

**LABORATORY TEST CERTIFICATE
MATERIALS LABORATORY**



Certificate No: 4633/20

To : Stuart Sidebottom

Client : Knowsley Contractors Ltd
King Construction
1A Prestwood Place, Skelmersdale
Lancashire, WN8 9QE

Date: 18/08/2020

Dear Sirs,

FIELD & LABORATORY TESTING

Introduction

We refer to site testing undertaken on Windy Arbour/ Lickers Lane Playing Field.

Tested By : C. Salmon & K. Bescoby

Sample Reference : N/A

Description : See attached

Date Sampled : N/A

Date Tested : 13th July 2020

Source : N/A

Weather : Sunny

Test Results : Please see attached:
BH & TP Location Plan (from Client)
BH Logs and Core Photos
TP logs and Photo
Dynamic Cone Penetration (DCP) Reports
Soakaway Data and Soil Infiltration information

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
All remaining samples for this project will be disposed of 28 days after issue of this test certificate
When a statement of conformity is requested for a test result against limits set out in a standard or specification (e.g. BS EN ISO, SHW) that already considers measurement uncertainty, MATtest Midlands decision rule is to follow conformity requirements of the applicable standard or specification.
Results reported only relate to the items tested/ received.

Remarks;



Approved for Issue:

Position: Operations Manager

Issuing Office:



Head Office & Central

Unit 5 Draycott Mills, Off Market Street, Draycott, Derby, DE72 3NB

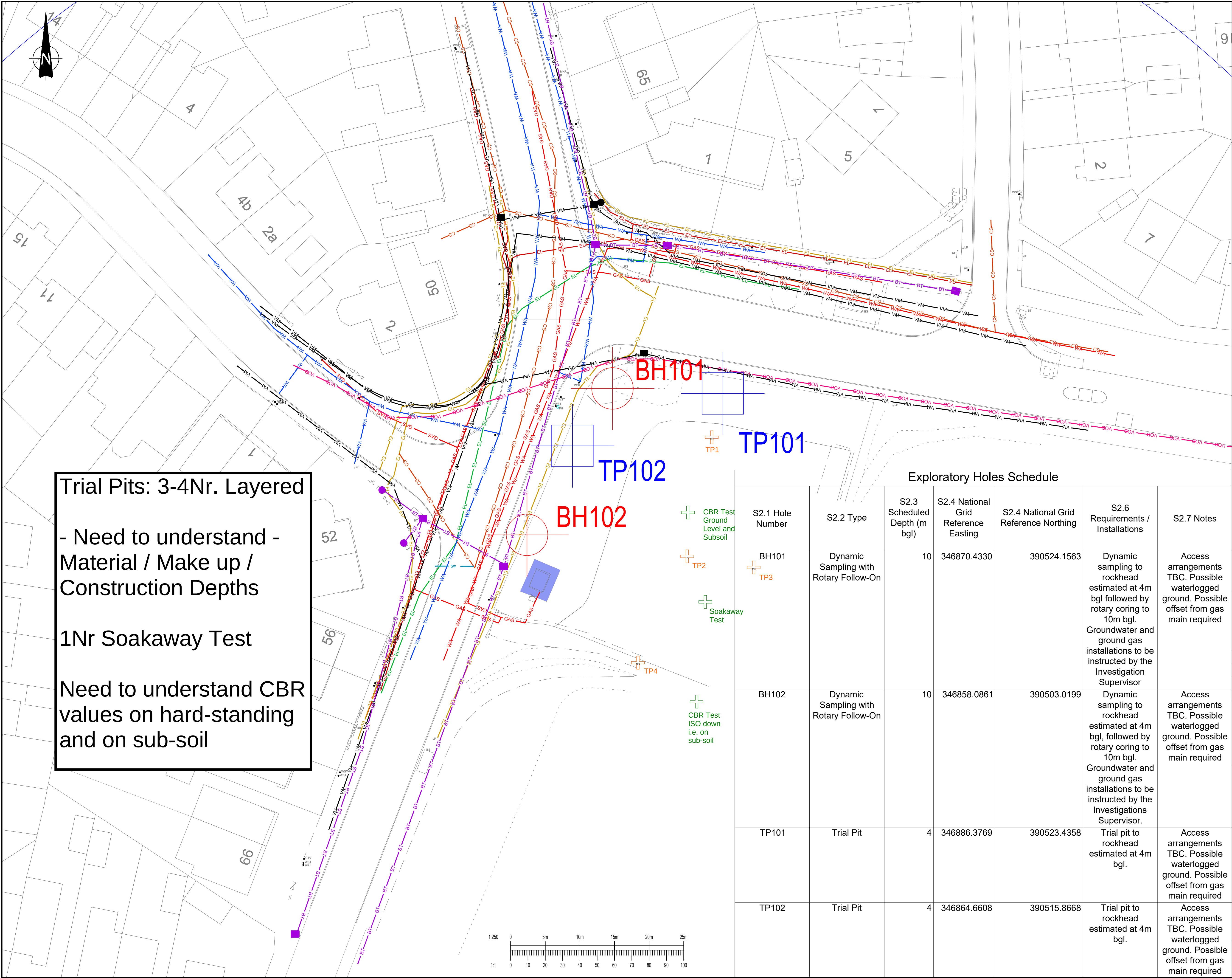


North West

Unit 15 Park Court, Sherdley Business Park, St. Helens, Merseyside, WA9 5GZ

Tel: 03333 202521 Web: www.mattestlaboratories.co.uk





Trial Pits: 3-4Nr. Layered

- Need to understand -
Material / Make up /
Construction Depths

1Nr Soakaway Test

Need to understand CBR
values on hard-standing
and on sub-soil

KEY:

BH Proposed Bore Hole Location

TP Proposed Trial Pit Location

Rev	Date	Description	By
B01	10.02.20	First Design Issue	JB

Amendments

Project	Halsnead Garden Village
Title	Windy Arbor Road / Lickers Lane Exploratory Holes OS Only
Client	Knowsley Council

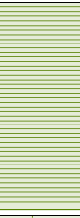
2nd Floor South Central 11 Peter Street Manchester M2 5GR
t 0161 839 8392 f 0161 839 8394
mail@watermargroup.com www.watermargroup.com

Drawing Status

DESIGN

Designed by	AM	Checked by	RB	Project No.	WIE 13628
Drawn by	JB	Date	FEB 2020	Computer File No.	
Scales @ A1 work to figured dimensions only 1:250					
Publisher	Zone	Category	Number	Revision	
WIE	0	95	0002EHB	B01	

Exploratory Holes Schedule							
S2.1 Hole Number	S2.2 Type	S2.3 Scheduled Depth (m bgl)	S2.4 National Grid Reference Easting	S2.4 National Grid Reference Northing	S2.6 Requirements / Installations	S2.7 Notes	
BH101 TP3	Dynamic Sampling with Rotary Follow-On	10	346870.4330	390524.1563	Dynamic sampling to rockhead estimated at 4m bgl followed by rotary coring to 10m bgl. Groundwater and ground gas installations to be instructed by the Investigation Supervisor	Access arrangements TBC. Possible waterlogged ground. Possible offset from gas main required	
BH102	Dynamic Sampling with Rotary Follow-On	10	346858.0861	390503.0199	Dynamic sampling to rockhead estimated at 4m bgl, followed by rotary coring to 10m bgl. Groundwater and ground gas installations to be instructed by the Investigations Supervisor.	Access arrangements TBC. Possible waterlogged ground. Possible offset from gas main required	
TP101	Trial Pit	4	346886.3769	390523.4358	Trial pit to rockhead estimated at 4m bgl.	Access arrangements TBC. Possible waterlogged ground. Possible offset from gas main required	
TP102	Trial Pit	4	346864.6608	390515.8668	Trial pit to rockhead estimated at 4m bgl.	Access arrangements TBC. Possible waterlogged ground. Possible offset from gas main required	

			Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197			Date: 13th August 2020			BOREHOLE NO. BH101								
CLIENT MATtest Midlands Ltd						Ground Level:			Sheet No. 1 of 2								
SITE LOCATION Lickers Lane, Whiston						Orientation:			Job No. EAL.17.20								
						Coordinates:											
						Plant: Massenza M13 Rotary Rig											
						Dimensions:											
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results					N Value	Installation	Core Records			Test Sample Details
				Depth	No	Type	Seating	Test Drive						TCR	SCR	RQD	
MADE GROUND comprising black sandy gravel. Gravel is fine to coarse sub-angular to angular granite and tarmac fragments. Hardstanding.	0.10		0.10 (0.10)	0.5	1	D											
MADE GROUND comprising dark brown slightly gravelly fine to coarse sand. Gravel is fine to medium sub-angular to angular brick and tarmac.	0.20		1.00 (0.90)														
	0.30																
	0.40																
	0.50																
	0.60																
	0.70																
	0.80																
	0.90																
	1.00																
MADE GROUND comprising dark grey mottled yellow and black slightly gravelly sandy clay. Gravel is fine to coarse sub-angular to angular coal fragments. (Reworked natural).	1.10		1.50 (0.50)	1.0 - 1.5	2	B											
	1.20																
	1.30																
	1.40																
	1.50																
Very stiff yellowish brown mottled orange silty sandy CLAY. GLACIAL TILL.	1.60		2.10 (0.60)	1.5 - 2.0	3	B											
	1.70																
	1.80																
	1.90																
	2.00																
	2.10																
Extremely weak dark grey MUDSTONE. Recovered as gravelly sand. PENNINE MIDDLE COAL MEASURES.	2.20		2.20 (0.10)	2.2	4	D											
Borehole continued with rotary coring. No recovery from 2.10m to 2.70mbgl.	2.30																2.70 (0.50)
	2.40																
	2.50																
	2.60																
	2.70																
Very weak thinly laminated black MUDSTONE. Extremely closely to very closely spaced horizontal to subhorizontal fractures, undulating, rough, along bedding planes. Weathered to clay penetrating 1mm along fracture planes. Recovered as non intact gravel sized fragments. PENNINE MIDDLE COAL MEASURES.	2.80		3.00 (0.30)														
	2.90																
	3.00																
No recovery from 3.00 to 3.50mbgl.	3.10																3.50 (0.50)
	3.20																
	3.30																
	3.40																
	3.50																
Very stiff dark grey silty sandy CLAY. Occasional sub-angular to angular mudstone lithorelicts. PENNINE MIDDLE COAL MEASURES.	3.60		3.70 (0.20)														
	3.70																
Very weak thinly laminated black MUDSTONE. Extremely closely to very closely spaced horizontal to subhorizontal fractures, undulating, rough, along bedding planes. Weathered to clay penetrating 1mm along fracture planes. Recovered as non intact gravel sized fragments. PENNINE MIDDLE COAL MEASURES.	3.80		4.50 (0.80)														
	3.90																
	4.00																
	4.10																
	4.20																
	4.30																
	4.40																
	4.50																
Very stiff dark grey silty sandy CLAY. Occasional sub-angular to angular mudstone lithorelicts. PENNINE MIDDLE COAL MEASURES.	4.60		5.30 (0.80)														
	4.70																
	4.80																
	4.90																
	5.00																

Borehole record continued on Page 2

Casing record			Chiselling records								
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
13.08.20	100	9.00									
Remarks:						Logged By:		Checked By:		Date	Scale
1. Gas/groundwater monitoring standpipe installed to 10.0m (GL to 1.0m plain/bentonite, 1.0m to 10.0m slotted/gravel).						PD		PD		16.08.20	NTS
2. No groundwater encountered.											
3. Borehole remained stable throughout drilling.											

			Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197			Date: 14th August 2020 Ground Level: Orientation: Coordinates: Plant: Massenza M13 Rotary Rig Dimensions:			BOREHOLE NO. BH101 Sheet No. 2 of 2 Job No. EAL.17.20								
CLIENT MATtest Midlands Ltd			SITE LOCATION Lickers Lane, Whiston														
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results					N Value	Installation	Core Records			Test Sample Details
				Depth	No	Type	Seating	Test Drive						TCR	SCR	RQD	
... Continued from page 1.	5.10 5.20 5.30		5.30 (0.80)														
Very weak thinly laminated black MUDSTONE. Extremely closely to very closely spaced horizontal to subhorizontal fractures, undulating, rough, along bedding planes. Weathered to clay penetrating 1mm along fracture planes. PENNINE MIDDLE COAL MEASURES.	5.40 5.50 5.60 5.70 5.80 5.90 6.00		6.00 (0.70)											97	29	29	
Very stiff dark grey silty sandy CLAY. Occasional sub-angular to angular mudstone lithorelicts. PENNINE MIDDLE COAL MEASURES.	6.10 6.20 6.30 6.40 6.50		6.50 (0.50)														
No recovery from 6.50m to 7.00mbgl.	6.60 6.70 6.80 6.90 7.00		7.00 (0.50)											44	27	0	
Very stiff dark grey silty sandy CLAY. Occasional sub-angular to angular mudstone lithorelicts. PENNINE MIDDLE COAL MEASURES.	7.10 7.20 7.30 7.40 7.50		7.50 (0.50)														
Very weak thinly laminated black MUDSTONE. Extremely closely to very closely spaced horizontal to subhorizontal fractures, undulating, rough, along bedding planes. Weathered to clay penetrating 1mm along fracture planes. Recovered as non intact gravel sized fragments. PENNINE MIDDLE COAL MEASURES.	7.60 7.70 7.80 7.90 8.00 8.10 8.20 8.30 8.40 8.50 8.60 8.70 8.80 8.90 9.00 9.10 9.20 9.30 9.40 9.50 9.60 9.70 9.80 9.90		9.90 (2.40)											93	11	7	
... 8.30m to 8.40m solid core.																	
Very weak black coal.	10.00		10.0 (0.10)											92	15	0	
Borehole terminated at 10.00mbgl.																	

Casing record			Chiselling records									
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks	
13.08.20	100	9.00										
Remarks:												
1. Gas/groundwater monitoring standpipe installed to 10.0m (GL to 1.0m plain/bentonite, 1.0m to 10.0m slotted/gravel).									Logged By:	Checked By:	Date	Scale
2. No groundwater encountered.									PD	PD	16.08.20	NTS
3. Borehole remained stable throughout drilling.												

 Web: www.erdaltd.co.uk Email: p.devitt@erdaltd.co.uk Mob: 07531 051197				Date: 15th August 2020				BOREHOLE NO. BH102 Sheet No. 1 of 2 Job No. EAL.17.20									
CLIENT MATtest Midlands Ltd				Ground Level:													
SITE LOCATION Lickers Lane, Whiston				Orientation: Coordinates: Plant: Massenza M13 Rotary Rig Dimensions:													
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results					Core Records			Test Sample Details		
				Depth	No	Type	Seating	Test Drive				N Value	Installation	TCR		SCR	RQD
MADE GROUND comprising dark brown slightly gravelly fine to coarse sand. Gravel is fine to medium sub-angular to angular brick and tarmac.	0.10		0.60 (0.60)														
	0.20																
	0.30																
	0.40																
	0.50																
	0.60																
Very stiff yellowish brown mottled light grey silty sandy CLAY. GLACIAL TILL.	0.70		2.00 (1.40)														
	0.80																
	0.90																
	1.00																
	1.10																
	1.20																
	1.30																
	1.40																
	1.50																
	1.60																
	1.70																
	1.80																
	1.90																
	2.00																
Very weak thinly laminated black MUDSTONE. Extremely closely to very closely spaced horizontal to subhorizontal fractures, undulating, rough, along bedding planes. Weathered to clay and Iron Oxide staining penetrating 1mm along fracture planes. Recovered as non intact gravel sized fragments. PENNINE MIDDLE COAL MEASURES.	2.10		4.00 (2.00)														
	2.20																
	2.30																
	2.40																
	2.50																
	2.60																
	2.70																
	2.80																
	2.90																
	3.00																
	3.10																
	3.20																
	3.30																
	3.40																
	3.50																
	3.60																
Very stiff dark grey silty sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular mudstone lithorelicts. PENNINE MIDDLE COAL MEASURES.	3.70		4.50 (0.50)														
	3.80																
	3.90																
	4.00																
	4.10																
Very weak thinly laminated dark grey MUDSTONE. Very closely horizontal to sub horizontal fractures, undulating, rough, along bedding planes. Weathered to clay and Iron Oxide staining penetrating 1mm along fracture planes. PENNINE MIDDLE COAL MEASURES.	4.20		4.80 (0.30)														
	4.30																
	4.40																
	4.50																
Very weak thinly laminated dark grey MUDSTONE. Very closely horizontal to sub horizontal fractures, undulating, rough, along bedding planes. Weathered to clay penetrating 1mm along	4.60																
	4.70																
	4.80																
	4.90																
	5.00																
HSV @ 1.60m = 120																	

Casing record			Chiselling records									
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks	
15.08.20	100	9.00										
Remarks:												
1. Gas/groundwater monitoring standpipe installed to 10.0m (GL to 1.0m plain/bentonite, 1.0m to 10.0m slotted/gravel). 2. No groundwater encountered. 3. Borehole remained stable throughout drilling.									Logged By:	Checked By:	Date	Scale
									PD	PD	17.08.20	NTS



Web: www.erda-ltd.co.uk
Email: p.devitt@erda-ltd.co.uk
Mob: 07531 051197

Date: 15th August 2020
Ground Level:
Orientation:
Coordinates:
Plant: Massenza M13 Rotary Rig
Dimensions:

CLIENT
MATtest Midlands Ltd

SITE LOCATION
Lickers Lane, Whiston

BOREHOLE NO.
BH102

Sheet No. 2 of 2

Job No.
EAL.17.20

Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results						Core Records			Test Sample Details	
				Depth	No	Type	Seating	Test Drive			N Value	Installation	TCR	SCR	RQD		
				From	To		From	To	From	To	From	To	N Value	Installation	TCR	SCR	RQD
fracture planes. PENNINE MIDDLE COAL MEASURES. ... continued from page 1.	5.10 5.20 5.30 5.40		5.40 (0.60)												84	36	0
Very stiff dark grey silty sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular mudstone lithorelicts. PENNINE MIDDLE COAL MEASURES.	5.50 5.60 5.70 5.80 5.90		5.90 (0.50)														
Very weak thinly laminated dark grey MUDSTONE. Very closely horizontal to sub horizontal fractures, undulating, rough, along bedding planes. Weathered to clay penetrating 1mm along fracture planes. PENNINE MIDDLE COAL MEASURES.	6.00 6.10 6.20 6.30		6.30 (0.40)												92	37	11
Very weak black COAL. Closely horizontal to sub horizontal fractures. Sub vertical joints. PENNINE MIDDLE COAL MEASURES.	6.40 6.50 6.60 6.70 6.80 6.90		6.90 (0.60)														
Very weak thinly laminated dark grey MUDSTONE. Very closely horizontal to sub horizontal fractures, undulating, rough, along bedding planes. Weathered to clay penetrating 1mm along fracture planes. Recovered as non intact gravel sized fragments. PENNINE MIDDLE COAL MEASURES.	7.00 7.10 7.20 7.30 7.40 7.50		7.50 (0.60)												94	43	31
Very weak thinly laminated dark grey MUDSTONE. Very closely to closely horizontal to sub horizontal fractures, undulating, rough, along bedding planes. Weathered to clay penetrating 1mm along fracture planes. PENNINE MIDDLE COAL MEASURES.	7.60 7.70 7.80 7.90 8.00 8.10 8.20 8.30 8.40 8.50 8.60 8.70 8.80 8.90 9.00 9.10 9.20 9.30 9.40 9.50		9.50 (2.00)												98	73	11
No recovery from 9.50m to 10.0mbgl.	9.60 9.70 9.80 9.90 10.00		10.00 (0.50)												93	19	0

Borehole terminated at 10.0mbgl.

Casing record			Chiselling records								
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
15.08.20	100	9.00									
Remarks: 1. Gas/groundwater monitoring standpipe installed to 10.0m (GL to 1.0m plain/bentonite, 1.0m to 10.0m slotted/gravel). 2. No groundwater encountered. 3. Borehole remained stable throughout drilling.						Logged By:	Checked By:	Date		Scale	
						PD	PD	17.08.20		NTS	

KEY:

DO NOT SCALE



TITLE:

Borehole Core Photos – BH01

PROJECT:

Lickers Lane, Whiston

PROJECT No:

EAL.17.20

DATE:

08/2020

SCALE :

NTS

DRAWN :

PD

DWG No:

Figure 1

Left to right - 2.00m to 3.00m



Left to right - 3.00m to 4.50m

Left to right – 4.50m to 5.50m

KEY:

DO NOT SCALE



TITLE:

Borehole Core Photos – BH01

PROJECT:

Lickers Lane, Whiston

PROJECT No:

EAL.17.20

DATE:

08/2020

SCALE :

NTS

DRAWN :

PD

DWG No:

Figure 1

Left to right - 6.00m to 7.00m



Left to right - 7.00m to 8.00m

Left to right – 8.00m to 9.00m

Left to right - 9.00m to 10.00m



KEY:

DO NOT SCALE



TITLE:

Borehole Core Photos – BH01

PROJECT:

Lickers Lane, Whiston

PROJECT No:

EAL.17.20

DATE:

08/2020

SCALE :

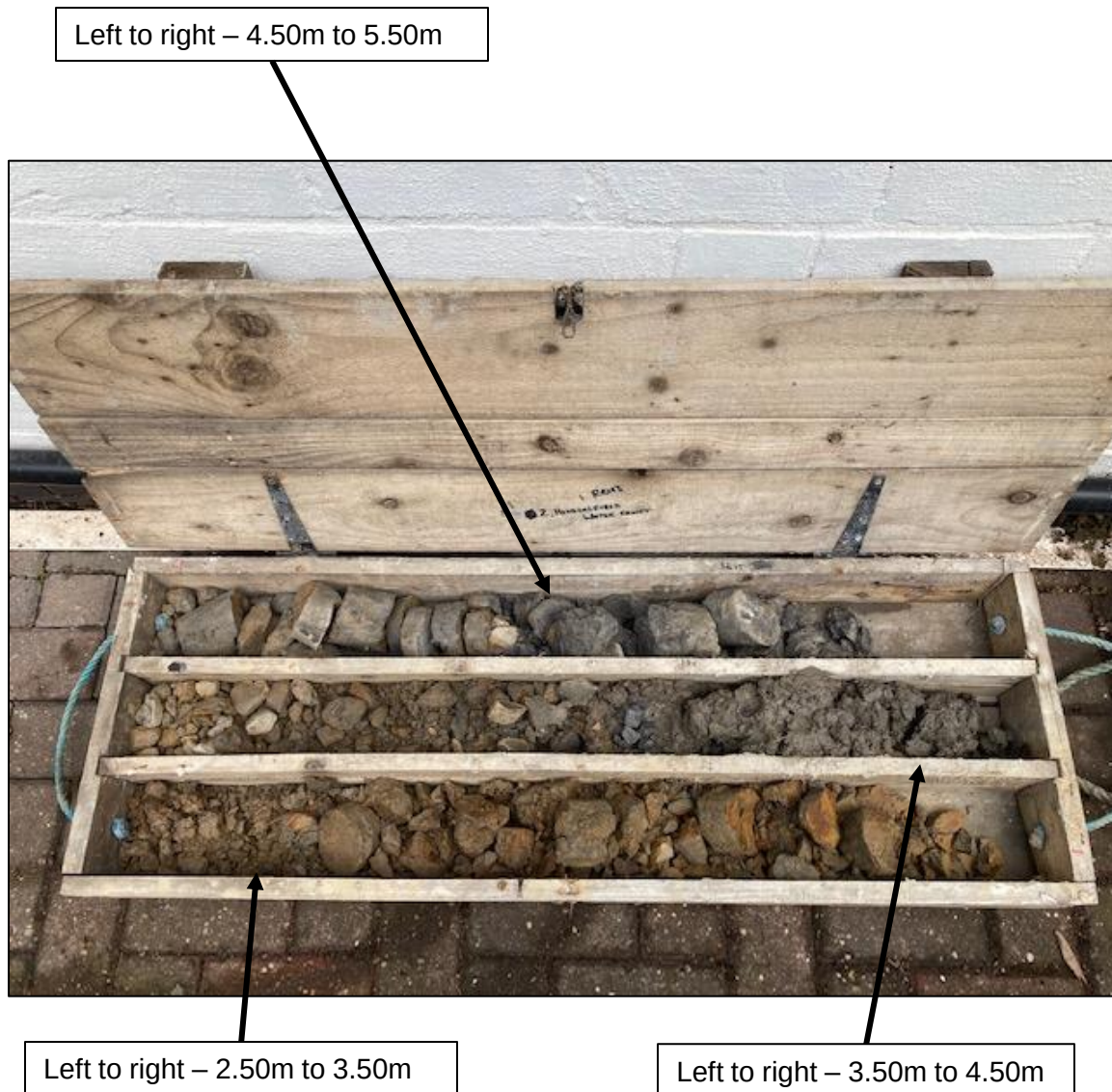
NTS

DRAWN :

PD

DWG No:

Figure 1



KEY:

DO NOT SCALE



TITLE:

Borehole Core Photos – BH02

PROJECT:

Lickers Lane, Whiston

PROJECT No:

EAL.17.20

DATE:

08/2020

SCALE :

NTS

DRAWN :

PD

DWG No:

Figure 1

KEY:

DO NOT SCALE



TITLE:

Borehole Core Photos – BH02

PROJECT:

Lickers Lane, Whiston

PROJECT No:

EAL.17.20

DATE:

08/2020

SCALE :

NTS

DRAWN :

PD

DWG No:

Figure 1

Left to right – 7.50m to 8.50m



Left to right – 5.50m to 6.50m

Left to right – 6.50m to 7.50m



Left to right – 8.50m to 9.50m

KEY:

DO NOT SCALE



TITLE:

Borehole Core Photos – BH02

PROJECT:

Lickers Lane, Whiston

PROJECT No:

EAL.17.20

DATE:

08/2020

SCALE :

NTS

DRAWN :

PD

DWG No:

Figure 1

BOREHOLE- / TRIAL PIT LOG

CLIENT **KING CONSTRUCTION**
 JOB REF: **4633/20**
 CONTRACT: **WINDY ARBOR/LICKERS LANE**
(Whiston Juniors Playing Fields)
 LOCATION: **SEE TP LOCATION PLAN**
 PLAN SIZE: **3.00m x 2.20m**

TP REF: **TP101**
 DATE: **13/08/20**
 WEATHER: **SUNNY**
 LOGGED BY: **CS**
 EASTING: **53.40887333**
 NORTHING: **-2.80045152**

Depth (m)	Thickness (m)	Sample No. & Type	Sample Interval	Description	CBR %	MC %	Comments
0.50	0.50	1B 2SB 3D	0.00 to 0.50	Black, sandy, silty, occ gravel, occ cobble of house brick, occ pottery -TOPSOIL/MADE GROUND			See Also DCP Report
1.20	0.70	4B 5SB 6D	0.50 to 1.20	Orangey brown, slightly sandy, sl silty, firm/stiff consistency CLAY/BOULDER CLAY			
2.50	1.30	7B 8SB 9D	1.20 to 2.50	Grey, silty, firm/stiff consistency CLAY/BOULDER CLAY - organic odour at around 2.40m			
4.30	1.80	10B 11SB 12D	2.50 to 4.30	Black, grey, thinly laminated, highly weathered MUDSTONE			
				End of TP at 4.30m bgl			TP DRY

TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields) 5DT	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 101		

PHOTO 1 SHOWING GENERAL POSITION



PHOTO 2 SHOWING GENERAL POSITION



TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 101		

PHOTO 3 SHOWING GENERAL SOIL PROFILE



PHOTO 4 SHOWING NATURE OF ARISING



BOREHOLE- / TRIAL PIT LOG

CLIENT: **KING CONSTRUCTION**
 JOB REF: **4633/20**
 CONTRACT: **WINDY ARBOR/LICKERS LANE**
(Whiston Juniors Playing Fields)
 LOCATION: **SEE TP LOCATION PLAN**
 PLAN SIZE: **3.00m x 2.20m**

TP REF: **TP102**
 DATE: **14/08/20**
 WEATHER: **SUNNY**
 LOGGED BY: **CS**
 EASTING: **53.40878998**
 NORTHING: **-2.80077507**

Depth (m)	Thickness (m)	Sample No. & Type	Sample Interval	Description	CBR %	MC %	Comments
0.40	0.40	1B 2SB 3D	0.00 0.40	Black, sandy, silty, occasional gravel, occasional cobble of brick, occasional pottery TOPSOIL/MADE GROUND			See also DCP report
4.00	3.60	4B 5SB 6D	0.40 4.00	Orangey brown, slightly sandy, sl silty, stiff consistency CLAY/BOULDER CLAY localised pockets/lenses of sandy gravel			
4.50	0.50	7B 8SB 9D	4.00 to 4.50	Bluish grey, orangey brown thinly laminated, completely weathered MUDSTONE recovered as fine gravel and cobbles of mudstone with traces of coal 150mm thick			
				End of TP at 4.50m bgl			TP DRY

TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	14/02/20
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields) 5DT	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 102		

PHOTO 1 SHOWING GENERAL POSITION



PHOTO 2 SHOWING GENERAL POSITION



TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	14/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 102		

PHOTO 3 SHOWING GENERAL SOIL PROFILE



PHOTO 4 SHOWING NATURE OF ARISING



BOREHOLE / TRIAL PIT LOG

CLIENT: **KING CONSTRUCTION**
 JOB REF: **4633/20**
 CONTRACT: **WINDY ARBOR/LICKERS LANE**
(Whiston Juniors Playing Fields)
 LOCATION: **SEE TP LOCATION PLAN**
 PLAN SIZE: **1.40 x 1.20m**

TP REF: **TP1**
 DATE: **13/08/20**
 WEATHER: **SUNNY**
 LOGGED BY: **CS**
 EASTING: **53.40882336**
 NORTHING: **-2.80042838**

Depth (m)	Thickness (m)	Sample No. & Type	Sample Interval	Description	CBR %	MC %	Comments
0.70	0.70	1B 2SB 3D	0.00 to 0.70	Black, sandy, fmc gravel of ash, clinker, bituminous material, limestone, granite - MADE GROUND			See also soakaway report
1.00	0.30	4B 5SB 6D	0.70 to 1.00	Orangey brown, slightly sandy, sl silty, firm/stiff consistency CLAY/BOULDER CLAY			HAND SHEAR VANE AT 0.90m 94,120,120
1.00				End of TP at 1.00m bgl			TP DRY

TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 1		

PHOTO 1 SHOWING GENERAL POSITION AND NATURE OF ARISING



PHOTO 2 SHOWING GENERAL SOIL PROFILE



TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 1		

PHOTO 3 SHOWING GENERAL SOIL PROFILE



PHOTO 4 SHOWING SOAKAWAY LEVEL AT START OF 2nd DAY



BOREHOLE- / TRIAL PIT LOG

CLIENT: **KING CONSTRUCTION**
 JOB REF: **4633/20**
 CONTRACT: **WINDY ARBOR/LICKERS LANE**
(Whiston Juniors Playing Fields)
 LOCATION: **SEE TP LOCATION PLAN**
 PLAN SIZE: **1.20 x 1.10m**

TP REF: **TP2**
 DATE: **13/08/20**
 WEATHER: **SUNNY**
 LOGGED BY: **CS**
 EASTING: **53.40885282**
 NORTHING: **-2.80058831**

Depth (m)	Thickness (m)	Sample No. & Type	Sample Interval	Description	CBR %	MC %	Comments
0.70	0.70	1B 2SB 3D	0.00 to 0.70	Black, sandy, fmc gravel of ash, clinker, bituminous material, limestone, granite - MADE GROUND			See also DCP report
1.10	0.40	4B 5SB 6D	0.70 to 1.00	Orangey brown, slightly sandy, sl silty, firm/stiff consistency CLAY/BOULDER CLAY			
				End of TP at 1.10m bgl			TP DRY

TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 2		

PHOTO 1 SHOWING GENERAL POSITION AND NATURE OF ARISING



PHOTO 2 SHOWING GENERAL SOIL PROFILE



TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 2		

PHOTO 3 SHOWING GENERAL SOIL PROFILE AND POSITION OF DCP



PHOTO 4 SHOWING CLOSE UP OF CLAY MATERIAL



CLIENT: **KING CONSTRUCTION**
 JOB REF: **4633/20**
 CONTRACT: **WINDY ARBOR/LICKERS LANE**
(Whiston Juniors Playing Fields)
 LOCATION: **SEE TP LOCATION PLAN**
 PLAN SIZE: **1.40x1.20m**

TP REF: **TP3**
DATE: **13/08/20**
WEATHER: **SUNNY**
LOGGED BY: **CS**
EASTING: **53.40866008**
NORTHING: **-2.8003734**

[illegible]

TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 3		

PHOTO 1 SHOWING GENERAL POSITION AND NATURE OF ARISING



PHOTO 2 SHOWING GENERAL SOIL PROFILE



TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 3		

PHOTO 3 SHOWING CLOSE UP OF MADE GROUND MATERIAL



PHOTO 4 SHOWING CLOSE UP OF CLAY MATERIAL



TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 3		

PHOTO 5 SHOWING GENERAL SOIL PROFILE AND POSITION OF DCP



PHOTO 6 SHOWING SOAKAWAY LEVEL ON 2nd DAY



BOREHOLE / TRIAL PIT LOG

CLIENT: **KING CONSTRUCTION**
 JOB REF: **4633/20**
 CONTRACT: **WINDY ARBOR/LICKERS LANE**
(Whiston Juniors Playing Fields)
 LOCATION: **SEE TP LOCATION PLAN**
 PLAN SIZE: **1.40x1.30m**

TP REF: **TP4**
 DATE: **13/08/20**
 WEATHER: **SUNNY**
 LOGGED BY: **CS**
 EASTING: **53.40851498**
 NORTHING: **-2.80060507**

Depth (m)	Thickness (m)	Sample No. & Type	Sample Interval	Description	CBR %	MC %	Comments
0.50	0.50	1B 2SB 3D	0.00 to 0.50	Black, sandy, fmc gravel of ash, clinker, bituminous material, limestone, granite occasional cobble of brick - MADE GROUND			
1.00	0.50	4B 5SB 6D	0.50 to 1.00	Orangey brown, blackish grey in part, slightly sandy, sl silty, firm/stiff consistency CLAY/BOULDER CLAY			
1.00				End of TP at 1.00m bgl			TP DRY

TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 4		

PHOTO 1 SHOWING GENERAL POSITION AND NATURE OF ARISING



PHOTO 2 SHOWING GENERAL SOIL PROFILE



TRIAL PIT PHOTOS

Client:	KING CONSTRUCTION	Date:	13/08/2020
Contract:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)	Job Ref:	4633/20
Location:	SEE PLAN	Source:	N/A
Trial Pit / Reference:	TP 4		

PHOTO 3 SHOWING CLOSE UP OF MADE GROUND MATERIAL



PHOTO 4 SHOWING CLOSE UP OF CLAY MATERIAL



CLIENT	KING CONSTRUCTION
JOB REF:	4633/20
CONTRACT:	WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)
LOCATION:	SEE TP LOCATION PLAN
PLAN SIZE:	1.30x1.10m

TP REF: **TP 'CBR'**
DATE: **13/08/20**
WEATHER: **SUNNY**
LOGGED BY: **PD**
EASTING: **53.40860671**
NORTHING: **-2.80050986**

[illegible]

BOREHOLE- / TRIAL PIT LOG

CLIENT: **KING CONSTRUCTION**
 JOB REF: **4633/20**
 CONTRACT: **WINDY ARBOR/LICKERS LANE**
(Whiston Juniors Playing Fields)
 LOCATION: **SEE TP LOCATION PLAN**
 PLAN SIZE: **1.30x1.20m**

TP REF: **TP 'SOAKAWAY'**
 DATE: **13/08/20**
 WEATHER: **SUNNY**
 LOGGED BY: **CS**
 EASTING: **53.40855835**
 NORTHING: **-2.80048672**

Depth (m)	Thickness (m)	Sample No. & Type	Sample Interval	Description	CBR %	MC %	Comments
0.40	0.40	Samples Not Required		Dark brown/black, sl clayey, sandy fmc gravel of angular-subangular brick, ash, clinker, bituminous material, limestone and granite - MADE GROUND - band of red clinker ash 0.30-0.40mbgl possible old surfacing			See also Soakaway Report
1.10	0.70	Samples Not Required		Grey, yellowish orangey brown in part, firm-stiff consistency silty sandy CLAY End of TP at 1.10m bgl			TP DRY

**LABORATORY TEST CERTIFICATE
MATERIALS LABORATORY**



Certificate No: 4633/20

To : Stuart Sidebottom

Client : Knowsley Contractors Ltd
King Construction
1A Prestwood Place, Skelmersdale
Lancashire, WN8 9QE

Date: 18/08/2020

Dear Sirs,

FIELD & LABORATORY TESTING

Introduction

We refer to site testing undertaken on Windy Arbour/ Lickers Lane Playing Field.

Tested By : C. Salmon & K. Bescoby

Sample Reference : N/A

Description : See attached

Date Sampled : N/A

Date Tested : 13th July 2020

Source : N/A

Weather : N/A

Test Results;

Please see attached

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This report should not be reproduced except in full without the written approval of the laboratory
All remaining samples for this project will be disposed of 28 days after issue of this test certificate
When a statement of conformity is requested for a test result against limits set out in a standard or specification (e.g. BS EN ISO, SHW) that already considers measurement uncertainty, MATtest Midlands decision rule is to follow conformity requirements of the applicable standard or specification.
Results reported only relate to the items tested/ received.

Remarks;

Approved for Issue:

Position: Operations Manager

Issuing Office:



Head Office & Central

Unit 5 Draycott Mills, Off Market Street, Draycott, Derby, DE72 3NB

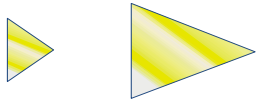


North West

Unit 15 Park Court, Sherdley Business Park, St. Helens, Merseyside, WA9 5GZ

Tel: 03333 202521 Web: www.mattestlaboratories.co.uk





DYNAMIC CONE PENETROMETER TESTING (DCP)

Windy Arbour/ Lickers Lane Playing Field

Test Ref : 1

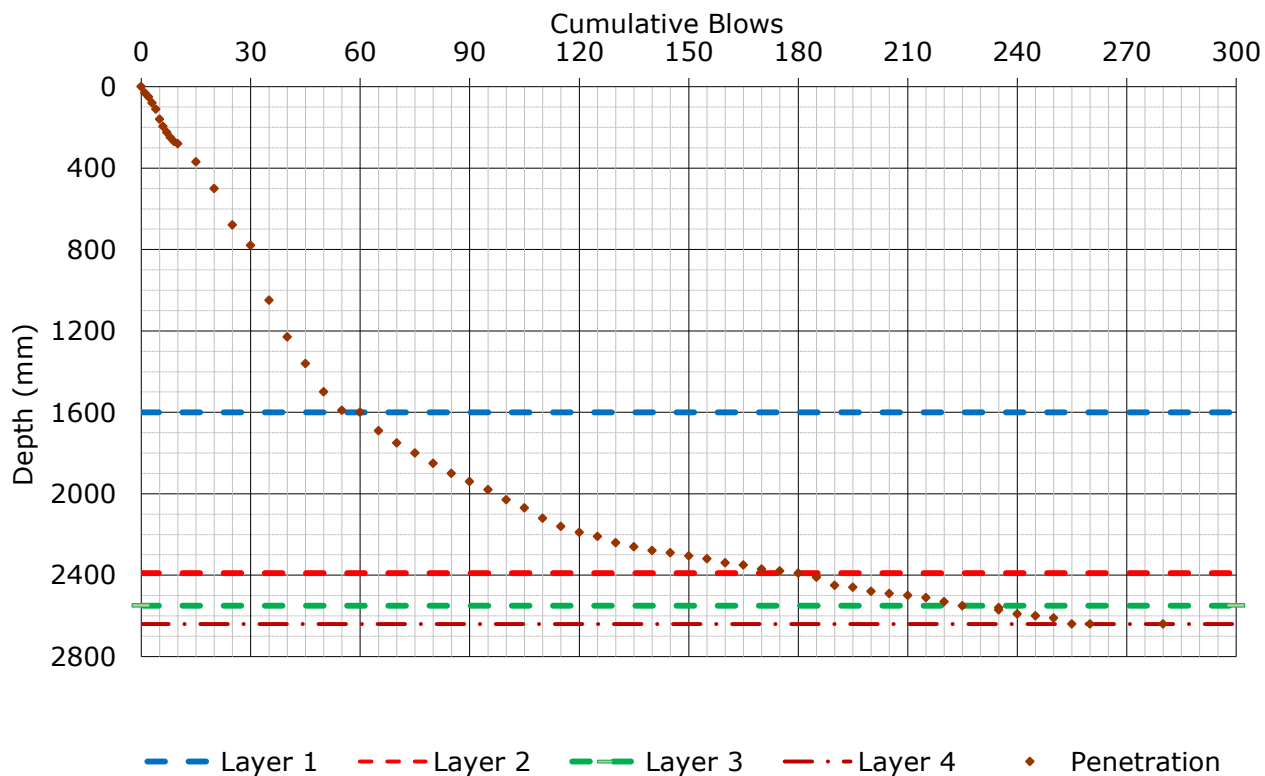
Date Tested : 13/08/2020

Job Ref : 4633/20

Location : TP 101

Description : TP Log 101

GRAPH DETAILING RESULTS



SUMMARY OF RESULTS

Layer	No. of Blows	Cumulative No. of Blows	CBR (%)	Layer Thickness (mm)	Total Depth (mm)
1	60	60	9	1600	1600
2	120	180	41	790	2390
3	45	225	79	160	2550
4	55	280	>100	90	2640

COMMENTS

NOTES

Test Procedure:

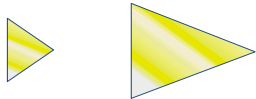
In House Method for Highways, based upon TRL Road Note 8

Interpretative Method :

TRL Equation : $\text{Log}_{10}(\text{CBR}) = 2.480 - 1.057 \times \text{Log}_{10}(\text{Strength})$

TEST CERTIFICATE

Form Ref MTM-REP 019



DYNAMIC CONE PENETROMETER TESTING (DCP)

Windy Arbour/ Lickers Lane Playing Field

Test Ref : 2

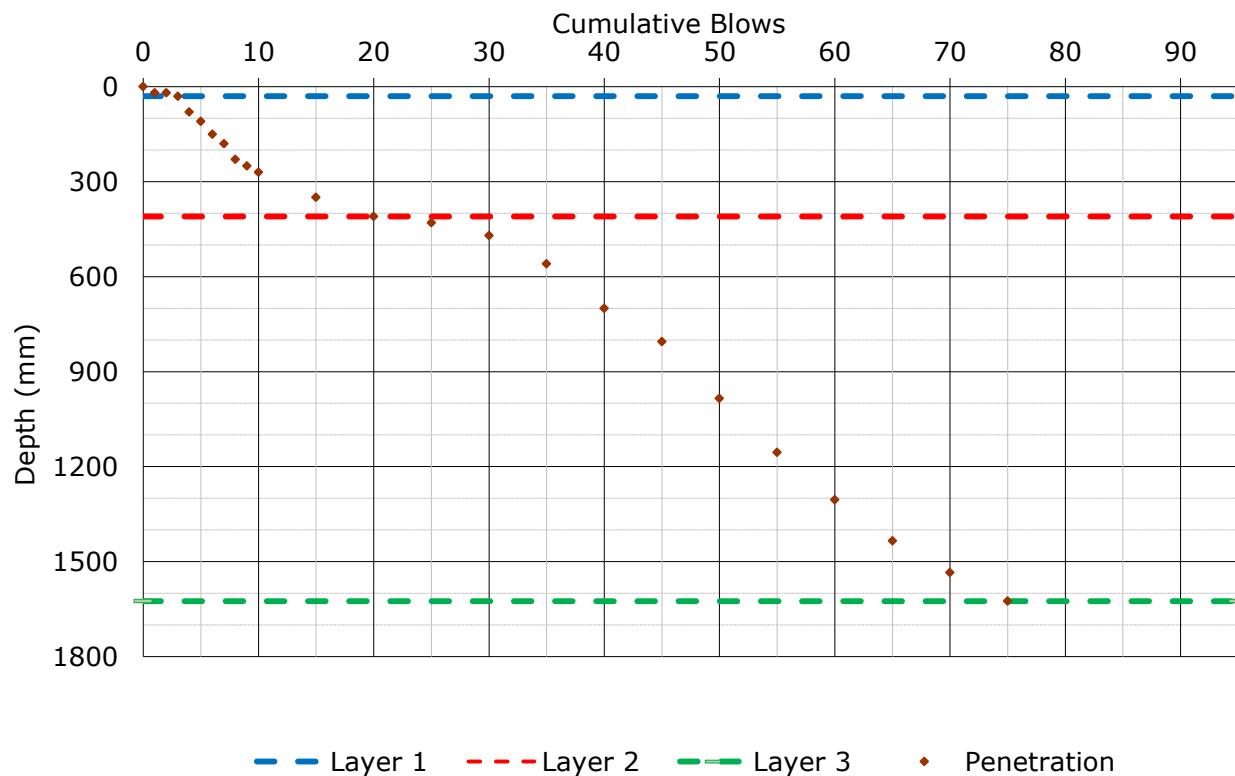
Date Tested : 13/08/2020

Job Ref : 4633/20

Location : TP 102

Description : TP Log 102

GRAPH DETAILING RESULTS



SUMMARY OF RESULTS

Layer	No. of Blows	Cumulative No. of Blows	CBR (%)	Layer Thickness (mm)	Total Depth (mm)
1	3	3	26	30	30
2	17	20	11	380	410
3	55	75	11	1215	1625

COMMENTS

NOTES

Test Procedure:

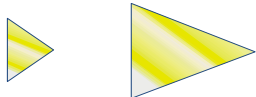
In House Method for Highways, based upon TRL Road Note 8

Interpretative Method :

TRL Equation : $\text{Log}_{10}(\text{CBR}) = 2.480 - 1.057 \times \text{Log}_{10}(\text{Strength})$

TEST CERTIFICATE

Form Ref MTM-REP 019



DYNAMIC CONE PENETROMETER TESTING (DCP)

Windy Arbour/ Lickers Lane Playing Field

Test Ref : 3

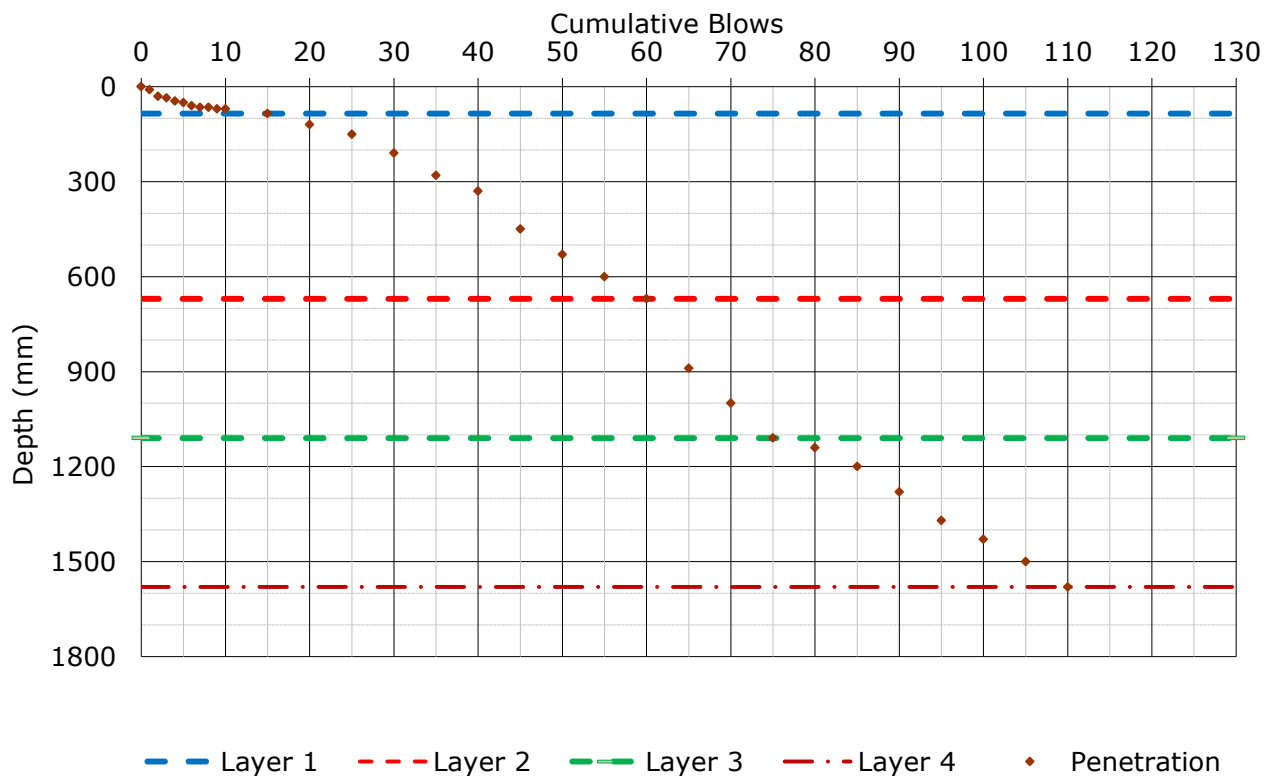
Date Tested : 13/08/2020

Job Ref : 4633/20

Location : TP 102

Description : TP Log 102

GRAPH DETAILING RESULTS



SUMMARY OF RESULTS

Layer	No. of Blows	Cumulative No. of Blows	CBR (%)	Layer Thickness (mm)	Total Depth (mm)
1	15	15	48	85	85
2	45	60	20	585	670
3	15	75	8	440	1110
4	35	110	19	470	1580

COMMENTS

NOTES

Test Procedure:

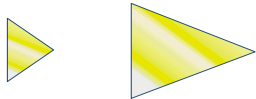
In House Method for Highways, based upon TRL Road Note 8

Interpretative Method :

TRL Equation : $\text{Log}_{10}(\text{CBR}) = 2.480 - 1.057 \times \text{Log}_{10}(\text{Strength})$

TEST CERTIFICATE

Form Ref MTM-REP 019



DYNAMIC CONE PENETROMETER TESTING (DCP)

Windy Arbour/ Lickers Lane Playing Field

Test Ref : 4

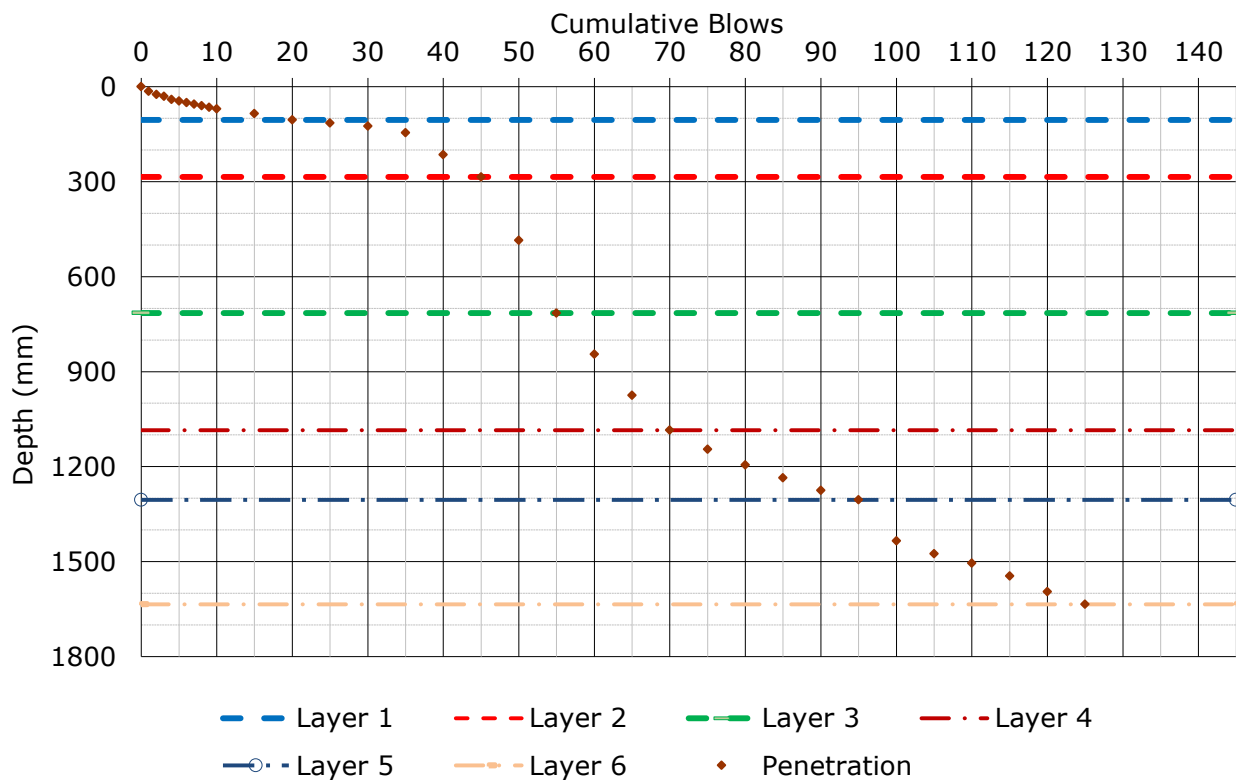
Date Tested : 13/08/2020

Job Ref : 4633/20

Location : TP 103

Description : TP Log 103

GRAPH DETAILING RESULTS



SUMMARY OF RESULTS

Layer	No. of Blows	Cumulative No. of Blows	CBR (%)	Layer Thickness (mm)	Total Depth (mm)
1	20	20	52	105	105
2	25	45	37	180	285
3	10	55	6	430	715
4	15	70	10	370	1085
5	25	95	30	220	1305
6	30	125	24	330	1635

COMMENTS

NOTES

Test Procedure:

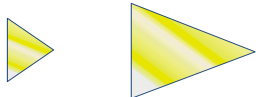
In House Method for Highways, based upon TRL Road Note 8

Interpretative Method :

TRL Equation : $\text{Log}_{10}(\text{CBR}) = 2.480 - 1.057 \times \text{Log}_{10}(\text{Strength})$

TEST CERTIFICATE

Form Ref MTM-REP 019



DYNAMIC CONE PENETROMETER TESTING (DCP)

Windy Arbour/ Lickers Lane Playing Field

Test Ref : 5

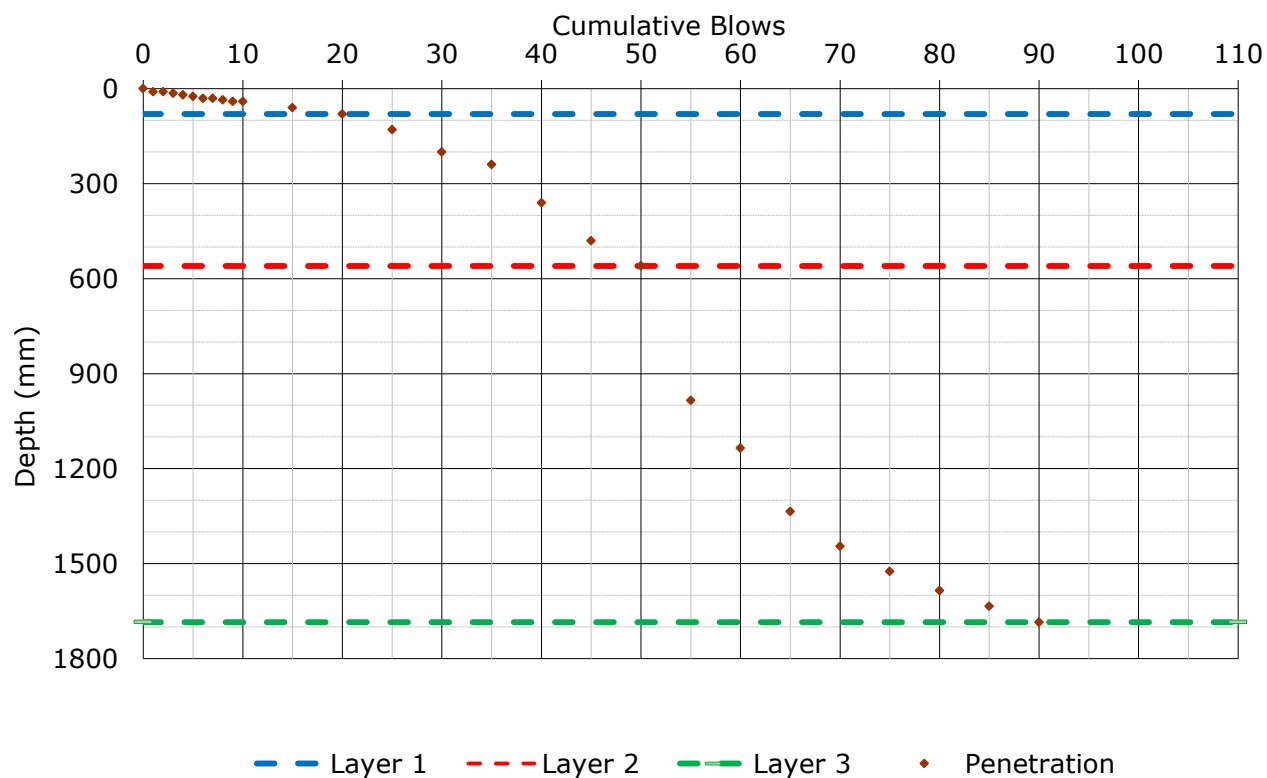
Date Tested : 13/08/2020

Job Ref : 4633/20

Location : DCP extra at TP CBR

Description : TP CBR Log

GRAPH DETAILING RESULTS



SUMMARY OF RESULTS

Layer	No. of Blows	Cumulative No. of Blows	CBR (%)	Layer Thickness (mm)	Total Depth (mm)
1	20	20	70	80	80
2	30	50	16	480	560
3	40	90	9	1125	1685

COMMENTS

NOTES

Test Procedure:

In House Method for Highways, based upon TRL Road Note 8

Interpretative Method :

TRL Equation : $\text{Log}_{10}(\text{CBR}) = 2.480 - 1.057 \times \text{Log}_{10}(\text{Strength})$

TEST CERTIFICATE

Form Ref MTM-REP 019

**LABORATORY TEST CERTIFICATE
MATERIALS LABORATORY**



Certificate No: 4633/20

To : Stuart Sidebottom

Client : Knowsley Contractors Ltd
King Construction
1A Prestwood Place, Skelmersdale
Lancashire, WN8 9QE

Date: 18/08/2020

Dear Sirs,

FIELD & LABORATORY TESTING

Introduction

We refer to site testing undertaken on Windy Arbour/ Lickers Lane Playing Field.

Tested By : C. Salmon & K. Bescoby

Sample Reference : N/A

Description : See attached

Date Sampled : N/A

Date Tested : 13th July 2020

Source : N/A

Weather : Sunny

Test Results : Please see attached Soakaway and Soil infiltration Data

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All remaining samples for this project will be disposed of 28 days after issue of this test certificate
When a statement of conformity is requested for a test result against limits set out in a standard or specification (e.g. BS EN ISO, SHW) that already considers measurement uncertainty, MATtest Midlands decision rule is to follow conformity requirements of the applicable standard or specification.
Results reported only relate to the items tested/ received.

Remarks;

Approved for Issue:

Position: Operations Manager

Issuing Office:



Head Office & Central

Unit 5 Draycott Mills, Off Market Street, Draycott, Derby, DE72 3NB



North West

Unit 15 Park Court, Sherdley Business Park, St. Helens, Merseyside, WA9 5GZ

Tel: 03333 202521 Web: www.mattestlaboratories.co.uk



Job Ref: 4633/20
 Client: KING CONSTRUCTION
 Scheme: WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)
 Date: 13/08/2020 TO 15/08/20

SOAKAWAY TEST DATA

Trial Pit Ref:	TP1
Pit Dimensions:	
L (mm):	1400
W (mm):	1200
D (mm):	1000
TOP OF WATER mmbgl	260
WATER DEPTH mm	740
75% FULL mmbgl =	445
50% FULL mmbgl =	630
25% FULL mmbgl =	815
TIME (at start of test):	14:00:00
DATE (at start of test):	13/08/2020
SOIL DESCRIPTION	DEPTH INTERVAL (m)
MADE GROUND	0.00-0.70m
CLAY	0.70-1.00
TOP OF WATER mmbgl	Time In Seconds
260	0
260	94
260	176
270	330
280	479
290	840
300	1338
320	1989
340	2576
350	3325
390	5400
410	6600
445	8175
490	10200
630	37428
780	66600
815	67388
820	67500
START TEST	13/08/2020 14:00
END TEST	14/08/2020 08:45
DURATION (HR/MINS)	18hrs 45mins
DURATION (Sec's)	67500

Trial Pit Ref:	TP3
Pit Dimensions:	
L (mm):	1400
W (mm):	1200
D (mm):	1000
TOP OF WATER mmbgl	200
WATER DEPTH mm	800
75% FULL mmbgl =	400
50% FULL mmbgl =	600
25% FULL mmbgl =	800
TIME (at start of test):	10:25:00
DATE (at start of test):	14/08/2020
SOIL DESCRIPTION	DEPTH INTERVAL (m)
MADE GROUND	0.00-0.40
CLAY	0.40-1.00
TOP OF WATER mmbgl	Time In Seconds
200	0
210	600
220	1200
230	2400
250	5700
270	9300
280	12900
290	16500
400	77700
600	155400
800	233100
START TEST	14/08/2020 10:25
END TEST	15/08/2020 08:00
DURATION (HR/MINS)	21hrs 35mins
DURATION (Sec's)	77700

Trial Pit Ref:	TP 'SOAKAWAY'
Pit Dimensions:	
L (mm):	1300
W (mm):	1200
D (mm):	1100
TOP OF WATER mmbgl	370
WATER DEPTH mm	730
75% FULL mmbgl =	553
50% FULL mmbgl =	735
25% FULL mmbgl =	918
TIME (at start of test):	08:50:00
DATE (at start of test):	14/08/2020
SOIL DESCRIPTION	DEPTH INTERVAL (m)
MADE GROUND	0.00-0.40
CLAY	0.40-1.10
TOP OF WATER mmbgl	Time In Seconds
370	0
400	1200
420	2100
430	3000
440	3600
450	4200
460	4800
460	6000
470	6900
480	8100
500	11400
510	15000
510	18600
510	22200
510	83400
553	115994
735	286544
918	563214
START TEST	14/08/2020 08:50
END TEST	15/08/2020 08:00
DURATION (HR/MINS)	23hrs 10mins
DURATION (Sec's)	83400

NOTE: VALUES IN GREEN ITALICS ARE EXTRAPOLATED/PROJECTED BETWEEN POINTS

Job Ref: 4633/20
 Client: KING CONSTRUCTION
 Scheme: WINDY ARBOR/LICKERS LANE (Whiston Juniors Playing Fields)
 Date: 13/08/2020 TO 15/08/20

SOIL INFILTRATION RATES FOR SOAKAWAY TEST AREAS

Trial Hole 1 Attempt 1			Trial Hole 3 Attempt 1			Trial Hole 'SOAKWAY' Attempt 1		
Pit Dimensions			Pit Dimensions			Pit Dimensions		
L (m)	1.40		L (m)	1.40		L (m)	1.30	
W (m)	1.20		B (m)	1.20		B (m)	1.20	
D (m)	1.00		D (m)	1.00		D (m)	1.10	
Maximum effective depth	1.00		Maximum effective depth	1.00		Maximum effective depth	1.00	
Effective Storage Depth	1.00		Effective Storage Depth	1.00		Effective Storage Depth	1.00	
25% Effective Depth	0.25		25% Effective Depth	0.250		25% Effective Depth	0.350	
50% Effective Depth	0.50	0.500	50% Effective Depth	0.500	0.500	50% Effective Depth	0.600	0.500
75% Effective Depth	0.75		75% Effective Depth	0.750		75% Effective Depth	0.850	
Time for outflow between 75% and 25% effective depth (Seconds)	59213		Time for outflow between 75% and 25% effective depth	155400	Seconds	Time for outflow between 75% and 25% effective depth	447220	Seconds
Volume outflowing between 75% and 25% effective depth : $V_{p75-25} =$	0.840	m ³	Volume outflowing between 75% and 25% effective depth : $V_{p75-25} =$	0.840	m ³	Volume outflowing between 75% and 25% effective depth : $V_{p75-25} =$	0.780	m ³
The mean surface area through which the out flow occurs, taken to be the pit sides to 50% effective depth and including the base of the pit: $a_{p50} =$	4.28	m ²	The mean to 50% effective depth and including the base of the pit: a_{p50} surface area through which the out flow occurs, taken to be the pit sides =	4.28	m ²	The mean to 50% effective depth and including the base of the pit: a_{p50} surface area through which the out flow occurs, taken to be the pit sides =	4.06	m ²
From graph, the time for the outflow between 75% and 25% effective depth: $t_{p75-25} =$	59213	Seconds	From graph, the time for the outflow between 75% and 25% effective depth: $t_{p75-25} =$	155400	Seconds	From graph, the time for the outflow between 75% and 25% effective depth: $t_{p75-25} =$	447220	Seconds
Soil infiltration rate, $f =$	3.31E-06	3.31x10⁻⁶	Soil infiltration rate, $f =$	1.26E-06	1.26x 10⁻⁶	Soil infiltration rate, $f =$	4.30E-07	4.30 x 10⁻⁷

NOTE: VALUES IN **GREEN** ITALICS ARE EXTRAPOLATED/PROJECTED BETWEEN POINTS