



# AITKEN LABORATORIES LTD

Site  
ROBROYSTON NORTH

Borehole Number  
**S328**

Boring Method TERRIER RIG	Casing Diameter		Ground Level (mOD)	Client	Job Number M505
	Location		Dates 07/02/2020	Engineer JOHNSON POOLE & BLOOMER	Sheet 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	E1					(0.40)	TOPSOIL			
0.50	E2					0.40	Soft consistency brown and grey sandy slightly gravelly CLAY. Gravel content is fine and medium			
1.00	E3					(1.20)	...below 1.20m, high strength stiff consistency			
1.20-2.00	U4					1.60	Very high strength stiff consistency grey sandy slightly gravelly CLAY with cobbles. Gravel content is fine and medium.			
2.00-2.45	SPTN=22			5,4/6,7,5,4						
2.00-2.45	B5									
3.00-4.00	U6					(3.40)				
4.00-4.45	SPTN=22			5,6/5,5,6,6						
4.00-4.45	B7									
				07/02/2020: DRY		5.00	Complete at 5.00m			

<b>Remarks</b> A 50mm diameter standpipe was installed at a depth of 5.00m # Denotes driller's description Excavating from 0.00m to 1.20m for 1.00 hour.	Scale (approx)	Logged By
	1:50	SM
	Figure No. M505.S328	



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Site  
ROBROYSTON NORTH

Borehole Number  
**S329**

Boring Method TERRIER RIG	Casing Diameter		Ground Level (mOD)	Client	Job Number M505
	Location		Dates 15/02/2020	Engineer JOHNSON POOLE & BLOOMER	Sheet 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	E1					(0.40)	TOPSOIL			
0.50	E2					0.40 (0.30) 0.70	Firm consistency mottled brown and grey sandy slightly gravelly CLAY with cobbles. Gravel content is fine to coarse			
1.00	E3					(1.10)	Firm consistency brownish grey sandy slightly gravelly CLAY. Gravel content is fine and medium			
1.20-2.00	U4									
2.00-2.45	SPT N=21			5,5/4,6,4,7		1.80	High strength stiff consistency grey sandy gravelly CLAY with cobbles. Gravel content is fine to coarse			
2.00-2.45	B5									
3.00-4.00	U6					(2.60)				
4.00-4.40	SPT 60/250			6,4/5,5,50		4.40				
4.00-4.40	B7			15/02/2020:DRY						
							Complete at 4.40m			

<b>Remarks</b> A 50mm diameter standpipe was installed at a depth of 4.40m # Denotes driller's description Excavating from 0.00m to 1.20m for 1 hour.	Scale (approx)	Logged By
	1:50	SM
	Figure No. M505.S329	



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Site  
ROBROYSTON NORTH

Borehole Number  
**S330**

Boring Method TERRIER RIG	Casing Diameter		Ground Level (mOD)	Client	Job Number M505
	Location		Dates 05/02/2020	Engineer JOHNSON POOLE & BLOOMER	Sheet 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	E1					(0.40)	TOPSOIL		
0.50	E2					(0.40)	Firm consistency mottled brown and grey sandy CLAY		
1.00	E3					(0.80)	Medium strength firm consistency mottled brown and grey sandy slightly gravelly CLAY. Gravel content is fine and medium		
1.20-2.00	U4					1.60	Stiff consistency dark grey sandy gravelly CLAY with cobbles, Gravel content is fine to coarse		
2.00-2.20	SPT 50/50			4,5/50		(0.60)			
2.00-2.20	B5			05/02/2020: DRY		2.20	Complete at 2.20m		

<b>Remarks</b> S330 terminated on an obstruction at a depth of 2.20m. S330A was put down at an adjacent location # Denotes driller's description Excavating from 0.00m to 1.20m for 1.00 hour.	Scale (approx)	Logged By
	1:50	PM
	<b>Figure No.</b> M505.S330	



# AITKEN LABORATORIES LTD

Site  
ROBROYSTON NORTH

Borehole Number  
**S330A**

Boring Method TERRIER RIG	Casing Diameter	Ground Level (mOD)	Client	Job Number M505
	Location	Dates 05/02/2020	Engineer JOHNSON POOLE & BLOOMER	Sheet 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
2.00-2.45	SPT N=19 B6			5,4/5,4,5,5		(0.40)	TOPSOIL			
2.00-2.45						0.40	Firm consistency mottled brown and grey sandy CLAY			
						0.80	Firm consistency mottled brown and grey sandy slightly gravelly CLAY. Gravel content is fine and medium			
						1.60	Stiff consistency dark grey sandy slightly gravelly CLAY with cobbles, Gravel content is fine to coarse			
3.00-4.00	U7					(3.40)	...below 3.00m, very high strength			
4.00-4.45	SPT N=18 B8			5,6/4,5,5,4						
4.00-4.45										
				05/02/2020: DRY		5.00	Complete at 5.00m			

<b>Remarks</b> # Denotes driller's description A 50mm diameter standpipe was installed at a depth of 5.00m Excavating from 0.00m to 1.20m for 1.00 hour.	Scale (approx)	Logged By
	1:50	PM
	Figure No. M505.S330A	





# AITKEN LABORATORIES LTD

Site  
ROBROYSTON NORTH

Borehole Number  
**S331**

Boring Method TERRIER RIG	Casing Diameter		Ground Level (mOD)	Client	Job Number M505
	Location		Dates 15/02/2020	Engineer JOHNSON POOLE & BLOOMER	Sheet 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	E1					(0.20)	TOPSOIL			
0.50	E2					(0.40)	Firm consistency mottled brown and grey sandy gravelly CLAY with fragments of sandstone. Gravel content is fine and medium (Possible Made Ground)			
						0.60				
1.00	E3					(1.30)	High strength stiff consistency mottled brown and grey slightly sandy slightly gravelly CLAY. Gravel content is fine to coarse			
1.20-2.00	U4									
2.00-2.45	SPT N=22 B5			4,4/5,5,6,6		1.90	Extremely high strength stiff consistency grey sandy slightly gravelly CLAY with cobbles. Gravel content is fine and medium			
2.00-2.45										
3.00-4.00	U6					(3.10)				
4.00-4.45	SPT N=27 B7			4,5/6,6,7,8						
4.00-4.45										
				15/02/2020:DRY		5.00	Complete at 5.00m			

**Remarks**  
# Denotes driller's description  
A 50mm diameter standpipe was installed at a depth of 5.00m  
Excavating from 0.00m to 1.20m for 1 hour.

Scale (approx)	Logged By
1:50	PM
Figure No. M505.S331	



# AITKEN LABORATORIES LTD

Site  
ROBROYSTON NORTH

Borehole Number  
**S332**

Boring Method TERRIER RIG	Casing Diameter		Ground Level (mOD)	Client	Job Number M505
	Location		Dates 06/02/2020	Engineer JOHNSON POOLE & BLOOMER	Sheet 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	E1					(0.40)	TOPSOIL			
0.50	E2					0.40 (0.40)	Soft consistency mottled brown sandy CLAY			
1.00	E3					0.80	Medium strength firm consistency mottled grey and brown slightly sandy slightly gravelly CLAY. Gravel content is fine to coarse.			
1.20-2.00	U4					(0.90)				
2.00-2.45	SPT N=21 B5			5,6/4,7,5,5		1.70	Extremely high strength stiff consistency grey sandy slightly gravelly CLAY with cobbles. Gravel content is fine to coarse			
2.00-2.45										
3.00-4.00	U6					(3.30)				
4.00-4.45	SPT N=22 B7			5,6/6,5,5,6						
4.00-4.45						5.00	Complete at 5.00m			

<b>Remarks</b> A 50mm diameter standpipe was installed at a depth of 5.00m # Denotes driller's description Excavating from 0.00m to 1.20m for 1.00 hour.	Scale (approx)	Logged By
	1:50	PM
	Figure No. M505.S332	

## **Appendix 2**

## Laboratory Testing References

Laboratory Test	Standard Specification in Accordance with
Moisture Content	BS 1377: Part 2 1990: Clause 3.2
Liquid Limit	BS 1377: Part 2 1990: Clause 4.3
Plastic Limit	BS 1377: Part 2 1990: Clause 5.3
Placticity Index and Liquidity Index	BS 1377: Part 2 1990: Clause 5.4
Density Measurement	BS 1377: Part 2 1990: Clause 7.2
Particle Size Distribution	BS 1377: Part 2 1990: Clause 9.2
Particle Size Distribution	BS 1377: Part 2 1990: Clause 9.3
Particle Size Distribution	BS 1377: Part 2 1990: Clause 9.5
Sulphate Content of Soil and Groundwater *	BS 1377: Part 2 1990: Clause 5.6
pH *	BS 1377: Part 2 1990: Clause 9
California Bearing Ratio	BS 1377: Part 2 1990: Clause 7
One Dimension Consolidation Properties	BS 1377: Part 5 1990: Clause 3
Undrained Shear Strength, Triaxial Compression	BS 1377: Part 2 1990: Clause 8
Undrained Shear Strength, Triaxial Compression (Multi-stage)	BS 1377: Part 2 1990: Clause 9
Dry Density/Moisture Content Relationship (2.5kg Rammer)	BS1377: Part 4 1990: Clause 3.3.3.4
Dry Density/Moisture Content Relationship (4.5kg Rammer)	BS1377: Part 4 1990: Clause 3.5.3.6

**\*Tests marked with asterisk are not UKAS Accredited.**





**M505, Robroyston North**

**Geotechnical Test Results Summary**

**Table 1**

Exp. Point No	Sample Depth (m)	Sample Type/No.	MC (%)	Natural Wet Density (Mg/m <sup>3</sup> )	Natural Dry Density (Mg/m <sup>3</sup> )	<425 (µm)	LL (%)	PL (%)	PI (%)	Average Shear Strength (kPa)	Apparent Cohesion (kPa)	Angle of Shearing Resistance (degrees)	Other Testing and Remarks
S301	1.20	U	16.1	2.19	1.88	75.6	27	14	13	80	71	2	PSD
S301	3.00	U											Oedometer
S303	1.20	U											Oedometer
S303	3.00	U	11.7				25	14	11	208	126	11	PSD
S304	1.20	U	21.4	2.02	1.67	77.4	31	17	14	57	22	7	PSD
S304	3.00	U											Oedometer
S305	1.20	U	17.1	2.09	1.78	74.1	26	15	11	38	26	3	PSD
S305	3.00	U	12.3	2.27	2.02	66.0	24	12	12	39	14	5	PSD
S306	1.20	U	21.9	2.04	1.67	83.8	93	38	55	29	15	3	PSD
S307	1.20	U	20.9	2.00	1.65	71.4	30	16	14	43	30	3	
S307	3.00	U											Oedometer
S312	3.00	U	17.6	2.10	1.78		28	17	11	189	84	15	
S314	1.20	U	17.9	2.31	1.96	67.9	24	14	10	16	7	2	
S315	1.20	U	15.8	2.22	1.91		25	NP	NP	17	6	3	PSD
S316	1.20	U	17.6	2.16	1.83	75.3	27	14	13	19	9	2	
S318	1.20	U											Oedometer
S318	3.00	U	11.2	2.24	2.02	74.9	28	14	14	152	84	10	
S319	1.20	U	14.9	2.10	1.83	76.4	26	16	10	163	93	10	
S319	3.00	U											Oedometer
S321	1.20	U	16.4	2.06	1.77					59	31	5	
S322	1.20	U	17.0	2.07	1.77	83.9	33	18	15	65	38	5	
S323	1.20	U				78.7	32	17	15				Oedometer
S324	1.20	U				79.8	26	13	13				Oedometer
S324	3.00	U	11.4	2.32	2.09					166	70	14	



**M505, Robroyston North**

**Geotechnical Test Results Summary**

**Table 1**

Exp. Point No	Sample Depth (m)	Sample Type/No.	MC (%)	Natural Wet Density (Mg/m <sup>3</sup> )	Natural Dry Density (Mg/m <sup>3</sup> )	<425 (µm)	LL (%)	PL (%)	PI (%)	Average Shear Strength (kPa)	Apparent Cohesion (kPa)	Angle of Shearing Resistance (degrees)	Other Testing and Remarks
S325	1.20		16.6	2.08	1.78	81.1	30	16	14	63	39	5	
S325	3.00												Oedometer
S326	1.20	U	17.7	2.14	1.82	71.4	27	15	12	48	30	4	
S327	1.20	U	18.2	2.14	1.81		27	14	13	87	27	11	
S327	3.00	U											Oedometer
S328	1.20	U	16.2	2.17	1.87	82.1	28	15	13	103	69	6	
S328	3.00	U	11.5	2.23	2.00		28	13	15	226	97	17	PSD
S329	1.20	U											Oedometer
S329	3.00	U	11.8	2.13	1.90	72.9	28	14	14	188	130	8	
S330	1.20	U	20.4	2.04	1.70	79.3	31	16	15	73	11	12	
S330A	3.00	U	11.3	2.17	1.95		28	13	15	171	92	11	PSD
S331	1.20	U	16.2	1.97	1.69		34	17	17	98	26	13	PSD
S331	3.00	U	10.5	2.26	2.05		24	12	12	263	199	8	PSD
S332	1.20	U	24.9	1.97	1.58		32	16	16	54	34	4	PSD
S332	3.00	U	10.2	2.24	2.03		28	13	15	276	136	17	PSD