SP21756, September 2021).

Based on the service plans and previous site investigations, it was known that an ESSO oil pipeline is present along the eastern boundary, and a medium-pressure gas main runs along the northwest, north and eastern boundaries of the Site. Before commencement of the intrusive works, surveyors were appointed to visit the Site and undertake service clearance to delineate these assets:

- A pipeline operator from Fisher German was appointed by ESSO to demarcate the route of the oil pipeline and provide a safe (>3 m) exclusion zone. Wooden marks were installed on-site to show the presence of the pipe. The majority of other buried services at the Site were located in this exclusion zone.
- Midland Survey was appointed by Stantec to undertake a GPR survey to identify the location of the gas pipe and provide an appropriate exclusion zone. The surveyor used flags to mark

the proposed locations where it was safe to dig. Coordinates of the of the gas main where identified were also provided to Stantec.

Before breaking ground, each location was scanned using a Cable Avoidance Tool (CAT) and genny to confirm the absence of buried services/ infrastructure. The final infiltration testing locations were decided based on these results and are shown in Figure 2. Statutory Utilities Plans are provided in Appendix B.

3 Soakaway test locations

3.1 Introduction

Infiltration (soakaway) testing was undertaken between 15th and 25th August 2022, following the guidance outlined in BS5930:2015+A1:2020 and BRE365. Infiltration testing was carried out at a total of 17no. locations.

Trial pits were excavated using a JCB 3CX to depths of between 1.7 m and 3.6 m below ground level (bgl), The average pit dimensions were 1.8 m long x 0.50 m wide. Details of the trial pit locations are shown in Table 3.1.

Table 3.1 Infiltration test locations and depths

Trial pit	Easting	Northing	Elevation (m AOD)	Depth (m bgl)
IT1_1	447811	108364	21	1.7
IT1_2	447896	108289	21	1.8
IT2_1	447948	107997	19	2.3
IT2_1B	447951	107993	20	1.9
IT2_2	447977	107916	19	1.8
IT3_1	448105	107889	20	1.7
IT3_2	448095	107813	19	2
IT4_1	408084	107672	17	2.9
IT4_2	448089	107594	17	3.6
IT5_1	448103	107455	19	1.8
IT5_2	448092	107361	18	2
IT5_3	447994	107319	19	2
IT5_4	447899	107294	20	2.8
IT6_1	447602	107521	16	2.6
IT6_2	447543	107555	19	2.6
IT6_3	447527	107653	21	2.9
IT6_4	447492	107862	21	2.5
IT7_1	447413	108158	19	3

4 Ground conditions

4.1 Soils encountered

Excavation of the trial pits was carried out under the supervision of a suitably qualified engineer from Stantec who logged the geology encountered in accordance with BS5930:2015+A1:2020. The engineering logs for each exploratory location are provided in Appendix C. Selected photographs of excavation activities and infiltration testing are presented in Appendix D. General descriptions of the ground encountered are provided in Table 4.1, while detailed descriptions are provided within the engineering logs.

Table 4.1 Summary of ground conditions

Strata Type	Description
Topsoil/Subsoil	Topsoil and Subsoil were encountered across the Site, generally comprising grass over brownish grey gravelly SILT with roots and rootlets and occasional cobbles of flint. Gravel was fine to coarse of flint.
Made Ground	Made Ground was encountered in two locations (IT1_2 and IT3_2) to a maximum depth of 0.50 m bgl. It comprises grass over greyish brown gravelly SILT with roots and rootlets, high content of cobbles of flint and occasional boulders of concrete. The gravel included coalesced lumps of silt, flint, siltstone and fine fragments of brick.
River Terrace Deposits (RTD)	The superficial River Terrace Deposits (RTD) were encountered across the site at different depths comprising a wide range of fine and granular materials, sometimes mixed. Generally fine materials were encountered at shallower depths, whilst granular material was encountered at the base of the exploratory locations. • At shallower depths, encountered between 0.2 m and 1.6 m bgl, RTD comprised greyish brown desiccated gravelly sandy SILT. The gravel includes flint and occasional siltstone with coalesced lumps of silt. The maximum thickness of this stratum is 1.4 m, with an average of 0.80 m. • Following the silt stratum and encountered at depths of between 0.5 m bgl and 3 m bgl, RTD were observed as either gravelly sandy silty CLAY or very gravelly fine to coarse SAND. In some locations both layers were encountered underlying the silty stratum. The maximum thickness of this stratum is 1.4 m for the sand layer and 2.5 for the clay layer, with an average of 0.96 m between both. • The clay/sand stratum was underlain by granular material comprising reddish/bright orangish brown very sandy fine to coarse GRAVEL of flint. The gravels were encountered at depths of between 0.4 m and 3.6 m bgl, with a maximum thickness of 1.4 m and an average thickness of 1.16 m.
Marsh Farm Formation	Encountered only in location IT2_1 at the eastern boundary of the Site, at a depth of 1.20 m bgl. It comprises yellowish brown, with beige horizons, slightly gravelly silty fine SAND.
Selsey Sand Formation	Encountered only in location IT6_4 at the western boundary of the Site, at a depth of 2.50 m bgl. It comprises greenish grey fine to medium SAND.

4.2 Groundwater conditions

Groundwater was not encountered in any exploratory locations.

4.3 Obstructions and in-ground features

No obstructions or in-ground features were encountered during the site investigation works.

4.4 Visual and olfactory evidence of contamination

No visual or olfactory evidence of contamination was observed during the site investigation works.

4.5 Stability

Most of the trial pit locations remained stable whilst logging, especially those containing a higher percentage of fine material (i.e., silt and clay). However, in some locations (IT4_1; IT4_2 and IT5_4), the granular material tended to collapse, especially when water was added to undertake the infiltration tests. To prevent pit collapse, 10mm pea gravel was used to fill the pits to ensure the pit sides remained in place during the testing.

4.6 Additional exploratory locations

The Marsh Farm Formation (SAND) was encountered at a very shallow depth in location IT2_1 (1.20 m bgl) and therefore the infiltration test was undertaken within this stratum. In an attempt to provide additional drainage data from this area, an extra location pit was excavated adjacent to it and named IT2_1B, however the geology encountered was similar to that from IT2_2, located southwards, with material comprising mainly CLAY and very clayey SAND. Given that the infiltration test undertaken in IT2_2 failed in reaching the 75% effective depth, it was decided not to undertake an additional infiltration test in IT2_1B.

5 Infiltration testing

A total of 17no. trial pits excavated across the Site were subjected to infiltration testing. A summary of the infiltration testing results is presented in Table 5.1 below with full results and calculations presented in Appendix E.

Table 5.1 Summary of infiltration testing

Trial pit	Test no.	Effective depth of pit (m)	Soil infiltration rate (m/s)	Strata & description
IT1_1	1	1.00	5.49×10^{-4}	RTD – clayey sandy GRAVEL
	2	1.12	3.30×10^{-4}	
	3	1.05	2.70×10^{-4}	
IT1_2	1	1.09	2.13×10^{-4}	RTD – clayey sandy GRAVEL
	2	1.15	1.62×10^{-4}	
	3	1.12	1.67×10^{-4}	
IT2_1	1	1.10	6.61×10^{-6}	MFF – gravelly silty SAND
	2	1.20	4.97×10^{-6}	
	3	1.20	3.97×10^{-6}	
IT2_2	1 (Fail - Insufficient time)	1.12	Insufficient infiltration	RTD – very clayey sand GRAVEL & very gravelly sand CLAY
IT3_1	1	1.15	4.62×10^{-5}	RTD – gravelly silty SAND
	2	1.20	3.85×10^{-5}	
	3	1.20	3.18×10^{-5}	
IT3_2	1	1.30	2.24×10^{-6}	RTD – clayey sand GRAVEL
	2	1.30	1.24×10^{-6}	
	3	1.13	2.27×10^{-6}	
IT4_1	1	1.10	7.28×10^{-6}	

Trial pit	Test no.	Effective depth of pit (m)	Soil infiltration rate (m/s)	Strata & description
	2	1.10	7.02×10^{-6}	RTD – very sand gravelly CLAY & sandy very gravelly CLAY
	3	1.09	5.56×10^{-6}	
IT4_2	1	0.32	2.37×10^{-4}	RTD – clayey very sand GRAVEL
	2	0.44	3.22×10^{-4}	
	3	0.52	1.69×10^{-4}	
IT5_1	1	1.24	1.52×10^{-4}	RTD – sandy GRAVEL
	2	1.30	9.64×10^{-5}	
	3	1.33	9.00×10^{-5}	
IT5_2	1	1.18	5.01×10^{-4}	RTD – very gravelly SAND
	2	1.30	3.67×10^{-4}	
	3	1.30	3.85×10^{-4}	
IT5_3	1	1.30	1.25×10^{-4}	RTD – very sandy GRAVEL
	2	1.32	9.32×10^{-5}	
	3	1.39	7.56×10^{-5}	
IT5_4	1	1.12	1.32×10^{-5}	RTD – clayey very sand GRAVEL
	2	1.06	6.89×10^{-6}	
	3	1.14	8.25×10^{-6}	
IT6_1	1	1.20	9.09×10^{-6}	RTD – clayey very sand GRAVEL
	2	1.40	6.08×10^{-6}	
	3	1.25	5.78×10^{-6}	
IT6_2	1	0.98	9.85×10^{-5}	

Trial pit	Test no.	Effective depth of pit (m)	Soil infiltration rate (m/s)	Strata & description
	2	0.88	7.20×10^{-5}	RTD – slightly clayey very sandy GRAVEL
	3	0.87	6.96×10^{-5}	
IT6_3	1	1.20	1.87×10^{-5}	RTD – very gravelly clayey SAND
	2	1.49	1.98×10^{-5}	
	3	1.34	1.85×10^{-5}	
IT6_4	1	0.80	8.26×10^{-6}	RTD – very gravelly clayey SAND & SSF - SAND
	2	1.20	6.50×10^{-6}	
	3	1.12	5.84×10^{-6}	
IT7_1	1	1.30	7.75×10^{-5}	RTD – very gravelly slightly silty SAND
	2	1.30	6.64×10^{-5}	
	3	1.30	5.58×10^{-5}	

Notes: RTD (RIVER TERACE DEPOSITS), MFF (MARSH FARM FORMATION), SSF (SELSEY SAND FORMATION)

5.1 Infiltration rates

The majority of the infiltration tests were undertaken within the granular material of the River Terrace Deposits. The only exceptions were locations IT2_1, where the soakaway testing was undertaken within the Marsh Farm Formation, and IT6_4, where the base of the test was within the Selsey Sand Formation.

Full soakaway testing (i.e., three test cycles) was completed in all locations, with the exception of IT2_2 which is discussed below. Infiltration rates within the River Terrace Deposits range from 1.24 x 10^{-6} m/s in IT6_1 to 5.49 x 10^{-4} m/s in IT1_1. This significant variation is due to the variable percentage of fine components comprising the stratum.

Within the River Terrace Deposits, infiltration tests undertaken within the gravels exhibited infiltration rates between 5.49 x 10^{-4} and 1.24 x 10^{-6} m/s, while the sand deposits exhibited infiltration rates between 5.02 x 10^{-4} and 1.85 x 10^{-5} m/s. The clay deposits exhibited infiltration rates between 7.28 x 10^{-6} and 5.56 x 10^{-6}, while infiltration testing within IT2_2 failed due to insufficient soakage, with the test failing to reach the minimum 75% effective depth within 24 hours.

Average infiltration rates within the River Terrace Deposits were calculated to be 1.11 x 10^{-4}.

Within the Marsh Farm Formation, infiltration rates were recorded between 6.61 x 10^{-6} and 3.97 x 10^{-6} m/s.

No groundwater was identified during the testing, and it is therefore considered that groundwater has not affected the results of the exercise. Heavy rain was noted during the infiltration test on IT2_2. However, it is not considered that caused any major effect, as infiltration rate was constant, and the test ran for over 24 hours.

6 Conclusions

6.1 Ground conditions

The exploratory locations largely confirmed the published geology at the Site. Topsoil was encountered across the Site to a maximum depth of 0.70 m bgl but was largely between 0.20-0.30 m bgl. Made Ground was identified in two locations extending to a maximum depth of 0.50 m bgl and comprised reworked topsoil and River Terrace Deposits, with minor inclusions of brick and concrete. Topsoil and Made Ground was underlain by River Terrace Deposits, which largely comprised granular material overlain by silts and clays and extended to a maximum proven depth 3.60 m bgl. The Marsh Farm Formation was identified within a single location (IT2_1) underlying the River Terrace Deposits to a maximum proven depth of 2.30 m bgl. The Selsey Sand Formation was identified at the base of a single location (IT6_4) at a depth of 2.50 m bgl.

Groundwater was not encountered during the investigation, and no visual or olfactory evidence of contamination was recorded within the excavations.

6.2 Infiltration drainage potential

Infiltration rates between 5.49 x 10^{-4} and 1.24 x 10^{-6} m/s were identified within the River Terrace Deposits, with infiltration within the gravel, sand and clays comparable with values in published literature.

Average infiltration rates within the River Terrace Deposits across the Site were calculated to be 1.11 x 10^{-4} m/s, with the coefficient comparable with a mixed sand and gravel deposit.

No groundwater was identified during the investigation, and it is therefore considered that groundwater was unlikely to have affected the tests.

REFERENCES

BRE, 2016. Digest 365 Soakaway Design

BSI Standards Publication, 2020. BS5930:2015+A1:2020 Code of practice for ground investigations

Stantec, 2018. Drilling Specification: Borehole Remediation and new Boreholes: Hamble Airfield, Hampshire. ESI Report No. 66650R4. November 2018

FIGURES

Figure 1. Site location and extension boundary

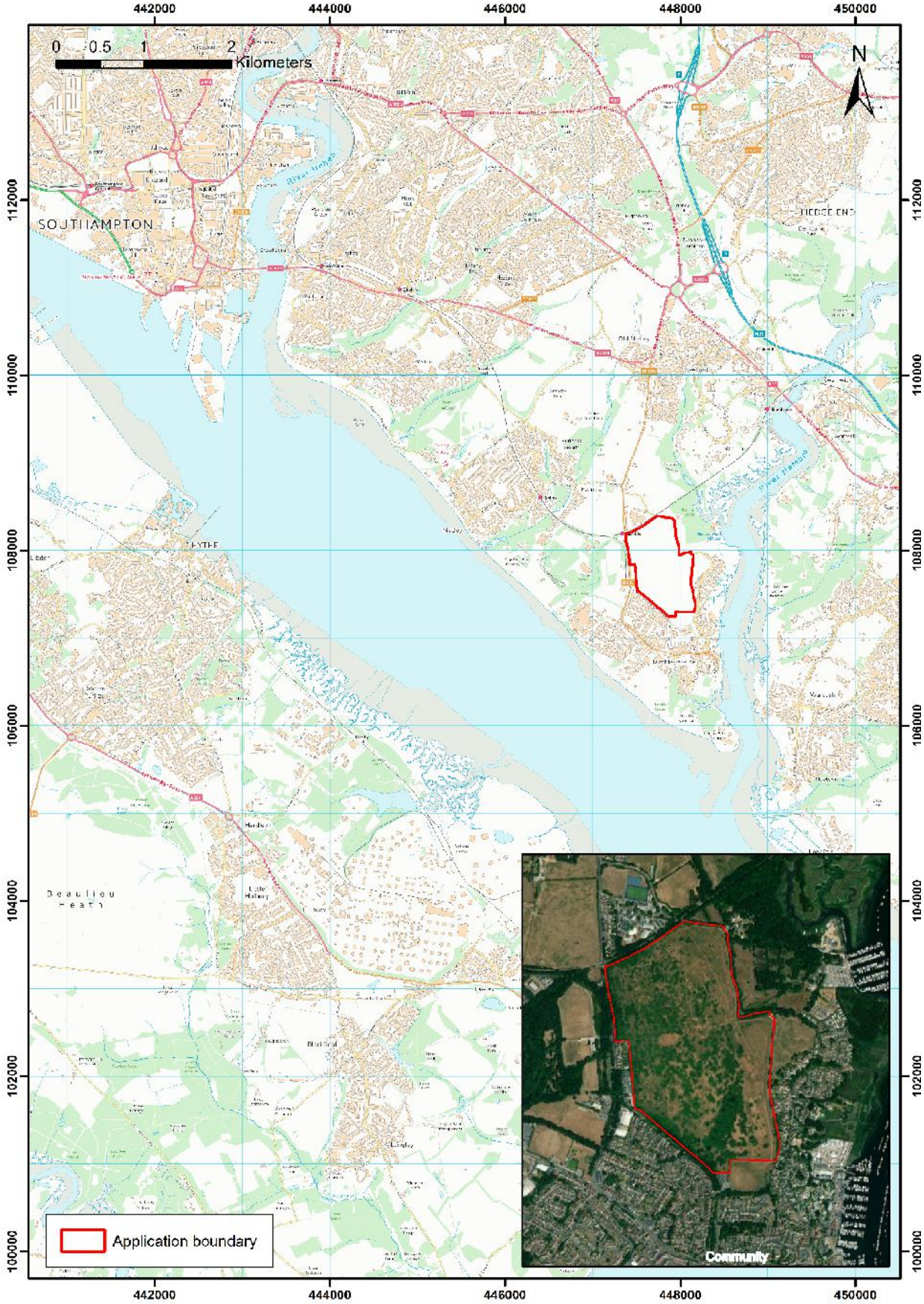
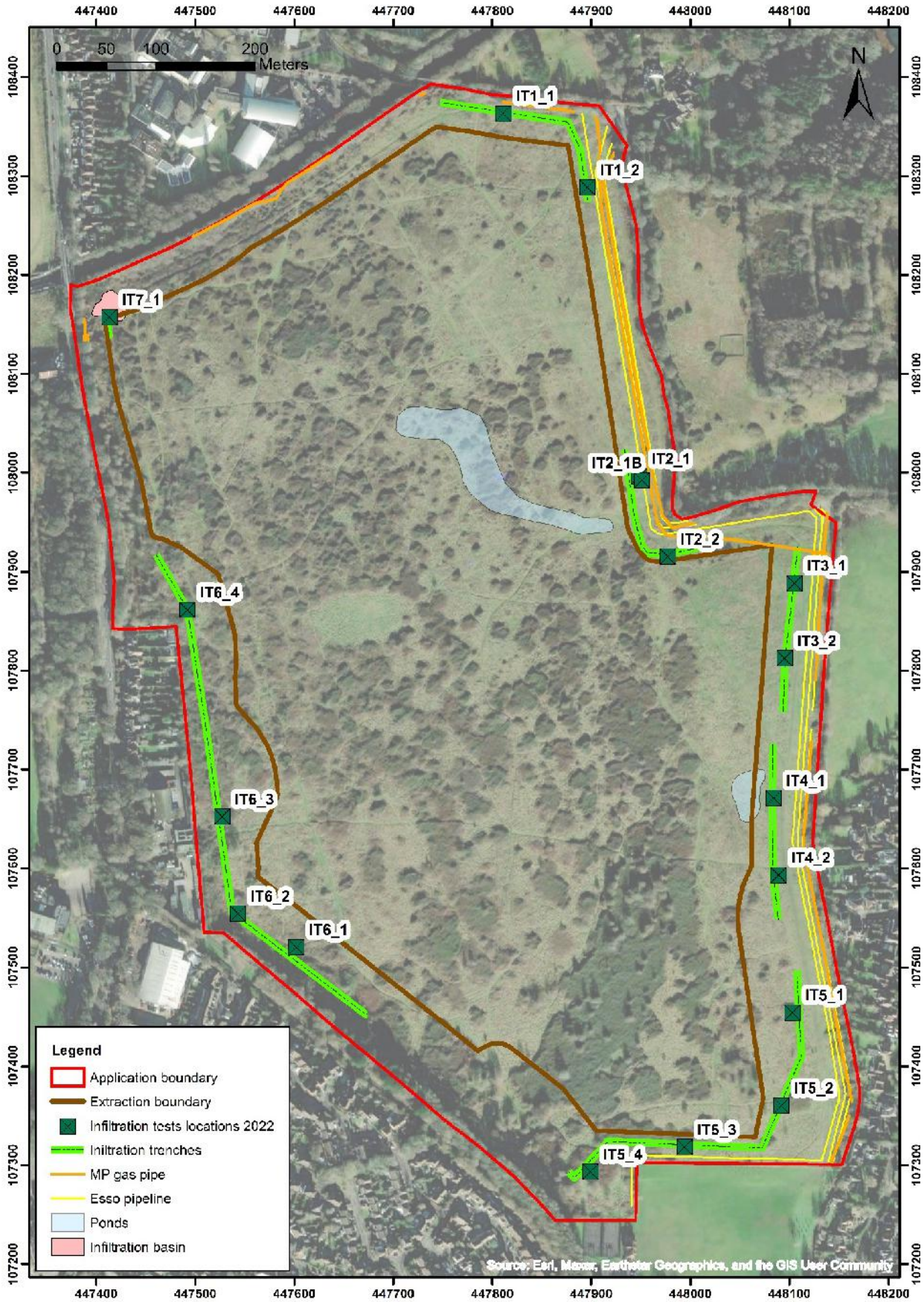


Figure 2. infiltration testing location plan



APPENDICES

Appendix A

Ecological completion statement

Report Reference: 331201108R6

Report Status: Final

LC Ecological Services

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30th August 2022

Re: Completion statement in relation to ecological supervision of works to facilitate soakaway testing at the former Hamble Airfield, Hamble-le-Rice, Hampshire

Dear Chris,

This completion statement provides a summary of the ecological supervision undertaken by LC Ecological Services Ltd of works to facilitate the soakaway testing on the former Hamble Airfield, Hamble-le-Rice, Hampshire, SO31 4RN. The ecological supervision was undertaken on site between 5th and 25th August 2022.

Previous targeted survey work undertaken by LC Ecological Services in 2015 and 2020 recorded populations of both slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) on the site. The vast majority of the site also comprises a mosaic of grassland and scrub habitat which is suitable for both arboreal and ground-nesting bird species. All UK native reptile species and all nesting birds are protected from harm under the Wildlife and Countryside Act 1981 (and amendments). As the proposed works to enable the soakaway testing, including vegetation clearance and excavation of test pits, posed a risk of harm to both reptiles and nesting birds on site, it was therefore essential that these works were supervised by a suitable experienced ecologist at all times, and following a suitable precautionary working method.

An initial supervised vegetation clearance of the working areas, including a compound site, 17 trial pit locations and vehicle access route (Stantec, 2022), was undertaken on the 5th August 2022. The vegetation clearance works were undertaken by commercial landscaping contractors and a single tractor with a flail mower was used. The vegetation was cleared following a precautionary two phase cut methodology. The vegetation was cut to a minimum length of 10 centimetres on the initial cut to encourage reptiles to disperse into adjacent suitable habitat on site, and this was followed by a subsequent cut to ground level, undertaken no sooner than one hour after the initial cut. The works were supervised by a suitably experienced ecologist at all times, undertaking repeated checks of the vegetation for presence of any reptiles or nesting birds.

Following the preparatory vegetation clearance, the soakaway testing works were undertaken between the 15th and 25th August 2022. On the first day a small works cabin was deployed at the compound site in the far north-east of the site and the soakaway testing works commenced. The works involved excavation of small trial pits, approximately 0.5 metres width, 1.5 metres length, and up to 3 metres in depth, which were then partially filled with clean gravel prior to the soakaway test using water from a towed mobile bowser. The trial pits were then backfilled

with the excavated material immediately following completion of the soakaway test to make the areas safe for both the public and wildlife. These works were supervised by a suitably experienced ecologist each day, and all vehicles and the excavator used on site had tyred wheels (as opposed to steel tracks) which pose significantly less risk of harm to reptiles when travelling between test pit locations on site.

A full daily summary of the ecological supervision works undertaken on site by LC Ecological Services Ltd is provided in table 1 below.

Table 1: summary of the ecological supervision undertaken by LC Ecological Services Ltd of works to facilitate the soakaway testing on the former Hamble Airfield

Date	Supervising ecologist	Time on site	Weather	Works and actions undertaken on site
05.08.2022	Alex Sinclair	07:30 to 15:45	18 - 27°C, cloud cover 3/8, wind 1/12. Hot and sunny with a light breeze.	I supervised contractors (commercial landscapers) undertaking vegetation clearance, strimming grass and clearing some bramble, at the compound and the infiltration test locations and trenches. These works were undertaken in line with an approved methodology. I gave a brief toolbox talk to all contractors in the morning before commencing any work to explain the methodology being adopted and to make them aware of the potential presence of protected species on site. A total of two male common lizards, and one female and one juvenile slow-worm were encountered during the clearance works. Nothing else of relevance was identified during the works on this day.
15.08.2022	Alex Sinclair	08:00 to 14:00	Hot and sunny, 22°C, cloud cover 0/8, wind 1/12	The mound at the site entrance was cleared first, so vehicles could enter the site. One male common lizard and one juvenile slow-worm were caught. A grass snake was spotted by the contractor; however, this was not observed by me and was not seen again. Pits IT6_3 and IT6_4 digs were supervised; no reptiles were seen.
16.08.2022	Phil Budd	07:45 to 11:45	Overcast and humid; 19 °C; heavy showers before 10:00 hours and dry thereafter. Light east wind	Some time spent looking for the three on-site operatives. Checked for slow worms and other protected species in soil and on access tracks. Pits IT6_2 and IT6_1 were dug. Three other pits in north-west of the site (IT6_3,IT6_4 & IT7_1 were dug yesterday. A dead and predated subadult slow-worm on track to IT6_2; otherwise nothing seen.
17.08.2022	Phil Budd	07:55 to 12:20	Overcast and fairly humid; 20 °C; mostly dry	Checked for slow worms and other protected species in soil and on access tracks. Pits IT5_4 & and IT5_3 were

			but light rain after 11:45. Light east wind.	dug. These pits are at the southern end of the site near to the pavilion. Nothing seen.
18.08.2022	Phil Budd	08:35 to 13:00	Overcast and fairly humid; 20 ℃; mostly dry but light rain after 11:45. Light east wind	Checked for slow worms and other protected species in soil and on access tracks. Three pits i.e. IT5_2; IT5_1 & and IT4_2 were dug. These pits are in the south-eastern part of the site. No protected species seen but some yellow ant (*Lasius flavus*) nests near pit IT4_2 were avoided.
19.08.2022	Alex Sinclair	07:45 to 11:00	Overcast and wet 18℃, light rain throughout the day. Cloud cover 8/8, wind 2/12	Pits IT1_1 and IT_2 were supervised during the dig, no reptiles were seen. Pit IT_2 was moved south by 10 metres due to the original location being in the tall grass. The pit was moved to bare ground.
22.08.2022	Andrew Heideman	08:00 to 14:15	17 - 19℃, cloud cover 8/8, wind F2 - F3, some light drizzle and a brief shower.	Supervised the excavation and soakaway test of trial pits IT7-1 and IT4-1. A third pit was excavated, however there was insufficient time to run a soakaway test so therefore this pit was backfilled with clean gravel and made safe for the public and wildlife. No reptiles or any other wildlife issues were encountered during the day.
23.08.2022	Phil Budd	08:00 to 10:45	Overcast with some drizzle; 19 ℃; calm	Checked for slow worms and other protected species in soil and on access tracks. One pit dug on the eastern side of the site, this was IT3_1. No protected species seen.
24.08.2022	Phil Budd	08:00 to 12:20	Overcast then sunshine after 10:30; 20 ℃; calm	Checked for slow worms and other protected species in soil and on access tracks. A Pit dug at IT2_2 and two pits at IT2_1 as the first there was unsatisfactory because there was too much sand. No protected species seen but pit location was moved slightly after black ant nest discovered.
25.08.2022	Phil Budd	14:55 to 15:40	Overcast then sunshine after 10:30; 20 ℃; calm	All pits testing completed and then the disturbed soil near to the entrance gate from the north-east was made up into a bund to restore what was there before. A search of site revealed no signs of protected species and the operatives had not noticed anything.

We advise that this document should be held in your records as evidence of the ecological supervision works that were undertaken to facilitate the soakaway testing on the former Hamble Airfield in August 2022.

Yours sincerely,

Andrew Heideman BSc (Hons), ACIEEM

Senior Ecologist

References

Stantec (2022) *Hamble Quarry: Proposal for infiltration testing, Ref: 331201108P3*

Appendix B

Statutory Utilities Plans

Report Reference: 331201108R6

Report Status: Final

Appendix C
Engineering logs

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT1_1

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 21.00 **m AOD**
CO-ORDINATES **E** 447811 **N** 108364
DATE EXCAVATED 19/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over greyish brown slightly gravelly SILT with roots and rootlets and wood fragments. Gravel is subangular to subrounded, fine to medium of flint.	20.80		0.20					
Brown desiccated very gravelly SILT. Gravel is subangular, fine to medium of flint and siltstone. Coalesced lumps of silt (RIVER TERRACE DEPOSITS).	20.60		0.40					
Orange and whitish brown slightly clayey sandy angular to rounded, fine to coarse GRAVEL of flint with medium cobble content. Sand is fine to medium. Cobbles are angular of flint (RIVER TERRACE DEPOSITS). At 1 m bgl - silty sandy GRAVEL. Sand is fine to coarse. At 1.5 m bgl - slightly clayey slightly sandy GRAVEL. Sand is medium to coarse.			(1.30)					
	19.30		1.70					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.80 x 0.5 x 1.7
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY

B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 1.70 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT1_2

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 21.00 **m AOD**
CO-ORDINATES **E** 447896 **N** 108289
DATE EXCAVATED 19/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
MADE GROUND: Grass over greyish brown gravelly SILT with roots and rootlets. Gravel is subangular to subrounded, fine to coarse of flint.			(0.30)					
	20.70		0.30					
MADE GROUND: Greyish brown desiccated very gravelly SILT with high cobble content and boulders. Gravel is angular to subangular, fine to coarse of flint and siltstone. Cobbles are angular of flint. Boulder is angular of concrete. Coalesced lumps of silt.	20.50		0.50					
Reddish brown slightly clayey very sandy angular to rounded, fine to coarse GRAVEL of flint with medium cobble content. Sand is fine to coarse. Cobbles are angular of flint. (RIVER TERRACE DEPOSITS) At 1.10 m bgl - Slightly silty very sandy. Sand is medium to coarse. At 1.7 m bgl - Dark red clayey sandy GRAVEL. Sand is medium to coarse. Cobbles are subangular to rounded of flint.			(1.30)					
	19.20		1.80					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.80 x 0.5 x 1.8
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY

B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH	1.80 METRES
LOGGED BY	M Docal
DATE LOGGED	01/09/2022
SCALE	1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT2_1

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 19.00 **m AOD**
CO-ORDINATES **E** 447948 **N** 107997
DATE EXCAVATED 24/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over grey very gravelly SILT with thin rootlets. Gravel is angular to rounded, fine to coarse of flint.			(0.40)					
	18.60		0.40					
Greyish brown slightly sandy silty angular to subrounded, fine to coarse GRAVEL of flint with medium cobble content. Sand is fine. Cobbles are angular to subangular of flint (RIVER TERRACE DEPOSITS).	18.40		0.60					
Orange and bluish grey very sandy slightly silty angular to rounded, fine to coarse GRAVEL of flint with pockets of fine sand. Sand is medium to coarse (RIVER TERRACE DEPOSITS).			(0.60)					
	17.80		1.20					
Yellowish brown, with beige horizons, slightly gravelly silty fine SAND. Gravel is subangular to subrounded, fine of flint (MARSH FARM FORMATION).			(1.10)					
	16.70		2.30					

NOTES / COMMENTS

GPR survey undertaken and location cleared ith CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.60 x 0.5 x 2.3.
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.30 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT2_1B

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 20.00 **m AOD**
CO-ORDINATES **E** 447951 **N** 107993
DATE EXCAVATED 24/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over greyish brown very gravelly SILT with thin rootlets. Gravel is angular to rounded, fine to coarse of flint.	19.80		0.20					
Orangish brown desiccated very gravelly very sandy SILT. Sand is fine to medium. Gravel is angular to subrounded, fine to coarse of flint. Coalesced lumps of silt (RIVER TERRACE DEPOSITS).			(0.70)					
	19.10		0.90					
Orangish brown, with bluish grey horizons of fine sand, gravelly CLAY. Gravel is subangular to subrounded, fine of flint (RIVER TERRACE DEPOSITS).			(0.30)					
	18.80		1.20					
Orangish brown very clayey very gravelly fine to medium SAND with low cobble content. Gravel is angular to subrounded, fine to coarse of flint. Cobbles are subangular of flint (RIVER TERRACE DEPOSITS). At 1.4 m bgl - Subangular boulders of flint.			(0.70)					
	18.10		1.90					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.60 x 0.5 x 2.3
Infiltration test not undertaken.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY

B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH	1.90 METRES
LOGGED BY	M Docal
DATE LOGGED	01/09/2022
SCALE	1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT2_2

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 19.00 **m AOD**
CO-ORDINATES **E** 447977 **N** 107916
DATE EXCAVATED 24/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over grey very gravelly SILT with thin rootlets. Gravel is angular to rounded, fine to coarse of flint.	18.80		0.20					
Greyish brown desiccated very gravelly SILT with thin rootlets. Gravel is angular to rounded, fine to coarse of flint. Coalesced lumps of silt (RIVER TERRACE DEPOSITS).	18.30		(0.50) 0.70					
Dark greyish brown very clayey slightly sandy angular to subangular, fine to coarse GRAVEL of flint and limestone and white siltstone. Sand is fine to medium (RIVER TERRACE DEPOSITS). At 0.90 m bgl - Reddish brown very clayey very gravelly SAND. Sand is fine to coarse.	17.70		(0.60) 1.30					
Firm brown, with lenses of light blue, very gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of flint (RIVER TERRACE DEPOSITS).	17.20		(0.50) 1.80					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.40 x 0.5 x 1.8
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 1.80 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT3_1

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 20.00 **m AOD**
CO-ORDINATES **E** 448105 **N** 107889
DATE EXCAVATED 23/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL/SUBSOIL: Grass over grey very gravelly SILT with rootlets and low cobble content. Gravel is angular to rounded, fine to coarse of flint. Cobbles are subangular of flint.	19.50		(0.50) 0.50					
Light orangish brown very gravelly silty fine to coarse SAND with high cobble content. Gravel is angular to rounded, fine to coarse of flint. Cobbles are subangular to subrounded of flint (RIVER TERRACE DEPOSITS). At 0.90 m bgl - Reddish brown very gravelly SAND. Sand is medium to coarse. At 1.30 m bgl - Bright orangish brown.	18.30		(1.20) 1.70					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.60 x 0.5 x 1.7.
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 1.70 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT3_2

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 19.00 **m AOD**
CO-ORDINATES **E** 448095 **N** 107813
DATE EXCAVATED 22/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
MADE GROUND: Grass over grey very gravelly SILT with rootlets. Gravel is angular to subrounded, fine to coarse of flint and occasional brick.	18.80		0.20					
Greyish brown very gravelly sandy SILT. Sand is coarse. Gravel is angular to rounded, fine to coarse of flint (RIVER TERRACE DEPOSITS).	18.40		(0.40) 0.60					
Orangish/yellowish brown slightly clayey very sandy angular to rounded, fine to coarse GRAVEL of flint with high cobble content. Sand is medium to coarse. Cobbles are subangular to subrounded of flint (RIVER TERRACE DEPOSITS). At 1.3 m bgl - silty very sandy GRAVEL.	17.00		(1.40) 2.00					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.80 x 0.5 x 2.0
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.00 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT4_1

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 17.00 **m AOD**
CO-ORDINATES **E** 448084 **N** 107672
DATE EXCAVATED 22/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over grey gravelly SILT with roots and rootlets. Gravel is angular to subrounded, fine to coarse of flint.	16.80		0.20					
Greyish brown very gravelly SILT with thin rootlets with low cobble content. Gravel is angular to rounded, fine to coarse of flint. Cobbles are subangular of flint (RIVER TERRACE DEPOSITS).			(0.80)					
	16.00		1.00					
Soft to firm brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is angular to rounded, fine of flint (RIVER TERRACE DEPOSITS).			(0.80)					
	15.20		1.80					
Soft orangish brown very sandy very gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to medium of flint (RIVER TERRACE DEPOSITS).	15.10		1.90					
Orangish brown clayey very sandy angular to rounded, fine to coarse GRAVEL of flint. Sand is medium to coarse (RIVER TERRACE DEPOSITS). At 2.1 m bgl - Reddish brown silty very sandy GRAVEL.			(1.00)					
	14.10		2.90					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.9 x 0.5 x 2.9.
Pit unstable - sides collapsing from 1.9 m bgl.
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.90 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT4_2

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 17.00 **m AOD**
CO-ORDINATES **E** 448089 **N** 107594
DATE EXCAVATED 18/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL/SUBSOIL: Grass over grey gravelly SILT with roots and rootlets. Gravel is subangular to subrounded, fine to medium of flint.	16.60		(0.40) 0.40					
Greyish brown very gravelly SILT. Gravel is angular to subrounded, fine to coarse of flint (RIVER TERRACE DEPOSITS).	15.40		(1.20) 1.60					
Reddish brown slightly gravelly silty CLAY. Gravel is subangular, fine of flint (RIVER TERRACE DEPOSITS).	14.70		(0.70) 2.30					
Reddish brown sandy CLAY. Sand is fine to medium (RIVER TERRACE DEPOSITS).	14.50		2.50					
Orangish brown clayey very sandy angular to subrounded, fine to coarse GRAVEL of flint with high cobble content. Sand is medium to coarse. Cobbles are angular of flint (RIVER TERRACE DEPOSITS). At 3.2 m bgl - Yellowish very sandy GRAVEL. Sand is medium to coarse.	13.40		(1.10) 3.60					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 2.3 x 0.5 x 3.6.
Pit unstable - sides collapsing from 2.4 m bgl.
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 3.60 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 25

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT5_1

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 19.00 **m AOD**
CO-ORDINATES **E** 448103 **N** 107455
DATE EXCAVATED 18/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over grey gravelly SILT with rootlets and low cobble content. Gravel is angular to rounded, fine to coarse of flint. Cobbles are subangular of flint.	18.80		0.20					
Greyish brown very gravelly SILT. Gravel is angular to subrounded, fine to coarse of flint (RIVER TERRACE DEPOSITS).	18.50		(0.30) 0.50					
Reddish brown slightly sandy angular to subrounded, fine to coarse GRAVEL of flint with medium cobble content. Sand is medium. Cobbles are subrounded of flint (RIVER TERRACE DEPOSITS). At 0.90 m bgl - very sandy GRAVEL. Sand is fine to coarse. At 1.40 m bgl - Brownish red slightly sandy silty angular to rounded, fine to coarse GRAVEL of flint. Sand is medium.	17.20		(1.30) 1.80					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.6 x 0.5 x 1.8
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 1.80 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT5_2

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 18.00 **m AOD**
CO-ORDINATES **E** 448092 **N** 107361
DATE EXCAVATED 18/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL/SUBSOIL: Grass over grey gravelly SILT with root and rootlets. Gravel is angular to subangular, fine to medium of flint.			(0.70)					
	17.30		0.70					
Yellowish brown very gravelly medium to coarse SAND. Gravel is angular to subrounded, fine to coarse of flint (RIVER TERRACE DEPOSITS).			(1.30)					
	16.00		2.00					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.8 x 0.5 x 2.0
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.00 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT5_3

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 19.00 **m AOD**
CO-ORDINATES **E** 447994 **N** 107319
DATE EXCAVATED 17/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL/SUBSOIL: Grass over greyish brown very gravelly SILT with root and rootlets. Gravel is angular to subangular, fine to medium of flint.			(0.70)					
	18.30		0.70					
Yellowish brown very sandy angular to subrounded, fine to coarse GRAVEL of flint. Sand is fine to coarse (RIVER TERRACE DEPOSITS).			(1.30)					
	17.00		2.00					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.8 x 0.5 x 2.0
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.00 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT5_4

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 20.00 **m AOD**
CO-ORDINATES **E** 447899 **N** 107294
DATE EXCAVATED 17/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over greyish brown gravelly slightly sandy SILT with numerous root and rootlets. Sand is coarse. Gravel is subangular to rounded, fine to coarse of flint.	19.80		0.20					
Brown slightly gravelly slightly clayey SILT. Gravel is subangular to rounded, fine to medium of flint and occasional slate (RIVER TERRACE DEPOSITS). At 1.30 m bgl - becoming very clayey sandy SILT.			(1.40)					
	18.40		1.60					
Reddish brown clayey very sandy angular to rounded, fine to coarse GRAVEL of flint. Sand is fine to coarse(RIVER TERRACE DEPOSITS). At 2.40 m bgl - Yellowish brown lightly clayey sandy GRAVEL. Sand is medium to coarse.			(1.20)					
	17.20		2.80					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.9 x 0.5 x 2.8.
Pit unstable - sides collapsing from 2.1 m bgl.
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.80 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT6_1

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 16.00 **m AOD**
CO-ORDINATES **E** 447602 **N** 107521
DATE EXCAVATED 16/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over greyish brown gravelly SILT with numerous rootlets. Gravel is subangular to subrounded, fine to medium of flint.			(0.30)					
	15.70		0.30					
Orangish brown slightly gravelly slightly sandy clayey SILT. Sand is fine. Gravel is subangular to subrounded, fine to medium of flint (RIVER TERRACE DEPOSITS). At 1.2 m bgl - becoming very clayey.			(1.10)					
	14.60		1.40					
Reddish brown clayey very sandy angular to rounded, fine to coarse GRAVEL of flint. Sand is medium to coarse (RIVER TERRACE DEPOSITS).			(1.20)					
	13.40		2.60					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 2.1 x 0.6 x 2.6
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.60 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT6_2

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 19.00 **m AOD**
CO-ORDINATES **E** 447543 **N** 107555
DATE EXCAVATED 16/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over greyish brown very gravelly SILT with numerous rootlets. Gravel is subangular to subrounded, fine to medium of flint.	18.80		0.20					
Brown desiccated slightly gravelly SILT. Gravel is subangular to subrounded, fine of flint. Coalesced lumps of silt (RIVER TERRACE DEPOSITS).	17.80		(1.00) 1.20					
Firm orangish brown slightly gravelly slightly sandy silty CLAY. Sand is fine. Gravel is subangular, fine to coarse of flint (RIVER TERRACE DEPOSITS).	17.50		(0.30) 1.50					
Orangish brown slightly clayey very sandy angular to rounded, fine to coarse GRAVEL of flint. Sand is fine to coarse (RIVER TERRACE DEPOSITS).	16.40		(1.10) 2.60					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.8 x 0.5 x 2.6
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.60 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT6_3

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 21.00 **m AOD**
CO-ORDINATES **E** 447527 **N** 107653
DATE EXCAVATED 15/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over brownish grey gravelly SILT with numerous rootlets. Gravel is angular to subangular, fine to coarse of flint.	20.80		0.20					
Brown desiccated sandy SILT. Sand is fine to medium. Coalesced lumps of SILT (RIVER TERRACE DEPOSITS).	20.00		(0.80) 1.00					
Orangish brown sandy SILT. Sand is fine (RIVER TERRACE DEPOSITS).	19.50		(0.50) 1.50					
Bright orange, with yellowish horizons, very gravelly clayey fine to coarse SAND. Gravel is angular to subrounded, fine to coarse of flint (RIVER TERRACE DEPOSITS). At 2.60 m bgl - lenses of very sandy gravelly CLAY and lenses of medium SAND.	18.10		(1.40) 2.90					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 2.0 x 0.5 x 2.9
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 2.90 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT6_4

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 21.00 **m AOD**
CO-ORDINATES **E** 447492 **N** 107862
DATE EXCAVATED 15/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS GRAVEL	GRADINGS SAND	GRADINGS FINES	REMARKS
TOPSOIL: Grass over grey slightly sandy SILT with numerous rootlets. Sand is fine.	20.80		0.20					
Brownish grey slightly sandy slightly gravelly SILT with occasional thin rootlets. Sand is fine. Gravel is subangular, fine of flint (RIVER TERRACE DEPOSITS).			(1.30)					
Bright orange very gravelly clayey fine to coarse SAND with high cobble content. Gravel is angular to rounded, fine to coarse of flint. Cobbles are angular to subangular of flint (RIVER TERRACE DEPOSITS).	19.50		1.50					
			(1.00)					
Greenish grey fine to medium SAND (SELSEY SAND FORMATION).	18.50 18.45		2.50 2.55					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.8 x 0.5 x 2.5
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
Observed Boundry
Inferred boundry

TOTAL DEPTH 2.55 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Geological Services Department
CEMEX UK Operations Ltd

TRIAL PIT No. IT7_1

SHEET 1 OF 1

SITE NAME
Hamble Airfield
Southampton, Hampshire

SITE REF. SU 4708

CONTRACTOR BPH
EQUIPMENT AND METHOD JCB 3CX

GROUND LEVEL 19.00 **m AOD**
CO-ORDINATES **E** 447413 **N** 108158
DATE EXCAVATED 22/8/22

DESCRIPTION	REDUCED LEVEL (m AOD)	LEGEND	DEPTH & (THICKNESS) (m)	SAMPLE DEPTH (m) & TYPE	GRADINGS: GRAVEL	GRADINGS: SAND	GRADINGS: FINES	REMARKS
TOPSOIL: Grass over brownish grey slightly gravelly SILT with rootlets. Gravel is subangular to subrounded, fine of flint.	18.80		0.20					
Greyish brown very gravelly SILT. Gravel is angular to rounded, fine to coarse of flint (RIVER TERRACE DEPOSITS).	18.50		(0.30) 0.50					
Light yellow clayey fine to medium SAND (RIVER TERRACE DEPOSITS).	18.30		0.70					
Orangish brown slightly gravelly very clayey medium to coarse SAND with bluish grey lenses of fine sand. Gravel is subangular to subrounded, fine to medium of flint (RIVER TERRACE DEPOSITS).	17.30		(1.00) 1.70					
Yellowish brown very gravelly slightly silty fine to coarse SAND with high cobble content. Gravel is angular to rounded, fine to coarse of flint. Cobbles are subrounded of flint (RIVER TERRACE DEPOSITS).	16.00		(1.30) 3.00					

NOTES / COMMENTS

GPR survey undertaken and location cleared with CAT and Genny.
Groundwater not encountered.
Dimensions of the pit in m (L x W x D): 1.6 x 0.5 x 3.0
Infiltration test undertaken in accordance with BRE365.
Monitoring well not installed.
Backfilled with arisings after completion.
Pit stable.

KEY
B - Bulk distrubed sample
D - Small distrubed sample
U - Undistrubed sample
W - Water sample
X - Cuttings sample
c - Coarse grained
m - Medium grained
f - Fine grained

- Water strike 1
- Standing water 1
- Observed Boundry
- Inferred boundry

TOTAL DEPTH 3.00 METRES
LOGGED BY M Docal
DATE LOGGED 01/09/2022
SCALE 1 : 18.75

Appendix D
Photographic log

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 1 **Photo Location:** Satchet Lane **Direction:** **Survey Date:** 15/08/2022 **Comments:** Delivery of JCB 3CX	
Photograph ID: 2 **Photo Location:** Entrance to Site **Direction:** **Survey Date:** 15/08/2022 **Comments:** Removal of the gate to access the Site, locked with secure topsoil bund	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 3

Photo Location:
Entrance to Site

Direction:

Survey Date:
15/08/2022

Comments:
Removal of bund to provide access to Site

Photograph ID: 4

Photo Location:
Welfare compund

Direction:

Survey Date:
15/08/2022

Comments:
Delivery of 10 mm gravel to support with infiltration testing

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 5 **Photo Location:** Materials **Direction:** **Survey Date:** 22/08/2022 **Comments:** Slotted pipe used to carry out infiltration testing	
Photograph ID: 6 **Photo Location:** Underground survey **Direction:** **Survey Date:** 18/08/2022 **Comments:** ESSO pipe surveyor marking posts in front of each proposed location	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 7 **Photo Location:** IT6_4 **Direction:** **Survey Date:** 15/08/2022 **Comments:** Excavation of the trial pit. Topsoil kept to the left and subsoil to the right	
Photograph ID: 8 **Photo Location:** IT6_3 **Direction:** **Survey Date:** 15/08/2022 **Comments:** Stripping of topsoil being supervised by an Ecologist	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 9

Photo Location:
IT6_2

Direction:

Survey Date:
16/08/2022

Comments:
Excavation of trial pit. Topsoil to the left and subsoil to the right.

Photograph ID: 10

Photo Location:
IT6_2

Direction:

Survey Date:
16/08/2022

Comments:
Arisings: Topsoil

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 11 **Photo Location:** IT6_2 **Direction:** **Survey Date:** 16/08/2022 **Comments:** Arisings: Subsoil	
Photograph ID: 12 **Photo Location:** IT6_2 **Direction:** **Survey Date:** 16/08/2022 **Comments:** Arisings: River Terrace Deposits	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 13 **Photo Location:** IT6_1 **Direction:** **Survey Date:** 17/08/2022 **Comments:** Test ongoing overnight; area made secured	
Photograph ID: 14 **Photo Location:** IT6_1 **Direction:** **Survey Date:** 17/08/2022 **Comments:** Location backfilled with arisings after completion.	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 15

Photo Location:
IT5_4

Direction:

Survey Date:
17/08/2022

Comments:
Infiltration test ongoing

Photograph ID: 16

Photo Location:
IT5_3

Direction:

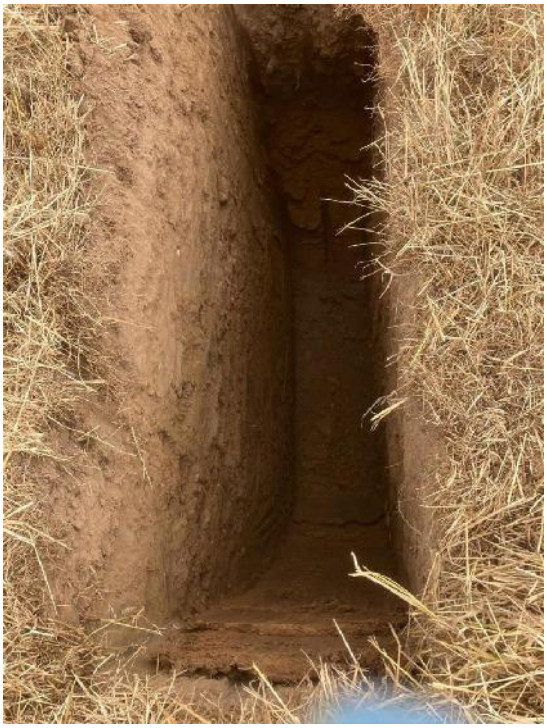
Survey Date:
17/08/2022

Comments:
Excavation ongoing

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 17 **Photo Location:** IT5_2 **Direction:** **Survey Date:** 18/08/2022 **Comments:** Excavated pit, measuring the base	
Photograph ID: 18 **Photo Location:** IT5_1 **Direction:** **Survey Date:** 18/08/2022 **Comments:** Trial pit depth 1.8 m bgl	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 19 **Photo Location:** IT4_2 **Direction:** **Survey Date:** 18/08/2022 **Comments:** Trial pit	
Photograph ID: 20 **Photo Location:** IT4_2 **Direction:** **Survey Date:** 18/08/2022 **Comments:** Arisings: subsoil (CLAY)	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 21 **Photo Location:** IT4_2 **Direction:** **Survey Date:** 18/08/2022 **Comments:** Arisings: RTD encountered at 2.5m bgl	
Photograph ID: 22 **Photo Location:** IT4_2 **Direction:** **Survey Date:** 18/08/2022 **Comments:** Trial pit depth 3.6 m bgl	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 23 **Photo Location:** IT1_1 **Direction:** **Survey Date:** 19/08/2022 **Comments:** RTD from 0.4 to 1.0 m bgl	
Photograph ID: 24 **Photo Location:** IT1_1 **Direction:** **Survey Date:** 19/08/2022 **Comments:** RTD from 1.0 to 1.7 m bgl	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 25 **Photo Location:** IT1_2 **Direction:** **Survey Date:** 19/08/2022 **Comments:** Pinky flags placed on safe areas after GPR survey	
Photograph ID: 26 **Photo Location:** IT1_2 **Direction:** **Survey Date:** 19/08/2022 **Comments:** Measuring depth of the pit before undertaken infiltration testing	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 27

Photo Location:
IT1_2

Direction:

Survey Date:
19/08/2022

Comments:
MG: Boulder of concrete

Photograph ID: 28

Photo Location:
IT7_1

Direction:

Survey Date:
22/08/2022

Comments:
RTD: clayey SAND

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 29

Photo Location:
IT4_1

Direction:

Survey Date:
22/08/2022

Comments:
RTD: sandy gravelly CLAY

Photograph ID: 30

Photo Location:
IT4_1

Direction:

Survey Date:
22/08/2022

Comments:
RTD: sandy gravelly CLAY

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 31 **Photo Location:** IT4_1 **Direction:** **Survey Date:** 22/08/2022 **Comments:** RTD: clayey sandy GRAVEL	
Photograph ID: 32 **Photo Location:** IT3_2 **Direction:** **Survey Date:** 22/08/2022 **Comments:** Pit had to be left open overnight - as recommended by the Ecologist the ramp was made to avoid any potential fauna loss	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 33 **Photo Location:** IT2_1 **Direction:** **Survey Date:** 24/08/2022 **Comments:** MARSH FARM FORMATION arisings	
Photograph ID: 34 **Photo Location:** IT2_1 **Direction:** **Survey Date:** 24/08/2022 **Comments:** RTD and MARSH FARM FORMATION open pit	

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 35

Photo Location:
IT2_2

Direction:

Survey Date:
24/08/2022

Comments:
RTD: very gravelly sandy CLAY

Photograph ID: 36

Photo Location:
IT2_2

Direction:

Survey Date:
24/08/2022

Comments:
Open pit

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 37

Photo Location:
IT2_1B

Direction:

Survey Date:
24/08/2022

Comments:
Addtional pit open adjacent to IT2_1. Arisings sandy gravelly CLAY.

Photograph ID: 38

Photo Location:
IT2_1B

Direction:

Survey Date:
24/08/2022

Comments:
Pit opened to check geology - no infiltration test undertaken

Client:	**CEMEX UK Operations Ltd**	**Project:**	**331201108**
Site Name:	**Hamble Quarry - infiltration testing**	**Site Location:**	**Satchell Lane, Hamble-le-Rice, Southampton**

Photograph ID: 39

Photo Location:
End of works

Direction:

Survey Date:
25/08/2022

Comments:
Topsoil bund resintated and metal fence fixed and locked

Photograph ID: 40

Photo Location:
End of works

Direction:

Survey Date:
25/08/2022

Comments:
Gate chained up and locked

Appendix E

Infiltration testing results

Pit reference: IT1_1
Project: Hamble Quarry_331201108
Date of percolation tests 19/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	2.1	*(L)*	Design effective depth (Y)	1.00	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	1.05	*m3*

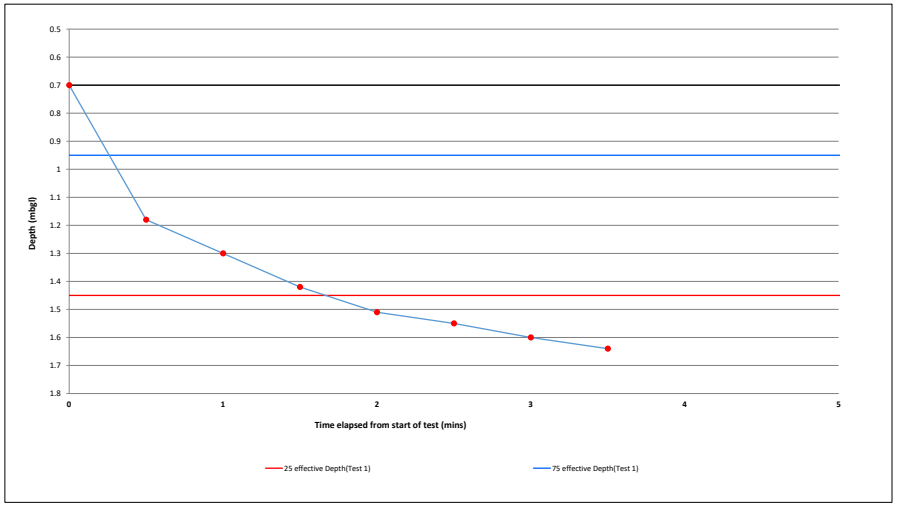
Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 16/09/2022
Sheet number: 1
Ver. 1 - Page1

TEST 1

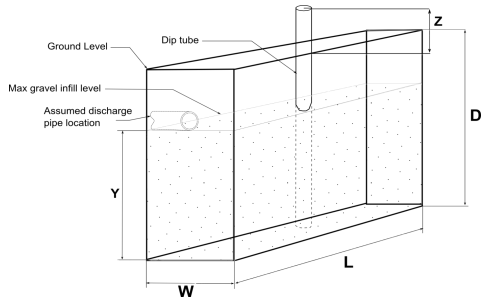
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
09:24	0.0	0.7	1.00
09:24	0.5	1.18	0.52
09:25	1.0	1.30	0.40
09:25	1.5	1.42	0.28
09:26	2.0	1.51	0.19
09:26	2.5	1.55	0.15
09:27	3.0	1.60	0.10
09:27	3.5	1.64	0.06



Test effective depth	1.00	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.75	m	0.95
50% effective depth:	0.50	m	1.20
25% effective depth:	0.25	m	1.45
t75	0.25	min	
t50		min	
t25	1.6	min	
Vp75-25	0.53	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.65	m2	
tp75-25	1.31	min	
Soil infiltration rate (f):	**5.49E-04**	m/s	
	0.55	mm/sec	
	47.43	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



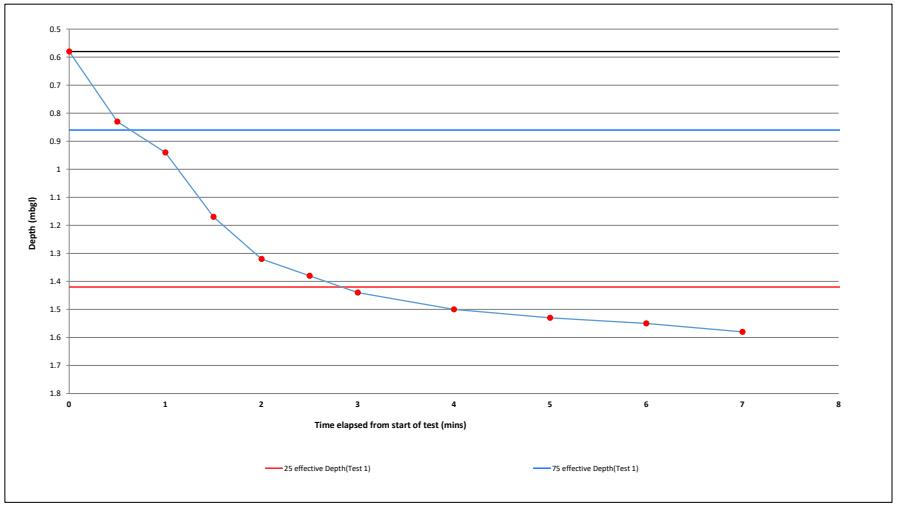
Soil Log:

From	To	
0.00	0.20	TOPSPOIL: Slightly gravelly SILT.
0.20	0.40	SUBSOIL: Very gravelly SILT.
0.40	1.70	Slightly clayey silty sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 1 m bgl - very clayey sandy GRAVEL. At 1.5 m bgl - slightly clayey slightly sandy GRAVEL.

Comments

Pit reference:	IT1_1	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	2.1	*(L)*	Design effective depth (Y)	1.12	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	16/09/2022
Date of percolation tests	19/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*			2
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	1.18	*m3*			Ver. 1 - Page1

TEST 2			
Time	**Elapsed (min)**	**Water dip (mbGL)**	**Depth of water in pit (m)***
09:39	0.0	0.58	1.12
09:39	0.5	0.83	0.87
09:40	1.0	0.94	0.76
09:40	1.5	1.17	0.53
09:41	2.0	1.32	0.38
09:41	2.5	1.38	0.32
09:42	3.0	1.44	0.26
09:43	4.0	1.5	0.20
09:44	5.0	1.53	0.17
09:45	6.0	1.55	0.15
09:46	7.0	1.58	0.12



Test effective depth	1.12	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.84	m	0.86
50% effective depth:	0.56	m	1.14
25% effective depth:	0.28	m	1.42
t75	0.60	min	
t50		min	
t25	2.9	min	
Vp75-25	0.59	m3	
Vp75 - Vp25 (corrected)	0.18	m3	
ap50	3.96	m2	
tp75-25	2.25	min	
Soil infiltration rate (f):	**3.30E-04**	m/s	
	0.33	mm/sec	
	28.49	m/day	

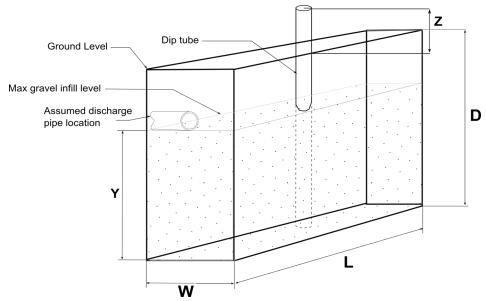
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

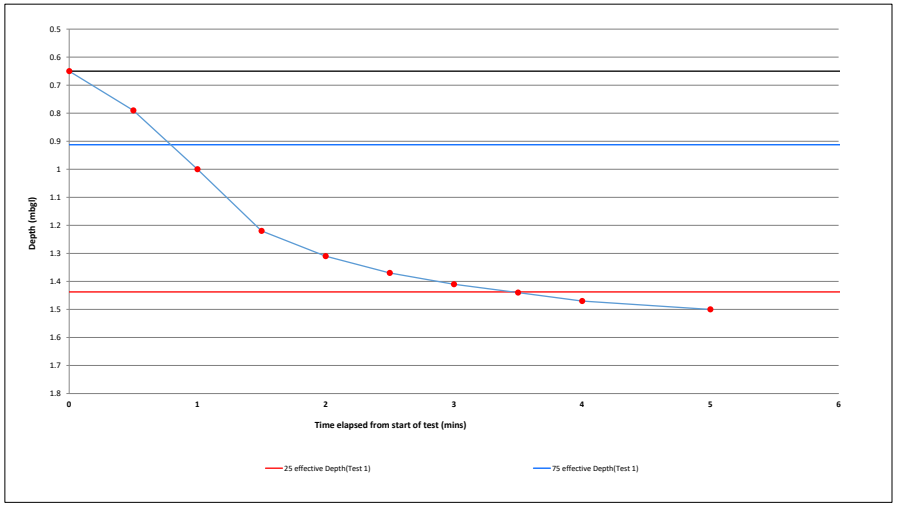
From	To	
0.00	0.20	TOPSPOIL: Slightly gravelly SILT.
0.20	0.40	SUBSOIL: Very gravelly SILT.
0.40	1.70	Slightly clayey silty sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 1 m bgl - very clayey sandy GRAVEL. At 1.5 m bgl - slightly clayey slightly sandy GRAVEL.

Comments

Pit reference:	IT1_1	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	2.1	*(L)*	Design effective depth (Y)	1.05	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	16/09/2022
Date of percolation tests	19/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*			3
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	1.10	*m3*			Ver. 1 - Page1

TEST 3

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
10:45	0.0	0.65	1.05
10:45	0.5	0.79	0.91
10:46	1.0	1.00	0.70
10:46	1.5	1.22	0.48
10:47	2.0	1.31	0.39
10:47	2.5	1.37	0.33
10:48	3.0	1.41	0.29
10:48	3.5	1.44	0.26
10:49	4.0	1.47	0.23
10:50	5.0	1.5	0.20



Test effective depth	1.05	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.79	m	0.91
50% effective depth:	0.53	m	1.18
25% effective depth:	0.26	m	1.44
t75	0.80	min	
t50		min	
t25	3.5	min	
Vp75-25	0.55	m3	
Vp75 - Vp25 (corrected)	0.17	m3	
ap50	3.78	m2	
tp75-25	2.70	min	
Soil infiltration rate (f):	**2.70E-04**	m/s	
	0.27	mm/sec	
	23.33	m/day	

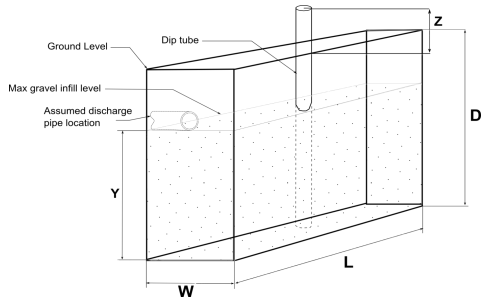
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSPOIL: Slightly gravelly SILT.
0.20	0.40	SUBSOIL: Very gravelly SILT.
0.40	1.70	Slightly clayey silty sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 1 m bgl - very clayey sandy GRAVEL. At 1.5 m bgl - slightly clayey slightly sandy GRAVEL.

Comments

Pit reference: IT1_2
Project: Hamble Quarry_331201108
Date of percolation tests 19/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.7	*(L)*	Design effective depth (Y)	1.09	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	0.93	*m3*

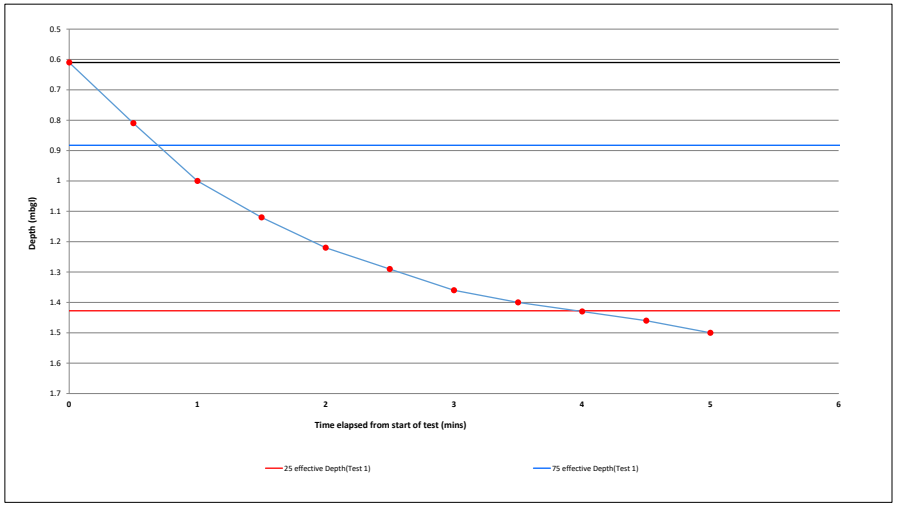
Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 16/09/2022
Sheet number: 1
Ver. 1 - Page1

TEST 1

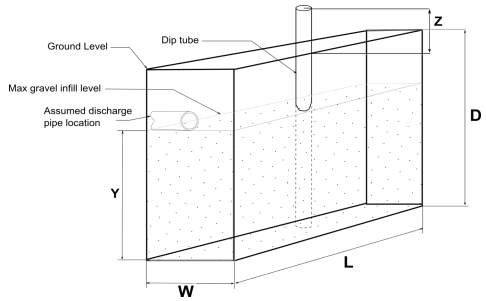
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
11:08	0.0	0.61	1.09
11:08	0.5	0.81	0.89
11:09	1.0	1.00	0.70
11:09	1.5	1.12	0.58
11:10	2.0	1.22	0.48
11:10	2.5	1.29	0.41
11:11	3.0	1.36	0.34
11:11	3.5	1.4	0.30
11:12	4.0	1.43	0.27
11:12	4.5	1.46	0.24
11:13	5.0	1.5	0.20



Test effective depth	1.09	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.82	m	0.88
50% effective depth:	0.55	m	1.16
25% effective depth:	0.27	m	1.43
t75	0.65	min	
t50		min	
t25	4.0	min	
Vp75-25	0.46	m3	
Vp75 - Vp25 (corrected)	0.14	m3	
ap50	3.25	m2	
tp75-25	3.35	min	
Soil infiltration rate (f):	**2.13E-04**	m/s	
	0.21	mm/sec	
	18.39	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.30	TOPSPOIL: Gravelly SILT.
0.30	0.50	MADE GROUND/SUBSOIL: Very gravelly SILT with high cobble content and boulders.
0.50	1.80	Slightly clayey very sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 1.10 m bgl - Slightly silty very sandy GRAVEL. At 1.7 m bgl - Clayey sandy GRAVEL.

Comments

Pit reference: IT1_2
Project: Hamble Quarry_331201108
Date of percolation tests 19/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.7	*(L)*	Design effective depth (Y)	1.15	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	0.98	*m3*

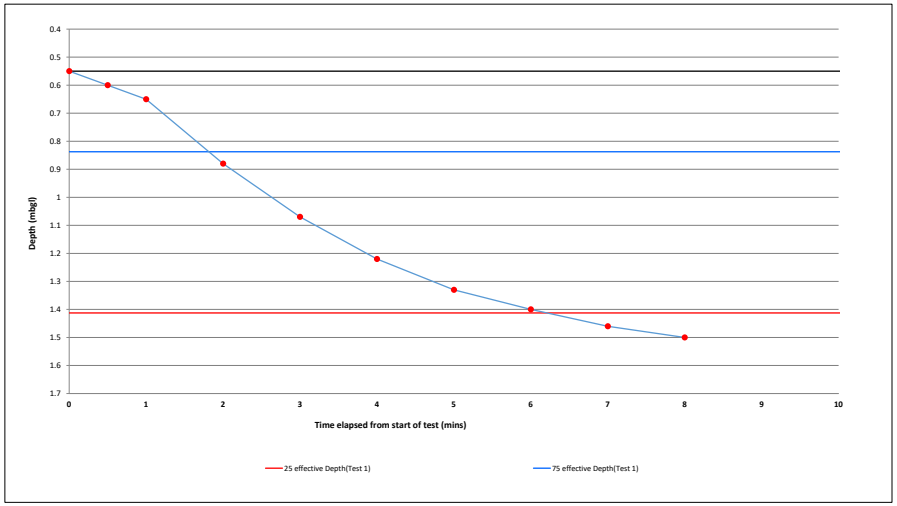
Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 16/09/2022
Sheet number: 2
Ver. 1 - Page1

TEST 2

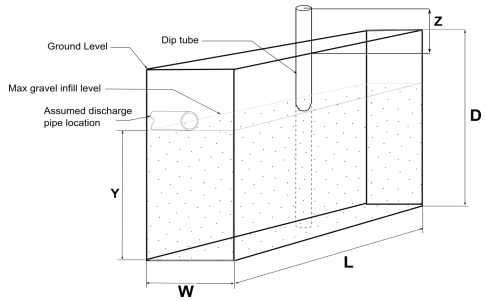
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
11:15	0.0	0.55	1.15
11:15	0.5	0.6	1.10
11:16	1.0	0.65	1.05
11:17	2.0	0.88	0.82
11:18	3.0	1.07	0.63
11:19	4.0	1.22	0.48
11:20	5.0	1.33	0.37
11:21	6.0	1.4	0.30
11:22	7.0	1.46	0.24
11:23	8.0	1.5	0.20



Test effective depth	1.15	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.86	m	0.84
50% effective depth:	0.58	m	1.13
25% effective depth:	0.29	m	1.41
t75	1.75	min	
t50		min	
t25	6.2	min	
Vp75-25	0.49	m3	
Vp75 - Vp25 (corrected)	0.15	m3	
ap50	3.38	m2	
tp75-25	4.45	min	
Soil infiltration rate (f):	**1.62E-04**	m/s	
	0.16	mm/sec	
	14.04	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

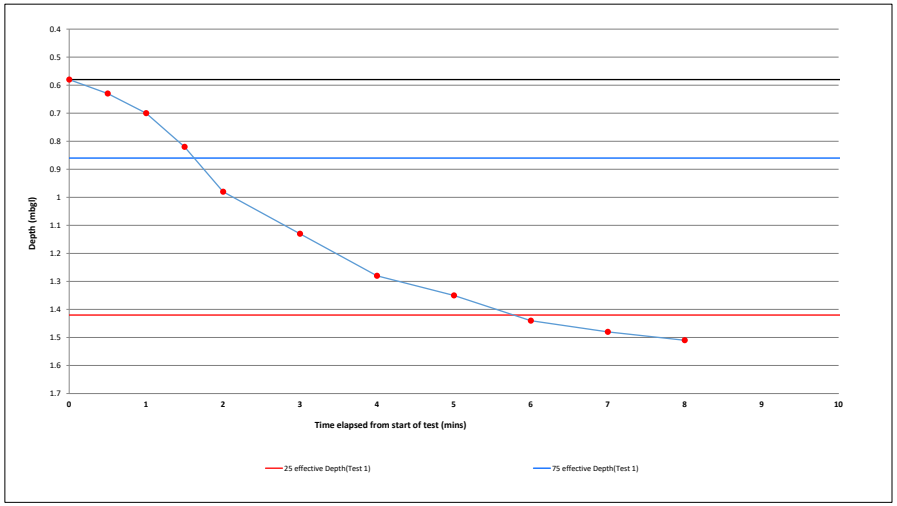
From	To	
0.00	0.30	TOPSPOIL: Gravelly SILT.
0.30	0.50	MADE GROUND/SUBSOIL: Very gravelly SILT with high cobble content and boulders.
0.50	1.80	Slightly clayey very sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 1.10 m bgl - Slightly silty very sandy GRAVEL. At 1.7 m bgl - Clayey sandy GRAVEL.

Comments

Pit reference:	IT1_2	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.7	*(L)*	Design effective depth (Y)	1.12	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	16/09/2022
Date of percolation tests	19/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*			3
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	0.95	*m3*			Ver. 1 - Page1

TEST 3

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:10	0.0	0.58	1.12
12:10	0.5	0.63	1.07
12:11	1.0	0.70	1.00
12:11	1.5	0.82	0.88
12:12	2.0	0.98	0.72
12:13	3.0	1.13	0.57
12:14	4.0	1.28	0.42
12:15	5.0	1.35	0.35
12:16	6.0	1.44	0.26
12:17	7.0	1.48	0.22
12:18	8.0	1.51	0.19



Test effective depth	1.12	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.84	m	0.86
50% effective depth:	0.56	m	1.14
25% effective depth:	0.28	m	1.42
t75	1.55	min	
t50		min	
t25	5.85	min	
Vp75-25	0.48	m3	
Vp75 - Vp25 (corrected)	0.14	m3	
ap50	3.31	m2	
tp75-25	4.30	min	
Soil infiltration rate (f):	**1.67E-04**	m/s	
	0.17	mm/sec	
	14.43	m/day	

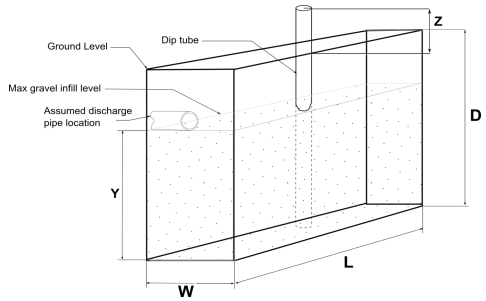
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

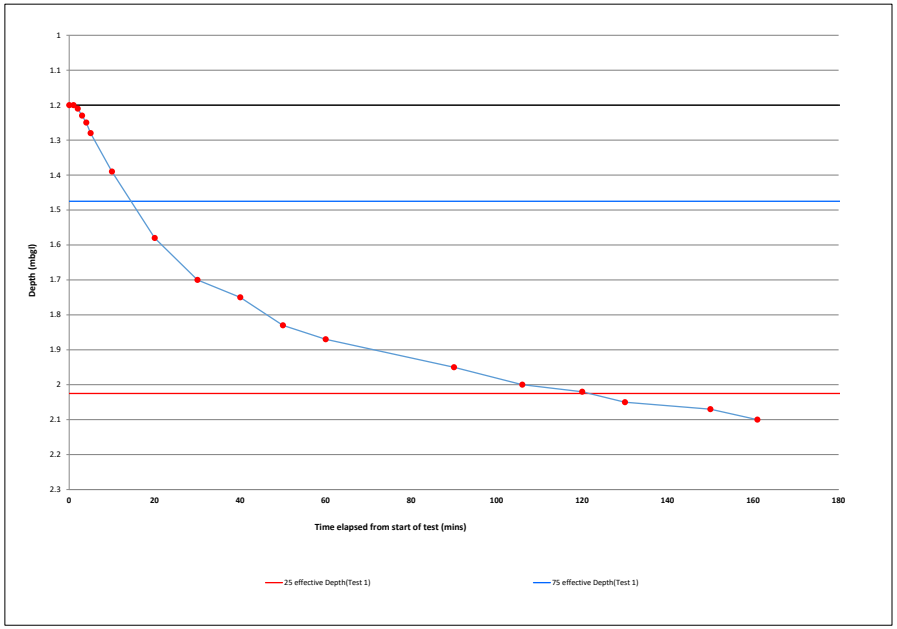
From	To	
0.00	0.30	TOPSPOIL: Gravelly SILT.
0.30	0.50	MADE GROUND/SUBSOIL: Very gravelly SILT with high cobble content and boulders.
0.50	1.80	Slightly clayey very sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 1.10 m bgl - Slightly silty very sandy GRAVEL. At 1.7 m bgl - Clayey sandy GRAVEL.

Comments

Pit reference:	IT2_1	**Parameters:**								1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.6	*(L)*	Design effective depth (Y)	1.10	*m*	**Completed by:**	MDM	2) Formation overnight soaking is interpreted only	16/09/2022
Date of percolation tests	24/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	2.3	*(D)*	Depth to Groundwater:		*mbgl*				1
Datum (mbgl):		*(Z, from Google Earth)*			Design effective depth volume:	0.88	*m3*				Ver. 1 - Page1

TEST 1

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
09:19	0.0	1.2	1.10
09:20	1.0	1.2	1.10
09:21	2.0	1.21	1.09
09:22	3.0	1.23	1.07
09:23	4.0	1.25	1.05
09:24	5.0	1.28	1.02
09:29	10.0	1.39	0.91
09:39	20.0	1.58	0.72
09:49	30.0	1.7	0.60
09:59	40.0	1.75	0.55
10:09	50.0	1.83	0.47
10:19	60.0	1.87	0.43
10:49	90.0	1.95	0.35
11:05	106.0	2	0.30
11:19	120.0	2.02	0.28
11:29	130.0	2.05	0.25
11:49	150.0	2.07	0.23
12:00	161.0	2.1	0.20



Test effective depth	1.10	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.83	m	1.48
50% effective depth:	0.55	m	1.75
25% effective depth:	0.28	m	2.03
t75	14.50	min	
t50		min	
t25	121.5	min	
Vp75-25	0.44	m3	
Vp75 - Vp25 (corrected)	0.13	m3	
ap50	3.11	m2	
tp75-25	107.00	min	
Soil infiltration rate (f):	**6.61E-06**	m/s	
	0.01	mm/sec	
	0.57	m/day	

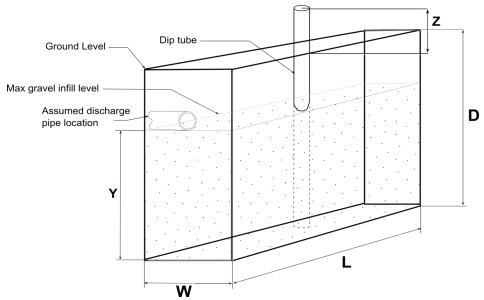
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.40	TOPSOIL: very gravelly SILT.
0.40	0.60	Slightly sandy silty GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS)
0.60	1.20	Very gravelly slightly silty GRAVEL with pockets of fine sand. (RIVER TERRACE DEPOSITS)
1.20	2.30	Slighty gravelly silty fine SAND. (MARSH FARM FORMATION)

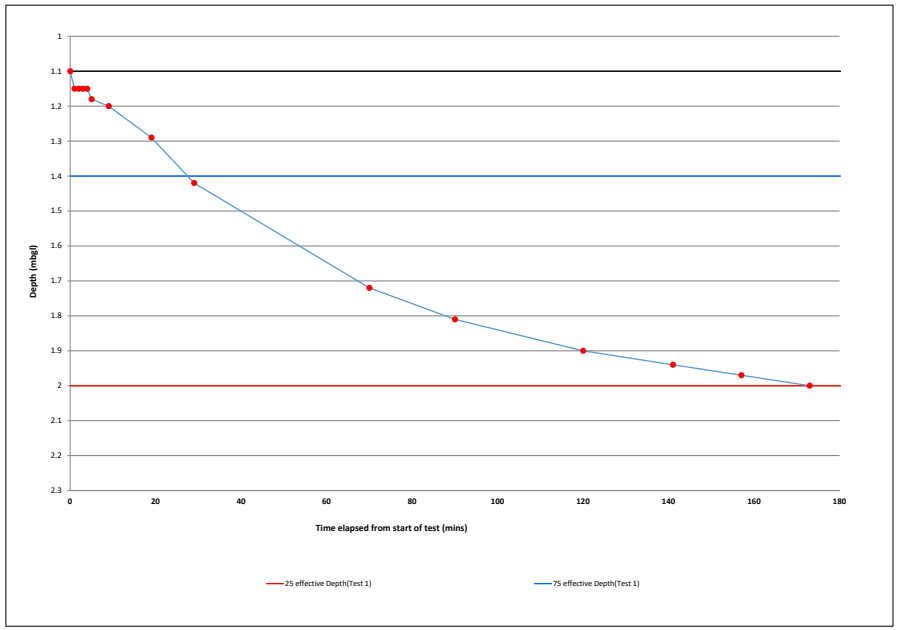
Comments

Infiltration test run through the natural sands (MARSH FARM FORMATION)

Pit reference:	IT2_1	**Parameters:**							1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.6	*(L)*	Design effective depth (Y)	1.20	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	16/09/2022
Date of percolation tests	24/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	2.3	*(D)*	Depth to Groundwater:		*mbgl*			2
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	0.96	*m3*			Ver. 1 - Page1

TEST 2

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:03	0.0	1.1	1.20
12:04	1.0	1.15	1.15
12:05	2.0	1.15	1.15
12:06	3.0	1.15	1.15
12:07	4.0	1.15	1.15
12:08	5.0	1.18	1.12
12:12	9.0	1.20	1.10
12:22	19.0	1.29	1.01
12:32	29.0	1.42	0.88
13:13	70.0	1.72	0.58
13:33	90.0	1.81	0.49
14:03	120.0	1.9	0.40
14:24	141.0	1.94	0.36
14:40	157.0	1.97	0.33
14:56	173.0	2	0.30



Test effective depth	1.20	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.90	m	1.40
50% effective depth:	0.60	m	1.70
25% effective depth:	0.30	m	2.00
t75	27.50	min	
t50		min	
t25	173.0	min	
Vp75-25	0.48	m3	
Vp75 - Vp25 (corrected)	0.14	m3	
ap50	3.32	m2	
tp75-25	145.50	min	
Soil infiltration rate (f):	**4.97E-06**	m/s	
	0.00	mm/sec	
	0.43	m/day	

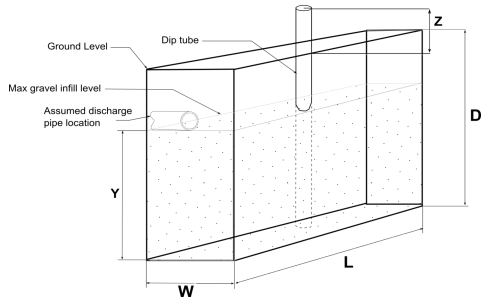
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.40	TOPSOIL: very gravelly SILT.
0.40	0.60	SUBSOIL: Slightly sandy silty GRAVEL with medium cobble content.
0.60	1.20	Very gravelly slightly silty GRAVEL with pockets of fine sand. (RIVER TERRACE DEPOSITS)
1.20	2.30	Slighty gravelly silty fine SAND. (MARSH FARM FORMATION)

Comments

Infiltration test run through the natural sands (MARSH FARM FORMATION)

Pit reference: IT2_1
Project: Hamble Quarry_331201108
Date of percolation tests 25/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.6	*(L)*	Design effective depth (Y)	1.20	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2.3	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	0.96	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date:
16/09/2022
Sheet number:
3
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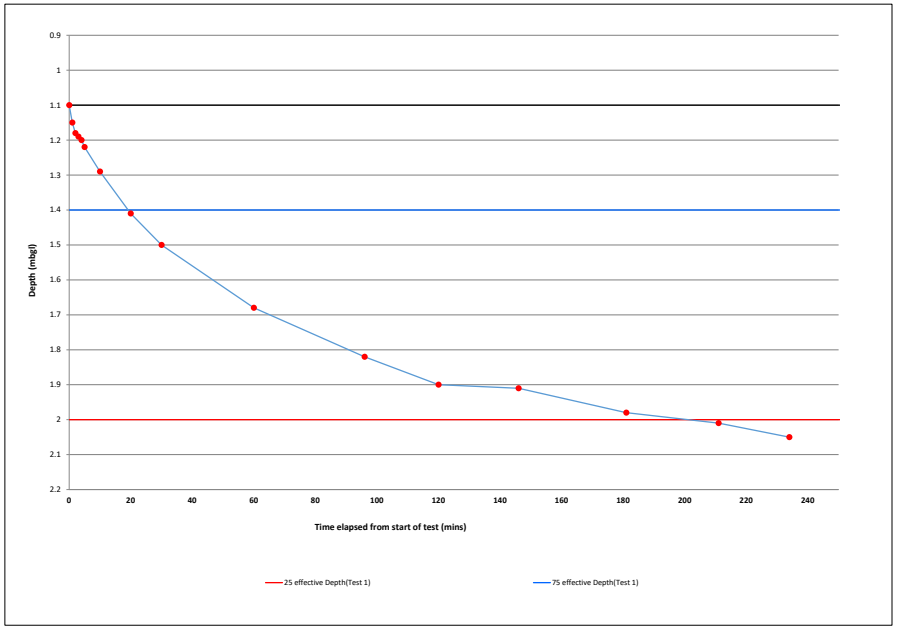
TEST 3

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
08:54	0.0	1.1	1.20
08:55	1.0	1.15	1.15
08:56	2.0	1.18	1.12
08:57	3.0	1.19	1.11
08:58	4.0	1.2	1.10
08:59	5.0	1.22	1.08
09:04	10.0	1.29	1.01
09:14	20.0	1.41	0.89
09:24	30.0	1.5	0.80
09:54	60.0	1.68	0.62
10:30	96.0	1.82	0.48
10:54	120.0	1.9	0.40
11:20	146.0	1.91	0.39
11:55	181.0	1.98	0.32
12:25	211.0	2.01	0.29
12:48	234.0	2.05	0.25

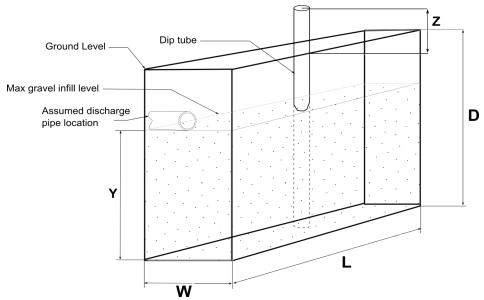


			Water Dip (mbGL)
Test effective depth	1.20	m (Water depth	
75% effective depth:	0.90	m	1.40
50% effective depth:	0.60	m	1.70
25% effective depth:	0.30	m	2.00
t75	19.00	min	
t50		min	
t25	201.0	min	

Vp75-25	0.48	m3
Vp75 - Vp25 (corrected)	0.14	m3
ap50	3.32	m2
tp75-25	182.00	min
Soil infiltration rate (f):	**3.97E-06**	m/s
	0.00	mm/sec
	0.34	m/day

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.40	TOPSOIL: very gravelly SILT.
0.40	0.60	SUBSOIL: Slightly sandy silty GRAVEL with medium cobble content.
0.60	1.20	Very gravelly slightly silty GRAVEL with pockets of fine sand. (RIVER TERRACE DEPOSITS)
1.20	2.30	Slighty gravelly silty fine SAND. (MARSH FARM FORMATION)

Comments
Infiltration test run through the natural sands (MARSH FARM FORMATION)

Pit reference: IT2_2
Project: Hamble Quarry_331201108
Date of percolation tests 24/08/2022 and 25/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.4	*(L)*	Design effective depth (Y)	1.12	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	1.8	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	0.78	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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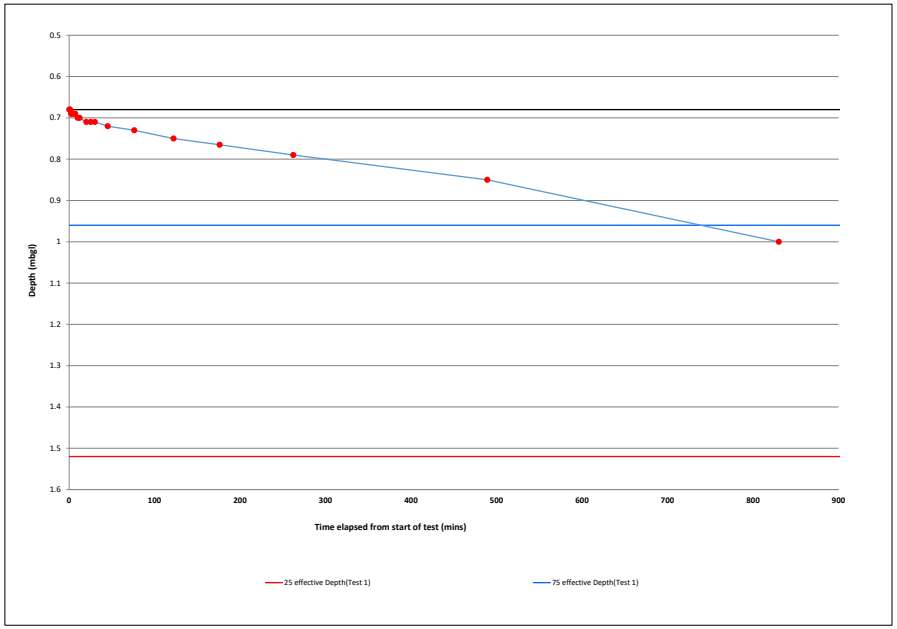
TEST 1

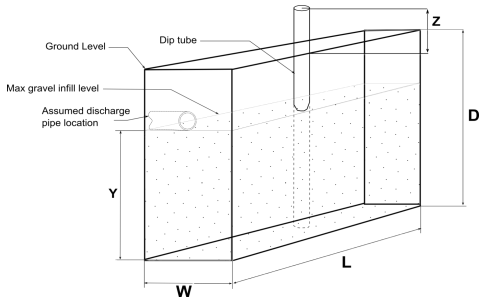
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
10:38	0.0	0.68	1.12
10:39	1.0	0.68	1.12
10:40	2.0	0.69	1.11
10:41	3.0	0.69	1.11
10:42	4.0	0.69	1.11
10:43	5.0	0.69	1.11
10:45	7.0	0.69	1.11
10:48	10.0	0.7	1.10
10:50	12.0	0.7	1.10
10:58	20.0	0.71	1.09
11:03	25.0	0.71	1.09
11:08	30.0	0.71	1.09
11:23	45.0	0.72	1.08
11:54	76.0	0.73	1.07
12:40	122.0	0.75	1.05
13:34	176.0	0.765	1.04
15:00	262.0	0.79	1.01
18:47	489.0	0.85	0.95
08:37	830.0	1	0.80



Test effective depth	1.12	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.84	m	0.96
50% effective depth:	0.56	m	1.24
25% effective depth:	0.28	m	1.52
t75	741.00	min	
t50		min	
t25		min	Insufficient infiltration
Vp75-25	0.39	m3	
Vp75 - Vp25 (corrected)	0.12	m3	
ap50	2.83	m2	
tp75-25		min	
Soil infiltration rate (f):	#DIV/0!	m/s	TEST FAILED
	#DIV/0!	mm/sec	
	#DIV/0!	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

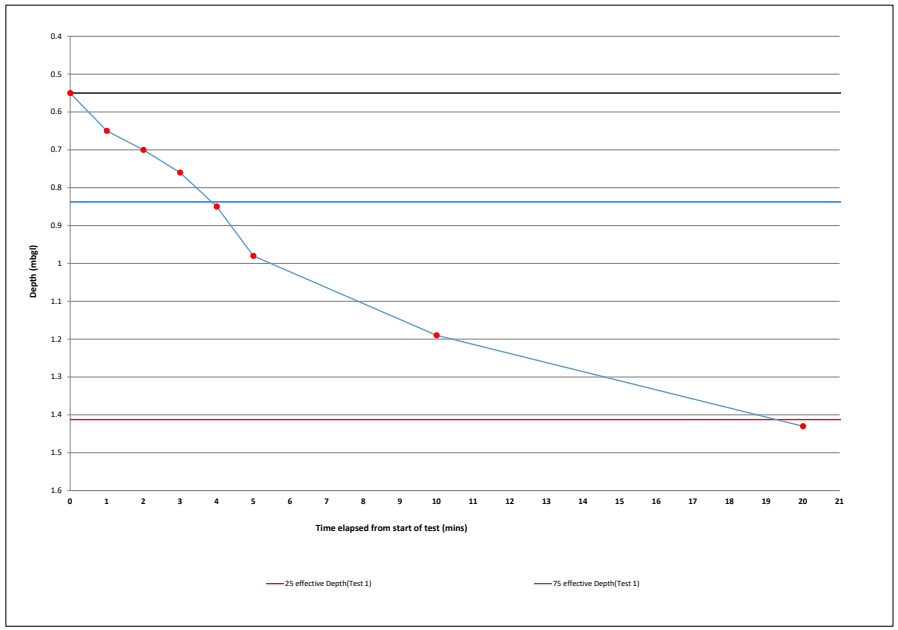
From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	0.70	Very gravelly SILT (RIVER TERRACE DEPOSITS).
0.70	1.30	Very clayey slightly sandy GRAVEL. (RIVER TERRACE DEPOSITS) At 0.90 m bgl - Very clayey very gravelly SAND.
1.30	1.80	Very gravelly sandy CLAY (RIVER TERRACE DEPOSITS)

Comments
Insufficient infiltration to reach a 75% effective depth. Only one test performed. Heavy rain during test

Pit reference:	IT3_1	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.6	*(L)*	Design effective depth (Y)	1.15	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	20/09/2022
Date of percolation tests	23/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*			1
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	0.92	*m3*			Ver. 1 - Page1

TEST 1

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
11:01	0.0	0.55	1.15
11:02	1.0	0.65	1.05
11:03	2.0	0.70	1.00
11:04	3.0	0.76	0.94
11:05	4.0	0.85	0.85
11:06	5.0	0.98	0.72
11:11	10.0	1.19	0.51
11:21	20.0	1.43	0.27



Test effective depth	1.15	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.86	m	0.84
50% effective depth:	0.58	m	1.13
25% effective depth:	0.29	m	1.41
t75	3.90	min	
t50		min	
t25	19.4	min	
Vp75-25	0.46	m3	
Vp75 - Vp25 (corrected)	0.14	m3	
ap50	3.22	m2	
tp75-25	15.50	min	
Soil infiltration rate (f):	**4.62E-05**	m/s	
	0.05	mm/sec	
	3.99	m/day	

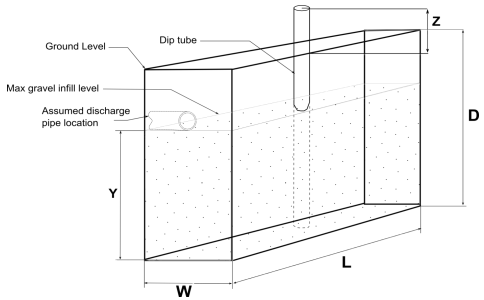
Soil infiltration rate, $f = \frac{V_{p(75-25)}}{a_{p(50)} \times t_{p(75-25)}}$

where:

$V_{p(75-25)}$ = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

$a_{p(50)}$ = the internal surface area of the trial pit up to 50% effective depth and including the base area;

$t_{p(75-25)}$ = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.50	TOPSOIL: Very gravelly SILT.
0.50	1.70	Very gravelly silty fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS) At 0.90 m bgl - No silts. Sand is medium to coarse.

Comments

Pit reference: IT3_1
Project: Hamble Quarry_331201108
Date of percolation tests 23/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.6	*(L)*	Design effective depth (Y)	1.20	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	0.96	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date:
20/09/2022
Sheet number:
2
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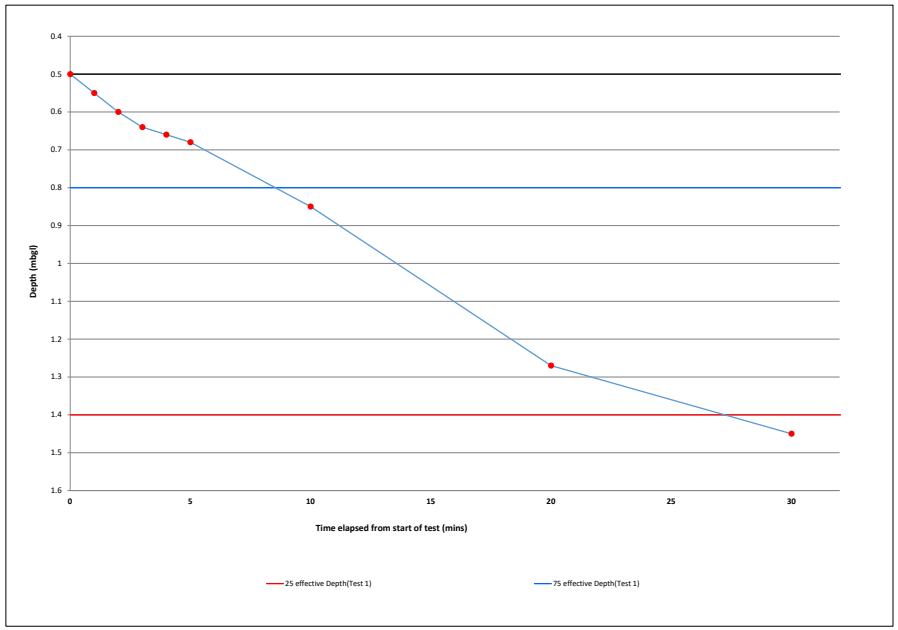
TEST 2

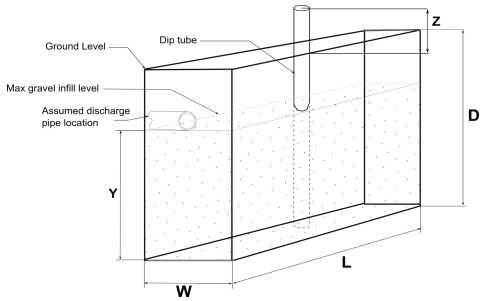
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
11:23	0.0	0.5	1.20
11:24	1.0	0.55	1.15
11:25	2.0	0.60	1.10
11:26	3.0	0.64	1.06
11:27	4.0	0.66	1.04
11:28	5.0	0.68	1.02
11:33	10.0	0.85	0.85
11:43	20.0	1.27	0.43
11:53	30.0	1.45	0.25



			Water Dip (mbGL)
Test effective depth	1.20	m (Water depth	
75% effective depth:	0.90	m	0.80
50% effective depth:	0.60	m	1.10
25% effective depth:	0.30	m	1.40
t75	8.50	min	
t50		min	
t25	27.3	min	
Vp75-25	0.48	m3	
Vp75 - Vp25 (corrected)	0.14	m3	
ap50	3.32	m2	
tp75-25	18.80	min	
Soil infiltration rate (f):	**3.85E-05**	m/s	
	0.04	mm/sec	
	3.32	m/day	

Soil infiltration rate, $f = \frac{V_{p(75-25)}}{a_{p(50)} \times t_{p(75-25)}}$

where:
$V_{p(75-25)}$ = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
$a_{p(50)}$ = the internal surface area of the trial pit up to 50% effective depth and including the base area;
$t_{p(75-25)}$ = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

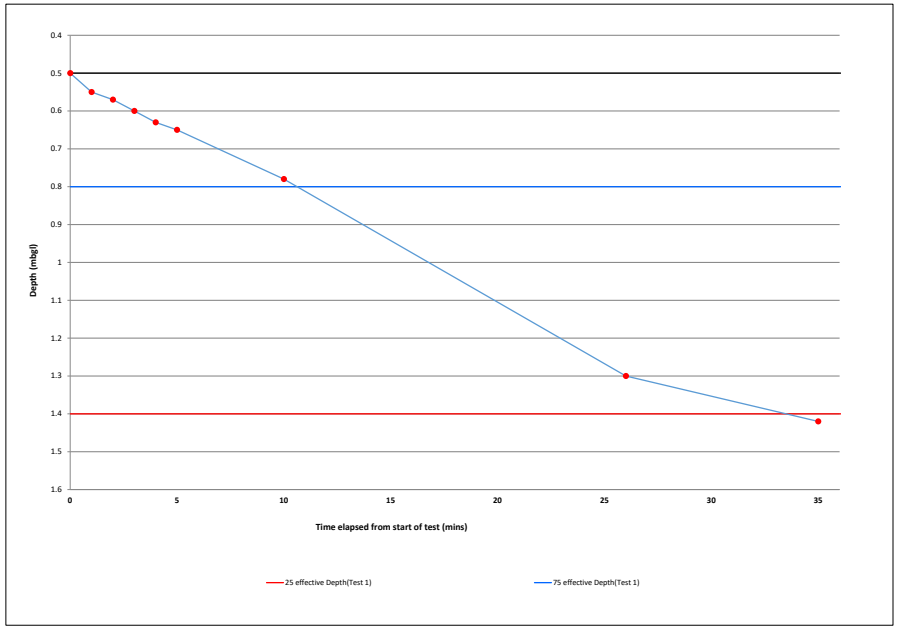
From	To	
0.00	0.50	TOPSOIL: Very gravelly SILT.
0.50	1.70	Very gravelly silty fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS) At 0.90 m bgl - No silts. Sand is medium to coarse.

Comments

Pit reference:	IT3_1	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.6	*(L)*	Design effective depth (Y)	1.20	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	22/09/2022
Date of percolation tests	23/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	1.7	*(D)*	Depth to Groundwater:		*mbgl*			3
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	0.96	*m3*			Ver. 1 - Page1

TEST 3

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:36	0.0	0.5	1.20
12:37	1.0	0.55	1.15
12:38	2.0	0.57	1.13
12:39	3.0	0.60	1.10
12:40	4.0	0.63	1.07
12:41	5.0	0.65	1.05
12:46	10.0	0.78	0.92
13:02	26.0	1.30	0.40
13:11	35.0	1.42	0.28



Test effective depth	1.20	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.90	m	0.80
50% effective depth:	0.60	m	1.10
25% effective depth:	0.30	m	1.40
t75	10.80	min	
t50		min	
t25	33.5	min	
Vp75-25	0.48	m3	
Vp75 - Vp25 (corrected)	0.14	m3	
ap50	3.32	m2	
tp75-25	22.70	min	
Soil infiltration rate (f):	**3.18E-05**	m/s	
	0.03	mm/sec	
	2.75	m/day	

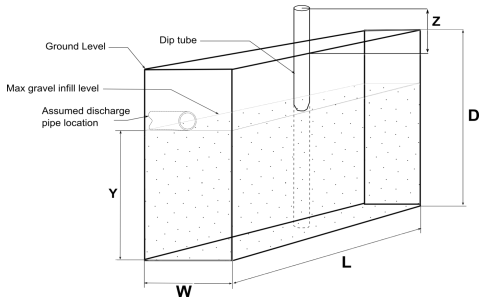
Soil infiltration rate, $f = \frac{V_{p(75-25)}}{a_{p(50)} \times t_{p(75-25)}}$

where:

$V_{p(75-25)}$ = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

$a_{p(50)}$ = the internal surface area of the trial pit up to 50% effective depth and including the base area;

$t_{p(75-25)}$ = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.50	TOPSOIL: Very gravelly SILT.
0.50	1.70	Very gravelly silty fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS) At 0.90 m bgl - No silts. Sand is medium to coarse.

Comments

Pit reference: IT3_2
Project: Hamble Quarry_331201108
Date of percolation tests 23/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.30	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.17	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date:
20/09/2022
Sheet number:
1
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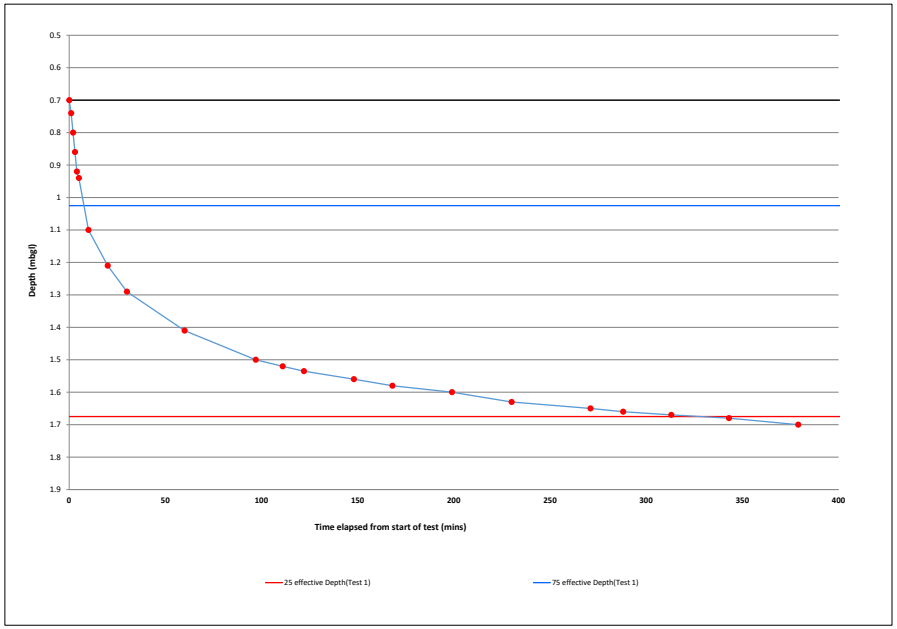
TEST 1

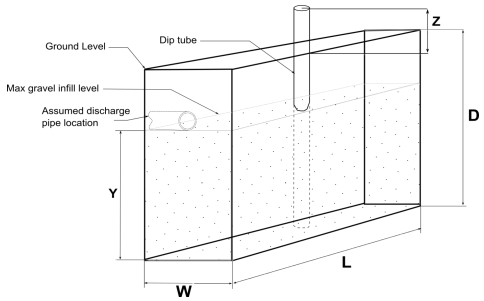
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
09:26	0.0	0.7	1.30
09:27	1.0	0.74	1.26
09:28	2.0	0.80	1.20
09:29	3.0	0.86	1.14
09:30	4.0	0.92	1.08
09:31	5.0	0.94	1.06
09:36	10.0	1.10	0.90
09:46	20.0	1.21	0.79
09:56	30.0	1.29	0.71
10:26	60.0	1.41	0.59
11:03	97.0	1.50	0.50
11:17	111.0	1.52	0.48
11:28	122.0	1.535	0.47
11:54	148.0	1.56	0.44
12:14	168.0	1.58	0.42
12:45	199.0	1.6	0.40
13:16	230.0	1.63	0.37
13:57	271.0	1.65	0.35
14:14	288.0	1.66	0.34
14:39	313.0	1.67	0.33
15:09	343.0	1.68	0.32
15:45	379.0	1.70	0.30



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	1.03
50% effective depth:	0.65	m	1.35
25% effective depth:	0.33	m	1.68
t75	7.70	min	
t50		min	
t25	343.0	min	
Vp75-25	0.59	m3	
Vp75 - Vp25 (corrected)	0.18	m3	
ap50	3.89	m2	
tp75-25	335.30	min	
Soil infiltration rate (f):	**2.24E-06**	m/s	
	0.00	mm/sec	
	0.19	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



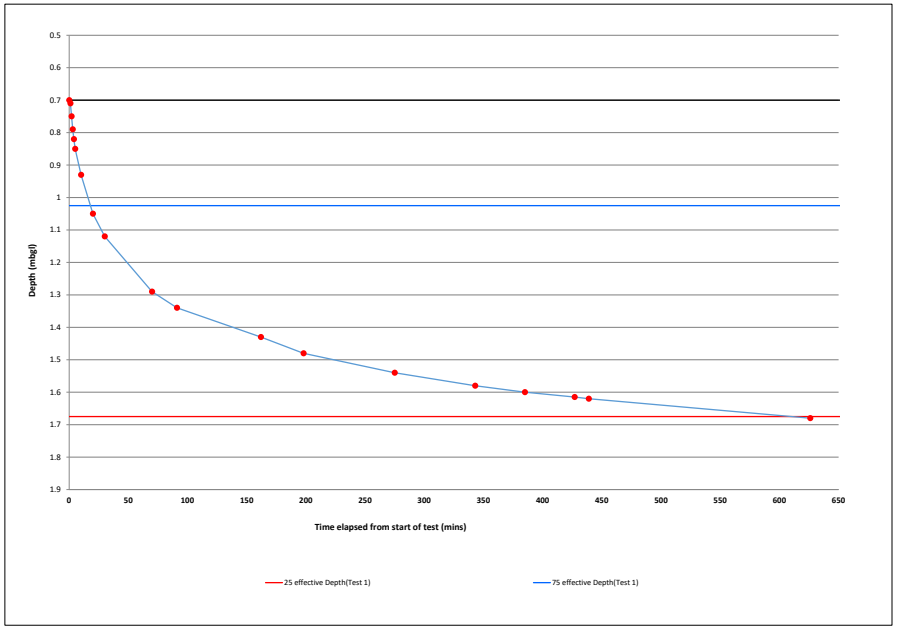
Soil Log:

From	To	
0.00	0.20	TOPSOIL: Very gravelly SILT.
0.20	0.60	Very gravelly sandy SILT (RIVER TERRACE DEPOSITS).
0.60	2.00	Slightly clayey very sandy GRAVEL with high cobble content (RIVER TERRACE DEPOSITS). At 1.3 m bgl - silty very sandy GRAVEL.

Comments

Pit reference:	IT3_2	**Parameters:**							1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.30	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	20/09/2022
Date of percolation tests	24/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	2	*(D)*	Depth to Groundwater:		*mbgl*			2
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	1.17	*m3*			Ver. 1 - Page1

TEST 2			
Time	**Elapsed (min)**	**Water dip (mbGL)**	**Depth of water in pit (m)***
08:11	0.0	0.7	1.30
08:12	1.0	0.71	1.29
08:13	2.0	0.75	1.25
08:14	3.0	0.79	1.21
08:15	4.0	0.82	1.18
08:16	5.0	0.85	1.15
08:21	10.0	0.93	1.07
08:31	20.0	1.05	0.95
08:41	30.0	1.12	0.88
09:21	70.0	1.29	0.71
09:42	91.0	1.34	0.66
10:53	162.0	1.43	0.57
11:29	198.0	1.48	0.52
12:46	275.0	1.54	0.46
13:54	343.0	1.58	0.42
14:36	385.0	1.6	0.40
15:18	427.0	1.615	0.39
15:30	439.0	1.62	0.38
18:37	626.0	1.68	0.32



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	1.03
50% effective depth:	0.65	m	1.35
25% effective depth:	0.33	m	1.68
t75	18.00	min	
t50		min	
t25	626.0	min	
Vp75-25	0.59	m3	
Vp75 - Vp25 (corrected)	0.18	m3	
ap50	3.89	m2	
tp75-25	608.00	min	
Soil infiltration rate (f):	**1.24E-06**	m/s	
	0.00	mm/sec	
	0.11	m/day	

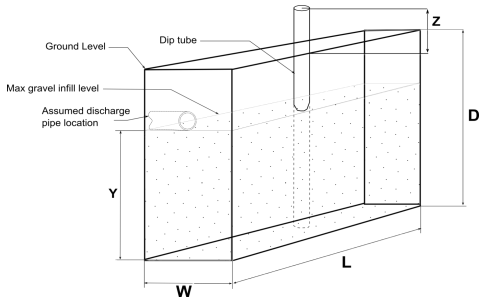
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Very gravelly SILT.
0.20	0.60	Very gravelly sandy SILT (RIVER TERRACE DEPOSITS).
0.60	2.00	Slightly clayey very sandy GRAVEL with high cobble content (RIVER TERRACE DEPOSITS). At 1.3 m bgl - silty very sandy GRAVEL.

Comments

Pit reference: IT3_2
Project: Hamble Quarry_331201108
Date of percolation tests 25/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.13	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	1.83	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.02	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 3
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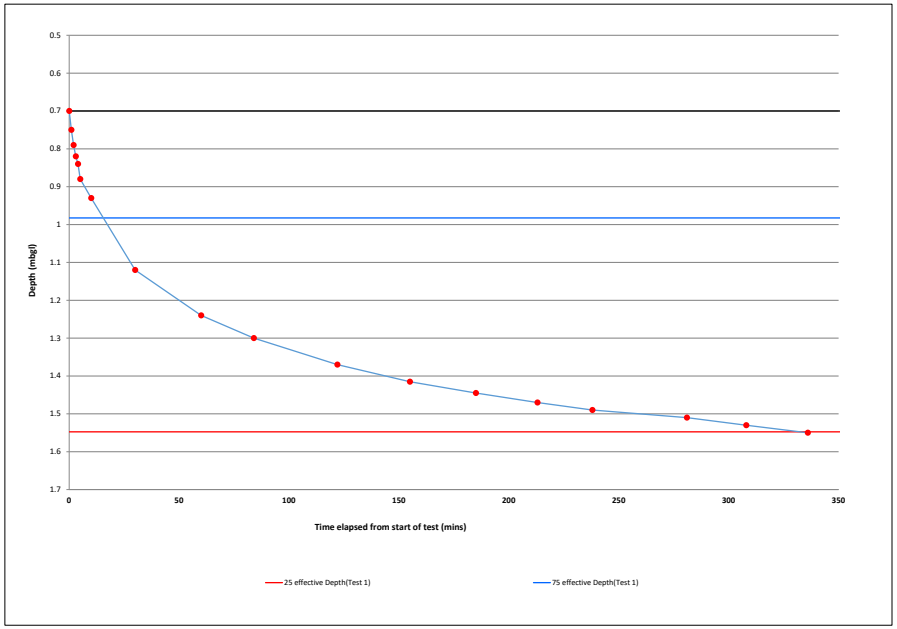
TEST 3

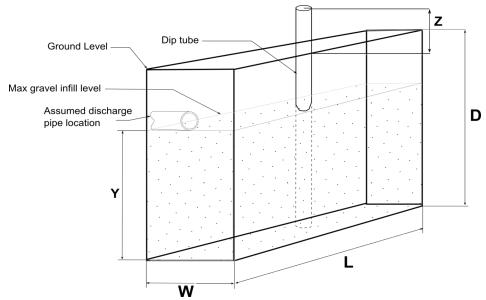
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
08:35	0.0	0.7	1.13
08:36	1.0	0.75	1.08
08:37	2.0	0.79	1.04
08:38	3.0	0.82	1.01
08:39	4.0	0.84	0.99
08:40	5.0	0.88	0.95
08:45	10.0	0.93	0.90
09:05	30.0	1.12	0.71
09:35	60.0	1.24	0.59
09:59	84.0	1.30	0.53
10:37	122.0	1.37	0.46
11:10	155.0	1.415	0.42
11:40	185.0	1.445	0.39
12:08	213.0	1.47	0.36
12:33	238.0	1.49	0.34
13:16	281.0	1.51	0.32
13:43	308.0	1.53	0.30
14:11	336.0	1.55	0.28



Test effective depth	1.13	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.85	m	0.98
50% effective depth:	0.57	m	1.27
25% effective depth:	0.28	m	1.55
t75	15.50	min	
t50		min	
t25	336.0	min	
Vp75-25	0.51	m3	
Vp75 - Vp25 (corrected)	0.15	m3	
ap50	3.50	m2	
tp75-25	320.50	min	
Soil infiltration rate (f):	**2.27E-06**	m/s	
	0.00	mm/sec	
	0.20	m/day	

Soil infiltration rate, $f = \frac{V_{p(75-25)}}{a_{p(50)} \times t_{p(75-25)}}$

where:
$V_{p(75-25)}$ = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
$a_{p(50)}$ = the internal surface area of the trial pit up to 50% effective depth and including the base area;
$t_{p(75-25)}$ = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Very gravelly SILT.
0.20	0.60	Very gravelly sandy SILT (RIVER TERRACE DEPOSITS).
0.60	2.00	Slightly clayey very sandy GRAVEL with high cobble content (RIVER TERRACE DEPOSITS). At 1.3 m bgl - silty very sandy GRAVEL.

Comments
The water level in the morning was measured at 1.83 m bgl, so the new depth of the pit is taken as 1.83 m bgl.

Pit reference: IT4_1
Project: Hamble Quarry_331201108
Date of percolation tests 22/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.9	*(L)*	Design effective depth (Y)	1.10	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2.9	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.05	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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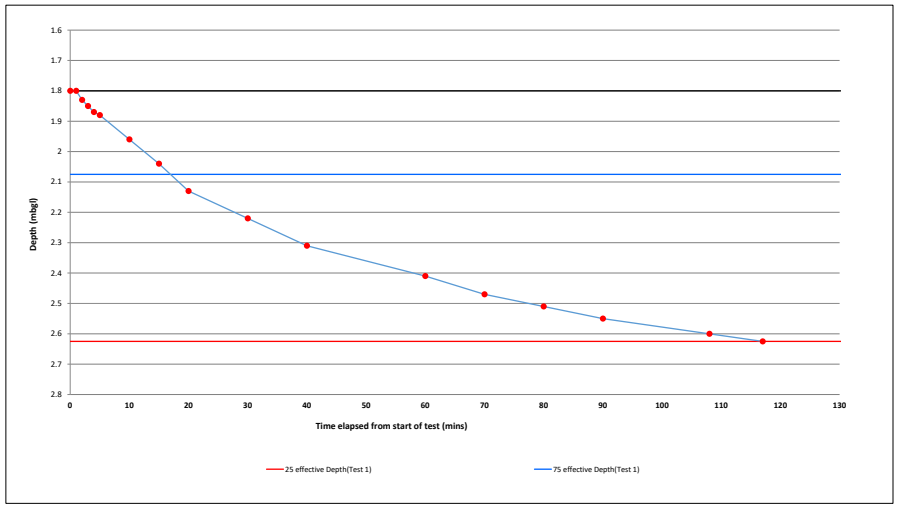
TEST 1

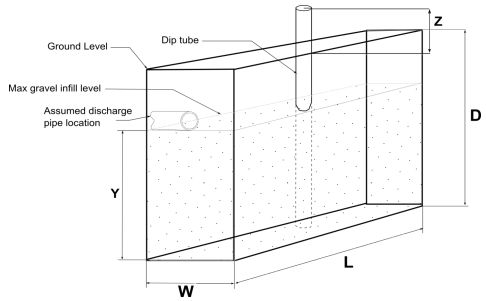
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
13:28	0.0	1.8	1.10
13:29	1.0	1.8	1.10
13:30	2.0	1.83	1.07
13:31	3.0	1.85	1.05
13:32	4.0	1.87	1.03
13:33	5.0	1.88	1.02
13:38	10.0	1.96	0.94
13:43	15.0	2.04	0.86
13:48	20.0	2.13	0.77
13:58	30.0	2.22	0.68
14:08	40.0	2.31	0.59
14:28	60.0	2.41	0.49
14:38	70.0	2.47	0.43
14:48	80.0	2.51	0.39
14:58	90.0	2.55	0.35
15:16	108.0	2.60	0.30
15:25	117.0	2.63	0.28



Test effective depth	1.10	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.83	m	2.08
50% effective depth:	0.55	m	2.35
25% effective depth:	0.28	m	2.625
t75	17.00	min	
t50		min	
t25	117.0	min	
Vp75-25	0.52	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.59	m2	
tp75-25	100.00	min	
Soil infiltration rate (f):	**7.28E-06**	m/s	
	0.01	mm/sec	
	0.63	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	1.00	Very gravelly SILT with low cobble content RIVER TERRACE DEPOSITS).
1.00	1.80	Gravelly sandy silty CLAY (RIVER TERRACE DEPOSITS).
1.80	1.90	Very sandy very gravelly CLAY (RIVER TERRACE DEPOSITS)
1.90	2.90	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS) At 2.1 m bgl - Silty very sandy GRAVEL.

Comments

Pit reference: IT4_1
Project: Hamble Quarry_331201108
Date of percolation tests 23/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.9	*(L)*	Design effective depth (Y)	1.10	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2.9	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.05	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
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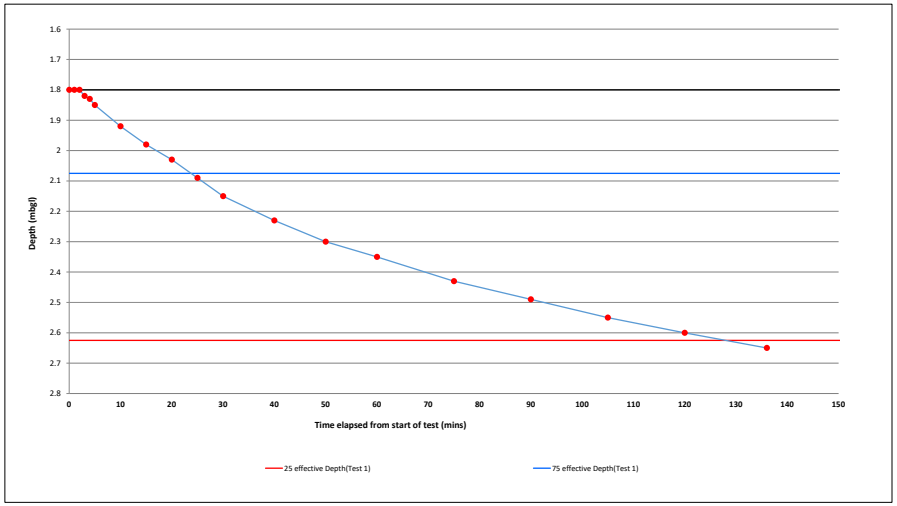
TEST 2

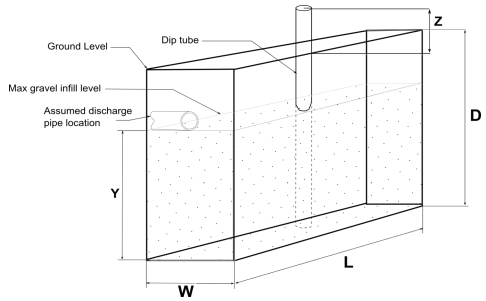
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
08:18	0.0	1.8	1.10
08:19	1.0	1.8	1.10
08:20	2.0	1.80	1.10
08:21	3.0	1.82	1.08
08:22	4.0	1.83	1.07
08:23	5.0	1.85	1.05
08:28	10.0	1.92	0.98
08:33	15.0	1.98	0.92
08:38	20.0	2.03	0.87
08:43	25.0	2.09	0.81
08:48	30.0	2.15	0.75
08:58	40.0	2.23	0.67
09:08	50.0	2.3	0.60
09:18	60.0	2.35	0.55
09:33	75.0	2.43	0.47
09:48	90.0	2.49	0.41
10:03	105.0	2.55	0.35
10:18	120.0	2.60	0.30
10:34	136.0	2.65	0.25



Test effective depth	1.10	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.83	m	2.08
50% effective depth:	0.55	m	2.35
25% effective depth:	0.28	m	2.63
t75	23.80	min	
t50		min	
t25	127.5	min	
Vp75-25	0.52	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.59	m2	
tp75-25	103.70	min	
Soil infiltration rate (f):	**7.02E-06**	m/s	
	0.01	mm/sec	
	0.61	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



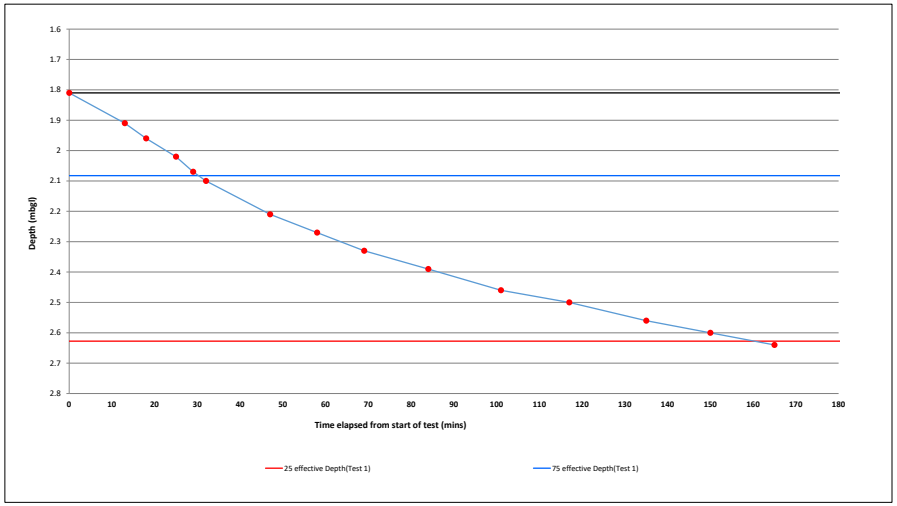
Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	1.00	Very gravelly SILT with low cobble content RIVER TERRACE DEPOSITS).
1.00	1.80	Gravelly sandy silty CLAY (RIVER TERRACE DEPOSITS).
1.80	1.90	Very sandy very gravelly CLAY (RIVER TERRACE DEPOSITS)
1.90	2.90	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS) At 2.1 m bgl - Silty very sandy GRAVEL.

Comments

Pit reference:	IT4_1	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.9	*(L)*	Design effective depth (Y)	1.09	*m*	**Completed by:** MDM	20/02/2022
Date of percolation tests	23/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		2) Formation overnight soaking is interpreted only	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	2.9	*(D)*	Depth to Groundwater:		*mbgl*	**Checked by:** PWH	3
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	1.04	*m3*	in the absence of a standard test.	Ver. 1 - Page1

TEST 3			
Time	**Elapsed (min)**	**Water dip (mbGL)**	**Depth of water in pit (m)***
10:43	0.0	1.81	1.09
10:56	13.0	1.91	0.99
11:01	18.0	1.96	0.94
11:08	25.0	2.02	0.88
11:12	29.0	2.07	0.83
11:15	32.0	2.1	0.80
11:30	47.0	2.21	0.69
11:41	58.0	2.27	0.63
11:52	69.0	2.33	0.57
12:07	84.0	2.39	0.51
12:24	101.0	2.46	0.44
12:40	117.0	2.5	0.40
12:58	135.0	2.56	0.34
13:13	150.0	2.6	0.30
13:28	165.0	2.64	0.26



Test effective depth	1.09	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.82	m	2.08
50% effective depth:	0.55	m	2.36
25% effective depth:	0.27	m	2.63
t75	30.00	min	
t50		min	
t25	160.5	min	
Vp75-25	0.52	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.57	m2	
tp75-25	130.50	min	
Soil infiltration rate (f):	**5.56E-06**	m/s	
	0.01	mm/sec	
	0.48	m/day	

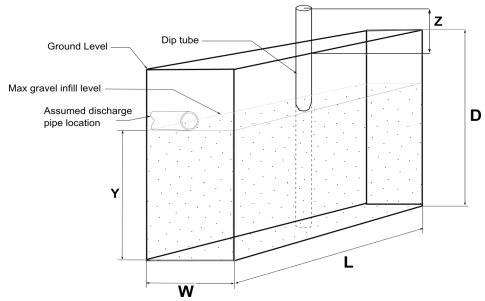
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

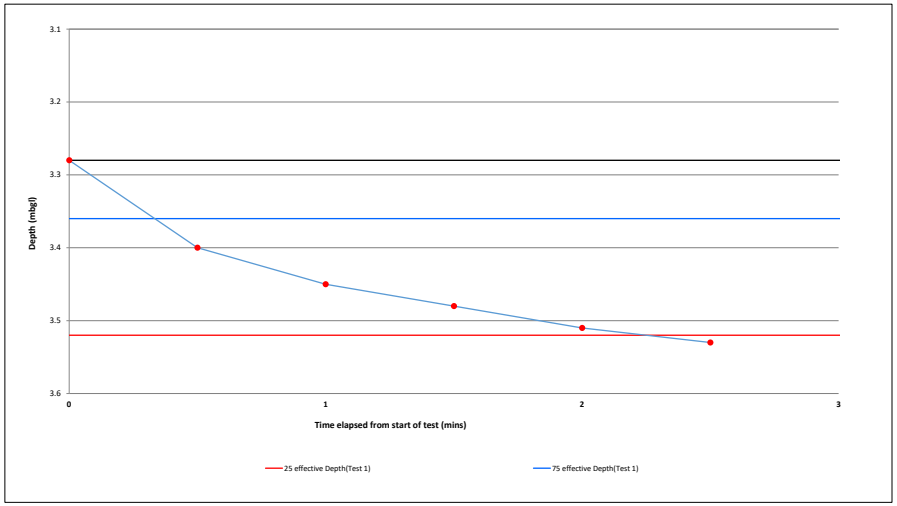
From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	1.00	Very gravelly SILT with low cobble content RIVER TERRACE DEPOSITS).
1.00	1.80	Gravelly sandy silty CLAY (RIVER TERRACE DEPOSITS).
1.80	1.90	Very sandy very gravelly CLAY (RIVER TERRACE DEPOSITS)
1.90	2.90	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS) At 2.1 m bgl - Silty very sandy GRAVEL.

Comments

Pit reference:	IT4_2	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	2.3	*(L)*	Design effective depth (Y)	0.32	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	20/09/2022
Date of percolation tests	18/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	3.6	*(D)*	Depth to Groundwater:		*mbgl*			1
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	0.37	*m3*			Ver. 1 - Page1

TEST 1

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:30	0.0	3.28	0.32
12:30	0.5	3.4	0.20
12:31	1.0	3.45	0.15
12:31	1.5	3.48	0.12
12:32	2.0	3.51	0.09
12:32	2.5	3.53	0.07



Test effective depth	0.32	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.24	m	3.36
50% effective depth:	0.16	m	3.44
25% effective depth:	0.08	m	3.52
t75	0.30	min	
t50		min	
t25	2.2	min	
Vp75-25	0.18	m3	
Vp75 - Vp25 (corrected)	0.06	m3	
ap50	2.05	m2	
tp75-25	1.90	min	
Soil infiltration rate (f):	**2.37E-04**	m/s	
	0.24	mm/sec	
	20.45	m/day	

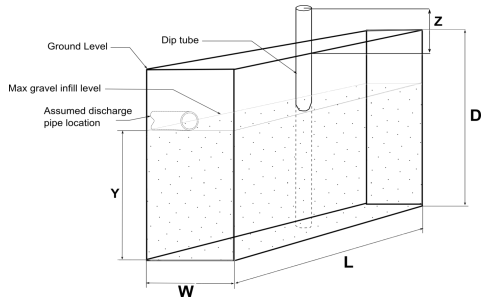
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.40	TOPSOIL: Gravelly SILT.
0.40	1.60	Very gravelly SILT (RIVER TERRACE DEPOSITS).
1.60	2.30	Slightly gravelly silty CLAY (RIVER TERRACE DEPOSITS).
2.30	2.50	Sandy CLAY (RIVER TERRACE DEPOSITS).
2.50	3.60	Clayey very sandy GRAVEL with high cobble content (RIVER TERRACE DEPOSITS) At 3.2 m bgl - Very sandy GRAVEL.

Comments

1800 litres used. The bowser was empty before the water was brought to the desired depths to start the test. Volume of the strata to target is: 1.1 x 0.5 x 2.3 = 1.265 m3; 1265 litres is 1 volume.

Pit reference: IT4_2
Project: Hamble Quarry_331201108
Date of percolation tests 18/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	2.3	*(L)*	Design effective depth (Y)	0.44	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	3.6	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	0.51	*m3*

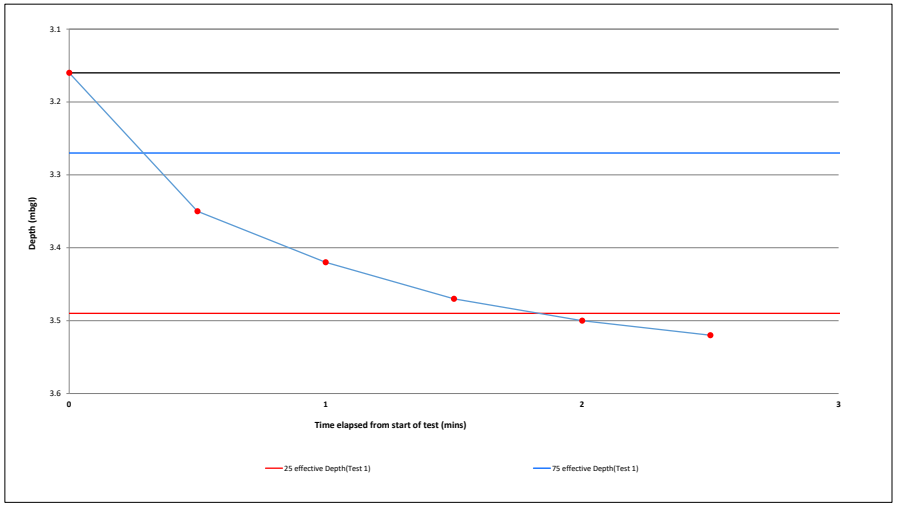
Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
Ver. 1 - Page1

TEST 2

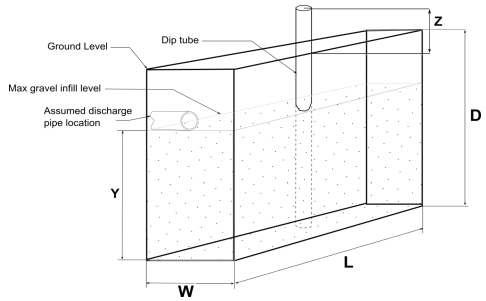
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
13:30	0.0	3.16	0.44
13:30	0.5	3.35	0.25
13:31	1.0	3.42	0.18
13:31	1.5	3.47	0.13
13:32	2.0	3.5	0.10
13:32	2.5	3.52	0.08



Test effective depth	0.44	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.33	m	3.27
50% effective depth:	0.22	m	3.38
25% effective depth:	0.11	m	3.49
t75	0.25	min	
t50		min	
t25	1.9	min	
Vp75-25	0.25	m3	
Vp75 - Vp25 (corrected)	0.08	m3	
ap50	2.38	m2	
tp75-25	1.65	min	
Soil infiltration rate (f):	**3.22E-04**	m/s	
	0.32	mm/sec	
	27.81	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



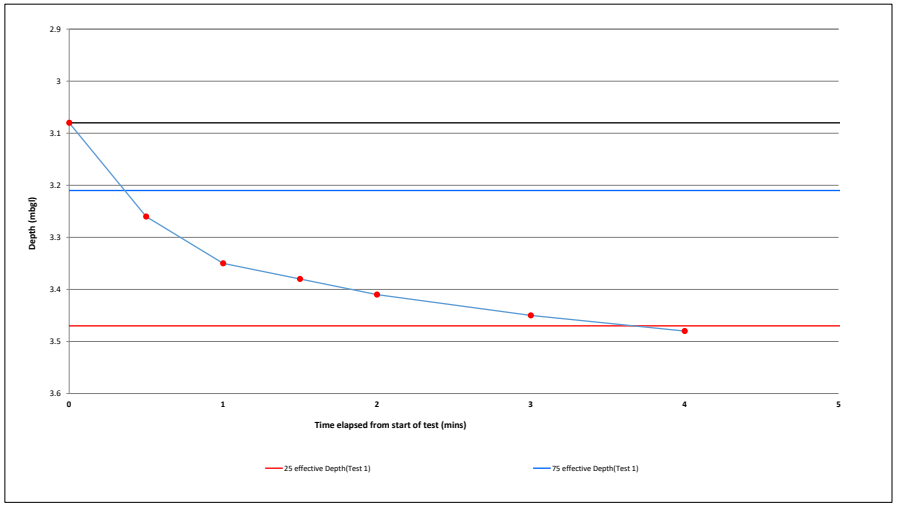
Soil Log:

From	To	
0.00	0.40	TOPSOIL: Gravelly SILT.
0.40	1.60	Very gravelly SILT (RIVER TERRACE DEPOSITS).
1.60	2.30	Slightly gravelly silty CLAY (RIVER TERRACE DEPOSITS).
2.30	2.50	Sandy CLAY (RIVER TERRACE DEPOSITS).
2.50	3.60	Clayey very sandy GRAVEL with high cobble content (RIVER TERRACE DEPOSITS) At 3.2 m bgl - Very sandy GRAVEL.

Comments
1650 litres used. The bowser was empty before the water was brought to the desired depths to start the test. Volume of the strata to target is: 1.1 x 0.5 x 2.3 = 1.265 m3; 1265 litres is 1 volume.

Pit reference:	IT4_2	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	2.3	*(L)*	Design effective depth (Y)	0.52	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	20/09/2022
Date of percolation tests	18/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	3.6	*(D)*	Depth to Groundwater:		*mbgl*			3
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	0.60	*m3*			Ver. 1 - Page1

TEST 3			
Time	**Elapsed (min)**	**Water dip (mbGL)**	**Depth of water in pit (m)***
14:30	0.0	3.08	0.52
14:30	0.5	3.26	0.34
14:31	1.0	3.35	0.25
14:31	1.5	3.38	0.22
14:32	2.0	3.41	0.19
14:33	3.0	3.45	0.15
14:34	4.0	3.48	0.12



Test effective depth	0.52	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.39	m	3.21
50% effective depth:	0.26	m	3.34
25% effective depth:	0.13	m	3.47
t75	0.30	min	
t50		min	
t25	3.7	min	
Vp75-25	0.30	m3	
Vp75 - Vp25 (corrected)	0.09	m3	
ap50	2.61	m2	
tp75-25	3.40	min	
Soil infiltration rate (f):	**1.69E-04**	m/s	
	0.17	mm/sec	
	14.58	m/day	

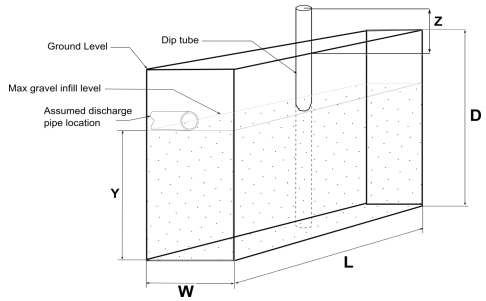
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.40	TOPSOIL: Gravelly SILT.
0.40	1.60	Very gravelly SILT (RIVER TERRACE DEPOSITS).
1.60	2.30	Slightly gravelly silty CLAY (RIVER TERRACE DEPOSITS).
2.30	2.50	Sandy CLAY (RIVER TERRACE DEPOSITS).
2.50	3.60	Clayey very sandy GRAVEL with high cobble content (RIVER TERRACE DEPOSITS) At 3.2 m bgl - Very sandy GRAVEL.

Comments

1650 litres used. The bowser was empty before the water was brought to the desired depths to start the test. Volume of the strata to target is: 1.1 x 0.5 x 2.3 = 1.265 m3; 1265 litres is 1 volume.

Pit reference: IT5_1
Project: Hamble Quarry_331201108
Date of percolation tests 18/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*
Trial pit width (m):	0.5	*(W)*
Trial pit depth (m):	1.8	*(D)*

Design effective depth (Y)	1.24	*m*
Gravel porosity:	0.3	
Depth to Groundwater:		*mbgl*
Design effective depth volume:	1.12	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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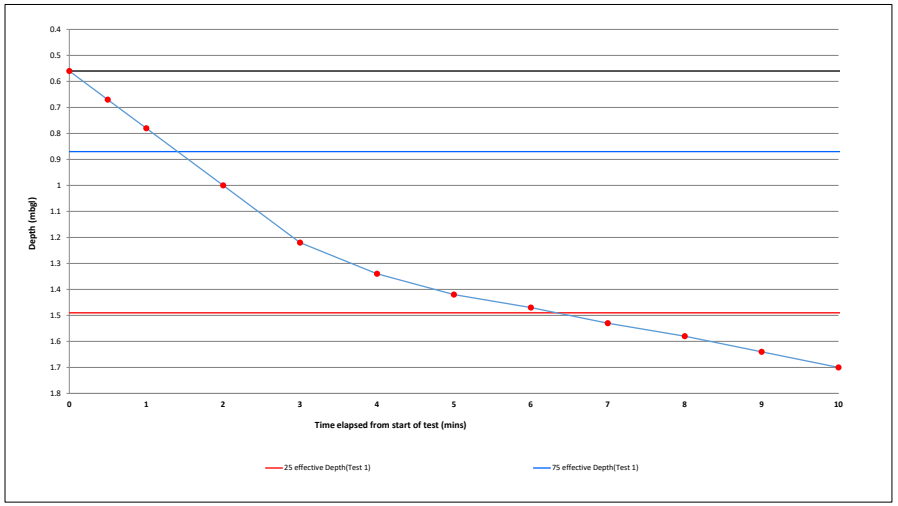
TEST 1

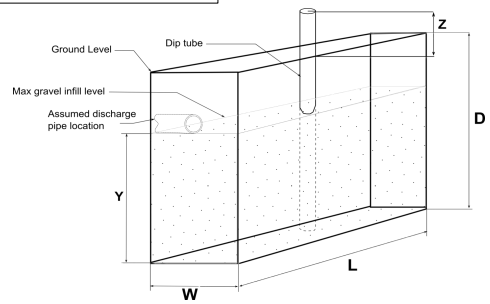
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:12	0.0	0.56	1.24
12:12	0.5	0.67	1.13
12:13	1.0	0.78	1.02
12:14	2.0	1.00	0.80
12:15	3.0	1.22	0.58
12:16	4.0	1.34	0.46
12:17	5.0	1.42	0.38
12:18	6.0	1.47	0.33
12:19	7.0	1.53	0.27
12:20	8.0	1.58	0.22
12:21	9.0	1.64	0.16
12:22	10.0	1.7	0.10



Test effective depth	1.24	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.93	m	0.87
50% effective depth:	0.62	m	1.18
25% effective depth:	0.31	m	1.49
t75	1.40	min	
t50		min	
t25	6.3	min	
Vp75-25	0.56	m3	
Vp75 - Vp25 (corrected)	0.17	m3	
ap50	3.75	m2	
tp75-25	4.90	min	
Soil infiltration rate (f):	**1.52E-04**	m/s	
	0.15	mm/sec	
	13.11	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	0.50	Very gravelly SILT (RIVER TERRACE DEPOSITS).
0.50	1.80	Slightly sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 0.90 m bgl - Very sandy GRAVEL. At 1.40 m bgl - Slightly sandy silty GRAVEL.

Comments

Pit reference: IT5_1
Project: Hamble Quarry_331201108
Date of percolation tests 18/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*
Trial pit width (m):	0.5	*(W)*
Trial pit depth (m):	1.8	*(D)*

Design effective depth (Y)	1.30	*m*
Gravel porosity:	0.3	
Depth to Groundwater:		*mbgl*
Design effective depth volume:	1.17	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
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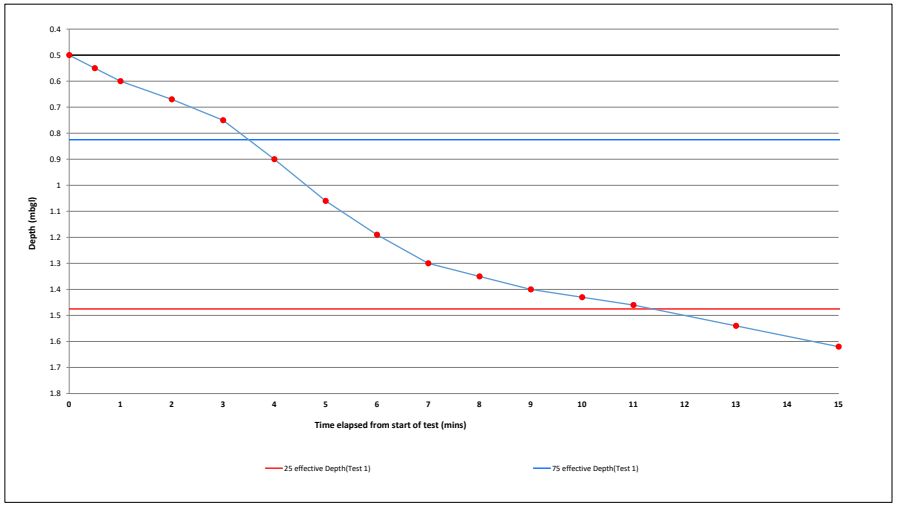
TEST 2

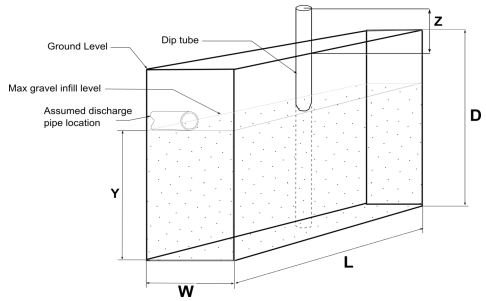
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:31	0.0	0.5	1.30
12:31	0.5	0.55	1.25
12:32	1.0	0.60	1.20
12:33	2.0	0.67	1.13
12:34	3.0	0.75	1.05
12:35	4.0	0.9	0.90
12:36	5.0	1.06	0.74
12:37	6.0	1.19	0.61
12:38	7.0	1.3	0.50
12:39	8.0	1.35	0.45
12:40	9.0	1.4	0.40
12:41	10.0	1.43	0.37
12:42	11.0	1.46	0.34
12:44	13.0	1.54	0.26
12:46	15.0	1.62	0.18



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	0.83
50% effective depth:	0.65	m	1.15
25% effective depth:	0.33	m	1.48
t75	3.50	min	
t50		min	
t25	11.3	min	
Vp75-25	0.59	m3	
Vp75 - Vp25 (corrected)	0.18	m3	
ap50	3.89	m2	
tp75-25	7.80	min	
Soil infiltration rate (f):	**9.64E-05**	m/s	
	0.10	mm/sec	
	8.33	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	0.50	Very gravelly SILT (RIVER TERRACE DEPOSITS).
0.50	1.80	Slightly sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 0.90 m bgl - Very sandy GRAVEL. At 1.40 m bgl - Slightly sandy silty GRAVEL.

Comments

Pit reference: IT5_1
Project: Hamble Quarry_331201108
Date of percolation tests 18/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*
Trial pit width (m):	0.5	*(W)*
Trial pit depth (m):	1.8	*(D)*

Design effective depth (Y)	1.33	*m*
Gravel porosity:	0.3	
Depth to Groundwater:		*mbgl*
Design effective depth volume:	1.20	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 3
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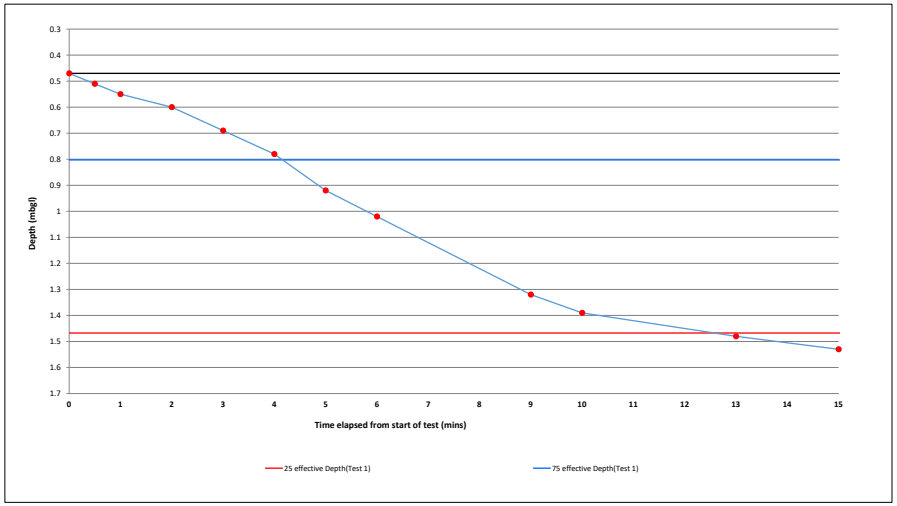
TEST 3

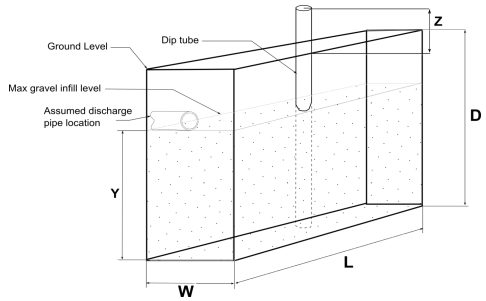
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
13:10	0.0	0.47	1.33
13:10	0.5	0.51	1.29
13:11	1.0	0.55	1.25
13:12	2.0	0.60	1.20
13:13	3.0	0.69	1.11
13:14	4.0	0.78	1.02
13:15	5.0	0.92	0.88
13:16	6.0	1.02	0.78
13:19	9.0	1.32	0.48
13:20	10.0	1.39	0.41
13:23	13.0	1.48	0.32
13:25	15.0	1.53	0.27



Test effective depth	1.33	m (Water depth	Water Dip (mbGL)
75% effective depth:	1.00	m	0.80
50% effective depth:	0.67	m	1.14
25% effective depth:	0.33	m	1.47
t75	4.10	min	
t50		min	
t25	12.5	min	
Vp75-25	0.60	m3	
Vp75 - Vp25 (corrected)	0.18	m3	
ap50	3.96	m2	
tp75-25	8.40	min	
Soil infiltration rate (f):	**9.00E-05**	m/s	
	0.09	mm/sec	
	7.77	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	0.50	Very gravelly SILT (RIVER TERRACE DEPOSITS).
0.50	1.80	Slightly sandy GRAVEL with medium cobble content. (RIVER TERRACE DEPOSITS) At 0.90 m bgl - Very sandy GRAVEL. At 1.40 m bgl - Slightly sandy silty GRAVEL.

Comments

Pit reference: IT5_2
Project: Hamble Quarry_331201108
Date of percolation tests 18/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	2.1	*(L)*	Design effective depth (Y)	1.18	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	2	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	1.24	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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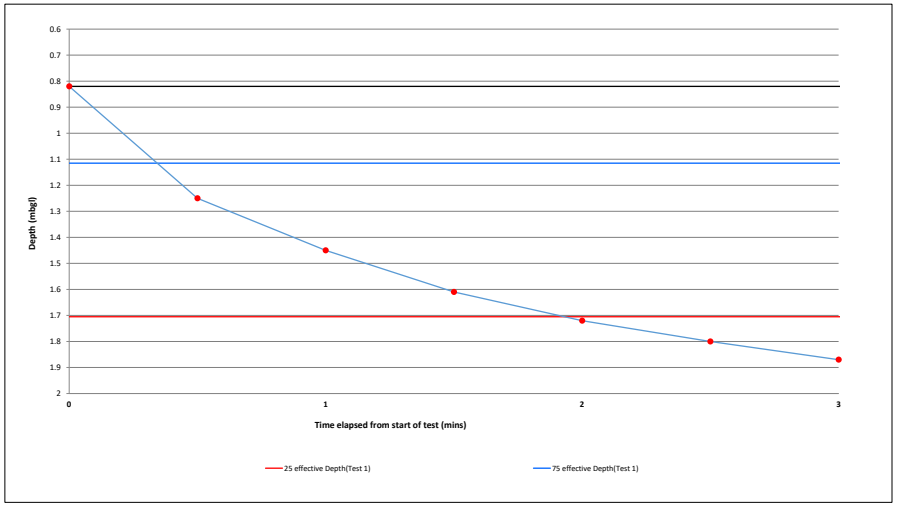
TEST 1

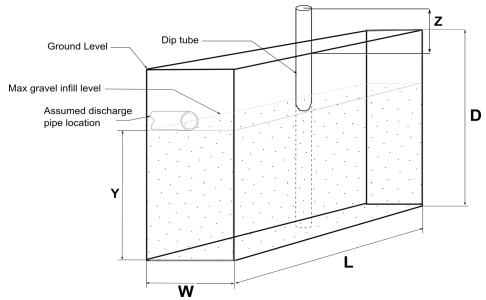
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
10:20	0.0	0.82	1.18
10:20	0.5	1.25	0.75
10:21	1.0	1.45	0.55
10:21	1.5	1.61	0.39
10:22	2.0	1.72	0.28
10:22	2.5	1.8	0.20
10:23	3.0	1.87	0.13



			Water Dip (mbGL)
Test effective depth	1.18	m (Water depth	
75% effective depth:	0.89	m	1.12
50% effective depth:	0.59	m	1.41
25% effective depth:	0.30	m	1.71
t75	0.40	min	
t50		min	
t25	1.9	min	
Vp75-25	0.62	m3	
Vp75 - Vp25 (corrected)	0.19	m3	
ap50	4.12	m2	
tp75-25	1.50	min	
Soil infiltration rate (f):	**5.01E-04**	m/s	
	0.50	mm/sec	
	43.33	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.70	TOPSOIL: Gravelly SILT.
0.70	2.00	Very gravelly medium to coarse SAND. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT5_2
Project: Hamble Quarry_331201108
Date of percolation tests 18/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

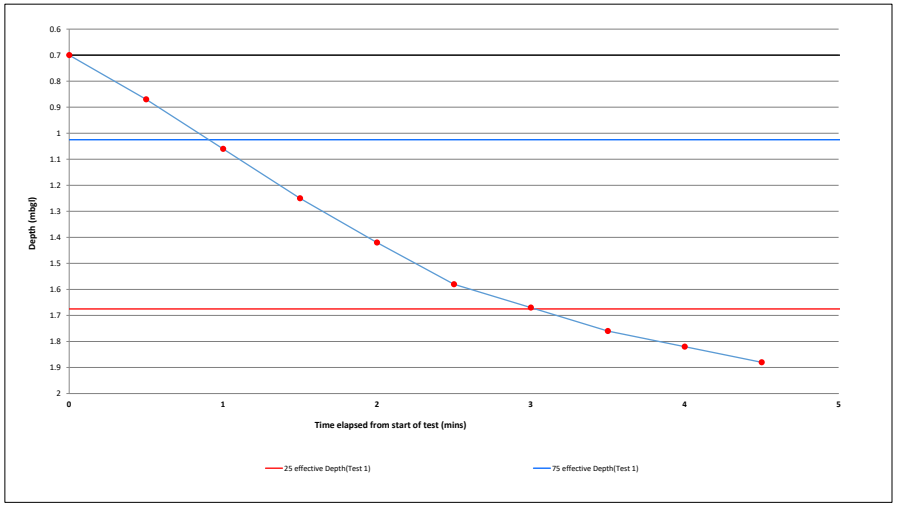
Trial pit length (m):	2.1	*(L)*	Design effective depth (Y)	1.30	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.37	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
Ver. 1 - Page1

TEST 2

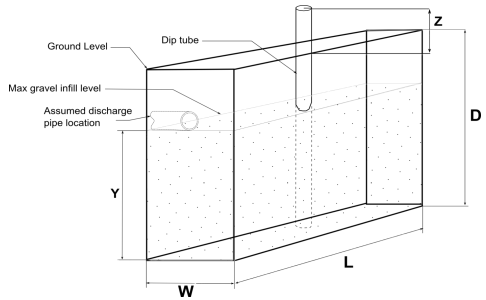
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
10:27	0.0	0.7	1.30
10:27	0.5	0.87	1.13
10:28	1.0	1.06	0.94
10:28	1.5	1.25	0.75
10:29	2.0	1.42	0.58
10:29	2.5	1.58	0.42
10:30	3.0	1.67	0.33
10:30	3.5	1.76	0.24
10:31	4.0	1.82	0.18
10:31	4.5	1.88	0.12



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	1.03
50% effective depth:	0.65	m	1.35
25% effective depth:	0.33	m	1.68
t75	0.90	min	
t50		min	
t25	3.0	min	
Vp75-25	0.68	m3	
Vp75 - Vp25 (corrected)	0.20	m3	
ap50	4.43	m2	
tp75-25	2.10	min	
Soil infiltration rate (f):	**3.67E-04**	m/s	
	0.37	mm/sec	
	31.69	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.70	TOPSOIL: Gravelly SILT.
0.70	2.00	Very gravelly medium to coarse SAND. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT5_2
Project: Hamble Quarry_331201108
Date of percolation tests 18/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	2.1	*(L)*
Trial pit width (m):	0.5	*(W)*
Trial pit depth (m):	2	*(D)*

Design effective depth (Y)	1.30	*m*
Gravel porosity:	0.3	
Depth to Groundwater:		*mbgl*
Design effective depth volume:	1.37	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
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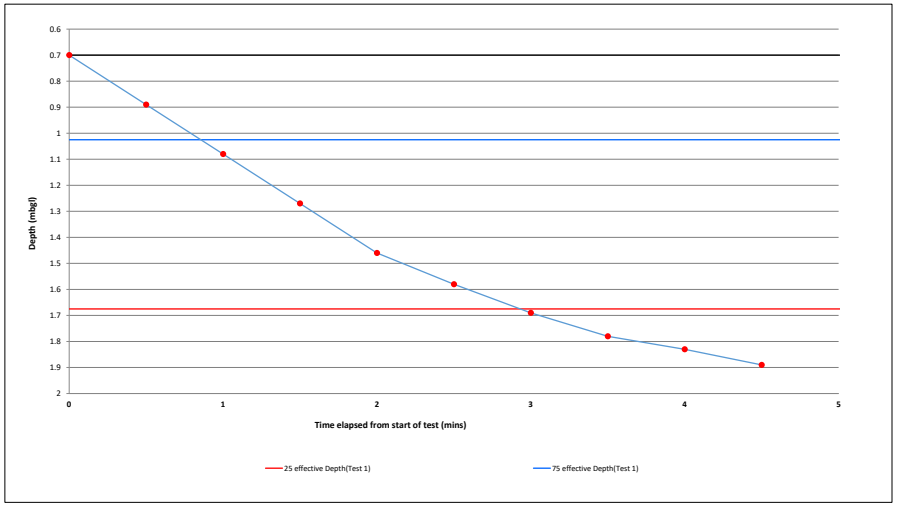
TEST 3

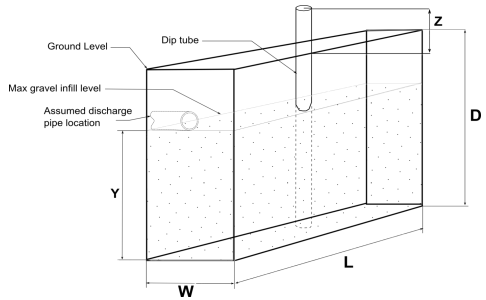
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
10:46	0.0	0.7	1.30
10:46	0.5	0.89	1.11
10:47	1.0	1.08	0.92
10:47	1.5	1.27	0.73
10:48	2.0	1.46	0.54
10:48	2.5	1.58	0.42
10:49	3.0	1.69	0.31
10:49	3.5	1.78	0.22
10:50	4.0	1.83	0.17
10:50	4.5	1.89	0.11



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	1.03
50% effective depth:	0.65	m	1.35
25% effective depth:	0.33	m	1.68
t75	0.90	min	
t50		min	
t25	2.9	min	
Vp75-25	0.68	m3	
Vp75 - Vp25 (corrected)	0.20	m3	
ap50	4.43	m2	
tp75-25	2.00	min	
Soil infiltration rate (f):	**3.85E-04**	m/s	
	0.39	mm/sec	
	33.28	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.70	TOPSOIL: Gravelly SILT.
0.70	2.00	Very gravelly medium to coarse SAND. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT5_3
Project: Hamble Quarry_331201108
Date of percolation tests 17/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.30	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.17	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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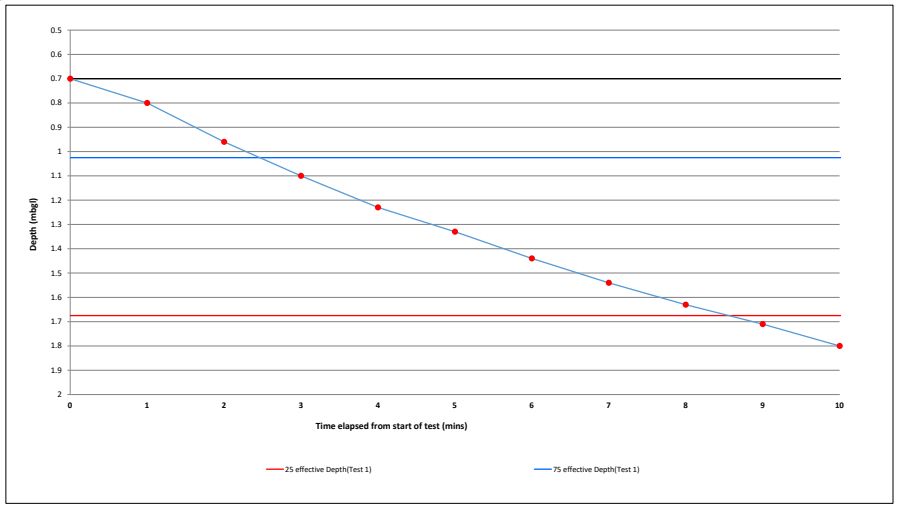
TEST 1

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:43	0.0	0.7	1.30
12:44	1.0	0.8	1.20
12:45	2.0	0.96	1.04
12:46	3.0	1.10	0.90
12:47	4.0	1.23	0.77
12:48	5.0	1.33	0.67
12:49	6.0	1.44	0.56
12:50	7.0	1.54	0.46
12:51	8.0	1.63	0.37
12:52	9.0	1.71	0.29
12:53	10.0	1.8	0.20

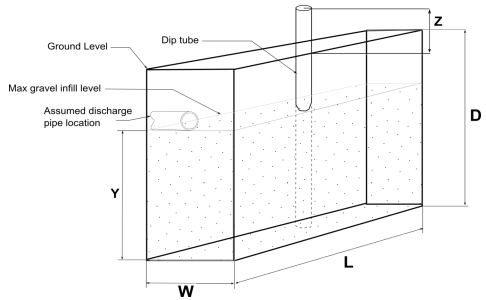
3



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	1.03
50% effective depth:	0.65	m	1.35
25% effective depth:	0.33	m	1.68
t75	2.50	min	
t50		min	
t25	8.5	min	
Vp75-25	0.59	m3	
Vp75 - Vp25 (corrected)	0.18	m3	
ap50	3.89	m2	
tp75-25	6.00	min	
Soil infiltration rate (f):	**1.25E-04**	m/s	
	0.13	mm/sec	
	10.83	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.70	TOPSOIL: Very gravelly SILT.
0.70	2.00	Very sandy GRAVEL. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT5_3
Project: Hamble Quarry_331201108
Date of percolation tests 17/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.32	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	2	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	1.19	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
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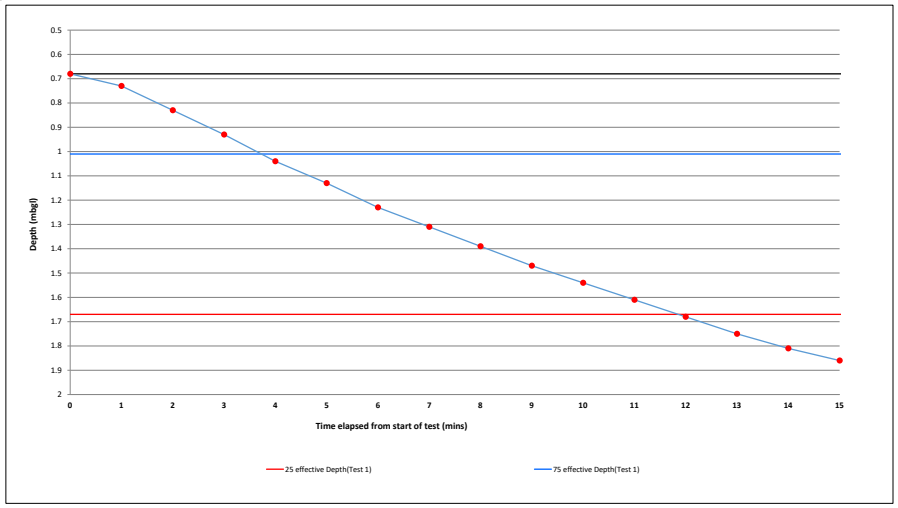
TEST 2

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
13:11	0.0	0.68	1.32
13:12	1.0	0.73	1.27
13:13	2.0	0.83	1.17
13:14	3.0	0.93	1.07
13:15	4.0	1.04	0.96
13:16	5.0	1.13	0.87
13:17	6.0	1.23	0.77
13:18	7.0	1.31	0.69
13:19	8.0	1.39	0.61
13:20	9.0	1.47	0.53
13:21	10.0	1.54	0.46
13:22	11.0	1.61	0.39
13:23	12.0	1.68	0.32
13:24	13.0	1.75	0.25
13:25	14.0	1.81	0.19
13:26	15.0	1.86	0.14

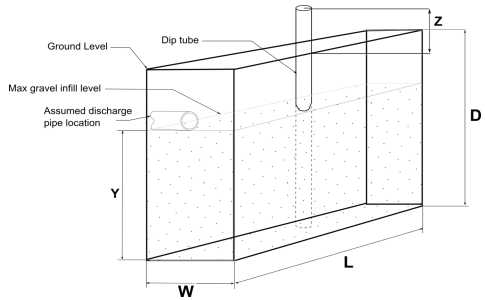
3



Test effective depth	1.32	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.99	m	1.01
50% effective depth:	0.66	m	1.34
25% effective depth:	0.33	m	1.67
t75	3.80	min	
t50		min	
t25	11.9	min	
Vp75-25	0.59	m3	
Vp75 - Vp25 (corrected)	0.18	m3	
ap50	3.94	m2	
tp75-25	8.10	min	
Soil infiltration rate (f):	**9.32E-05**	m/s	
	0.09	mm/sec	
	8.05	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.70	TOPSOIL: Very gravelly SILT.
0.70	2.00	Very sandy GRAVEL. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT5_3
Project: Hamble Quarry_331201108
Date of percolation tests 17/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.39	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.25	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date:
20/09/2022
Sheet number:
3
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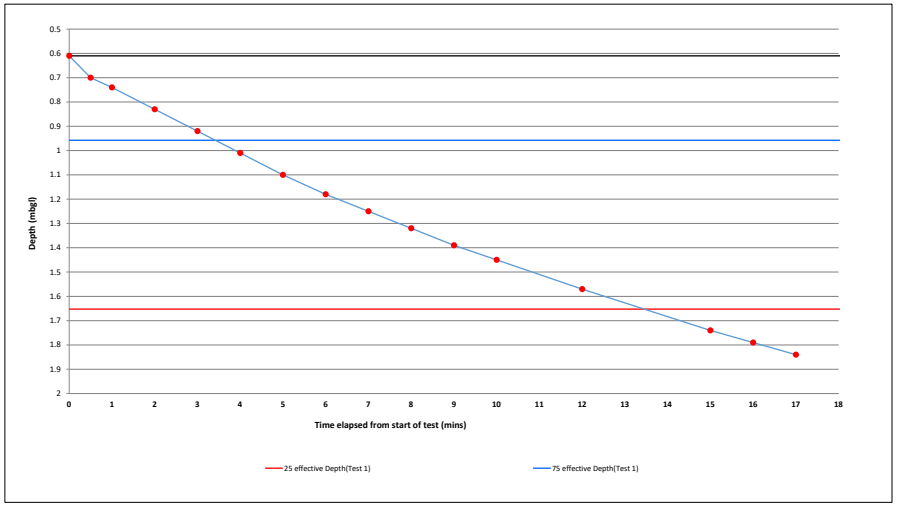
TEST 3

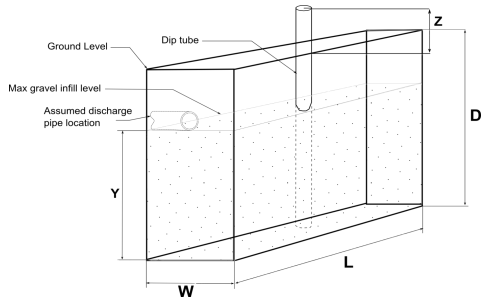
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
14:09	0.0	0.61	1.39
14:09	0.5	0.7	1.30
14:10	1.0	0.74	1.26
14:11	2.0	0.83	1.17
14:12	3.0	0.92	1.08
14:13	4.0	1.01	0.99
14:14	5.0	1.10	0.90
14:15	6.0	1.18	0.82
14:16	7.0	1.25	0.75
14:17	8.0	1.32	0.68
14:18	9.0	1.39	0.61
14:19	10.0	1.45	0.55
14:21	12.0	1.57	0.43
14:24	15.0	1.74	0.26
14:25	16.0	1.79	0.21
14:26	17.0	1.84	0.16



Test effective depth	1.39	m (Water depth	Water Dip (mbGL)
75% effective depth:	1.04	m	0.96
50% effective depth:	0.70	m	1.31
25% effective depth:	0.35	m	1.65
t75	3.40	min	
t50		min	
t25	13.5	min	
Vp75-25	0.63	m3	
Vp75 - Vp25 (corrected)	0.19	m3	
ap50	4.10	m2	
tp75-25	10.10	min	
Soil infiltration rate (f):	**7.56E-05**	m/s	
	0.08	mm/sec	
	6.53	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

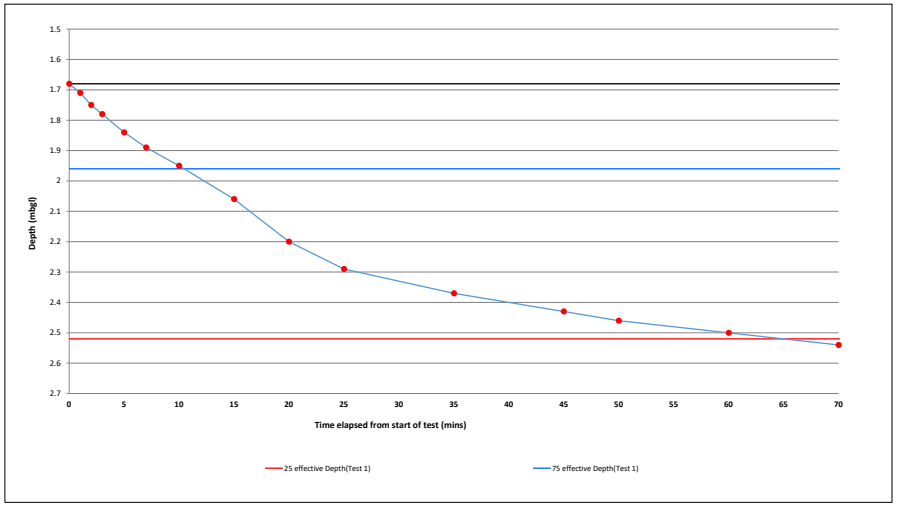
From	To	
0.00	0.70	TOPSOIL: Very gravelly SILT.
0.70	2.00	Very sandy GRAVEL. (RIVER TERRACE DEPOSITS)

Comments

Pit reference:	IT5_4	**Parameters:**								1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.9	*(L)*	Design effective depth (Y)	1.12	*m*	**Completed by:**	MDM	2) Formation overnight soaking is interpreted only	20/09/2022
Date of percolation tests	17/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	2.8	*(D)*	Depth to Groundwater:		*mbgl*				1
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	1.06	*m3*				Ver. 1 - Page1

TEST 1

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
10:32	0.0	1.68	1.12
10:33	1.0	1.71	1.09
10:34	2.0	1.75	1.05
10:35	3.0	1.78	1.02
10:37	5.0	1.84	0.96
10:39	7.0	1.89	0.91
10:42	10.0	1.95	0.85
10:47	15.0	2.06	0.74
10:52	20.0	2.2	0.60
10:57	25.0	2.29	0.51
11:07	35.0	2.37	0.43
11:17	45.0	2.43	0.37
11:22	50.0	2.46	0.34
11:32	60.0	2.50	0.30
11:42	70.0	2.54	0.26



Test effective depth	1.12	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.84	m	1.96
50% effective depth:	0.56	m	2.24
25% effective depth:	0.28	m	2.52
t75	10.30	min	
t50		min	
t25	65.5	min	
Vp75-25	0.53	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.64	m2	
tp75-25	55.20	min	
Soil infiltration rate (f):	**1.32E-05**	m/s	
	0.01	mm/sec	
	1.14	m/day	

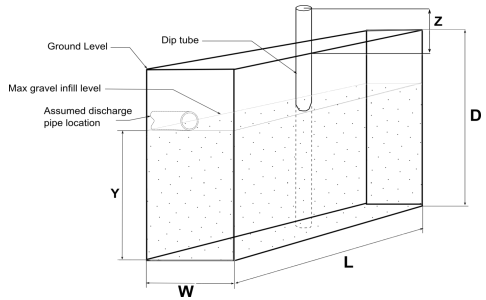
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly slightly sandy SILT.
0.20	1.60	Slightly gravelly slightly clayey SILT (RIVER TERRACE DEPOSITS). At 1.30 m bgl - becoming very clayey sandy SILT.
1.60	2.80	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS) At 2.40 m bgl - Slightly clayey sandy GRAVEL.

Comments

Pit reference: IT5_4
Project: Hamble Quarry_331201108
Date of percolation tests 17/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.9	*(L)*
Trial pit width (m):	0.5	*(W)*
Trial pit depth (m):	2.8	*(D)*

Design effective depth (Y)	1.06	*m*
Gravel porosity:	0.3	
Depth to Groundwater:		*mbgl*
Design effective depth volume:	1.01	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
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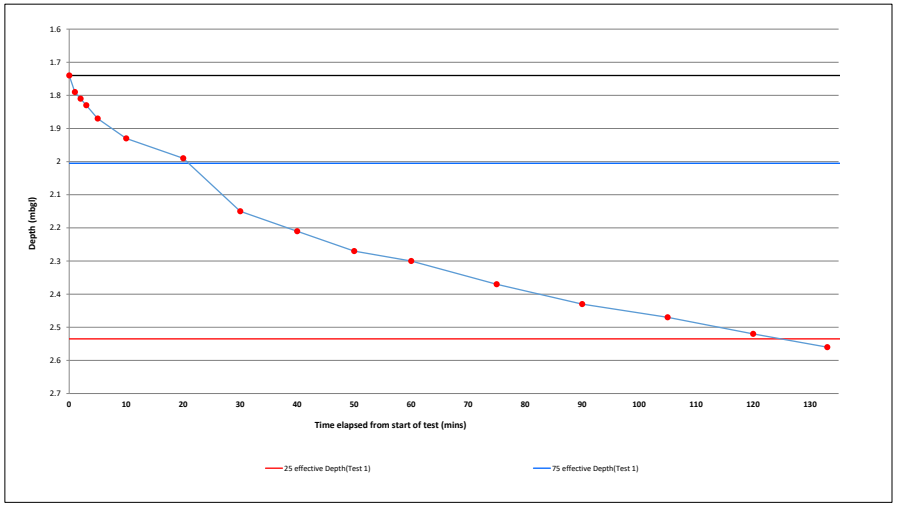
TEST 2

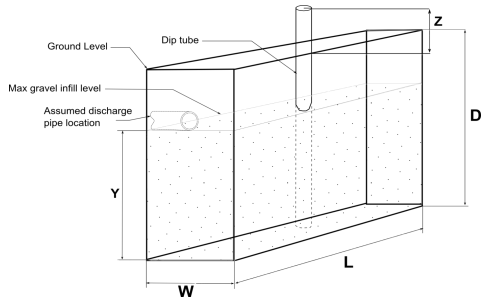
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:50	0.0	1.74	1.06
12:51	1.0	1.79	1.01
12:52	2.0	1.81	0.99
12:53	3.0	1.83	0.97
12:55	5.0	1.87	0.93
13:00	10.0	1.93	0.87
13:10	20.0	1.99	0.81
13:20	30.0	2.15	0.65
13:30	40.0	2.21	0.59
13:40	50.0	2.27	0.53
13:50	60.0	2.3	0.50
14:05	75.0	2.37	0.43
14:20	90.0	2.43	0.37
14:35	105.0	2.47	0.33
14:50	120.0	2.52	0.28
15:03	133.0	2.56	0.24



Test effective depth	1.06	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.80	m	2.01
50% effective depth:	0.53	m	2.27
25% effective depth:	0.27	m	2.54
t75	20.60	min	
t50		min	
t25	125.2	min	
Vp75-25	0.50	m3	
Vp75 - Vp25 (corrected)	0.15	m3	
ap50	3.49	m2	
tp75-25	104.60	min	
Soil infiltration rate (f):	**6.89E-06**	m/s	
	0.01	mm/sec	
	0.60	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly slightly sandy SILT.
0.20	1.60	Slightly gravelly slightly clayey SILT (RIVER TERRACE DEPOSITS). At 1.30 m bgl - becoming very clayey sandy SILT.
1.60	2.80	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS) At 2.40 m bgl - Slightly clayey sandy GRAVEL.

Comments

Pit reference: IT5_4
Project: Hamble Quarry_331201108
Date of percolation tests 17/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.9	*(L)*	Design effective depth (Y)	1.14	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	2.8	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	1.08	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 3
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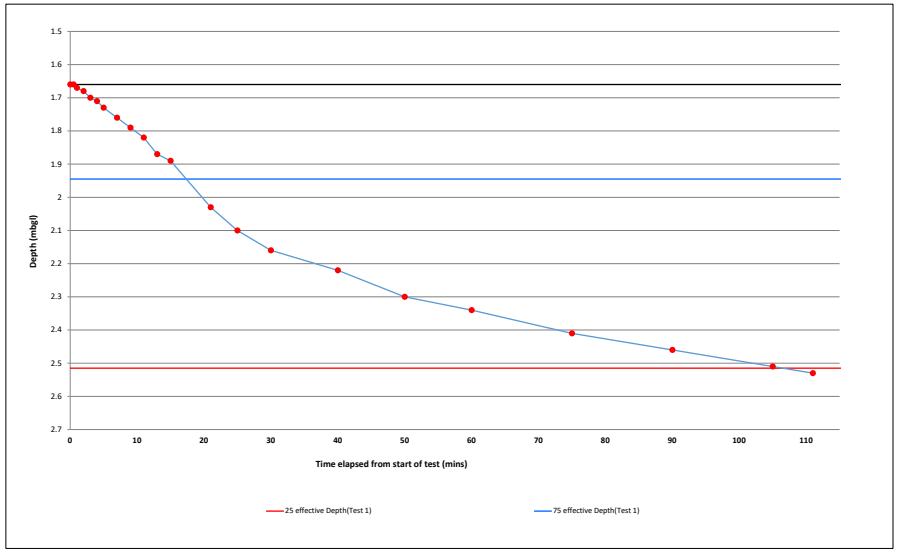
TEST 3

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
15:07	0.0	1.66	1.14
15:07	0.5	1.66	1.14
15:08	1.0	1.67	1.13
15:09	2.0	1.68	1.12
15:10	3.0	1.7	1.10
15:11	4.0	1.71	1.09
15:12	5.0	1.73	1.07
15:14	7.0	1.76	1.04
15:16	9.0	1.79	1.01
15:18	11.0	1.82	0.98
15:20	13.0	1.87	0.93
15:22	15.0	1.89	0.91
15:28	21.0	2.03	0.77
15:32	25.0	2.10	0.70
15:37	30.0	2.16	0.64
15:47	40.0	2.22	0.58
15:57	50.0	2.30	0.50
16:07	60.0	2.34	0.46
16:22	75.0	2.41	0.39
16:37	90.0	2.46	0.34
16:52	105.0	2.51	0.29
16:58	111.0	2.53	0.27

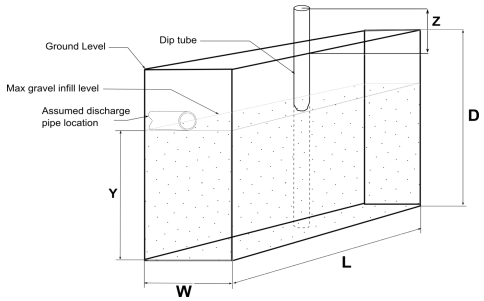


Test effective depth	1.14	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.86	m	1.95
50% effective depth:	0.57	m	2.23
25% effective depth:	0.29	m	2.52
t75	17.50	min	
t50		min	
t25	106.5	min	

Vp75-25	0.54	m3
Vp75 - Vp25 (corrected)	0.16	m3
ap50	3.69	m2
tp75-25	89.00	min
Soil infiltration rate (f):	**8.25E-06**	m/s
	0.01	mm/sec
	0.71	m/day

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} – the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} – the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} – the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly slightly sandy SILT.
0.20	1.60	Slightly gravelly slightly clayey SILT (RIVER TERRACE DEPOSITS). At 1.30 m bgl - becoming very clayey sandy SILT.
1.60	2.80	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS) At 2.40 m bgl - Slightly clayey sandy GRAVEL.

Comments

Pit reference: IT6_1
Project: Hamble Quarry_331201108
Date of percolation tests 16/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	2.1	*(L)*	Design effective depth (Y)	1.20	*m*
Trial pit width (m):	0.6	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	2.6	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	1.51	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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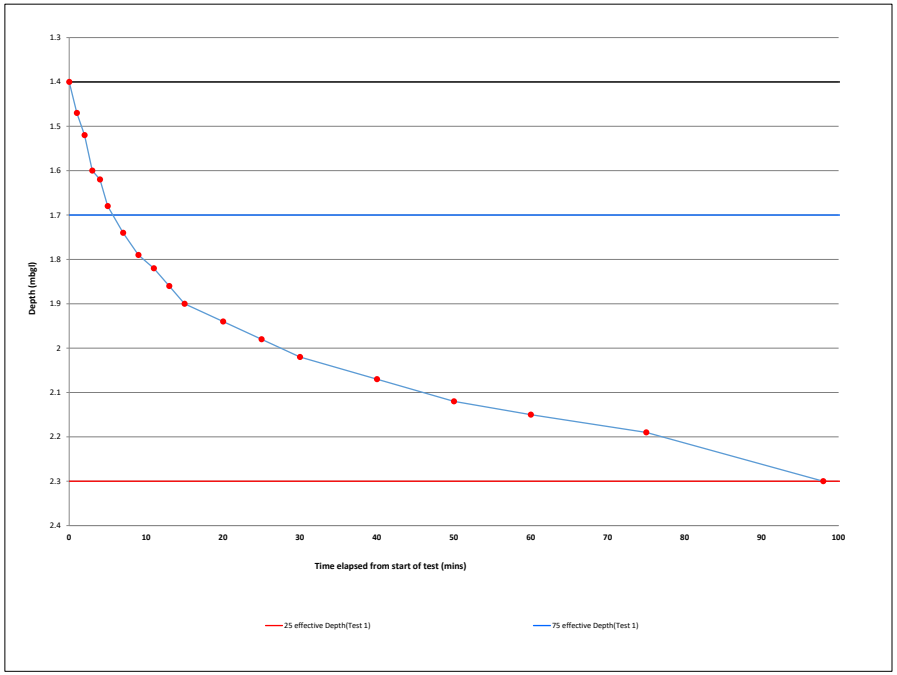
TEST 1

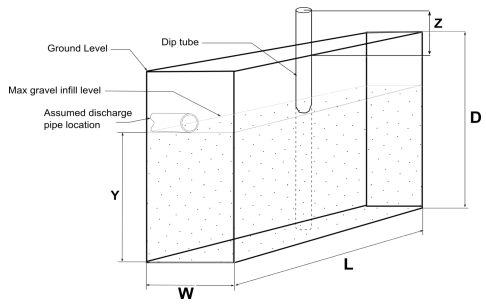
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
14:06	0.0	1.4	1.20
14:07	1.0	1.47	1.13
14:08	2.0	1.52	1.08
14:09	3.0	1.60	1.00
14:10	4.0	1.62	0.98
14:11	5.0	1.68	0.92
14:13	7.0	1.74	0.86
14:15	9.0	1.79	0.81
14:17	11.0	1.82	0.78
14:19	13.0	1.86	0.74
14:21	15.0	1.9	0.70
14:26	20.0	1.94	0.66
14:31	25.0	1.98	0.62
14:36	30.0	2.02	0.58
14:46	40.0	2.07	0.53
14:56	50.0	2.12	0.48
15:06	60.0	2.15	0.45
15:21	75.0	2.19	0.41
15:44	98.0	2.30	0.30



			Water Dip (mbGL)
Test effective depth	1.20	m (Water depth	
75% effective depth:	0.90	m	1.70
50% effective depth:	0.60	m	2.00
25% effective depth:	0.30	m	2.30
t75	5.60	min	
t50		min	
t25	98.0	min	
Vp75-25	0.76	m3	
Vp75 - Vp25 (corrected)	0.23	m3	
ap50	4.50	m2	
tp75-25	92.40	min	
Soil infiltration rate (f):	**9.09E-06**	m/s	
	0.01	mm/sec	
	0.79	m/day	

Soil infiltration rate, $f = \frac{V_{p(75-25)}}{a_{p50} \times t_{p(75-25)}}$

where:
$V_{p(75-25)}$ = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
$t_{p(75-25)}$ = the time for the water level to fall from 75% to 25% effective depth.



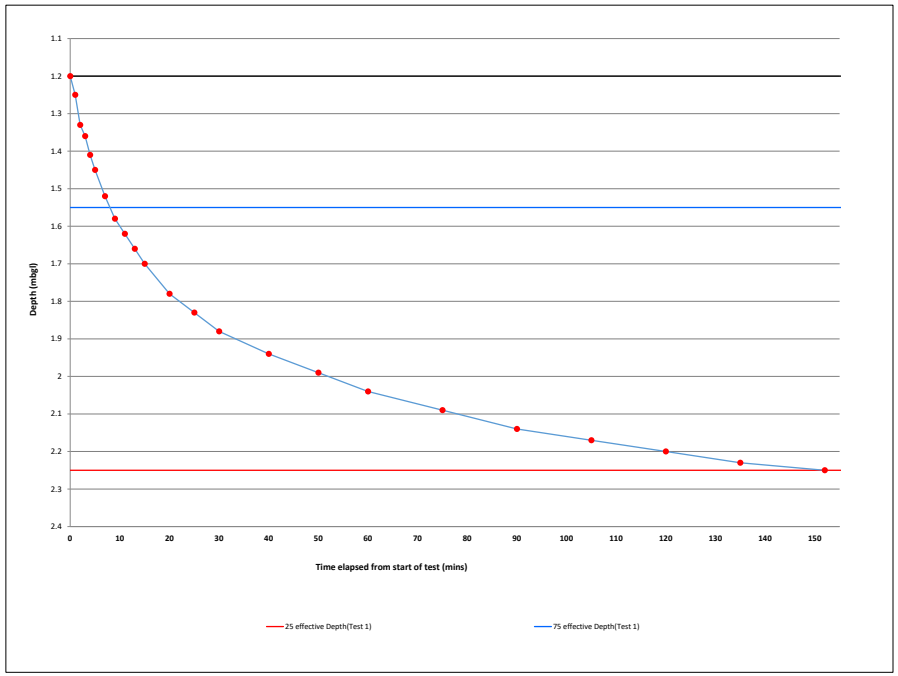
Soil Log:

From	To	
0.00	0.30	TOPSOIL: Gravelly SILT.
0.30	1.40	Slightly gravelly slightly sandy clayey SILT (RIVER TERRACE DEPOSITS). At 1.2 m bgl - becoming very clayey.
1.40	2.60	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS)

Comments

Pit reference:	IT6_1	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	2.1	*(L)*	Design effective depth (Y)	1.40	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	20/09/2022
Date of percolation tests	16/08/2022	Trial pit width (m):	0.6	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	2.6	*(D)*	Depth to Groundwater:		*mbgl*			2
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	1.76	*m3*			Ver. 1 - Page1

TEST 2			
Time	**Elapsed (min)**	**Water dip (mbGL)**	**Depth of water in pit (m)***
15:53	0.0	1.2	1.40
15:54	1.0	1.25	1.35
15:55	2.0	1.33	1.27
15:56	3.0	1.36	1.24
15:57	4.0	1.41	1.19
15:58	5.0	1.45	1.15
16:00	7.0	1.52	1.08
16:02	9.0	1.58	1.02
16:04	11.0	1.62	0.98
16:06	13.0	1.66	0.94
16:08	15.0	1.7	0.90
16:13	20.0	1.78	0.82
16:18	25.0	1.83	0.77
16:23	30.0	1.88	0.72
16:33	40.0	1.94	0.66
16:43	50.0	1.99	0.61
16:53	60.0	2.04	0.56
17:08	75.0	2.09	0.51
17:23	90.0	2.14	0.46
17:38	105.0	2.17	0.43
17:53	120.0	2.20	0.40
18:08	135.0	2.23	0.37
18:25	152.0	2.25	0.35



Test effective depth	1.40	m (Water depth	Water Dip (mbGL)
75% effective depth:	1.05	m	1.55
50% effective depth:	0.70	m	1.90
25% effective depth:	0.35	m	2.25
t75	8.00	min	
t50		min	
t25	152.0	min	
Vp75-25	0.88	m3	
Vp75 - Vp25 (corrected)	0.26	m3	
ap50	5.04	m2	
tp75-25	144.00	min	
Soil infiltration rate (f):	**6.08E-06**	m/s	
	0.01	mm/sec	
	0.53	m/day	

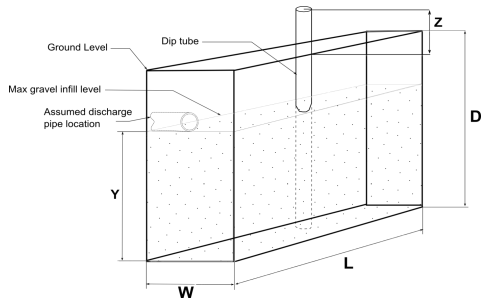
Soil infiltration rate, $f = \frac{V_{p(75-25)}}{a_{p50} \times t_{p(75-25)}}$

where:

$V_{p(75-25)}$ = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

$t_{p(75-25)}$ = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.30	TOPSOIL: Gravelly SILT.
0.30	1.40	Slightly gravelly slightly sandy clayey SILT (RIVER TERRACE DEPOSITS). At 1.2 m bgl - becoming very clayey.
1.40	2.60	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT6_1
Project: Hamble Quarry_331201108
Date of percolation tests 17/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	2.1	*(L)*	Design effective depth (Y)	1.25	*m*
Trial pit width (m):	0.6	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	2.6	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	1.58	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 3
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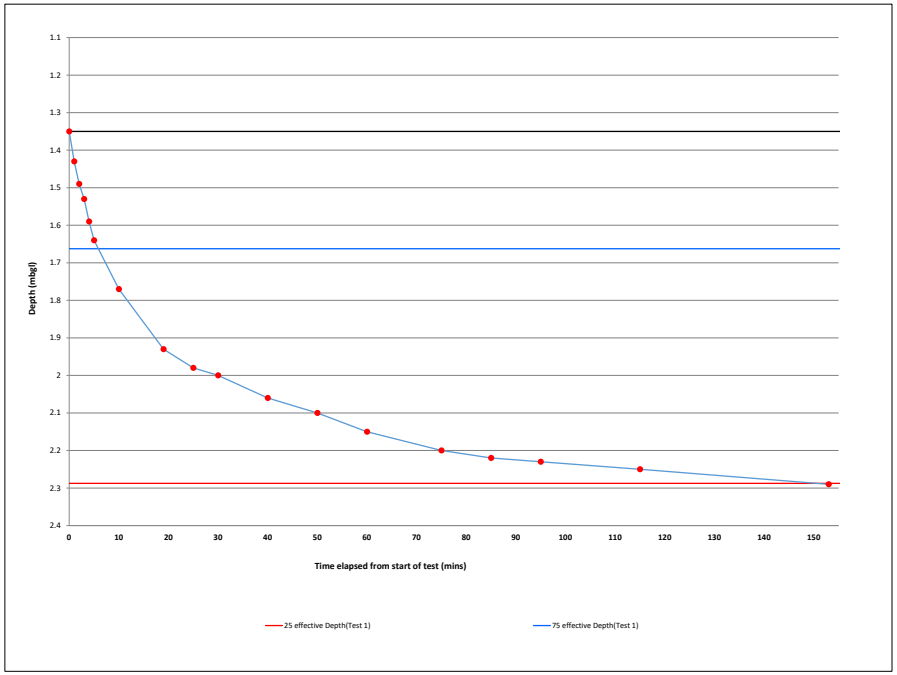
TEST 3

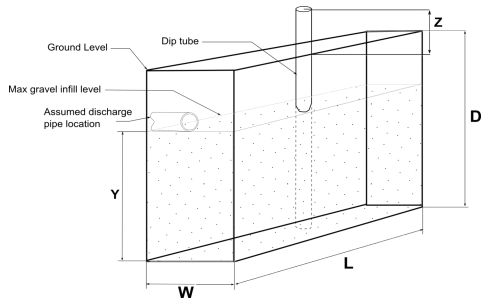
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
08:07	0.0	1.35	1.25
08:08	1.0	1.43	1.17
08:09	2.0	1.49	1.11
08:10	3.0	1.53	1.07
08:11	4.0	1.59	1.01
08:12	5.0	1.64	0.96
08:17	10.0	1.77	0.83
08:26	19.0	1.93	0.67
08:32	25.0	1.98	0.62
08:37	30.0	2	0.60
08:47	40.0	2.06	0.54
08:57	50.0	2.1	0.50
09:07	60.0	2.15	0.45
09:22	75.0	2.20	0.40
09:32	85.0	2.22	0.38
09:42	95.0	2.23	0.37
10:02	115.0	2.25	0.35
10:40	153.0	2.29	0.31



Test effective depth	1.25	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.94	m	1.66
50% effective depth:	0.63	m	1.98
25% effective depth:	0.31	m	2.29
t75	6.00	min	
t50		min	
t25	153.0	min	
Vp75-25	0.79	m3	
Vp75 - Vp25 (corrected)	0.24	m3	
ap50	4.64	m2	
tp75-25	147.00	min	
Soil infiltration rate (f):	**5.78E-06**	m/s	
	0.01	mm/sec	
	0.50	m/day	

Soil infiltration rate, $f = \frac{V_{p(75-25)}}{a_{p50} \times t_{p(75-25)}}$

where:
$V_{p(75-25)}$ = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
$t_{p(75-25)}$ = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.30	TOPSOIL: Gravelly SILT.
0.30	1.40	Slightly gravelly slightly sandy clayey SILT (RIVER TERRACE DEPOSITS). At 1.2 m bgl - becoming very clayey.
1.40	2.60	Clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT6_2
Project: Hamble Quarry_331201108
Date of percolation tests 16/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	0.98	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	2.6	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	0.88	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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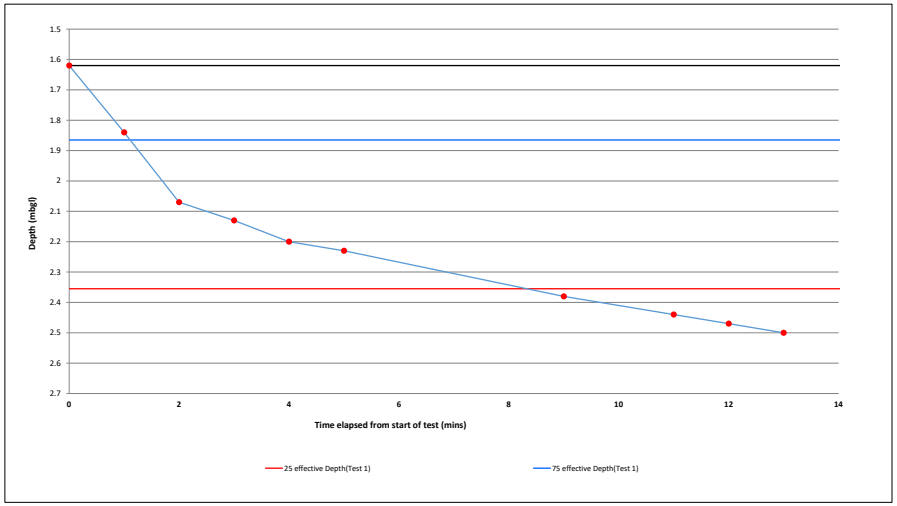
TEST 1

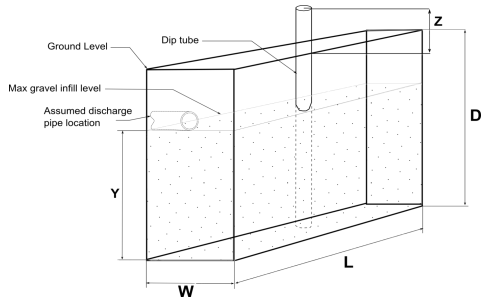
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
11:13	0.0	1.62	0.98
11:14	1.0	1.84	0.76
11:15	2.0	2.07	0.53
11:16	3.0	2.13	0.47
11:17	4.0	2.2	0.40
11:18	5.0	2.23	0.37
11:22	9.0	2.38	0.22
11:24	11.0	2.44	0.16
11:25	12.0	2.47	0.13
11:26	13.0	2.5	0.10



Test effective depth	0.98	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.74	m	1.87
50% effective depth:	0.49	m	2.11
25% effective depth:	0.25	m	2.36
t75	1.10	min	
t50		min	
t25	8.2	min	
Vp75-25	0.44	m3	
Vp75 - Vp25 (corrected)	0.13	m3	
ap50	3.15	m2	
tp75-25	7.10	min	
Soil infiltration rate (f):	**9.85E-05**	m/s	
	0.10	mm/sec	
	8.51	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Very gravelly SILT.
0.20	1.20	Slightly gravelly SILT (RIVER TERRACE DEPOSITS).
1.20	1.50	Slightly gravelly slightly sandy silty CLAY (RIVER TERRACE DEPOSITS).
1.50	2.60	Slightly clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS).

Comments

Pit reference: IT6_2
Project: Hamble Quarry_331201108
Date of percolation tests 16/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	0.88	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2.6	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	0.79	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
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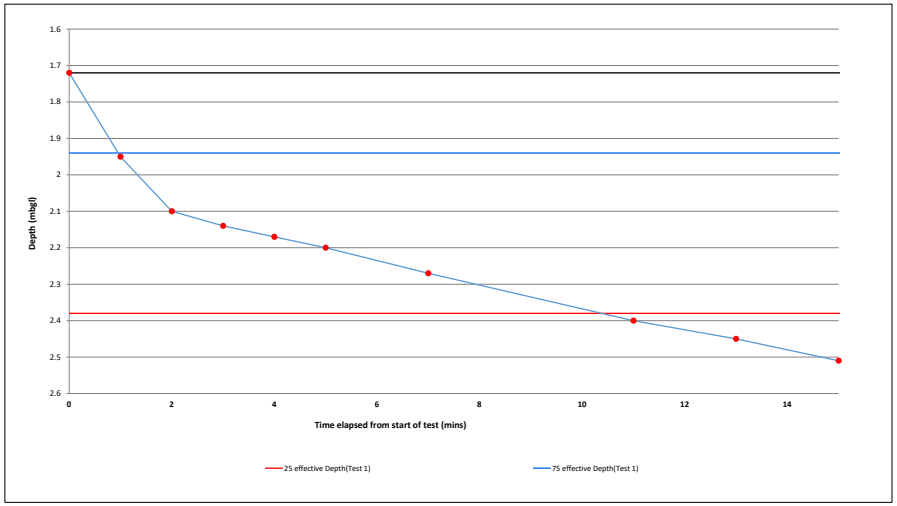
TEST 2

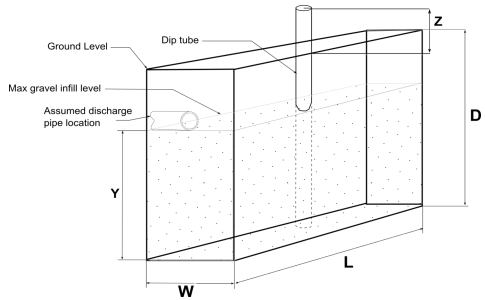
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
12:57	0.0	1.72	0.88
12:58	1.0	1.95	0.65
12:59	2.0	2.10	0.50
13:00	3.0	2.14	0.46
13:01	4.0	2.17	0.43
13:02	5.0	2.2	0.40
13:04	7.0	2.27	0.33
13:08	11.0	2.4	0.20
13:10	13.0	2.45	0.15
13:12	15.0	2.51	0.09



			Water Dip (mbGL)
Test effective depth	0.88	m (Water depth	
75% effective depth:	0.66	m	1.94
50% effective depth:	0.44	m	2.16
25% effective depth:	0.22	m	2.38
t75	0.90	min	
t50		min	
t25	10.3	min	
Vp75-25	0.40	m3	
Vp75 - Vp25 (corrected)	0.12	m3	
ap50	2.92	m2	
tp75-25	9.40	min	
Soil infiltration rate (f):	**7.20E-05**	m/s	
	0.07	mm/sec	
	6.22	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Very gravelly SILT.
0.20	1.20	Slightly gravelly SILT (RIVER TERRACE DEPOSITS).
1.20	1.50	Slightly gravelly slightly sandy silty CLAY (RIVER TERRACE DEPOSITS).
1.50	2.60	Slightly clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS).

Comments

Pit reference: IT6_2
Project: Hamble Quarry_331201108
Date of percolation tests 16/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	0.87	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	2.6	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	0.78	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 3
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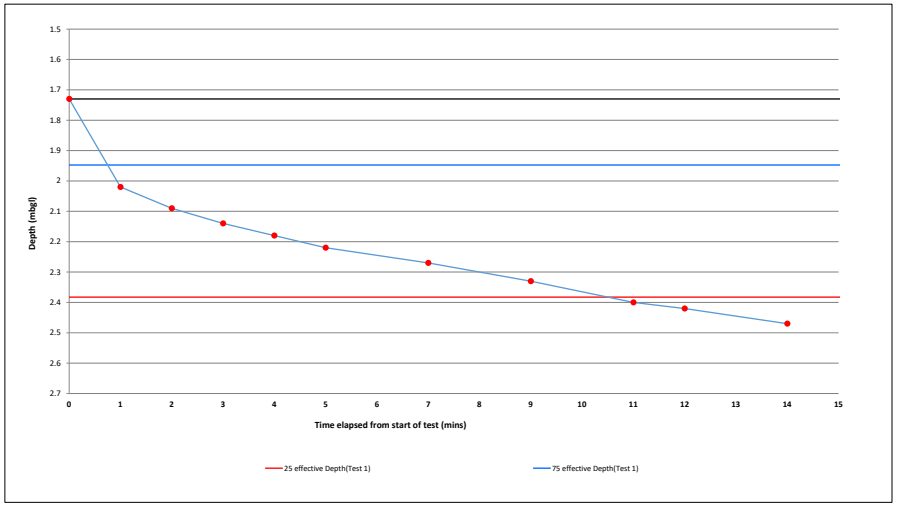
TEST 3

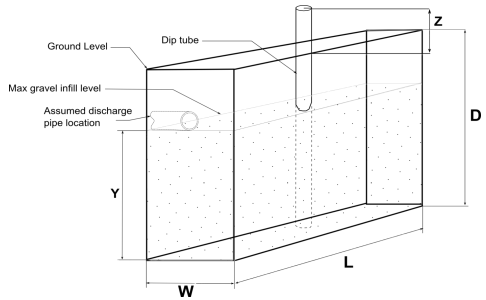
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
13:14	0.0	1.73	0.87
13:15	1.0	2.02	0.58
13:16	2.0	2.09	0.51
13:17	3.0	2.14	0.46
13:18	4.0	2.18	0.42
13:19	5.0	2.22	0.38
13:21	7.0	2.27	0.33
13:23	9.0	2.33	0.27
13:25	11.0	2.4	0.20
13:26	12.0	2.42	0.18
13:28	14.0	2.47	0.13



			Water Dip (mbGL)
Test effective depth	0.87	m (Water depth	
75% effective depth:	0.65	m	1.95
50% effective depth:	0.44	m	2.17
25% effective depth:	0.22	m	2.38
t75	0.80	min	
t50		min	
t25	10.5	min	
Vp75-25	0.39	m3	
Vp75 - Vp25 (corrected)	0.12	m3	
ap50	2.90	m2	
tp75-25	9.70	min	
Soil infiltration rate (f):	**6.96E-05**	m/s	
	0.07	mm/sec	
	6.01	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Very gravelly SILT.
0.20	1.20	Slightly gravelly SILT (RIVER TERRACE DEPOSITS).
1.20	1.50	Slightly gravelly slightly sandy silty CLAY (RIVER TERRACE DEPOSITS).
1.50	2.60	Slightly clayey very sandy GRAVEL. (RIVER TERRACE DEPOSITS).

Comments

Pit reference: IT6_3
Project: Hamble Quarry_331201108
Date of percolation tests 15/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.20	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	2.9	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	1.08	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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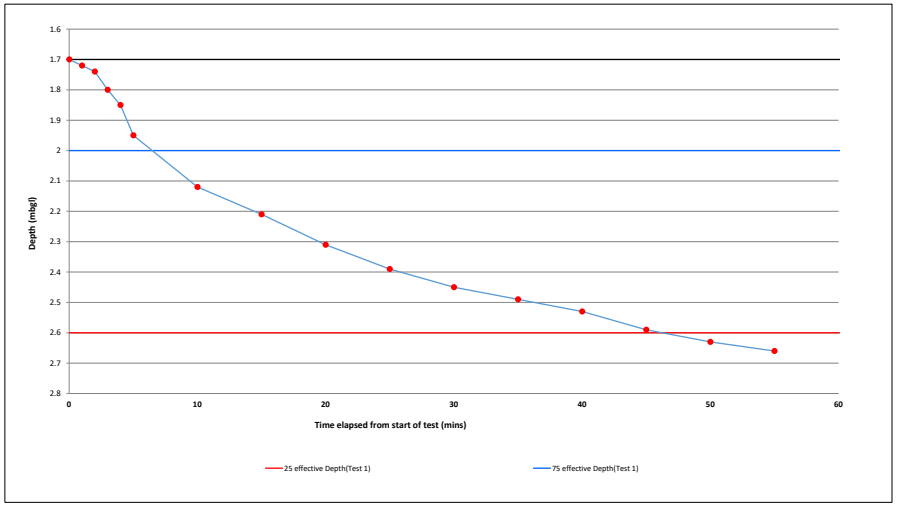
TEST 1

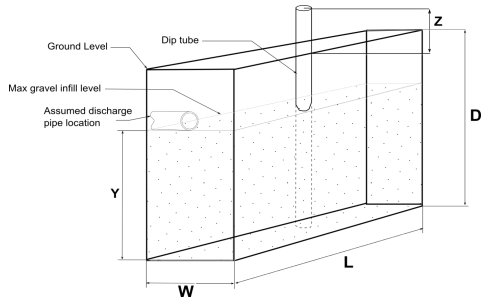
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
13:00	0.0	1.7	1.20
13:01	1.0	1.72	1.18
13:02	2.0	1.74	1.16
13:03	3.0	1.80	1.10
13:04	4.0	1.85	1.05
13:05	5.0	1.95	0.95
13:10	10.0	2.12	0.78
13:15	15.0	2.21	0.69
13:20	20.0	2.31	0.59
13:25	25.0	2.39	0.51
13:30	30.0	2.45	0.45
13:35	35.0	2.49	0.41
13:40	40.0	2.53	0.37
13:45	45.0	2.59	0.31
13:50	50.0	2.63	0.27
13:55	55.0	2.66	0.24



Test effective depth	1.20	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.90	m	2.00
50% effective depth:	0.60	m	2.30
25% effective depth:	0.30	m	2.60
t75	6.50	min	
t50		min	
t25	46.0	min	
Vp75-25	0.54	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.66	m2	
tp75-25	39.50	min	
Soil infiltration rate (f):	**1.87E-05**	m/s	
	0.02	mm/sec	
	1.61	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	1.00	Sandy SILT (RIVER TERRACE DEPOSITS).
1.00	1.50	Sandy SILT (RIVER TERRACE DEPOSITS)
1.50	2.90	Very gravelly clayey fine to coarse SAND. (RIVER TERRACE DEPOSITS) At 2.60 m bgl - lenses of very sandy gravelly CLAY and lenses of medium SAND.

Comments

Pit reference: IT6_3
Project: Hamble Quarry_331201108
Date of percolation tests 16/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.49	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2.9	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.34	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
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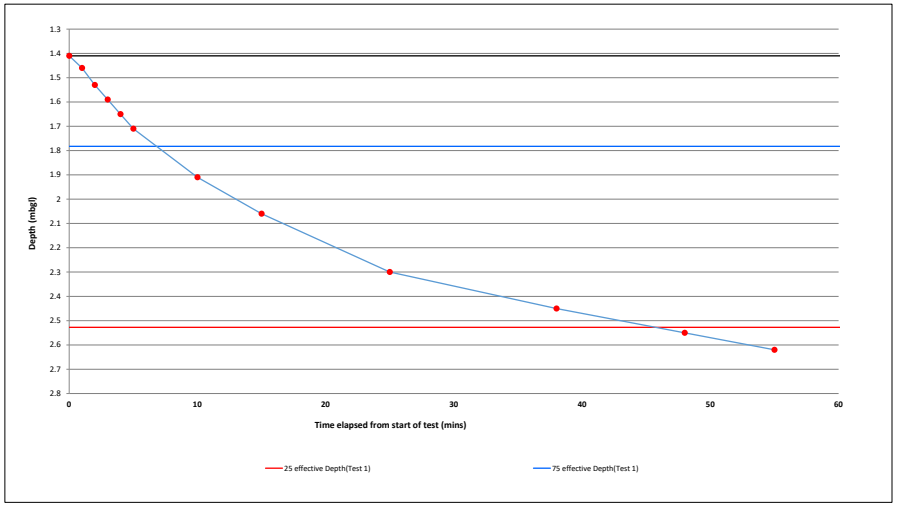
TEST 2

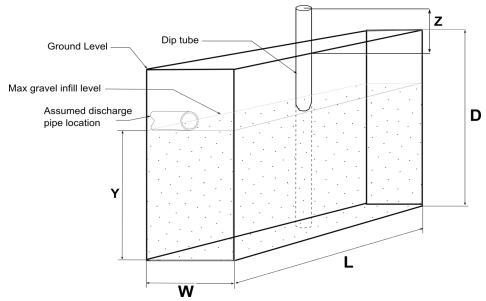
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
09:20	0.0	1.41	1.49
09:21	1.0	1.46	1.44
09:22	2.0	1.53	1.37
09:23	3.0	1.59	1.31
09:24	4.0	1.65	1.25
09:25	5.0	1.71	1.19
09:30	10.0	1.91	0.99
09:35	15.0	2.06	0.84
09:45	25.0	2.3	0.60
09:58	38.0	2.45	0.45
10:08	48.0	2.55	0.35
10:15	55.0	2.62	0.28



			Water Dip (mbGL)
Test effective depth	1.49	m (Water depth	
75% effective depth:	1.12	m	1.78
50% effective depth:	0.75	m	2.16
25% effective depth:	0.37	m	2.53
t75	6.90	min	
t50		min	
t25	46.0	min	
Vp75-25	0.67	m3	
Vp75 - Vp25 (corrected)	0.20	m3	
ap50	4.33	m2	
tp75-25	39.10	min	
Soil infiltration rate (f):	**1.98E-05**	m/s	
	0.02	mm/sec	
	1.71	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	1.00	Sandy SILT (RIVER TERRACE DEPOSITS).
1.00	1.50	Sandy SILT (RIVER TERRACE DEPOSITS)
1.50	2.90	Very gravelly clayey fine to coarse SAND. (RIVER TERRACE DEPOSITS) At 2.60 m bgl - lenses of very sandy gravelly CLAY and lenses of medium SAND.

Comments

Pit reference: IT6_3
Project: Hamble Quarry_331201108
Date of percolation tests 16/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.34	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2.9	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	1.21	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 3
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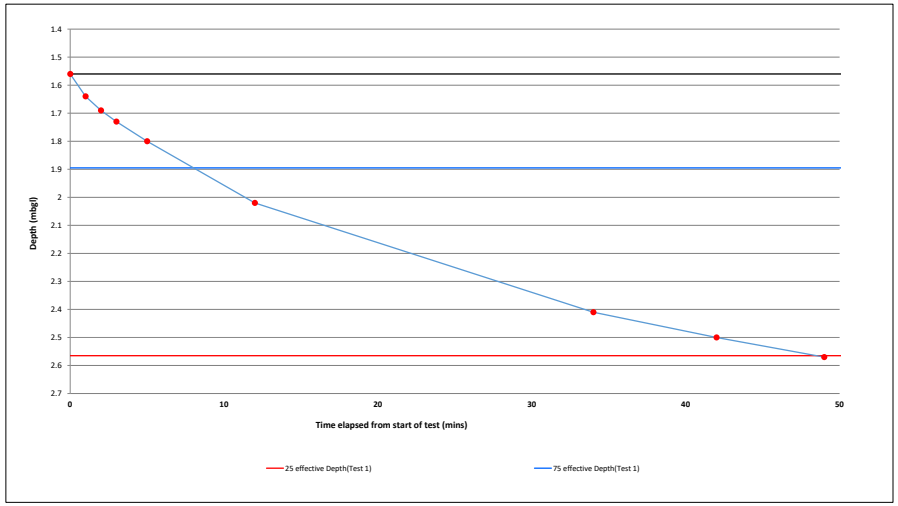
TEST 3

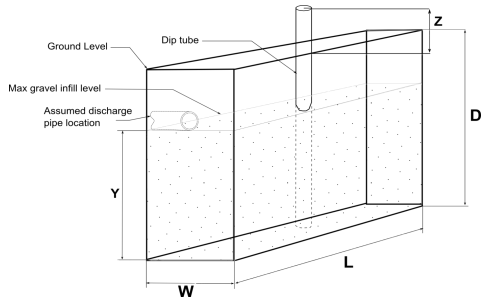
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
10:20	0.0	1.56	1.34
10:21	1.0	1.64	1.26
10:22	2.0	1.69	1.21
10:23	3.0	1.73	1.17
10:25	5.0	1.8	1.10
10:32	12.0	2.02	0.88
10:54	34.0	2.41	0.49
11:02	42.0	2.5	0.40
11:09	49.0	2.57	0.33



Test effective depth	1.34	m (Water depth	Water Dip (mbGL)
75% effective depth:	1.01	m	1.90
50% effective depth:	0.67	m	2.23
25% effective depth:	0.34	m	2.57
t75	8.00	min	
t50		min	
t25	49.0	min	
Vp75-25	0.60	m3	
Vp75 - Vp25 (corrected)	0.18	m3	
ap50	3.98	m2	
tp75-25	41.00	min	
Soil infiltration rate (f):	**1.85E-05**	m/s	
	0.02	mm/sec	
	1.60	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Gravelly SILT.
0.20	1.00	Sandy SILT (RIVER TERRACE DEPOSITS).
1.00	1.50	Sandy SILT (RIVER TERRACE DEPOSITS)
1.50	2.90	Very gravelly clayey fine to coarse SAND. (RIVER TERRACE DEPOSITS) At 2.60 m bgl - lenses of very sandy gravelly CLAY and lenses of medium SAND.

Comments

Pit reference: IT6_4
Project: Hamble Quarry_331201108
Date of percolation tests 15/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	0.80	*m*	**Completed by:**	MDM
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH
Trial pit depth (m):	2.5	*(D)*	Depth to Groundwater:		*mbgl*		
			Design effective depth volume:	0.72	*m3*		

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date:
20/09/2022
Sheet number:
1
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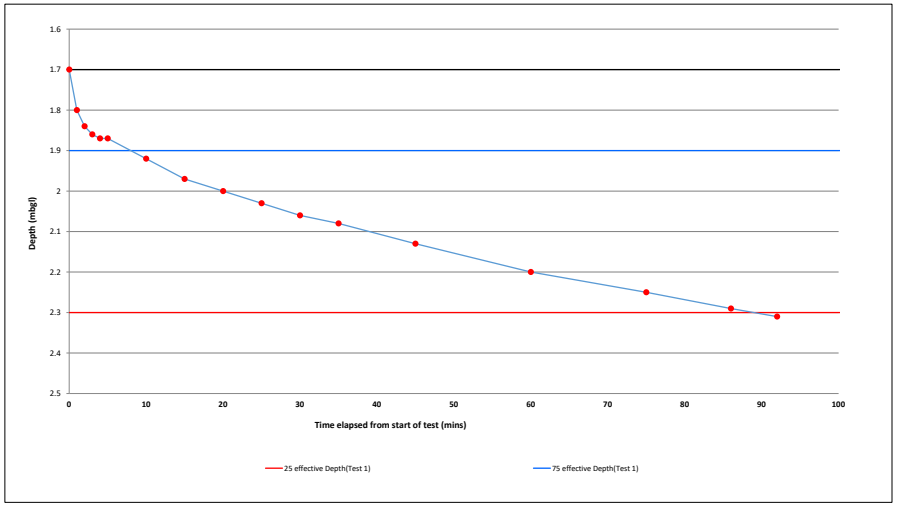
TEST 1

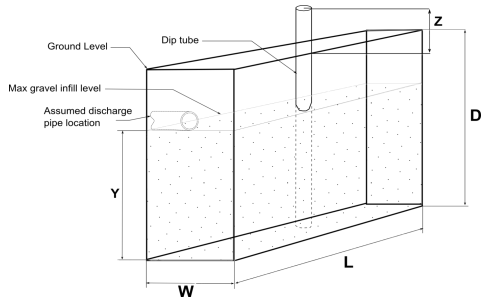
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
11:45	0.0	1.7	0.80
11:46	1.0	1.8	0.70
11:47	2.0	1.84	0.66
11:48	3.0	1.86	0.64
11:49	4.0	1.87	0.63
11:50	5.0	1.87	0.63
11:55	10.0	1.92	0.58
12:00	15.0	1.97	0.53
12:05	20.0	2	0.50
12:10	25.0	2.03	0.47
12:15	30.0	2.06	0.44
12:20	35.0	2.08	0.42
12:30	45.0	2.13	0.37
12:45	60.0	2.20	0.30
13:00	75.0	2.25	0.25
13:11	86.0	2.29	0.21
13:17	92.0	2.31	0.19



Test effective depth	0.80	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.60	m	1.90
50% effective depth:	0.40	m	2.10
25% effective depth:	0.20	m	2.30
t75	8.50	min	
t50		min	
t25	88.0	min	
Vp75-25	0.36	m3	
Vp75 - Vp25 (corrected)	0.11	m3	
ap50	2.74	m2	
tp75-25	79.50	min	
Soil infiltration rate (f):	**8.26E-06**	m/s	
	0.01	mm/sec	
	0.71	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



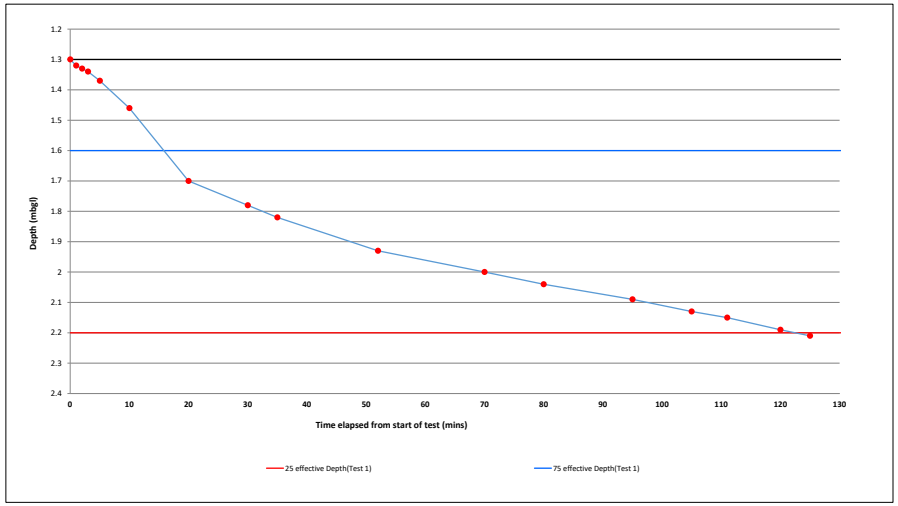
Soil Log:

From	To	
0.00	0.20	TOPSOIL: Slightly sandy SILT.
0.20	1.50	Slighly sandy slightly gravelly SILT (RIVER TERRACE DEPOSITS).
1.50	2.50	Very gravelly clayey fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS)
2.50	2.55	Fine to medium SAND. (SELSEY SAND FORMATION)

Comments
Contractor techinician should have been brought the water up to 1.5

Pit reference:	IT6_4	**Parameters:**						1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.20	*m*	**Completed by:** MDM	2) Formation overnight soaking is interpreted only	20/09/2022
Date of percolation tests	15/08/2022	Trial pit width (m):	0.45	*(W)*	Gravel porosity:	0.3		**Checked by:** PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	2.5	*(D)*	Depth to Groundwater:		*mbgl*			2
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	0.97	*m3*			Ver. 1 - Page1

TEST 2			
Time	**Elapsed (min)**	**Water dip (mbGL)**	**Depth of water in pit (m)***
13:44	0.0	1.3	1.20
13:45	1.0	1.32	1.18
13:46	2.0	1.33	1.17
13:47	3.0	1.34	1.16
13:49	5.0	1.37	1.13
13:54	10.0	1.46	1.04
14:04	20.0	1.70	0.80
14:14	30.0	1.78	0.72
14:19	35.0	1.82	0.68
14:36	52.0	1.93	0.57
14:54	70.0	2	0.50
15:04	80.0	2.04	0.46
15:19	95.0	2.09	0.41
15:29	105.0	2.13	0.37
15:35	111.0	2.15	0.35
15:44	120.0	2.19	0.31
15:49	125.0	2.21	0.29



Test effective depth	1.20	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.90	m	1.60
50% effective depth:	0.60	m	1.90
25% effective depth:	0.30	m	2.20
t75	16.00	min	
t50		min	
t25	122.5	min	
Vp75-25	0.49	m3	
Vp75 - Vp25 (corrected)	0.15	m3	
ap50	3.51	m2	
tp75-25	106.50	min	
Soil infiltration rate (f):	**6.50E-06**	m/s	
	0.01	mm/sec	
	0.56	m/day	

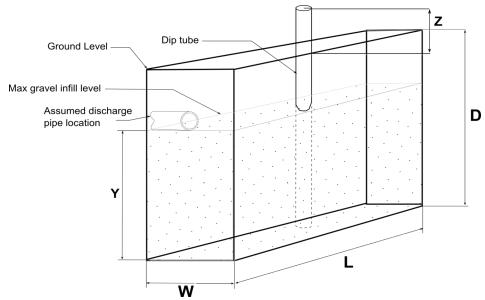
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

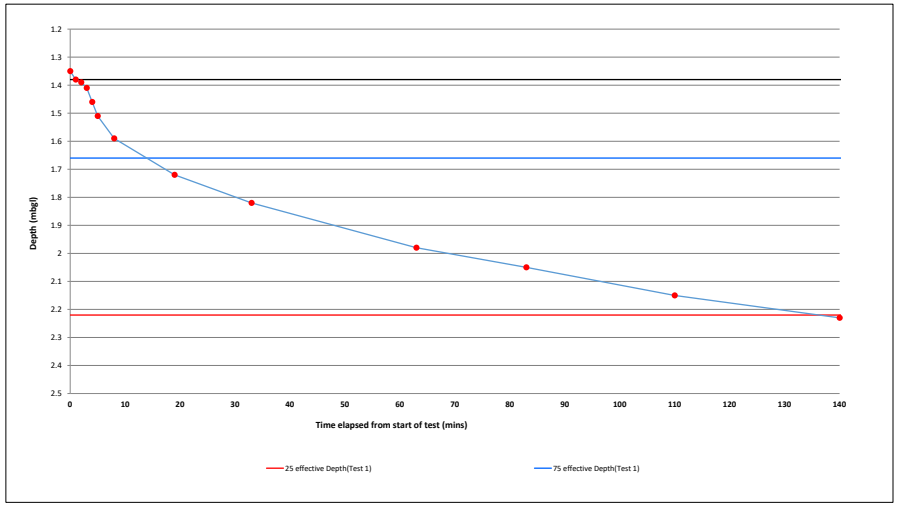
From	To	
0.00	0.20	TOPSOIL: Slightly sandy SILT.
0.20	1.50	Slighly sandy slightly gravelly SILT (RIVER TERRACE DEPOSITS).
1.50	2.50	Very gravelly clayey fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS)
2.50	2.55	Fine to medium SAND. (SELSEY SAND FORMATION)

Comments

Pit reference:	IT6_4	**Parameters:**								1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)	**Date:**
Project:	Hamble Quarry_331201108	Trial pit length (m):	1.8	*(L)*	Design effective depth (Y)	1.12	*m*	**Completed by:**	MDM	2) Formation overnight soaking is interpreted only	20/09/2022
Date of percolation tests	16/08/2022	Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3		**Checked by:**	PWH	in the absence of a standard test.	**Sheet number:**
Method:	BRE365	Trial pit depth (m):	2.5	*(D)*	Depth to Groundwater:		*mbgl*				3
Datum (mbgl):	*(Z, from Google Earth)*				Design effective depth volume:	1.01	*m3*				Ver. 1 - Page1

TEST 3

Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
08:38	0.0	1.35	1.12
08:39	1.0	1.38	1.12
08:40	2.0	1.39	1.11
08:41	3.0	1.41	1.09
08:42	4.0	1.46	1.04
08:43	5.0	1.51	0.99
08:46	8.0	1.59	0.91
08:57	19.0	1.72	0.78
09:11	33.0	1.82	0.68
09:41	63.0	1.98	0.52
10:01	83.0	2.05	0.45
10:28	110.0	2.15	0.35
10:58	140.0	2.23	0.27



Test effective depth	1.12	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.84	m	1.66
50% effective depth:	0.56	m	1.94
25% effective depth:	0.28	m	2.22
t75	12.00	min	
t50		min	
t25	136.2	min	
Vp75-25	0.50	m3	
Vp75 - Vp25 (corrected)	0.15	m3	
ap50	3.48	m2	
tp75-25	124.20	min	
Soil infiltration rate (f):	**5.84E-06**	m/s	
	0.01	mm/sec	
	0.50	m/day	

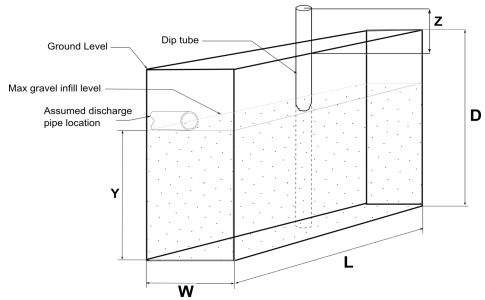
Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Slightly sandy SILT.
0.20	1.50	Slighly sandy slightly gravelly SILT (RIVER TERRACE DEPOSITS).
1.50	2.50	Very gravelly clayey fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS)
2.50	2.55	Fine to medium SAND. (SELSEY SAND FORMATION)

Comments

Pit reference: IT7_1
Project: Hamble Quarry_331201108
Date of percolation tests 22/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.6	*(L)*	Design effective depth (Y)	1.30	*m*
Trial pit width (m):	0.5	*(W)*	Gravel porosity:	0.3	
Trial pit depth (m):	3	*(D)*	Depth to Groundwater:		*mbgl*
			Design effective depth volume:	1.04	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 1
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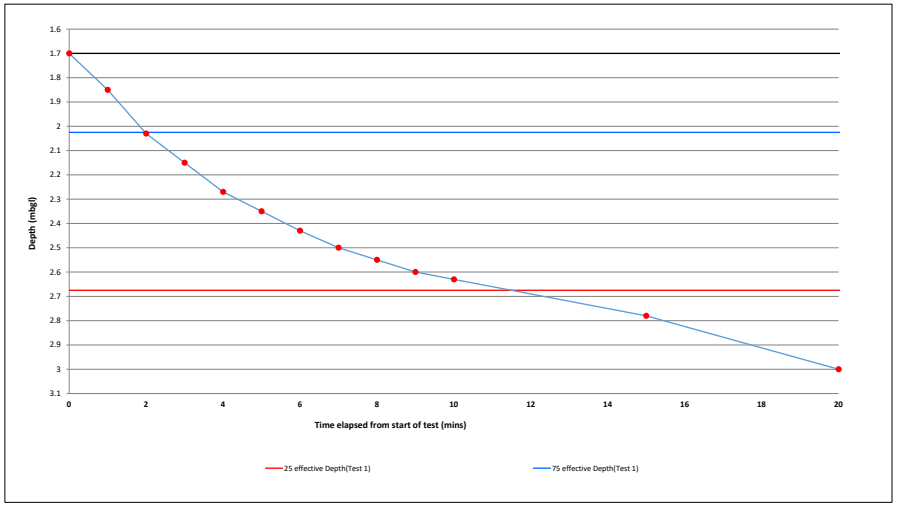
TEST 1

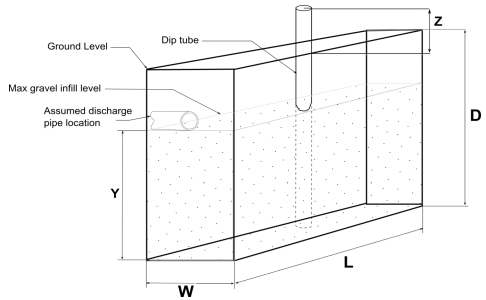
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
10:42	0.0	1.7	1.30
10:43	1.0	1.85	1.15
10:44	2.0	2.03	0.97
10:45	3.0	2.15	0.85
10:46	4.0	2.27	0.73
10:47	5.0	2.35	0.65
10:48	6.0	2.43	0.57
10:49	7.0	2.5	0.50
10:50	8.0	2.55	0.45
10:51	9.0	2.6	0.40
10:52	10.0	2.63	0.37
10:57	15.0	2.78	0.22
11:02	20.0	3	0.00



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	2.03
50% effective depth:	0.65	m	2.35
25% effective depth:	0.33	m	2.68
t75	2.00	min	
t50		min	
t25	11.5	min	
Vp75-25	0.52	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.53	m2	
tp75-25	9.50	min	
Soil infiltration rate (f):	**7.75E-05**	m/s	
	0.08	mm/sec	
	6.70	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Slightly gravelly SILT.
0.20	0.50	Very gravelly SILT (RIVER TERRACE DEPOSITS).
0.50	0.70	Clayey fine to medium SAND (RIVER TERRACE DEPOSITS).
0.70	1.70	Slightly gravelly very clayey medium to coarse SAND (RIVER TERRACE DEPOSITS).
1.70	3.00	Very gravelly slightly silty fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT7_1
Project: Hamble Quarry_331201108
Date of percolation tests 22/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.6	*(L)*
Trial pit width (m):	0.5	*(W)*
Trial pit depth (m):	3	*(D)*

Design effective depth (Y)	1.30	*m*
Gravel porosity:	0.3	
Depth to Groundwater:		*mbgl*
Design effective depth volume:	1.04	*m3*

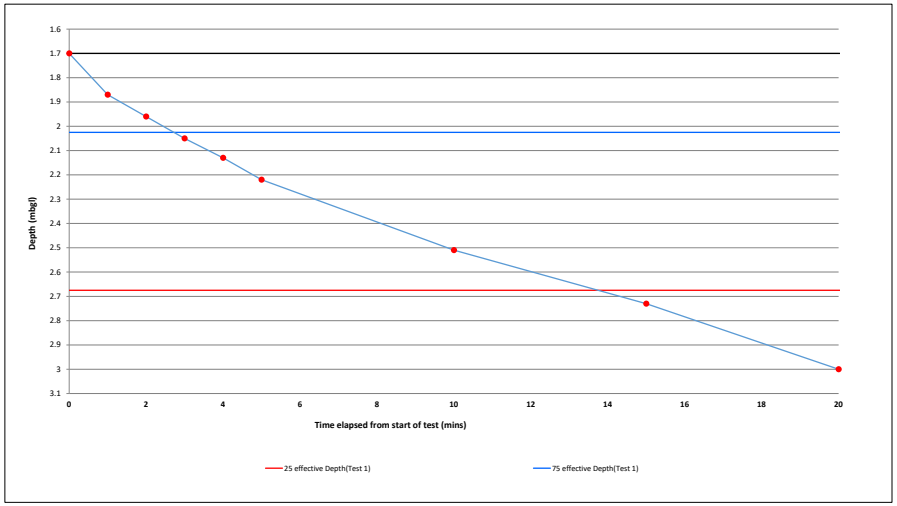
Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 2
Ver. 1 - Page1

TEST 2

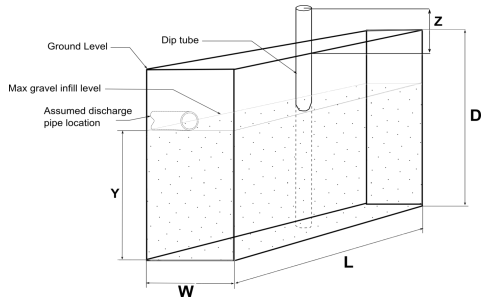
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
11:05	0.0	1.7	1.30
11:06	1.0	1.87	1.13
11:07	2.0	1.96	1.04
11:08	3.0	2.05	0.95
11:09	4.0	2.13	0.87
11:10	5.0	2.22	0.78
11:15	10.0	2.51	0.49
11:20	15.0	2.73	0.27
11:25	20.0	3	0.00



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	2.03
50% effective depth:	0.65	m	2.35
25% effective depth:	0.33	m	2.68
t75	2.80	min	
t50		min	
t25	13.9	min	
Vp75-25	0.52	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.53	m2	
tp75-25	11.10	min	
Soil infiltration rate (f):	**6.64E-05**	m/s	
	0.07	mm/sec	
	5.73	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Slightly gravelly SILT.
0.20	0.50	Very gravelly SILT (RIVER TERRACE DEPOSITS).
0.50	0.70	Clayey fine to medium SAND (RIVER TERRACE DEPOSITS).
0.70	1.70	Slightly gravelly very clayey medium to coarse SAND (RIVER TERRACE DEPOSITS).
1.70	3.00	Very gravelly slightly silty fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS)

Comments

Pit reference: IT7_1
Project: Hamble Quarry_331201108
Date of percolation tests 22/08/2022
Method: BRE365
Datum (mbgl): *(Z, from Google Earth)*

Parameters:

Trial pit length (m):	1.6	*(L)*
Trial pit width (m):	0.5	*(W)*
Trial pit depth (m):	3	*(D)*

Design effective depth (Y)	1.30	*m*
Gravel porosity:	0.3	
Depth to Groundwater:		*mbgl*
Design effective depth volume:	1.04	*m3*

Completed by: MDM
Checked by: PWH

1) *Water depth = Trial pit depth (mbgl) - dip (mbgl)
2) Formation overnight soaking is interpreted only in the absence of a standard test.

Date: 20/09/2022
Sheet number: 3
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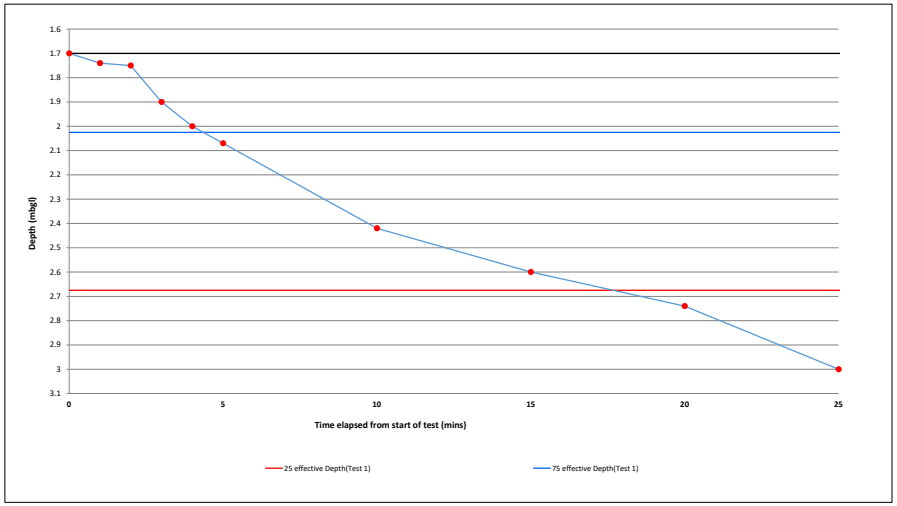
TEST 3

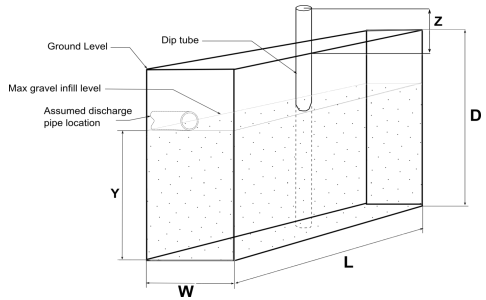
Time	Elapsed (min)	Water dip (mbGL)	Depth of water in pit (m)*
11:27	0.0	1.7	1.30
11:28	1.0	1.74	1.26
11:29	2.0	1.75	1.25
11:30	3.0	1.90	1.10
11:31	4.0	2	1.00
11:32	5.0	2.07	0.93
11:37	10.0	2.42	0.58
11:42	15.0	2.6	0.40
11:47	20.0	2.74	0.26
11:52	25.0	3	0.00



Test effective depth	1.30	m (Water depth	Water Dip (mbGL)
75% effective depth:	0.98	m	2.03
50% effective depth:	0.65	m	2.35
25% effective depth:	0.33	m	2.68
t75	4.50	min	
t50		min	
t25	17.7	min	
Vp75-25	0.52	m3	
Vp75 - Vp25 (corrected)	0.16	m3	
ap50	3.53	m2	
tp75-25	13.20	min	
Soil infiltration rate (f):	**5.58E-05**	m/s	
	0.06	mm/sec	
	4.82	m/day	

Soil infiltration rate, $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

where:
V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth;
a_{p50} = the internal surface area of the trial pit up to 50% effective depth and including the base area;
t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.



Soil Log:

From	To	
0.00	0.20	TOPSOIL: Slightly gravelly SILT.
0.20	0.50	Very gravelly SILT (RIVER TERRACE DEPOSITS).
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1.70	3.00	Very gravelly slightly silty fine to coarse SAND with high cobble content. (RIVER TERRACE DEPOSITS)

Comments

Location	Infiltration (m/s)
	5.49E-04
	3.30E-04
IT1_1	2.70E-04
	2.13E-04
	1.62E-04
IT1_2	1.67E-04
	4.62E-05
	3.85E-05
IT3_1	3.18E-05
	2.24E-06
	1.24E-06
IT3_2	2.27E-06
	7.28E-06
	7.02E-06
IT4_1	5.56E-06
	2.37E-04
	3.22E-04
IT4_2	1.69E-04
	1.52E-04
	9.64E-05
IT5_1	9.00E-05
	5.01E-04
	3.67E-04
IT5_2	3.85E-04
	1.25E-04
	9.32E-05
IT5_3	7.56E-05
	1.32E-05
	6.89E-06
IT5_4	8.25E-06
	9.09E-06
	6.08E-06
IT6_1	5.78E-06
	9.85E-05
	7.20E-05
IT6_2	6.96E-05
	1.87E-05
	1.98E-05
IT6_3	1.85E-05
	8.26E-06
	6.50E-06
IT6_4	5.84E-06
	7.75E-05
	6.64E-05
IT7_1	5.58E-05
Average m/s	1.11E-04