

Our Ref: BEK/21982/220112/1

12 January 2022

FAO William Knowles
LOWER HOUSE FARM
Lewth Lane
Woodplumpton
PRESTON
PR4 0TE

Dear William

Lower House Farm, Inskip – Site Investigation Factual Report

BEK Enviro (BEK) has been commissioned to provide information on ground conditions in the vicinity of a proposed slurry pit. The approximate location of the proposed slurry pit is shown on Figure 1 below.



Figure 1: Location of Proposed Slurry Pit and Lower House Farm building

An engineer from BEK supervised the excavation of three trial pits using a machine excavator to a maximum depth of 2.7 m below ground level. The trial pits were all located within the footprint of the proposed slurry pit. Photographs showing the trial pits are presented below.



GEO-ENVIRONMENTAL CONSULTING ENGINEERS

bEk Enviro Ltd

Suite One | No 3 Mitton Road Business Park
Mitton Road | Whalley | Lancashire | BB7 9YE

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mbuckley@bekenviro.co.uk | bekenviro.co.uk



Trial Pit 1



Clay Arisings from Trial Pit 1



Trial Pit 2



Clay Arisings from Trial Pit 2



Trial Pit 3



Clay Arisings from Trial Pit 3



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The ground conditions encountered generally comprised of topsoil to a depth of 0.3 m underlain by 'dark brown/grey mottled orange soft to stiff slightly sandy silty clay' to depths of approximately 2.0 m bgl. At approximately 2.0 m below ground level the general ground conditions become slightly sandier.

Two bulk clay samples were obtained from the trial pits at the location of the proposed slurry pit at depths of 1.0 m and 2.0 m below ground level and tested by UKAS accredited laboratory of Murray Rix for the determination of soil permeability in triaxial cell in accordance with BS EN 17892-11 (2019).

The results are generally consistent in terms of permeability, as follows:

| Location / Depth | Permeability (k) |
|------------------------|------------------|
| Trial Pit No 1 (1.0 m) | 8.8E-11 m/sec |
| Trial Pit No 2 (2.0 m) | 8.7E-11 m/sec |

The testing confirms that the samples tested are relatively impermeable.

A copy of the test results are presented in Annex A.

I trust the above is satisfactory. Should you require anything further please do not hesitate to contact the undersigned.

Yours sincerely

Michael Buckley

BSc (Hons) MSc MEnvSci CEnv



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ANNEX A

Geotechnical Test Results – Permeability

TEST REPORT

Client BEK Enviro Ltd

Address Suite One
No. 3 Mitton Road Business Park
Mitton Road
Whalley
Lancashire
BB7 9YE

Contract Lower House Farm, Inskip

Job Number MRN 4265/4
Date of Issue 12 January 2022
Pages 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET
 DUKINFIELD, CHESHIRE SK16 4QX
 TEL 0161 475 0870



TEST CERTIFICATE

DETERMINATION OF CONSTANT HEAD PERMEABILITY IN THE TRIAXIAL CELL
 (FLEXIBLE WALL PERMEAMETER)

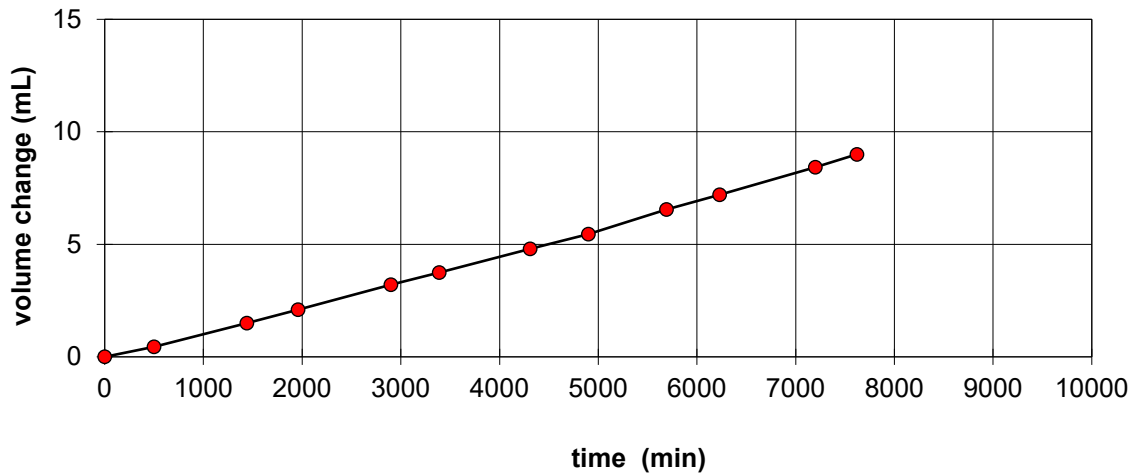
BS EN 17892-11:2019

| | |
|------------|--------------------------|
| CLIENT | BEK Enviro Ltd |
| SITE | Lower House Farm, Inskip |
| JOB NUMBER | MRN 4265/4 |

| | | | |
|----------------|------------|---------------|------------|
| SAMPLE LABEL | TP1 (1.0m) | DATE SAMPLED | 25/11/2021 |
| LAB SAMPLE No. | 107015 | DATE RECEIVED | 26/11/2021 |
| DATE TESTED | 30/11/2021 | SAMPLED BY | Client |

| | |
|----------------|--|
| MATERIAL | Soft light brown silty CLAY |
| ADVISED SOURCE | Site Investigation Sample |
| PRE TREATMENT | Recompacted at the as received moisture content using the 2.5kg rammer |

| INITIAL CONDITIONS | | FINAL CONDITIONS | | PERMEABILITY STAGE | |
|-------------------------|------------------------|----------------------|------------------------|------------------------|------------------|
| Height | 100 mm | | | Mean Effective Stress | 100 kPa |
| Diameter | 100 mm | | | Cell Pressure | 415 kPa |
| Bulk Density | 1.91 Mg/m ³ | Bulk Density | 1.93 Mg/m ³ | Base Pressure | 330 kPa |
| Moist. cont. | 29 % | Moist. cont. | 30 % | Top Pressure | 300 kPa |
| Dry Density | 1.48 Mg/m ³ | Dry Density | 1.49 Mg/m ³ | Differential Head | 30 kPa |
| Flow Direction | vertical upwards | | | Laboratory Temperature | (Avg.) 20 deg. C |
| Permeability (k) | | 8.8E-11 m/sec | | Steady State Flow | 1.27E-03 ml/min |



Remarks/Abnormalities

Method of Saturation = Cell and Back Pressure
 Value of pore pressure coefficient, B, achieved = 0.99
 Initial Moisture Content determined from sample preparation trimmings
 Source of water used was deaired tap water
 Signed

Name *S.J. Hutchings*
 (Director)

Date 12-Jan-22

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET
 DUKINFIELD, CHESHIRE SK16 4QX
 TEL 0161 475 0870



TEST CERTIFICATE

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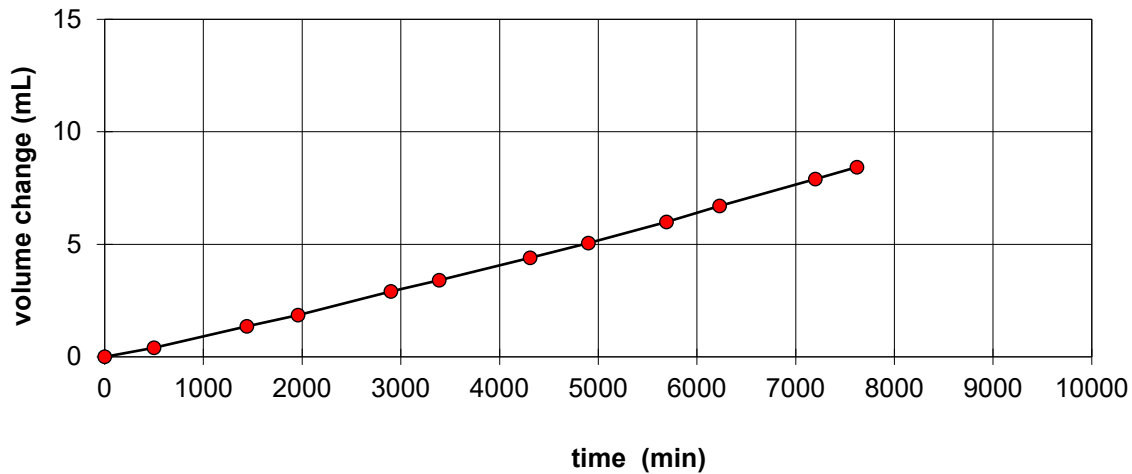
BS EN 17892-11:2019

| | |
|------------|--------------------------|
| CLIENT | BEK Enviro Ltd |
| SITE | Lower House Farm, Inskip |
| JOB NUMBER | MRN 4265/4 |

| | | | |
|----------------|------------|---------------|------------|
| SAMPLE LABEL | TP1 (2.0m) | DATE SAMPLED | 25/11/2021 |
| LAB SAMPLE No. | 107016 | DATE RECEIVED | 26/11/2021 |
| DATE TESTED | 30/11/2021 | SAMPLED BY | Client |

| | |
|----------------|--|
| MATERIAL | Soft light brown silty CLAY |
| ADVISED SOURCE | Site Investigation Sample |
| PRE TREATMENT | Recompacted at the as received moisture content using the 2.5kg rammer |

| INITIAL CONDITIONS | | FINAL CONDITIONS | | PERMEABILITY STAGE | |
|-------------------------|------------------------|----------------------|------------------------|------------------------|------------------|
| Height | 100 mm | | | Mean Effective Stress | 100 kPa |
| Diameter | 100 mm | | | Cell Pressure | 415 kPa |
| Bulk Density | 1.90 Mg/m ³ | Bulk Density | 1.94 Mg/m ³ | Base Pressure | 330 kPa |
| Moist. cont. | 27 % | Moist. cont. | 28 % | Top Pressure | 300 kPa |
| Dry Density | 1.50 Mg/m ³ | Dry Density | 1.51 Mg/m ³ | Differential Head | 30 kPa |
| Flow Direction | vertical upwards | | | Laboratory Temperature | (Avg.) 20 deg. C |
| Permeability (k) | | 8.7E-11 m/sec | | Steady State Flow | 1.26E-03 ml/min |



Remarks/Abnormalities

Method of Saturation = Cell and Back Pressure
 Value of pore pressure coefficient, B, achieved = 0.99
 Initial Moisture Content determined from sample preparation trimmings
 Source of water used was deaired tap water
 Signed

Name S.J. Hutchings Date 12-Jan-22
 (Director)