APPENDIX B

TRIAL PIT LOG

TP1

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	65.85m AOD **Coordinates**	**Total Depth**	2.35m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.30)	E	Grass over dark brown sandy friable CLAY with rootlets. (TOPSOIL)		
ES	0.20		65.55	0.30				
			65.45	(0.10)	M	Firm brown CLAY with occasional rootlets. (SUBSOIL)		
D	0.50			0.40		Light brown and orangish brown SAND and GRAVEL. Gravel is fine to coarse, subrounded to subangular quartzite. (RIVER TERRACE DEPOSITS)		
			65.25	(0.20) 0.60				
D	0.80					Firm closely fissured bluish grey and brown mottled silty CLAY. (KELLAWAYS FORMATION)		
HV	0.80	Cu = 52						
					M			
HV	1.40	Cu = 72		(1.60)				
D	2.00					*At 1.95m bgl: stiff and dark bluish grey*		
HV	2.00	Cu = 85						
			63.65	2.20				
D	2.30			(0.15)	M	Stiff thinly laminated dark grey CLAY with rare fossil shell fragments and occasional sand sized gypsum crystals. (KELLAWAYS FORMATION)		
HV	2.30	Cu = 75	63.50	2.35	VH			
						End of Trial Pit at 2.35m		

Method: JCB 3CX

Groundwater: Seepage from 0.50m bgl.

Stability: Stable

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.40m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP2

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	65.19m AOD **Coordinates**	**Total Depth**	2.55m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.25)	E	Grass over dark brown sandy friable CLAY with rootlets. (TOPSOIL)		
			64.94	0.25				
D	0.30			(0.15)	M	Stiff fissured brown CLAY with occasional rootlets. (SUBSOIL)		
			64.79	0.40				
D	0.50					Light brown and orangish brown slightly clayey SAND and GRAVEL. Gravel is fine to coarse, subrounded to subangular quartzite and limestone. (RIVER TERRACE DEPOSITS)		
B	0.60							
				(0.65)	M			
			64.14	1.05				
D	1.20					Firm closely fissured bluish grey and brown silty CLAY. (KELLAWAYS FORMATION)		
HV	1.20	Cu = 48						
				(1.20)	M			
D	1.70							
HV	1.80	Cu = 78				*From 1.80m bgl: stiff*		
			62.94	2.25	M			
D	2.30					Stiff dark grey silty CLAY with frequent fossil shell fragments and occasional pockets of fine sand. (KELLAWAYS FORMATION)		
HV	2.30	Cu = 82		(0.30)				
			62.64	2.55	VH	End of Trial Pit at 2.55m		

Method: JCB 3CX

Groundwater: Seepage from 0.60m bgl.

Stability: Stable

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.50m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP3

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	64.88m AOD **Coordinates**	**Total Depth**	3.05m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.20)	E	Grass over stiff dark brown sandy friable CLAY with rootlets. (TOPSOIL)		
			64.68	0.20				
ES	0.30					Firm brown and orangish brown mottled silty CLAY. (ALLUVIUM)		
D	0.50							
HV	0.50	Cu = 48						
				(1.00)	M			
						Between 1.00m and 1.10m bgl: band of orangish brown sandy gravelly silt		
			63.68	1.20				
D	1.30					Firm bluish grey silty CLAY with rare fine to coarse sand sized gypsum crystals. (KELLAWAYS FORMATION)		
HV	1.30	Cu = 51						
				(1.35)	M			
HV	2.00	Cu = 60						
			62.33	2.55				
D	2.60					Firm thinly laminated dark bluish grey CLAY with rare relict rootlets. (KELLAWAYS FORMATION) *From 2.70m bgl: occasional pockets of fine to medium sand, damp with occasional fossil shell fragments.*		
HV	2.60	Cu = 78						
				(0.50)	M			
D	2.90							
			61.83	3.05		End of Trial Pit at 3.05m		

Method: JCB 3CX

Groundwater: Seepage from 2.70m bgl. Groundwater at 2.90m bgl on completion.

Stability: Stable

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.60m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP4

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	63.98m AOD **Coordinates**	**Total Depth**	3.10m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.25)	E	Grass over firm dark brown sandy friable CLAY with rootlets. (TOPSOIL)		
ES	0.20		63.73	0.25				
D	0.40			(0.35)	M	Firm light greyish brown sandy CLAY with occasional fossil shell fragments. (ALLUVIUM)		
			63.38	0.60				
D	0.80			(0.65)	M	Orangish brown slightly clayey sandy gravelly SILT. Gravel is fine to coarse, subrounded to subangular quartzite. (RIVER TERRACE DEPOSITS)		
			62.73	1.25				
D	1.30					Firm dark bluish grey CLAY with occasional relict rootlets and rare fine sand sized gypsum crystals. (KELLAWAYS FORMATION)		
HV	1.30	Cu = 45						
HV	1.60	Cu = 55						
HV	2.00	Cu = 68				*From 2.00m bgl: no rootlets*		
				(1.85)	M	*From 2.20m bgl: closely fissured*		
HV	2.40	Cu = 65						
D	2.80							
HV	2.80	Cu = 72						
			60.88	3.10		End of Trial Pit at 3.10m		

Method: JCB 3CX

Groundwater: Fast inflow from 0.80m bgl.

Stability: Collapse on both sides from 0.50m bgl. Continual collapse during excavation.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.60m
Width:	0.90m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP5

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	64.07m AOD **Coordinates**	**Total Depth**	3.95m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.35)	E	Grass over firm to stiff dark brown sandy friable CLAY with rootlets. (TOPSOIL)		
ES	0.30		63.72	0.35				
HV	0.40	Cu = 40				Soft to firm becoming firm light brown and orangish brown silty CLAY. (ALLUVIUM)		
D	0.50							
				(0.80)				
HV	0.80	Cu = 18			E	*At 0.80m bgl: soft to firm*		
			62.92	1.15				
B	1.20					Orangish brown and light grey slightly clayey silty SAND and GRAVEL. Gravel is fine to coarse, subrounded to subangular quartzite and limestone. (RIVER TERRACE DEPOSITS)		
				(0.60)	M			
D	1.70					*From 1.60m bgl: bluish grey*		
			62.32	1.75				
HV	1.90	Cu = 50				Firm thinly laminated bluish grey silty CLAY. (KELLAWAYS FORMATION)		
D	2.00							
HV	2.50	Cu = 60		(1.75)	M			
			60.57	3.50				
D	3.70			(0.45)		Stiff closely fissured grey CLAY with occasional fossil shell fragments and rare fine sand sized gypsum crystals. (KELLAWAYS FORMATION)		
HV	3.70	Cu = 80			M			
			60.12	3.95		End of Trial Pit at 3.95m		

Method: JCB 3CX

Groundwater: Fast inflow from 1.20m bgl. Water level at 3.2m bgl after ten minutes.

Stability: Collapse on both sides from 1.15m to 1.75m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.50m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP6

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	63.86m AOD **Coordinates**	**Total Depth**	3.60m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.25)	E	Grass over firm dark brown sandy friable CLAY with rootlets and occasional shell fragments. (TOPSOIL)		
			63.61	0.25				
ES	0.30					Firm light greyish brown sandy friable CLAY with frequent shell fragments. (ALLUVIUM)		
D	0.40			(0.25)				
			63.36	0.50	M			
				(0.25)	M	Soft to firm light grey and orangish brown mottled silty CLAY. (ALLUVIUM)		
HV	0.75	Cu = 30	63.11	0.75				
D	0.90					Orangish brown and occasional light grey silty SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular limestone. (RIVER TERRACE DEPOSITS)		
				(0.75)	M			
			62.36	1.50				
D	1.60					Firm bluish grey silty CLAY with occasional relict rootlets. (KELLAWAYS FORMATION)		
HV	1.60	Cu = 60						
				(0.90)	M			
			61.46	2.40				
HV	2.50	Cu = 80				Stiff thinly laminated bluish grey silty CLAY. (KELLAWAYS FORMATION)		
D	2.80							
				(1.20)	H			
			60.26	3.60	VH			
						End of Trial Pit at 3.60m		

Method: JCB 3CX

Groundwater: Seepage from 0.90m bgl.

Stability: Collapse on both sides from 0.90m to 1.50m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.60m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

APPLiED GEOLOGY

TRIAL PIT LOG

TP7

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	64.47m AOD **Coordinates**	**Total Depth**	2.80m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.25)	E	Grass over firm dark brown slightly gravelly friable CLAY with rootlets. Gravel is fine to coarse, subrounded to subangular limestone. (TOPSOIL)		
ES	0.20		64.22	0.25				
						Soft to firm orangish brown slightly sandy silty CLAY. (SUBSOIL)		
D	0.50			(0.45)	M			
			63.77	0.70				
						Orangish brown and light grey slightly gravelly sandy SILT. Gravel is fine to coarse, subrounded to angular limestone. (RIVER TERRACE DEPOSITS)		
				(0.50)	M			
			63.27	1.20				
						Firm bluish grey silty CLAY with occasional relict rootlets. (KELLAWAYS FORMATION)		
D	1.40							
HV	1.40	Cu = 50						
				(1.50)	M			
D	2.20					*From 2.20m bgl: stiff*		
HV	2.20	Cu = 90						
			61.77	2.70	H	Stiff bluish grey silty CLAY with thin indistinct laminations, rare fine sand sized gypsum crystals and shell fragments and occasional pyrite veins. (KELLAWAYS FORMATION)		
			61.67	(0.10)	VH			
				2.80		End of Trial Pit at 2.80m		

Method: JCB 3CX

Groundwater: Seepage from 1.00m bgl.

Stability: Stable

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.70m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP8

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	64.40m AOD **Coordinates**	**Total Depth**	2.90m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.15)	E	Grass over firm dark brown slightly sandy friable CLAY with rootlets. (TOPSOIL)		
ES	0.10		64.25	0.15				
D	0.30			(0.25)	M	Stiff brown slightly gravelly friable CLAY. Gravel is fine to coarse, subrounded to subangular limestone. (SUBSOIL)		
			64.00	0.40				
D	0.60					Firm orangish brown occasional mottled light greyish brown slightly sandy silty CLAY. (ALLUVIUM)		
				(0.80)	M			
			63.20	1.20				
						Orangish brown sandy SILT. (RIVER TERRACE DEPOSITS)		
D	1.50			(0.50)	M			
			62.70	1.70				
						Firm bluish grey and occasional mottled greenish brown silty CLAY with occasional relict rootlets and rare fine sand sized gypsum crystals. (KELLAWAYS FORMATION)		
D	2.00							
HV	2.00	Cu = 50						
				(1.20)	M			
D	2.80							
HV	2.80	Cu = 75	61.50	2.90		*From 2.80m bgl: stiff*		
					VH	End of Trial Pit at 2.90m		

Method: JCB 3CX

Groundwater: Groundwater rising from rock sitting at 2.75m bgl 5 minutes after excavation.

Stability: Stable

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.50m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP9

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	64.05m AOD **Coordinates**	**Total Depth**	3.40m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.15)	E	Grass over firm dark brown slightly sandy friable CLAY with rootlets and occasional shell fragments.		
D	0.20		63.90	0.15		(TOPSOIL)		
				(0.20)	M	Stiff brown friable CLAY with occasional rootlets.		
			63.70	0.35		(SUBSOIL)		
				(0.15)	M	Soft to firm orangish brown and light brown slightly sandy silty CLAY.		
			63.55	0.50		(ALLUVIUM)		
D	0.60					Orangish brown silty SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded limestone (damp). (RIVER TERRACE DEPOSITS)		
					M			
B	1.20			(1.30)				
						From 1.50m bgl: light greyish brown		
			62.25	1.80				
D	1.90					Firm bluish grey silty CLAY. (KELLAWAYS FORMATION)		
HV	1.90	Cu = 60						
D	2.50							
HV	2.50	Cu = 85		(1.60)	M	*From 2.50m bgl: stiff with occasional fine sand sized gypsum crystals*		
HV	3.00	Cu = 90						
					VH	*From 3.30m bgl: indistinct thin laminations and occasional cobbles of limestone*		
D	3.40		60.65	3.40		End of Trial Pit at 3.40m		

Method: JCB 3CX

Groundwater: Seepage from 1.30m bgl.

Stability: Slight collapse from 0.70m to 1.80m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.60m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

APPLiED GEOLOGY

TRIAL PIT LOG

TP10

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	63.78m AOD **Coordinates**	**Total Depth**	3.70m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
D	0.10			(0.20)		Grass over firm dark brown friable CLAY with rootlets and frequent shell fragments.		
			63.58	0.20	E	(TOPSOIL)		
D	0.30			(0.25)		Firm greyish brown and orangish brown mottled silty CLAY with occasional rootlets.		
HV	0.40	Cu = 90	63.33	0.45	M	(SUBSOIL)		
D	0.60					Soft to firm orangish brown sandy CLAY.		
HV	0.60	Cu = 40		(0.45)	M	(ALLUVIUM)		
			62.88	0.90				
D	1.10			(0.40)	M	Orangish brown silty SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subrounded to subangular limestone. (RIVER TERRACE DEPOSITS)		▼
D	1.30		62.48	1.30				
HV	1.30	Cu = 35				Soft to firm bluish grey silty CLAY with occasional relict rootlets. (KELLAWAYS FORMATION)		
D	1.80							
HV	1.80	Cu = 50		(1.30)	M	*From 1.80m bgl: firm*		
HV	2.60	Cu = 80	61.18	2.60				
D	2.70					Stiff thinly laminated bluish grey silty CLAY. (KELLAWAYS FORMATION)		
				(1.10)	M			
			60.08	3.70		End of Trial Pit at 3.70m		

Method: JCB 3CX

Groundwater: Seepage from 1.20m bgl.

Stability: Collapse on west wall from 1.60m to 1.80m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.80m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

APPLIED GEOLOGY

TRIAL PIT LOG

TP11

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	63.80m AOD **Coordinates**	**Total Depth**	3.90m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.20)	E	Grass over stiff dark brown friable CLAY with rootlets. (TOPSOIL)		
			63.60	0.20				
D	0.30			(0.15)	M	Stiff light brown friable CLAY with rare rootlets and occasional shell fragments. (SUBSOIL)		
			63.45	0.35				
D	0.50			(0.25)	M	Firm greyish brown and orangish brown mottled silty CLAY. (ALLUVIUM)		
HV	0.50	Cu = 52	63.20	0.60				
B	0.80					Orangish brown and occasional light grey silty gravelly fine to coarse SAND. Gravel is fine to coarse, subangular to subrounded quartzite and limestone. (KELLAWAYS FORMATION)		
				(1.15)	M			
			62.05	1.75				
D	1.90					Firm to stiff bluish grey silty CLAY with rare relict rootlets. (KELLAWAYS FORMATION)		
HV	1.90	Cu = 70						
						From 2.40m bgl: no rootlets		
D	2.80			(2.15)		*From 2.80m bgl: stiff*		
HV	2.80	Cu = 75			M			
D	3.60					*From 3.50m bgl: rare fine sand sized gypsum crystals*		
			59.90	3.90		End of Trial Pit at 3.90m		

Method: JCB 3CX

Groundwater: Seepage from 1.30m bgl.

Stability: Slight collapse on long sides from 1.30m to 1.80m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.70m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

APPLIED GEOLOGY

TRIAL PIT LOG

TP12

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	63.69m AOD **Coordinates**	**Total Depth**	4.10m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.20)	E	Grass over stiff dark brown sandy friable CLAY with rootlets. (TOPSOIL)		
ES	0.20		63.49	0.20				
				(0.15)	M	Stiff light brown silty friable CLAY with occasional rootlets. (SUBSOIL)		
			63.34	0.35				
D	0.40					Firm greyish brown and occasional mottled orangish brown CLAY. (ALLUVIUM)		
HV	0.40	Cu = 48						
HV	0.60	Cu = 45						
					M			
				(0.85)				
			62.49	1.20				
					M	Stiff light grey and orange-brown slightly gravelly sandy CLAY. Gravel is fine to coarse, subrounded limestone. (ALLUVIUM)		
D	1.40			(0.40)				
			62.09	1.60				
D	1.70					Firm dark blue-grey silty CLAY with occasional fine to medium sand sized gypsum crystals and rare relict rootlets. (KELLAWAYS FORMATION)		
HV	2.00	Cu = 70						
D	2.20					*From 2.20m bgl: no rootlets*		
HV	2.50	Cu = 75				*From 2.50m bgl: firm to stiff and closely fissured*		
					M			
				(2.50)				
HV	3.00	Cu = 85				*From 3.00m bgl: stiff*		
D	3.50							
			59.59	4.10		End of Trial Pit at 4.10m		

Method: JCB 3CX

Groundwater: Groundwater not encountered.

Stability: Stable

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.80m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

APPLiED GEOLOGY

TRIAL PIT LOG

TP13

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	63.75m AOD **Coordinates**	**Total Depth**	4.00m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.20)	E	Grass over firm dark brown friable CLAY with rootlets and occasional shell fragments. (TOPSOIL)		
			63.55	0.20				
ES	0.30					Soft light brown silty CLAY with occasional rootlets and rare shell fragments. (ALLUVIUM)		
				(0.50)	M			
			63.05	0.70				
D	0.80					Light grey silty SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subrounded to subangular limestone. (RIVER TERRACE DEPOSITS)		
				(0.65)	M			
			62.40	1.35				
D	1.40					Soft bluish grey sandy SILT. (KELLAWAYS FORMATION)		
D	2.00			(1.25)	E			
B	2.20					*From 2.10m bgl: occasional shell fragments.*		
			61.15	2.60				
HV	2.80	Cu = 72				Firm to stiff becoming stiff dark grey silty CLAY with rare fine to medium sand sized gypsum crystals. (KELLAWAYS FORMATION)		
D	3.00							
HV	3.00	Cu = 85						
				(1.40)	M			
			59.75	4.00				
						End of Trial Pit at 4.00m		

Method: JCB 3CX

Groundwater: Groundwater encountered at 0.90m bgl.

Stability: Continual collapse from 0.70m to 1.35m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.80m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP14

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	63.71m AOD **Coordinates**	**Total Depth**	3.90m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.15)	E	Grass over stiff dark brown slightly sandy friable CLAY with rootlets. (TOPSOIL)		
			63.56	0.15				
D	0.30			(0.25)	M	Stiff dark brown mottled orangish brown friable CLAY with rare rootlets. (SUBSOIL)		
ES	0.30		63.31	0.40				
						Orangish brown silty SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular flint. (RIVER TERRACE DEPOSITS)		
D	0.70			(0.70)	M			
			62.61	1.10				
D	1.20					Stiff bluish grey slightly gravelly very sandy CLAY. Gravel is fine to coarse, subangular limestone. (KELLAWAYS FORMATION)		
				(0.50)	M			
			62.11	1.60				
D	1.80					Bluish grey silty fine SAND. (KELLAWAYS FORMATION)		
				(1.60)	M			
						From 2.50m bgl: occasional cobbles of compacted sand - broken up by hand		
D	2.60							
						From 2.80m bgl: occasional pockets of very soft sandy silt		
D	3.00							
			60.51	3.20				
D	3.30					Stiff grey silty CLAY with indistinct thin laminations. (KELLAWAYS FORMATION)		
HV	3.30	Cu = 80						
				(0.70)	H			
			59.81	3.90				
						End of Trial Pit at 3.90m		

Method: JCB 3CX

Groundwater: Seepage from 0.70m bgl.

Stability: Collapse on both long sides from 1.10m to 2.70m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.70m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

APPLiED GEOLOGY

TRIAL PIT LOG

TP15

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	63.68m AOD **Coordinates**	**Total Depth**	2.85m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.20)	E	Grass over stiff dark brown sandy friable CLAY with rootlets. (TOPSOIL)		
			63.48	0.20				
D	0.30			(0.25)	M	Firm greyish brown and orangish brown silty CLAY. (ALLUVIUM)		
			63.23	0.45				
B	0.60					Orangish brown and light grey slightly clayey silty SAND and GRAVEL. Gravel is fine to coarse, subangular to subrounded flint and limestone. (RIVER TERRACE DEPOSITS)		
				(0.70)	M			
			62.53	1.15				
D	1.20					Firm dark bluish grey slightly sandy silty CLAY with rare relict rootlets and rare fossil shell fragments. (KELLAWAYS FORMATION)		
HV	1.20	Cu = 45						
				(0.95)	M			
			61.58	2.10				
B	2.30					Bluish grey silty slightly gravelly fine to coarse SAND. Gravel is fine to coarse, subangular to subrounded limestone. (KELLAWAYS FORMATION)		
				(0.60)	M			
			60.98	2.70				
D	2.80			(0.15)	M	Firm bluish grey slightly sandy CLAY with occasional rootlets and rare fossil shell fragments. (KELLAWAYS FORMATION)		
HV	2.80	Cu = 60	60.83	2.85				
						End of Trial Pit at 2.85m		

Method: JCB 3CX

Groundwater: Seepage from 1.90m bgl.

Stability: Collapse on west side from 0.20m to 1.00m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.80m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP16

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	63.51m AOD **Coordinates**	**Total Depth**	3.30m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.20)	E	Grass over stiff dark brown slightly sandy friable CLAY with rootlets. (TOPSOIL)		
			63.31	0.20				
ES	0.30					Stiff greyish brown and orangish brown mottled silty friable CLAY with occasional rootlets.		
D	0.40			(0.35)	M	(ALLUVIUM)		
			62.96	0.55				
D	0.70					Greyish brown silty SAND and GRAVEL. Gravel is fine to coarse, subrounded limestone.		
					M	(RIVER TERRACE DEPOSITS)		
				(0.75)				
			62.21	1.30				
D	1.40					Firm dark bluish grey silty CLAY with rare fossil shell fragments.		
HV	1.40	Cu = 55				(KELLAWAYS FORMATION)		
				(0.65)	M			
			61.56	1.95				
D	2.10					Firm bluish grey very sandy CLAY with occasional fine to coarse subrounded to subangular limestone gravel. (KELLAWAYS FORMATION)		
				(1.35)	M			
D	3.00							
			60.21	3.30		End of Trial Pit at 3.30m		

Method: JCB 3CX

Groundwater: Seepage from 1.20m bgl.

Stability: Stable

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.70m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

TRIAL PIT LOG

TP17

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	02/07/2018	**Scale**	1:25
Ground Level	63.62m AOD **Coordinates**	**Total Depth**	3.40m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.25)	E	Grass over stiff dark brown friable CLAY with rootlets. (TOPSOIL)		
			63.37	0.25				
D	0.40			(0.30)	M	Stiff light brown and orangish brown mottled silty friable CLAY with frequent fossil shell fragments. (ALLUVIUM)		
D	0.60		63.07	0.55		Light grey silty SAND and GRAVEL. Gravel is fine to coarse, subrounded to subangular limestone. Sand is fine to coarse (wet). (RIVER TERRACE DEPOSITS)		
				(0.75)	M			
			62.32	1.30		Bluish grey silty fine to medium SAND with rare fine to coarse subrounded limestone gravel. (KELLAWAYS FORMATION)		
D	1.50							
				(2.00)	M			
B	2.40							
			60.32	3.30				
D	3.40		60.22	(0.10)	H	Stiff grey slightly sandy CLAY with rare fossil shell fragments. (KELLAWAYS FORMATION)		
				3.40		End of Trial Pit at 3.40m		

Method: JCB 3CX

Groundwater: Seepage at 0.60m and 3.00m bgl.

Stability: Collapse on both long sides from 0.60m to 1.20m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.80m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

APPLIED GEOLOGY

TRIAL PIT LOG

TP18

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875-18
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	03/07/2018	**Scale**	1:25
Ground Level	63.46m AOD **Coordinates**	**Total Depth**	3.80m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.15)	E	Grass over stiff dark brown slightly sandy slightly gravelly friable CLAY with rootlets. Gravel is fine to coarse, subrounded to subangular limestone. (TOPSOIL)		
ES	0.10		63.31	0.15				
D	0.30			(0.30)	M	Soft to firm light brown silty CLAY with occasional shell fragments. (ALLUVIUM)		
			63.01	0.45				
B	0.60					Light grey silty SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subrounded to subangular limestone (wet). (RIVER TERRACE DEPOSITS)		
				(1.00)	M			
			62.01	1.45				
D	1.50					Bluish grey slightly clayey silty SAND with frequent pockets of very soft (wet) sandy silt. (KELLAWAYS FORMATION)		
D	2.00			(0.95)	M			
						From 2.20m bgl: occasional shell fragments		
D	2.30							
			61.06	2.40				
D	2.60					Stiff dark grey CLAY with thin indistinct laminations and rare shell fragments (wet). (KELLAWAYS FORMATION)		
HV	2.60	Cu = 80						
				(1.40)	M			
			59.66	3.80				
						End of Trial Pit at 3.80m		

Method: JCB 3CX

Groundwater: Seepage from 0.35m bgl.

Stability: Collapse on long sides from 0.45m to 2.45m bgl.

Remarks: Trial pit backfilled with arisings on completion.

Length:	2.80m
Width:	0.70m
Logged:	FHJ
Checked:	GPW

APPLIED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH1

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	18/06/2020 **Coordinates**	**Scale**	1:50
End	18/06/2020 **Ground Level** 65.71m AOD	**Total Depth**	2.90m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.20				(0.50)	Firm dark brown slightly gravelly CLAY with occasional rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)
				65.21	0.50	
D	0.80					Firm to stiff orangish brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded quartzite. (ALLUVIUM)
C	1.20	N = 14	1.20		(1.50)	
D	1.70					*Below 1.70m bgl: becoming greyish brown.*
				63.71	2.00	
B	2.10					Firm to stiff dark grey CLAY. (KELLAWAYS FORMATION)
U	2.10				(0.85)	
U	2.55					
D	2.85			62.86	2.85	
C	2.90	N >50	2.55	62.81	(0.05)	Weak grey LIMESTONE recovered as dark grey coarse subangular to subrounded limestone gravel. (CORNBRASH FORMATION)
					2.90	End of Borehole at 2.90m

Chiselling

From	To	Duration (hh:mm)
2.85	2.90	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
2.85	1.20		2.50	1.20

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.90m bgl.

Diameter: 150mm to 2.90m

Exploratory hole logs should be read in conjunction with key sheets

APPLIED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH2

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	18/06/2020	**Coordinates**	**Scale** 1:50
End	18/06/2020	**Ground Level** 64.87m AOD	**Total Depth** 2.85m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.20				(0.40)	Firm dark brown slightly gravelly CLAY with occasional rootlets. Gravel is fine to coarse subangular to subrounded quartzite.
				64.47	0.40	(TOPSOIL)
D	0.60				(0.40)	Firm dark orangish brown slightly gravelly slighty sandy CLAY. Gravel is fine to coarse subangular to subrounded quartzite.
				64.07	0.80	(ALLUVIUM)
D	1.00					Medium dense dark orangish yellow slightly clayey sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite.
C	1.20	N = 15	1.20		(1.10)	(RIVER TERRACE DEPOSITS)
B	1.65					
D	1.90			62.97	1.90	
U	2.00					Firm to stiff dark grey CLAY. (KELLAWAYS FORMATION)
					(0.90)	
D	2.60					
D	2.80			62.07	2.80	
C	2.85	N >50	2.00	62.02	(0.05)	Weak grey LIMESTONE recovered as medium to coarse angular to subangular limestone gravel. (CORNBRASH FORMATION)
					2.85	End of Borehole at 2.85m

Chiselling

From	To	Duration (hh:mm)
2.80	2.85	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.50	1.50		1.50	2.20
2.85	1.40		2.20	

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.85m bgl.

Diameter: 150mm to 2.85m

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH3

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	19/06/2020	**Coordinates**	**Scale** 1:50
End	19/06/2020	**Ground Level** 64.69m AOD	**Total Depth** 2.86m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata	Legend	GW	Install
D	0.20				(0.60)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)			
				64.09	0.60				
D	0.80					Soft to firm light greyish brown slightly gravelly CLAY with rare rootlets. Gravel is fine subangular to subrounded quartzite. (ALLUVIUM)			
D	1.20								
S	1.20	N = 10	1.20		(1.60)				
D	1.80					*Below 1.80m bgl: becoming stiff.*			
U	2.00	(29)							
				62.49	2.20				
B	2.45				(0.50)	Firm to stiff dark grey CLAY. (KELLAWAYS FORMATION)			
D	2.45								
D	2.75			61.99	2.70				
C	2.85	N >50	2.50	61.83	(0.16)	Weak grey LIMESTONE recovered as fine to coarse angular to subangular limestone gravel. (CORNBRASH FORMATION)			
					2.86	End of Borehole at 2.86m			

Chiselling		
From	To	Duration (hh:mm)
2.75	2.80	01:00

Groundwater Strikes				
Depth Strike	Rose to	Remarks	Cased	Sealed

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.00m bgl.

Diameter: 150mm to 2.86m

Exploratory hole logs should be read in conjunction with key sheets

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH4

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	19/06/2020	**Coordinates**	**Scale** 1:50
End	19/06/2020	**Ground Level** 63.83m AOD	**Total Depth** 2.90m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.20				(0.50)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)
				63.33	0.50	
D	0.70				(0.40)	Soft to firm dark brown and orange sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)
				62.93	0.90	
D	1.00					Medium dense dark orangish brown slightly clayey gravelly SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
C	1.20	N = 12	1.20		(1.05)	
B	1.65					
D	1.95			61.88	1.95	
U	2.00	(26)				Stiff dark grey CLAY. (KELLAWAYS FORMATION)
					(0.85)	
D	2.70					
D	2.80			61.03	2.80	
C	2.90	N >50	2.50	60.93	(0.10)	Weak grey LIMESTONE recovered as coarse subangular limestone gravel and cobbles. (CORNBRASH FORMATION)
					2.90	End of Borehole at 2.90m

Chiselling

From	To	Duration (hh:mm)
2.80	2.90	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.50	1.50		1.50	2.00
2.90	1.90		2.50	

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.90m bgl.

Diameter: 150mm to 2.90m

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH5

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	22/06/2020 **Coordinates**	**Scale**	1:50
End	22/06/2020 **Ground Level** 64.00m AOD	**Total Depth**	3.40m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata	Legend	GW	Install
D	0.30				(0.60)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)			
				63.40	0.60				
D	0.90					Soft to firm dark orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded quartzite. (ALLUVIUM)			
D	1.20				(1.20)				
S	1.20	N = 6	1.20						
D	1.70								
D	1.80			62.20	1.80				
U	2.00	(29)				Firm to stiff dark grey CLAY. (KELLAWAYS FORMATION)			
D	2.45								
					(1.55)				
D	2.70								
D	2.80								
S	2.80	N = 16	2.50						
D	3.25					*Below 3.25m bgl: fine shell fragments.*			
D	3.35			60.65	3.35				
C	3.38	N >50	2.50	60.60	(0.05)	Weak grey LIMESTONE recovered as angular to subangular limestone gravel and cobbles. (CORNBRASH FORMATION)			
					3.40	End of Borehole at 3.40m			

Chiselling

From	To	Duration (hh:mm)
3.35	3.38	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl. Borehole backfilled with bentonite and arisings on completion.

Installation:

Diameter: 150mm to 3.40m

Exploratory hole logs should be read in conjunction with key sheets

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH6

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	23/06/2020 **Coordinates**	**Scale**	1:50
End	23/06/2020 **Ground Level** 63.80m AOD	**Total Depth**	3.56m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.20				(0.70)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)
				63.10	0.70	
D	1.10					Dark orange and brown slightly gravelly clayey SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
C	1.20	N = 18	1.20		(1.10)	*Below 1.20m bgl: medium dense.*
D	1.65					
D	1.80			62.00	1.80	
B	1.90					Firm becoming stiff dark grey CLAY. (KELLAWAYS FORMATION)
U	1.90	(29)				
D	2.40					
S	2.40	N = 19	2.00		(1.70)	
D	3.00					
U	3.10	(55)				
D	3.50			60.30	3.50	
D	3.50			60.25	(0.05)	Weak grey LIMESTONE recovered as fine to coarse subangular to subrounded limestone gravel and cobbles. (CORNBRASH FORMATION)
C	3.55	N >50	2.50		3.55	End of Borehole at 3.56m

Legend | GW | Install

Chiselling

From	To	Duration (hh:mm)
3.50	3.55	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
3.55	0.00		2.50	

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 3.56m bgl.

Diameter: 150mm to 3.56m

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH7

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	23/06/2020	**Coordinates**	**Scale** 1:50
End	23/06/2020	**Ground Level** 63.70m AOD	**Total Depth** 4.40m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
					(0.60)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)
D	0.40					
				63.10	0.60	
D	0.70				(0.40)	Soft to firm dark orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)
D	1.00			62.70	1.00	
B	1.20					Medium dense dark orangish brown slightly clayey gravelly SAND with occasional cobbles. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subrounded to rounded quartzite. (RIVER TERRACE DEPOSITS)
C	1.20	N = 14	1.20		(0.75)	
D	1.75			61.95	1.75	
D	2.00					Firm becoming stiff dark grey CLAY. (KELLAWAYS CLAY MEMBER)
S	2.00	N = 15	2.00			*Between 1.75m and 1.80m bgl: with gravels of fine to medium subangular to subrounded quartzite.*
B	2.45					
U	3.00	(34)			(2.60)	
D	3.60					
D	3.80					
S	3.80	N = 22	3.00			
D	4.25					
D	4.35			59.35	4.35	*Below 4.25m bgl: gravel of fine shell fragments.*
C	4.40	N >50	3.00	59.30	(0.05)	Weak grey LIMESTONE recovered as fine to coarse angular to subangular limestone gravel and cobbles. (CORNBRASH FORMATION)
					4.40	End of Borehole at 4.40m

Chiselling			Groundwater Strikes				
From	To	Duration (hh:mm)	Depth Strike	Rose to	Remarks	Cased	Sealed
4.35	4.40	01:00	1.60	1.60		1.20	2.00

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.00m bgl.

Diameter: 150mm to 4.40m

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH8

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	24/06/2020 **Coordinates**	**Scale**	1:50
End	24/06/2020 **Ground Level** 63.80m AOD	**Total Depth**	4.01m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.30				(0.60)	Soft to firm dark brown slightly gravelly CLAY with occasional rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)
				63.20	0.60	
D	0.70					Light orangish grey sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
D	1.00					
C	1.20	N = 15	1.20		(1.15)	*Below 1.20m bgl: medium dense.*
D	1.40					
D	1.75			62.05	1.75	
B	1.80					Firm becoming stiff dark grey CLAY. (KELLAWAYS FORMATION)
U	1.80	(29)				
D	2.25					
S	2.25	N = 21	2.20			
D	2.90				(2.20)	
U	3.00					
B	3.45					
D	3.80					
D	3.95			59.85	3.95	
C	4.00	N >50	2.50	59.80	(0.05)	Weak grey LIMESTONE recovered as coarse angular to subangular limestone gravel. (CORNBRASH FORMATION)
					4.00	End of Borehole at 4.01m

Chiselling

From	To	Duration (hh:mm)
3.95	4.00	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.60	1.60		1.40	1.80

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.00m bgl.

Diameter: 150mm to 4.01m

Exploratory hole logs should be read in conjunction with key sheets

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH9

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	24/06/2020 **Coordinates**	**Scale**	1:50
End	24/06/2020 **Ground Level** 64.07m AOD	**Total Depth**	3.91m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.40				(0.70)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)
				63.37	0.70	
D	0.80					Firm dark orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)
D	1.00			63.17	(0.20)	
C	1.20	N = 18	1.20		0.90	
D	1.50				(0.85)	Medium dense dark orangish brown slightly clayey slightly gravelly SAND. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
D	1.80			62.32	1.75	
D	1.90					Firm becoming stiff dark grey CLAY. (KELLAWAYS FORMATION)
S	1.90	N = 20	1.90			
D	2.70				(2.10)	
U	3.00	(32)				
D	3.60					*Below 3.60m bgl: becoming firm.*
D	3.85			60.22	3.85	
C	3.90	N >50	2.50	60.17	(0.05)	Weak grey LIMESTONE recovered as of coarse angular to subangular limestone gravel and cobbles. (CORNBRASH FORMATION)
					3.90	End of Borehole at 3.91m

Chiselling			Groundwater Strikes				
From	To	Duration (hh:mm)	Depth Strike	Rose to	Remarks	Cased	Sealed
3.85	3.90	01:00	1.65	1.60		1.50	2.00

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.00m bgl.

Diameter: 150mm to 3.91m

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH10

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	25/06/2020	**Coordinates**	**Scale** 1:50
End	25/06/2020	**Ground Level** 64.30m AOD	**Total Depth** 3.36m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.20				(0.60)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)
				63.70	0.60	
D	0.70				(0.40)	Soft to firm dark brownish orange slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite.
D	1.00			63.30	1.00	(ALLUVIUM)
S	1.20	N = 10	1.20		(0.60)	Medium dense dark orange slightly gravelly clayey SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded quartzite.
D	1.50					
B	1.60			62.70	1.60	(RIVER TERRACE DEPOSITS)
U	2.00	(32)				Firm becoming stiff dark bluish grey CLAY. (KELLAWAYS FORMATION) *Between 1.60m and 2.00m bgl: with occasional gravel of fine to coarse subangular to subrounded quartzite.*
D	2.45				(1.70)	
D	2.60					
D	2.70					
S	2.70	N = 19	2.50			
B	3.05					
D	3.30			61.00	3.30	
C	3.35	N >50	2.50	60.94	(0.06)	Weak grey LIMESTONE recovered as angular to subangular limestone gravel and cobbles. (CORNBRASH FORMATION)
					3.36	End of Borehole at 3.36m

Chiselling			Groundwater Strikes				
From	To	Duration (hh:mm)	Depth Strike	Rose to	Remarks	Cased	Sealed
3.30	3.35	01:00	3.30	2.60		2.50	

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter pipe installed to 3.35m bgl.

Diameter: 150mm to 3.36m

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH11

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	16/06/2020	**Coordinates**	**Scale** 1:50
End	17/06/2020	**Ground Level** 64.42m AOD	**Total Depth** 4.68m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.20				(0.70)	Firm dark brown slightly gravelly CLAY with occasional rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)
D	0.70			63.72	0.70	Firm becoming stiff orangish brown slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)
D	1.00				(0.50)	
C	1.20	N = 45	1.20	63.22	1.20	Dense light yellowish orangish brown slightly gravelly clayey SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
B	1.50				(0.80)	
B	2.00			62.42	2.00	Medium dense becoming loose dark orangish brown sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
C	2.20	N = 9	2.00		(0.60)	
D	2.60			61.82	2.60	Yellowish brown slightly sandy GRAVEL with occasional cobbles. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite and possible igneous rock. (RIVER TERRACE DEPOSITS)
D	2.65			61.77	(0.05)	
D	2.80				2.65	Firm becoming stiff dark grey CLAY. (KELLAWAYS FORMATION)
S	2.80	N = 17	2.80			
D	3.50					
B	3.55				(2.00)	
U	3.55	(29)				
B	4.00					
U	4.20	(65)				
D	4.65			59.77	4.65	Weak grey LIMESTONE recovered as fine to medium angular to subangular limestone gravel. (CORNBRASH FORMATION) *Below 4.65m bgl: gravel of fine shell fragments.*
C	4.68	N >50	3.00	59.74	(0.03)	
					4.68	End of Borehole at 4.68m

Legend | GW | Install

Chiselling

From	To	Duration (hh:mm)
4.65	4.68	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.80	1.60		1.50	3.00

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.70m bgl.

Diameter: 150mm to 4.68m

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH12

Project	Catalyst Bicester, Wendlebury Road			**Project No.**	AG2875A-20
Client	Albion Land Ltd			**Sheet**	1 of 1
Start	15/06/2020	**Coordinates**	E 457464.36 N 220915.94	**Scale**	1:50
End	15/06/2020	**Ground Level**	64.09m AOD	**Total Depth**	5.10m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.10				(0.60)	Firm dark brown slightly gravelly CLAY with occasional rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)
				63.49	0.60	
D	0.80				(0.30)	Soft to firm dark orangish brown slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)
				63.19	0.90	
D	1.10				(0.50)	Light orangish brown slightly clayey gravelly SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
D	1.20					
S	1.20	N = 27	1.20	62.69	1.40	
B	1.65					Medium dense light orangish brown sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
					(1.40)	
B	2.20					
C	2.20	N = 29	1.65			
D	2.80			61.29	2.80	Firm becoming stiff dark grey CLAY. (KELLAWAYS FORMATION)
D	3.10					
S	3.10	N = 18	3.00			
B	3.55					
B	3.80					
U	3.80	(38)			(2.25)	
B	4.30					
U	4.30	(40)				
D	4.75					
S	4.75	N >50	3.00			
D	5.05			59.04	5.05	
D	5.05			58.99	(0.05)	Weak grey LIMESTONE recovered as medium to coarse subangular limestone gravel. (CORNBRASH FORMATION)
C	5.05	N >50	3.00		5.10	

End of Borehole at 5.10m

Chiselling

From	To	Duration (hh:mm)
5.05	5.10	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
2.10	1.60		2.00	3.00

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 4.00m bgl.

Diameter: 150mm to 5.10m

Exploratory hole logs should be read in conjunction with key sheets

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH13

Project	Catalyst Bicester, Wendlebury Road			**Project No.**	AG2875A-20
Client	Albion Land Ltd			**Sheet**	1 of 1
Start	15/06/2020	**Coordinates**	E 457432.82 N 220814.68	**Scale**	1:50
End	16/06/2020	**Ground Level**	64.10m AOD	**Total Depth**	5.50m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.10				(0.60)	Firm dark brown slightly gravelly CLAY with occasional rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)
				63.50	0.60	
D	0.70				(0.40)	Firm light orangish grey slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded quartzite.
D	1.00			63.10	1.00	(ALLUVIUM)
B	1.20					Medium dense light yellowish brown slightly clayey gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
C	1.20	N = 26	1.20			
C	2.00	N = 18	2.00		(1.70)	
D	2.50					
				61.40	2.70	
D	2.80					Firm becoming stiff dark grey CLAY. (KELLAWAYS FORMATION)
B	2.90					
U	2.90	(36)				
D	3.40					
S	3.40	N = 23	3.40			
D	4.00				(2.70)	*Below 4.00m bgl: very stiff.*
U	4.10	(40)				
D	4.60					
U	4.70	(41)				
B	5.15					
D	5.40			58.70	5.40	
C	5.50	N >50	3.00	58.60	(0.10)	Weak grey LIMESTONE recovered as medium to coarse subangular limestone gravel. (CORNBRASH FORMATION)
					5.50	End of Borehole at 5.50m

Chiselling

From	To	Duration (hh:mm)
5.40	5.50	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
2.00	2.00		2.00	3.00
5.40	0.20		3.00	

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl. Borehole backfilled with bentonite on completion.

Installation:

Diameter: 150mm to 5.50m

Exploratory hole logs should be read in conjunction with key sheets

APPLIED GEOLOGY

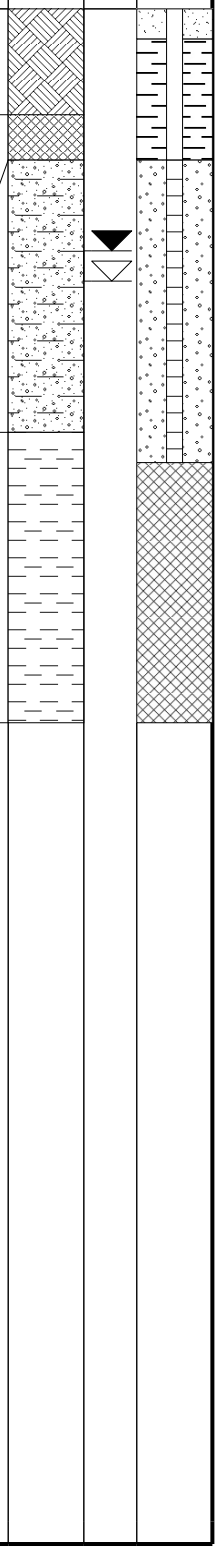
BOREHOLE LOG - CABLE PERCUSSION

BH14

Project	Catalyst Bicester, Wendlebury Road			**Project No.**	AG2875A-20
Client	Albion Land Ltd			**Sheet**	1 of 1
Start	16/06/2020	**Coordinates**	E 457346.89 N 220850.27	**Scale**	1:50
End	16/06/2020	**Ground Level**	64.10m AOD	**Total Depth**	4.72m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
D	0.20				(0.70)	Firm dark brown slightly gravelly CLAY with occasional rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)
				63.40	0.70	
D	0.80				(0.30)	Light grey slightly sandy clayey GRAVEL. Gravel fine to coarse subangular to subrounded quartzite with concrete and rare coal. (MADE GROUND)
D	1.00			63.10	1.00	
B	1.20					Medium dense greyish brown slightly clayey sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)
C	1.20	N = 13	1.20			
B	2.00				(1.80)	
D	2.80			61.30	2.80	Stiff dark grey CLAY. (KELLAWAYS FORMATION)
U	2.90	(29)				
D	3.60					
D	3.60				(1.92)	
S	3.60	N = 22	3.00			
D	4.20					
U	4.20	(39)				
D	4.65					
C	4.72	N >50	3.00	59.38	4.72	End of Borehole at 4.72m

Legend | **GW** | **Install**



Chiselling

From	To	Duration (hh:mm)
4.75	4.72	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.80	1.60		1.50	3.00

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl. Borehole terminated on possible limestone at 4.72m bgl.

Installation: 50mm diameter standpipe installed to 4.72m bgl.

Diameter: 150mm to 4.72m

BOREHOLE LOG - CABLE PERCUSSION

BH15

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	22/06/2020	**Coordinates**	
Scale	1:50		
End	22/06/2020	**Ground Level**	63.76m AOD
Total Depth	4.61m		

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata	Legend	GW	Install
D	0.40				(0.60)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)			
				63.16	0.60				
D	0.80					Firm becoming stiff dark orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded quartzite. (ALLUVIUM)			
D	1.00					*Below 1.00m bgl: becoming more gravelly.*			
C	1.20	N = 21	1.20		(1.05)				
D	1.65			62.11	1.65				
B	1.80			61.96	(0.15)	Light orangish brown sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)			
U	2.00	(29)			1.80	Firm to stiff dark grey CLAY. (KELLAWAYS FORMATION)			
D	2.45								
D	2.60								
D	3.00								
S	3.00	N = 15	3.00		(2.75)				
D	3.80					*Below 3.80m bgl: becoming stiff.*			
U	3.90	(32)							
D	4.35					*Below 4.35m bgl: fine shell fragments.*			
D	4.35			59.21	4.55				
D	4.55			59.15	(0.06)	Weak grey LIMESTONE recovered as course subangular limestone gravel and cobbles. (CORNBRASH FORMATION)			
C	4.60	N >50	3.00		4.61	End of Borehole at 4.61m			

Chiselling

From	To	Duration (hh:mm)
4.55	4.60	01:00

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.30	1.30		1.20	2.00
4.60	2.00		3.00	

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl. Borehole backfilled with bentonite on completion.

Installation:

Diameter: 150mm to 4.61m

Exploratory hole logs should be read in conjunction with key sheets

APPLiED GEOLOGY

BOREHOLE LOG - CABLE PERCUSSION

BH15A

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	22/06/2020 **Coordinates**	**Scale**	1:50
End	22/06/2020 **Ground Level** 63.72m AOD	**Total Depth**	2.00m

Sample / Test Type	Depth (m)	Result	Casing Depth (m)	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata	Legend	GW	Install
					(0.60)	Soft to firm dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)			
				63.12	0.60				
					(0.40)	Firm becoming stiff dark orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded quartzite. (ALLUVIUM)			
				62.72	1.00				
					(0.80)	Light orangish brown sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)			
				61.92	1.80				
				61.72	(0.20)	Firm to stiff dark grey CLAY. (KELLAWAYS FORMATION)			
					2.00	End of Borehole at 2.00m			

Chiselling

From	To	Duration (hh:mm)

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.60	0.00		1.20	2.00

Drilled: TS

Logged: KM

Checked: FHJ

Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Installation: 50mm diameter standpipe installed to 2.00m bgl.

Diameter: 150mm to 2.00m

Exploratory hole logs should be read in conjunction with key sheets

APPLiED GEOLOGY

SPT SUMMARY SHEET

Project: Catalyst Bicester, Wendlebury Road
Client: Albion Land Ltd
Project No: AG2875A-20

Borehole No.	Borehole depth (m)	Bottom depth (m)	Casing depth (m)	Water Level (m)	Equipment ref.	Seating Drive		Test Drive			Test Type	N Value
						Blows	Pen (mm)	Blows	Pen (mm)	Total Pen (mm)		
BH1	1.20	1.65	1.20			2 3	75 75	3 4 4 3	75 75 75 75	300	C	14
BH1	2.90	2.90	2.55			25	0	50	0	0	C	>50
BH10	1.20	1.65	1.20			3 4	75 75	3 3 2 2	75 75 75 75	300	S	10
BH10	2.70	3.15	2.50			3 4	75 75	4 4 5 6	75 75 75 75	300	S	19
BH10	3.35	3.35	2.50	2.6		25	0	50	0	0	C	>50
BH11	1.20	1.65	1.20			5 8	75 75	10 11 12 12	75 75 75 75	300	C	45
BH11	2.20	2.65	2.00	1.6		5 8	75 75	5 2 1 1	75 75 75 75	300	C	9
BH11	2.80	3.25	2.80	2.8		3 3	75 75	3 4 5 5	75 75 75 75	300	S	17
BH11	4.68	4.68	3.00			25	0	50	0	0	C	>50
BH12	1.20	1.65	1.20			3 4	75 75	5 6 8 8	75 75 75 75	300	S	27
BH12	2.20	2.65	1.65	1.65		5 6	75 75	7 8 7 7	75 75 75 75	300	C	29
BH12	3.10	3.55	3.00			3 4	75 75	4 4 5 5	75 75 75 75	300	S	18
BH12	4.75	5.07	3.00			5 7	75 75	7 7 36	75 75 20	170	S	>50
BH12	5.05	5.05	3.00			25	0	50	0	0	C	>50
BH13	1.20	1.65	1.20			5 7	75 75	7 6 6 7	75 75 75 75	300	C	26
BH13	2.00	2.45	2.00			3 4	75 75	4 5 4 5	75 75 75 75	300	C	18
BH13	3.40	3.85	3.40			4 5	75 75	5 6 6 6	75 75 75 75	300	S	23
BH13	5.50	5.50	3.00			25	0	50	0	0	C	>50
BH14	1.20	1.65	1.20	3.0		2 3	75 75	3 4 3 3	75 75 75 75	300	C	13
BH14	3.60	4.05	3.00			3 4	75 75	5 5 6 6	75 75 75 75	300	S	22
BH14	4.72	4.72	3.00			25	0	50	0	0	C	>50
BH15	1.20	1.65	1.20			3 5	75 75	4 5 6 6	75 75 75 75	300	C	21
BH15	3.00	3.45	3.00			2 3	75 75	3 3 4 5	75 75 75 75	300	S	15
BH15	4.60	4.61	3.00			25	0	50	10	10	C	>50
BH2	1.20	1.65	1.20			2 3	75 75	3 4 3 5	75 75 75 75	300	C	15
BH2	2.85	2.85	2.00			25	1	50	1	1	C	>50
BH3	1.20	1.65	1.20			1 2	75 75	2 2 3 3	75 75 75 75	300	S	10
BH3	2.85	2.86	2.50			25	5	50	5	5	C	>50
BH4	1.20	1.65	1.20			1 3	75 75	2 3 3 4	75 75 75 75	300	C	12
BH4	2.90	2.90	2.50			25	0	50	0	0	C	>50
BH5	1.20	1.65	1.20			1 0	75 75	1 1 2 2	75 75 75 75	300	S	6
BH5	2.80	3.25	2.50			2 3	75 75	3 4 4 5	75 75 75 75	300	S	16
BH5	3.38	3.38	2.50			25	1	50	1	1	C	>50
BH6	1.20	1.65	1.20			3 3	75 75	4 5 5 4	75 75 75 75	300	C	18

Notes:
1. Test carried out in general accordance with BS EN ISO 22476-3:2005
2. N values have not been subjected to any correction.
3. Test carried out using split spoon S, or solid cone C.

APPLiED GEOLOGY

SPT SUMMARY SHEET

Project: Catalyst Bicester, Wendlebury Road
Client: Albion Land Ltd
Project No: AG2875A-20

Borehole No.	Borehole depth (m)	Bottom depth (m)	Casing depth (m)	Water Level (m)	Equipment ref.	Seating Drive		Test Drive			Test Type	N Value
						Blows	Pen (mm)	Blows	Pen (mm)	Total Pen (mm)		
BH6	2.40	2.85	2.00			2 3	75 75	4 4 5 6	75 75 75 75	300	S	19
BH6	3.55	3.55	2.50			25	0	50	0	0	C	>50
BH7	1.20	1.65	1.20			2 3	75 75	3 3 4 4	75 75 75 75	300	C	14
BH7	2.00	2.45	2.00			2 3	75 75	3 4 4 4	75 75 75 75	300	S	15
BH7	3.80	4.25	3.00			3 4	75 75	5 5 6 6	75 75 75 75	300	S	22
BH7	4.40	4.40	3.00			25	0	50	0	0	C	>50
BH8	1.20	1.65	1.20			2 3	75 75	3 4 4 4	75 75 75 75	300	C	15
BH8	2.25	2.70	2.20			3 4	75 75	4 5 6 6	75 75 75 75	300	S	21
BH8	4.00	4.00	2.50			25	0	50	0	0	C	>50
BH9	1.20	1.65	1.20			3 2	75 75	4 4 5 5	75 75 75 75	300	C	18
BH9	1.90	2.35	1.90			3 3	75 75	4 5 5 6	75 75 75 75	300	S	20
BH9	3.90	3.90	2.50			25	0	50	0	0	C	>50
DCS1	1.20	1.65				2 2	75 75	1 1 2 1	75 75 75 75	300	C	5
DCS1	2.00	2.45				1 1	75 75	2 2 1 2	75 75 75 75	300	C	7
DCS1	3.00	3.45				2 2	75 75	3 3 4 4	75 75 75 75	300	S	14
DCS1	4.00	4.28				1 2	75 75	19 31	75 50	125	S	>50
DCS2	1.20	1.65				2 3	75 75	3 2 2 3	75 75 75 75	300	C	10
DCS2	2.00	2.45				5 3	75 75	1 1 1 1	75 75 75 75	300	C	4
DCS2	3.00	3.45				1 1	75 75	1 1 2 2	75 75 75 75	300	C	6
DCS3	1.20	1.65				1 1	75 75	2 2 2 2	75 75 75 75	300	C	8
DCS3	2.00	2.45				1 1	75 75	1 1 2 2	75 75 75 75	300	C	6
DCS3	3.00	3.45				1 2	75 75	1 2 2 3	75 75 75 75	300	S	8
DCS3	4.00	4.45				1 2	75 75	1 2 2 2	75 75 75 75	300	S	7
DCS3	4.60	4.60				25	0	50	0	0	C	>50
DCS4	1.20	1.65				2 2	75 75	1 1 2 1	75 75 75 75	300	C	5
DCS4	2.00	2.45				2 3	75 75	3 3 3 4	75 75 75 75	300	C	13
DCS4	3.00	3.45				1 1	75 75	1 2 2 2	75 75 75 75	300	S	7
DCS4	4.00	4.45				2 2	75 75	1 2 2 2	75 75 75 75	300	S	7
DCS4	5.00	5.45				2 2	75 75	3 2 2 2	75 75 75 75	300	S	9

Notes:
1. Test carried out in general accordance with BS EN ISO 22476-3:2005
2. N values have not been subjected to any correction.
3. Test carried out using split spoon S, or solid cone C.

APPLiED GEOLOGY

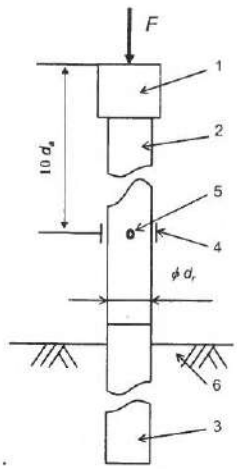
SPT Calibration Report

Hammer Energy Measurement Report

Type of Hammer	SPT HAMMER
Test No	EQU2553
Client	APPLIED GEOLOGY
Test Depth (m)	9.20
Mass of hammer	m = 63.5kg
Falling height	h = 0.76m
E_{theor} =	$m \times g \times h$ = 473J

Characteristics of the instrumented rod

Diameter	d_r = 0.052 m
Length of instrumented rod	0.558 m
Area	A = 11.61 cm²
Modulus	E_a = 206843 MPa



Key

1 Anvil
2 Part of instrumented rod
3 Drive Rod
4 Strain Gauge
5 Accelerometer
6 Ground

F Force
d_r Diameter of rod

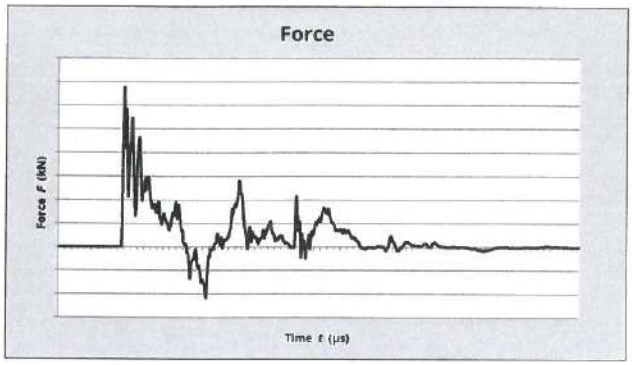
Fig. B.1 and B.2
BS EN ISO 22476-3 : 2005 + A1 : 2011

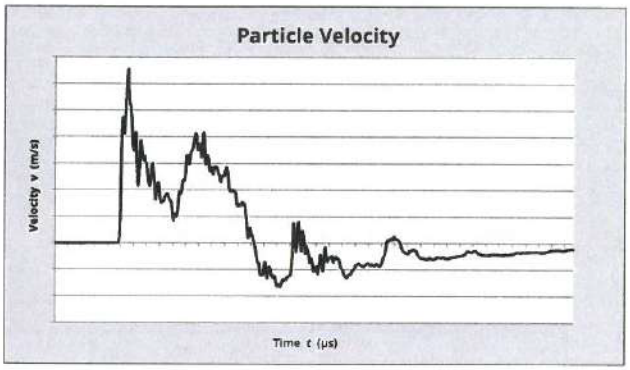
DATE OF TEST	VALID UNTIL	HAMMER ID
13/03/2020	13/03/2021	AG001

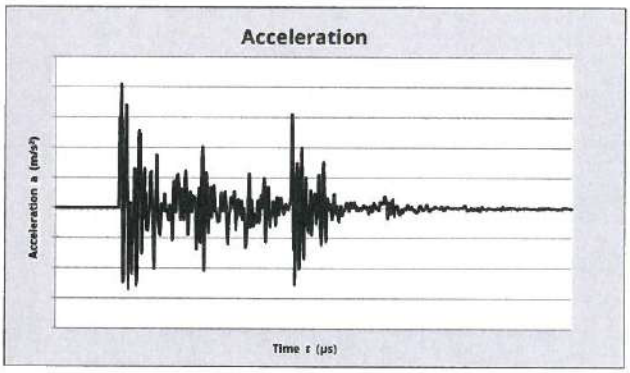
E_{meas} = **0.348** kN-m

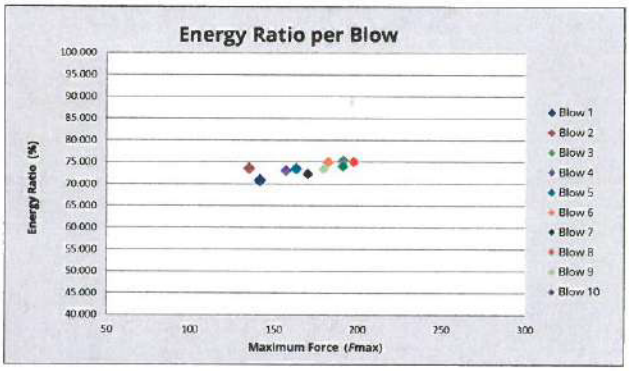
E_{theor} = **0.473** kN-m

Comments









Energy Ratio (Er) = $\frac{E_{meas}}{E_{theor}}$ **73.57%**

©COPYRIGHT 2020

Equipe SPT Analyzer Operator	Certificate prepared by	Certificate checked by	Certificate date
AF	[redacted]		17/03/2020

© Copyright 2020 **Equipe Group**, The Paddocks, Home Farm Offices, The Upton Estate, Banbury, Oxfordshire, OX15 6HU
Tel: +44 (0)1295 670990 Fax: +44 (0)1295 678232 Email: info@equipegroup.com

BOREHOLE LOG - DRIVEN CONTINUOUS SAMPLING

DCS1

Project	Catalyst Bicester, Wendlebury Road			**Project No.**	AG2875A-20
Client	Albion Land Ltd			**Sheet**	1 of 1
Start	18/06/2020	**Coordinates**	E 457306.21 N 220929.48	**Scale**	1:25
End	18/06/2020	**Ground Level**	64.58m AOD	**Total Depth**	4.30m

Sample / Test Type	Depth (m)	Result	Dia./ Rec.	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata	Legend	GW	Install
ES	0.10				(0.20)	Soft to firm dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is fine to coarse subangular to subrounded chalk, quartzite and sandstone. (TOPSOIL)			
				64.38	0.20				
D	0.50				(0.50)	Firm to stiff dark brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded quartzite. (ALLUVIUM)			
				63.88	0.70				
ES	0.90				(0.40)	Soft to firm light orange mottled grey slightly sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)			
				63.48	1.10				
C	1.20	N = 5				Loose becoming medium dense light grey sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)			
					(0.55)				
			87mm /80%						
D	1.70			62.93	1.65	Medium dense dark brown slightly gravelly SAND. Sand is fine. Gravel is fine to medium subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)			
B	1.80				(0.35)				
C	2.00	N = 7		62.58	2.00	Stiff dark grey CLAY. (KELLAWAYS FORMATION)			
D	2.50		87mm /100%						
S	3.00	N = 14			(2.30)				
D	3.60		87mm /70%						
S	4.00	N >50							
				60.28	4.30	End of Borehole at 4.30m			

Installation: 50mm diameter standpipe installed to 2.00m bgl.
Remarks: Hand dug service inspection pit excavated to 1.20m bgl. Borehole terminated on possible limestone at 4.30m bgl.

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.10	1.10			

Drilled: DH
Logged: KM
Checked: FHJ

Exploratory hole logs to be read in conjunction with key sheet

APPLIED GEOLOGY

BOREHOLE LOG - DRIVEN CONTINUOUS SAMPLING

DCS2

Project	Catalyst Bicester, Wendlebury Road			**Project No.**	AG2875A-20
Client	Albion Land Ltd			**Sheet**	1 of 1
Start	18/06/2020	**Coordinates**	E 457381.73 N 220905.36	**Scale**	1:25
End	18/06/2020	**Ground Level**	64.31m AOD	**Total Depth**	4.00m

Sample / Test Type	Depth (m)	Result	Dia./ Rec.	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata	Legend	GW	Install
ES	0.10				(0.20)	Soft to firm light grey slightly sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of quartzite, brick, sandstone and concrete.			
				64.11	0.20	(MADE GROUND)			
D	0.30				(0.25)	Light orangish brown gravelly SAND with rare cobbles of subangular concrete. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded concrete and quartzite.			
				63.86	0.45	(MADE GROUND)			
ES	0.70				(0.55)	Soft to firm dark greyish brown slightly sandy slightly gravelly CLAY with strong organic odour. Gravel is fine to coarse subangular to subrounded quartzite. Rare black staining and relict roots. (ALLUVIUM)			
				63.31	1.00	Medium dense light yellowish brown gravelly SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded of quartzite.			
D	1.10								
C	1.20	N = 10			(0.60)	(RIVER TERRACE DEPOSITS)			
B	1.40								
			87mm /80%	62.71	1.60	Orangish brown gravelly SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded quartzite.			
D	1.80				(0.40)	(RIVER TERRACE DEPOSITS) *Below 1.80m bgl: becoming dark brown.*			
C	2.00	N = 4		62.31	2.00	No recovery. NR NR			
					(0.80)				
			87mm /20%						
D	2.80			61.51	2.80	Dark grey gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE			
					(0.20)				
C	3.00	N = 6		61.31	3.00	DEPOSITS/KELLAWAYS FORMATION) No recovery. NR NR			
					(0.80)				
			87mm /20%						
D	3.80			60.51	3.80	Stiff dark grey CLAY.			
					(0.20)	(KELLAWAYS FORMATION)			
				60.31	4.00	End of Borehole at 4.00m			

Installation: 50mm diameter standpipe installed to 3.00m bgl.
Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.10	1.10			

Drilled: DH
Logged: KM
Checked: FHJ

Exploratory hole logs to be read in conjunction with key sheet

APPLIED GEOLOGY

BOREHOLE LOG - DRIVEN CONTINUOUS SAMPLING

DCS3

Project	Catalyst Bicester, Wendlebury Road			**Project No.**	AG2875A-20
Client	Albion Land Ltd			**Sheet**	1 of 1
Start	18/06/2020	**Coordinates**	E 457417.60 N 220933.57	**Scale**	1:25
End	18/06/2020	**Ground Level**	64.21m AOD	**Total Depth**	4.60m

Sample / Test Type	Depth (m)	Result	Dia./ Rec.	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata	Legend	GW	Install
						Soft to firm dark brown gravelly CLAY. Gravel is fine to coarse subangular to angular quartzite and concrete. (TOPSOIL/MADE GROUND)			
ES	0.40				(0.70)				
D	0.70			63.51	0.70				
					(0.20)	Firm to stiff light grey slightly gravelly CLAY. Gravel is fine to medium subangular to angular quartzite with occasional shell fragments. (ALLUVIUM)			
				63.31	0.90				
				63.21	(0.10)	Soft to firm light orangish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)			
					1.00				
D	1.20								
C	1.20	N = 8				Dark orangish brown slightly clayey sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)			
ES	1.50				(1.00)				
B	1.60		87mm /80%						
C	2.00	N = 6		62.21	2.00	No recovery. *Between 2.00m and 2.85m bgl: no recovery.*	NR NR		
			87mm /25%		(0.85)				
				61.36	2.85				
D	2.90					Stiff dark grey CLAY. (KELLAWAYS FORMATION) *Between 3.00m and 3.20m bgl: no recovery.*			
S	3.00	N = 8							
			87mm /80%		(1.75)				
S	4.00	N = 7							
			77mm /50%						
D	4.40								
C	4.60	N >50		59.61	4.60	End of Borehole at 4.60m			

Installation: 50mm diameter standpipe installed to 3.00m bgl.
Remarks: Hand dug service inspection pit excavated to 1.20m bgl. Borehole terminated on possible limestone at 4.60m bgl.

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
1.40	1.40			

Drilled: DH
Logged: KM
Checked: FHJ

APPLIED GEOLOGY

BOREHOLE LOG - DRIVEN CONTINUOUS SAMPLING

DCS4

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Start	18/06/2020 **Coordinates**	**Scale**	1:25
End	18/06/2020 **Ground Level** 64.17m AOD	**Total Depth**	5.00m

Sample / Test Type	Depth (m)	Result	Dia./ Rec.	Level (mAoD)	Strata Depth (thickness) (m)	Description of Strata
					(0.20)	Soft to firm dark brown gravelly CLAY with frequent near surface roots and rootlets. Gravel is fine to coarse subangular to angular quartzite and concrete. Half a brick present.
				63.97	0.20	(TOPSOIL/MADE GROUND)
ES	0.30					Firm to stiff dark brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite with occasional shell fragments.
D	0.50				(0.70)	(POSSIBLE ALLUVIUM)
				63.27	0.90	
B	1.00					Light brown slightly sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded flint and quartzite.
D	1.00					(RIVER TERRACE DEPOSITS)
ES	1.00					
C	1.20	N = 5				*Between 1.20m and 1.30m bgl: no recovery.*
					(0.80)	
			87mm /80%			*Below 1.50m bgl: becoming sandy.*
				62.47	1.70	
D	1.80					Dark grey slightly clayey slightly gravelly SAND. Sand is fine to coarse. Gravel is fine to medium subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS/KELLAWAYS FORMATION)
C	2.00	N = 13				*Between 2.00m and 2.70m bgl: no recovery.*
					(1.15)	
			87mm /30%			
				61.32	2.85	
D	2.90					Stiff dark grey CLAY.
S	3.00	N = 7				(KELLAWAYS FORMATION)
						Between 3.00m and 4.00m bgl: no recovery.
			87mm /0%			
					(2.15)	
S	4.00	N = 7				*Between 4.00m and 4.50m bgl: no recovery.*
D	4.80					
S	5.00	N = 9	67mm	59.17	5.00	End of Borehole at 5.00m

Installation: 50mm diameter standpipe installed to 3.00m bgl.
Remarks: Hand dug service inspection pit excavated to 1.20m bgl.

Groundwater Strikes

Depth Strike	Rose to	Remarks	Cased	Sealed
0.30	0.30			

Drilled: DH
Logged: KM
Checked: FHJ

Exploratory hole logs to be read in conjunction with key sheet

APPLIED GEOLOGY

SPT Calibration Report

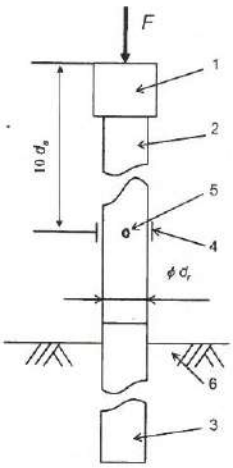
Hammer Energy Measurement Report

Type of Hammer	PREMIER COMPACT
Test No	EQU2556
Client	APPLIED GEOLOGY

Test Depth (m)	9.20
Mass of hammer	m = 63.5kg
Falling height	h = 0.76m
E_{theor} =	$m \times g \times h$ = 473J

Characteristics of the instrumented rod

Diameter	d_r = 0.052 m
Length of instrumented rod	0.558 m
Area	A = 11.61 cm²
Modulus	E_a = 206843 MPa



Key

1 Anvil
2 Part of instrumented rod
3 Drive Rod
4 Strain Gauge
5 Accelerometer
6 Ground

F Force
d_r Diameter of rod

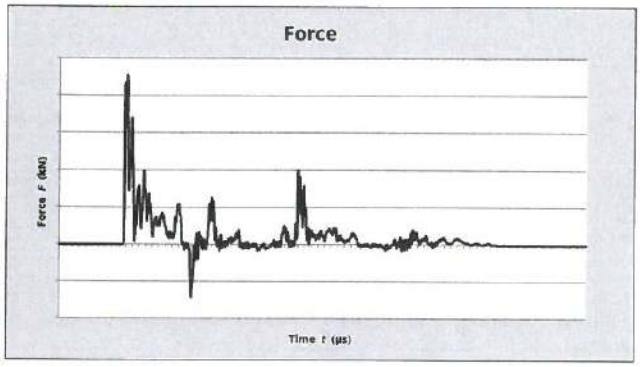
Fig. B.1 and B.2
BS EN ISO 22476-3 : 2005 + A1 : 2011

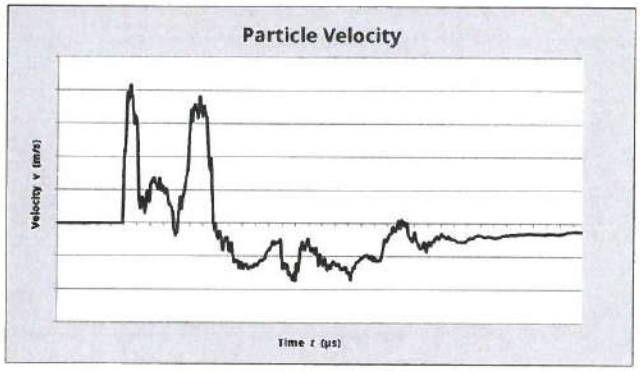
DATE OF TEST	VALID UNTIL	HAMMER ID
30/03/2020	30/03/2021	PREMIER 110/119

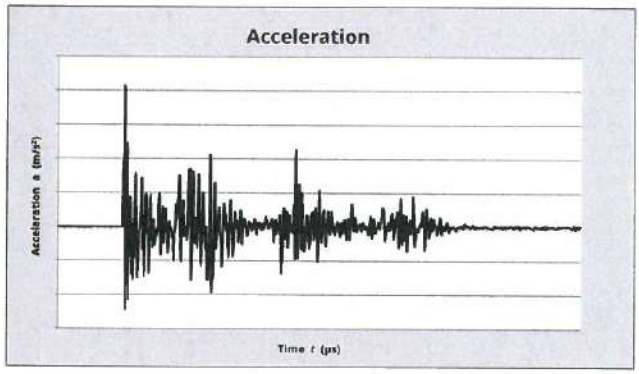
E_{meas} = **0.381** kN-m

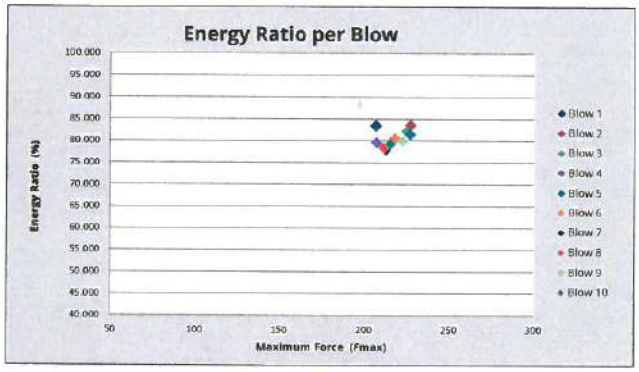
E_{theor} = **0.473** kN-m

Comments









Energy Ratio (Er) = $\frac{E_{meas}}{E_{theor}}$ **80.64%**

©COPYRIGHT 2020

Equipe SPT Analyzer Operator	Certificate prepared by	Certificate checked by	Certificate date
KS	[redacted]		17/04/2020

© Copyright 2020 **Equipe Group**, The Paddocks, Home Farm Offices, The Upton Estate, Banbury, Oxfordshire, OX15 6HU
Tel: +44 (0)1295 670990 Fax: +44 (0)1295 678232 Email: info@equipegroup.com

TRIAL PIT LOG

HDP1

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	18/06/2020	**Scale**	1:25
Ground Level	64.28m AOD **Coordinates** E 457361.48 N 220879.86	**Total Depth**	1.20m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
ES	0.10			(0.25)	E	Soft dark brown slightly gravelly CLAY with frequent near surface rootlets. Gravel is fine to coarse, subangular to subrounded quartzite and flint. Rare cobbles of subangular to subrounded flint.		
			64.03	0.25		(TOPSOIL)		
					E	Soft to firm slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded flint and quartzite. (ALLUVIUM)		
				(0.75)				
D	0.80							
ES	0.80							
			63.28	1.00				
D	1.10			(0.20)		Light grey gravelly SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded flint and quartzite.		
			63.08	1.20	E	(RIVER TERRACE DEPOSITS)		
						End of Trial Pit at 1.20m		

Method: Hand excavated.

Groundwater: Seepage at 1.00m bgl.

Stability: Stable

Remarks: Backfilled with arisings on completion.

Length:	0.30m
Width:	0.30m
Logged:	KM
Checked:	FHJ

APPLIED GEOLOGY

TRIAL PIT LOG

TP101

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	25/06/2020	**Scale**	1:25
Ground Level	64.47m AOD **Coordinates** E 457295.68 N 220849.29	**Total Depth**	2.40m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
ES	0.10			(0.30)	E	Dark brown slightly sandy slightly gravelly CLAY with low cobble content and moderate roots and rootlets content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite. (TOPSOIL)		
			64.17	0.30				
						Soft to firm dark brown slightly gravelly CLAY with rare rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
B	0.50			(0.40)	E			
D	0.60							
			63.77	0.70				
						Orangish yellow sandy GRAVEL with moderate cobble content. Gravel and cobbles are fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
					E			
D	1.10			(0.70)				
B	1.40		63.07	1.40				
D	1.50					Dark orangish brown slightly gravelly clayey SAND. Gravel is fine to medium subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
					E			
				(0.80)				
D	2.20		62.27	2.20				
HV	2.30	Cu = 117		(0.20)		Firm becoming stiff dark grey CLAY. (KELLAWAYS FORMATION)		
			62.07	2.40	M			
						End of Trial Pit at 2.40m		

Method: Trial pit excavated to 2.40m bgl using a JCB 3CX.

Groundwater: Seepage at 1.40m bgl.

Stability: River Terrace Deposits collapsing in.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	2.10m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP102

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	25/06/2020	**Scale**	1:25
Ground Level	64.21m AOD **Coordinates** E 457393.87 N 220804.20	**Total Depth**	2.80m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
B	0.10			(0.20)		Dark brown slightly sandy slightly gravelly CLAY with low cobble content and moderate roots and rootlets content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite.		
ES	0.20		64.01	0.20	E	(TOPSOIL)		
			63.91	(0.10)	E	Soft to firm light brown gravelly CLAY with rare to occasional rootlets. Gravel is fine to coarse subangular to subrounded quartzite.		
				0.30		(ALLUVIUM)		
D	0.60			(0.55)	E	Soft to firm light orangish brown slightly gravelly CLAY with rare rootlets. Gravel is fine to medium subangular to subrounded quartzite and shell fragments.		
HV	0.60	Cu = 51				(ALLUVIUM)		
B	0.80		63.36	0.85		Soft to firm grey mottled orange slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite and shell fragments.		
HV	0.90	Cu = 54				(ALLUVIUM)		
				(0.65)	E			
D	1.30							
HV	1.40	Cu = 43						
			62.71	1.50		Light greyish brown sandy GRAVEL. Gravel is fine to coarse subangular to subrounded of quartzite.		
				(0.20)	E	(RIVER TERRACE DEPOSITS)		
			62.51	1.70		Dark grey slightly gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded quartzite.		
				(0.60)	E	(KELLAWAYS FORMATION)		
HV	2.30	Cu = 100	61.91	2.30		Stiff dark grey CLAY.		
					M	(KELLAWAYS FORMATION)		
				(0.50)				
HV	2.80	Cu = 103	61.41	2.80		End of Trial Pit at 2.80m		

Method: Trial pit excavated to 2.80m bgl using a JCB 3CX.

Groundwater: Seepage at 1.50m bgl.

Stability: River Terrace Deposits collapsing in.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	2.10m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP103

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	25/06/2020	**Scale**	1:25
Ground Level	64.24m AOD **Coordinates** E 457380.62 N 220962.69	**Total Depth**	2.80m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
B	0.10					Dark brown slightly sandy slightly gravelly CLAY with low cobble content and frequent roots and rootlets. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite. (TOPSOIL)		
ES	0.10			(0.30)				
			63.94	0.30	E			
D	0.40					Soft to firm light orangish brown slightly gravelly CLAY with rare to occasional rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
HV	0.50	Cu = 84		(0.30)				
			63.64	0.60	E			
						Soft to firm light grey slightly mottled orange slightly gravelly CLAY. Gravel is fine to medium subangular quartzite with occasional shell fragments. (ALLUVIUM)		
				(0.40)	E			
			63.24	1.00				
D	1.10					Light grey and orange slightly clayey sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		▼
				(0.40)	E			
B	1.40		62.84	1.40				
						Brownish orange gravelly SAND. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
D	1.70							
				(0.70)	E			
D	2.10		62.14	2.10				
HV	2.10	Cu = 93				Stiff dark grey CLAY. (KELLAWAYS FORMATION)		
					M/H			
				(0.70)				
B	2.70							
D	2.70		61.44	2.80				
HV	2.80	Cu = 111				End of Trial Pit at 2.80m		

Method: Trial pit excavated to 2.80m bgl using a JCB 3CX.

Groundwater: Slight seepage at 1.2m bgl.

Stability: River Terrace Deposits collapsing in.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	2.20m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP104

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	25/06/2020	**Scale**	1:25
Ground Level	64.10m AOD **Coordinates** E 457489.17 N 220933.21	**Total Depth**	2.80m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
ES	0.10			(0.30)	E	Soft to firm light brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded quartzite. (TOPSOIL)		
B	0.30		63.80	0.30				
				(0.40)	E	Soft to firm light orangish brown slightly gravelly CLAY with rare rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
HV	0.60	Cu = 83						
			63.40	0.70				
D	0.80					Soft to firm light brown mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded quartzite. (ALLUVIUM/ POSSIBLE RIVER TERRACE DEPOSITS)		
HV	0.90	Cu = 69						
				(0.60)	E			
D	1.20							
			62.80	1.30				
						Light grey and orange sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
B	1.60							
				(0.80)	E			
			62.00	2.10				
D	2.20					Stiff dark grey CLAY. (KELLAWAYS FORMATION)		
HV	2.20	Cu = 71			M/H			
				(0.70)				
B	2.60							
D	2.60							
HV	2.80	Cu = 117	61.30	2.80		End of Trial Pit at 2.80m		

Method: Trial pit excavated to 2.80m bgl using a JCB 3CX.

Groundwater: Seepage at 1.30m bgl and 1.70m bgl.

Stability: Stable.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	2.10m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP105

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	25/06/2020	**Scale**	1:25
Ground Level	64.14m AOD **Coordinates** E 457407.56 N 220899.12	**Total Depth**	2.40m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.30)	E	Soft dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)		
ES	0.20							
B	0.30		63.84	0.30				
D	0.30		63.74	(0.10)		Soft to firm greyish brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded quartzite. One fragment of brick present. (MADE GROUND)		
HV	0.40	Cu = 39		0.40	E			
				(0.40)	E	Firm to stiff dark grey to grey slightly gravelly CLAY. Gravel is fine to medium subangular quartzite with occasional shell fragments. (ALLUVIUM)		
D	0.70							
HV	0.80	Cu = 112	63.34	0.80		Light grey and orangish brown sandy GRAVEL with a moderate cobble content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
B	1.40							
				(1.40)	E			
						Below 1.65m bgl: becoming light grey.		
D	1.80							
D	2.20		61.94	2.20				
HV	2.20	Cu = 115		(0.20)	M/H	Stiff dark grey CLAY. (KELLAWAYS FORMATION)		
			61.74	2.40				
						End of Trial Pit at 2.40m		

Method: Trial pit excavated to 2.40m bgl using a JCB 3CX.

Groundwater: Seepage at 1.15m bgl.

Stability: River Terrace Deposits collapsing in.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	2.20m
Width:	0.10m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP106

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	26/06/2020	**Scale**	1:25
Ground Level	63.51m AOD **Coordinates**	**Total Depth**	1.90m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
ES	0.10			(0.20)		Dark brown slightly gravelly CLAY with frequent roots and rootlets. Gravel is fine to coarse subangular to subrounded quartzite.		
B	0.20		63.31	0.20	E	(TOPSOIL)		
D	0.30			(0.20)		Soft to firm brown mottled orange slightly gravelly CLAY with rare rootlets. Gravel is fine to medium subangular to subrounded quartzite.		
HV	0.30	Cu = 43	63.11	0.40	E	(ALLUVIUM)		
B	0.80					Light grey mottled orange slightly clayey sandy GRAVEL with moderate cobble content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite.		
D	0.80			(0.95)	E	(RIVER TERRACE DEPOSITS)		
			62.16	1.35		Light bluish grey clayey SAND. Sand is fine to medium.		
				(0.55)	E	(KELLAWAYS FORMATION)		
D	1.80							
			61.61	1.90		End of Trial Pit at 1.90m		

Method: Trial pit excavated to 1.90m bgl using a JCB 3CX.

Groundwater: Seepage at 1.00m bgl.

Stability: Unstable. River Terrace Deposits collapsing in and undercutting sides.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	1.90m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP107

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	26/06/2020	**Scale**	1:25
Ground Level	63.67m AOD **Coordinates**	**Total Depth**	2.60m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
B	0.10			(0.20)		Dark brown slightly gravelly CLAY with frequent roots and rootlets. Gravel is fine to coarse subangular to subrounded quartzite.		
ES	0.20		63.47	0.20	E	(TOPSOIL)		
D	0.30			(0.25)	E	Soft to firm slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite with occasional shell fragments.		
HV	0.50	Cu = 50	63.22	0.45		(ALLUVIUM)		
					E	Firm light brown mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded quartzite.		
				(0.50)		(ALLUVIUM)		
B	1.00		62.72	0.95		Orangish brown sandy GRAVEL with moderate cobble content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite.		
D	1.00			(0.30)	E	(RIVER TERRACE DEPOSITS)		
B	1.30		62.42	1.25		Light bluish grey clayey SAND. Sand is fine to medium.		
					E/M	(KELLAWAYS FORMATION)		
				(0.75)				
D	1.90							
HV	2.00	Cu = 90	61.67	2.00		Firm becoming stiff bluish grey CLAY.		
				(0.60)	M	(KELLAWAYS FORMATION)		
B	2.40							
D	2.50							
HV	2.50	Cu = 96	61.07	2.60		End of Trial Pit at 2.60m		

Method: Trial pit excavated to 2.60m bgl using a JCB 3CX.

Groundwater: Seepage at 1.15m bgl.

Stability: River Terrace Deposits collapsing in slightly.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	1.90m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP108

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	26/06/2020	**Scale**	1:25
Ground Level	64.22m AOD **Coordinates**	**Total Depth**	2.70m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
B	0.10			(0.20)		Dark brown slightly gravelly CLAY with frequent roots and rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)		
ES	0.10		64.02	0.20				
D	0.20		63.92	(0.10)	E	Soft to firm light brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite and shell fragments. (ALLUVIUM)		
				0.30	E			
				(0.60)		Soft to firm slightly gravelly slightly sandy CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
					E			
			63.32	0.90		Light orangish brown and grey sandy GRAVEL with moderate cobble content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
D	1.00							
				(0.50)	E			
			62.82	1.40				
			62.72	(0.10)	E	Orangish brown slightly gravelly SAND. Sand is fine to medium. Gravel is fine to medium subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
				1.50		Light orangish brown and grey sandy GRAVEL with moderate cobble content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
				(0.80)	E			
D	2.00							
HV	2.30	Cu = 90	61.92	2.30		Stiff dark bluish grey CLAY. (KELLAWAYS FORMATION)		
					M/H			
				(0.40)				
D	2.60							
HV	2.70	Cu = 93	61.52	2.70		End of Trial Pit at 2.70m		

Method: Trial pit excavated to 2.70m bgl using a JCB 3CX.

Groundwater: Seepage at 1.20m bgl.

Stability: River Terrace Deposits collapsing in.

Remarks: Trial pit backfilled with arisings on completion. Groundwater rose from 1.35m to 1.25m bgl after 10 minutes.

Length:	1.90m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP109

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	26/06/2020	**Scale**	1:25
Ground Level	63.89m AOD **Coordinates**	**Total Depth**	2.30m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
D	0.10			(0.20)		Dark brown slightly gravelly CLAY with frequent roots and rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)		
ES	0.20		63.69	0.20	E			
				(0.20)	E	Soft to firm light brown slightly mottled orange slightly gravelly CLAY with moderate rootlet content. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
			63.49	0.40				
B	0.60					Soft to firm light orangish brown slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
D	0.60			(0.50)				
HV	0.60	Cu = 37			E			
			62.99	0.90		Light grey and orange slightly clayey sandy GRAVEL with low cobble content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
				(0.50)	E			
D	1.40		62.49	1.40		Firm to stiff bluish grey CLAY. (KELLAWAYS FORMATION)		
HV	1.40	Cu = 64						
HV	1.80	Cu = 76		(0.90)	M/H			
B	2.00							
D	2.20							
HV	2.30	Cu = 67	61.59	2.30		End of Trial Pit at 2.30m		

Method: Trial pit excavated to 2.30m bgl using a JCB 3CX.

Groundwater: Slight seepage at 1.10m bgl and seepage at 1.50m bgl.

Stability: River Terrace Deposits collapsing in.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	2.10m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP110

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	26/06/2020	**Scale**	1:25
Ground Level	64.09m AOD **Coordinates**	**Total Depth**	2.40m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
B	0.10			(0.25)		Dark brown slightly gravelly CLAY with frequent roots and rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)		
ES	0.10		63.84	0.25	E			
D	0.40				E	Soft to firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
				(0.65)				
			63.19	0.90	E	Soft to firm light grey mottled orange sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite (ALLUVIUM)		
				(0.30)				
			62.89	1.20		Light grey and orange sandy GRAVEL with moderate cobble content. Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
D	1.30			(0.30)				
B	1.50		62.59	1.50				
				(0.20)	E	Light grey and orange gravelly SAND with moderate cobble content. Sand is fine to medium Gravel is fine to coarse subangular to subrounded quartzite. Cobbles are subangular to subrounded quartzite. (RIVER TERRACE DEPOSITS)		
HV	1.70	Cu = 102	62.39	1.70				
D	2.00			(0.70)	M/H	Stiff dark bluish grey CLAY. (KELLAWAYS FORMATION)		
B	2.30							
HV	2.40	Cu = 120	61.69	2.40		End of Trial Pit at 2.40m		

Method: Trial pit excavated to 2.40m bgl using a JCB 3CX.

Groundwater: Slight seepage at 1.50m bgl and seepage at 1.80m bgl.

Stability: River Terrace Deposits collapsing in.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	2.10m
Width:	0.70m
Logged:	KM
Checked:	FHJ

TRIAL PIT LOG

TP111

Project	Catalyst Bicester, Wendlebury Road	**Project No.**	AG2875A-20
Client	Albion Land Ltd	**Sheet**	1 of 1
Date	26/06/2020	**Scale**	1:25
Ground Level	65.42m AOD **Coordinates**	**Total Depth**	2.40m

Sample / Test Type	Depth (m)	Result	Level (mAoD)	Strata Depth (thickness) (m)	Ease of Dig	Description of Strata	Legend	GW
				(0.15)		Dark brown slightly gravelly CLAY with frequent roots and rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (TOPSOIL)		
ES	0.10		65.27	0.15	E			
B	0.20				E			
D	0.30			(0.30)		Soft to firm light brown mottled dark brown slightly gravelly CLAY with rare rootlets. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
			64.97	0.45				
B	0.60			(0.30)		Soft to firm light brown mottled orange gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite. (ALLUVIUM)		
					E			
HV	0.75	Cu = 95	64.67	0.75				
B	0.80					Firm becoming stiff light bluish grey slightly mottled brown CLAY. (KELLAWAYS FORMATION)		
D	0.80							
					E/M			
D	1.40							
HV	1.50	Cu = 95						
				(1.65)				
D	2.00							
HV	2.00	Cu = 96						
D	2.40		63.02	2.40				
HV	2.40	Cu = 89				End of Trial Pit at 2.40m		
					M/H			

Method: Trial pit excavated to 2.40m bgl using a JCB 3CX.

Groundwater: Slight seepage at 1.70m bgl.

Stability: River Terrace Deposits collapsing in.

Remarks: Trial pit backfilled with arisings on completion. For standing groundwater levels, refer to Section 5.7 in the report.

Length:	2.10m
Width:	0.70m
Logged:	KM
Checked:	FHJ

Exploratory Hole Log Key Sheet

Sample Notation

D	Small Disturbed sample
B	Bulk Disturbed sample
ES	Environmental sample
U	Undisturbed U100 sample
UT	Undisturbed UT100 sample
C	Core sample
W	Water sample

In Situ Test Notation

S	Standard Penetration Test
S (C)	Standard Penetration Test (cone)
HV	Hand Shear Vane Test
PID	Photoionization Detector Test
MEXE	Mexecone Cone Penetrometer Test
PP	Pocket Penetrometer Test
K	Permeability Test

Results Notation

Cu	Shear Strength	kN/m^2
N	SPT N Value	-
PID	VOC Concentration	ppm
( )	U/UT Blow Count	-

Rotary Core Notation

TCR	Total Core Recovery
SCR	Solid Core Recovery
RQD	Rock Quality Designation
FI	Fracture Index
If	Fracture Spacing
NI	Non Intact
NR	No Recovery
NA	Not Applicable

Ease of Dig

VE	Very Easy
E	Easy
M	Moderate
H	Hard
VH	Very Hard

Backfill Symbols

Sand

Gravel

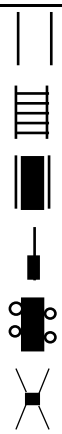
Concrete

Bentonite

Arisings

Grout

Installation Symbols



Plain Standpipe

Slotted Standpipe

Piezometer

Vibrating Wire Piezometer

Inclinometer

Extensometer
(with magnet locations)

Groundwater (GW)

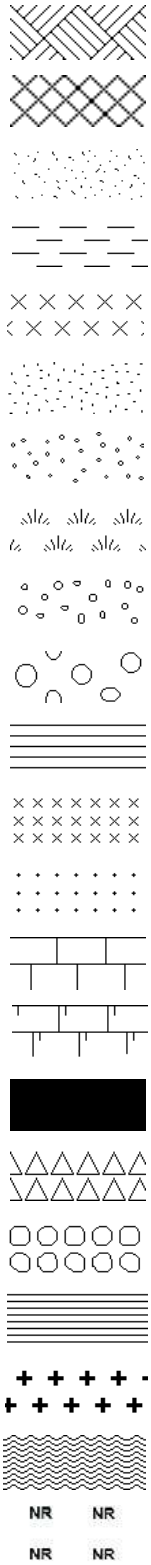
Rise

Groundwater Strike -
with Recorded Rise

Strike

Groundwater Strike -
No Recorded Rise

Legend Symbols



Topsoil

Made Ground

Concrete

Clay

Silt

Sand

Gravel

Peat

Cobbles

Boulders

Mudstone

Siltstone

Sandstone

Limestone

Chalk

Coal

Breccia

Conglomerate

Shale

Igenous Rock

Metamorphic Rock

No Recovery

Note: Most soils comprise a mixture of particle sizes. The soil type is graphically represented on the log and may be a combination of these symbols.

General Notes

1. Details of the standpipe/piezometer are given on the log. The 'Install' column shows a graphical representation of the installed including depth of instruments including slotted section or piezometer depth, and backfill details.

2. Standard Penetration Test is defined in BS EN ISO 17892. Total N value is shown on the logs, full details of the test increments, equipment references, water and casing levels shown on the SPT Summary Sheet.

APPLiED GEOLOGY

APPENDIX C

APPLiED GEOLOGY

TRIAL PIT PHOTOGRAPHS

Client	Albion Land Ltd	**Job Number**	AG2875A-20
Site	Catalyst Bicester, Wendlebury Road	**Date**	15th September 2020

TP01	02/07/2018

TP02	02/07/2018

TP03	02/07/2018

TP04	02/07/2018

TP05	02/07/2018

TP06	03/07/2018

TP07	03/07/2018

TP08	03/07/2018

TP09	03/07/2018

TP10	03/07/2018

TP11	03/07/2018

TP12	02/07/2018

TP13	03/07/2018

TP14	03/07/2018

TP15	02/07/2018

TP16	02/07/2018

TP17	02/07/2018

TP18	03/07/2018

TP101	25/06/2020

TP102	25/06/2020

TP103	25/06/2020

TP104	25/06/2020

TP105	25/06/2020

TP106	26/06/2020

TP107	26/06/2020

TP108	26/09/2020

TP109	26/06/2020

TP110	26/06/2020

TP111	26/06/2020

APPENDIX D

Ground Gas Monitoring and Flow Results

Project Number: AG2875A-20

Project Name: Catalyst Bicester, Wendlebury Road

Date and Time of Monitoring: 03/07/2020

Phase of Monitoring: 1 of 4

BH No.	Flow Range (litres/hr over 3 mins)			Differential Pressure (mb)	Methane % v/v		Carbon dioxide % v/v		Oxygen % v/v		Diameter of installation (mm)	Water level (m bgl)
	Max	Min	Avg		Peak	Steady	Peak	Steady	Min	Steady		
BH1	<0.1	<0.1	<0.1	-0.05	<0.1	<0.1	1.4	1.4	19.9	19.9	50	1.42
BH2	<0.1	<0.1	<0.1	0.16	<0.1	<0.1	0.1	0.1	21.1	21.1	50	1.05
BH3	<0.1	<0.1	<0.1	-0.07	<0.1	<0.1	0.6	0.6	20.5	20.5	50	1.98
BH4	<0.1	-0.1	-0.1	0.82	<0.1	<0.1	0.4	0.4	20.7	20.7	50	0.86
BH6											50	*
BH7	<0.1	<0.1	<0.1	0.09	<0.1	<0.1	0.4	0.4	20.7	20.7	50	0.92
BH8	<0.1	<0.1	<0.1	0.02	<0.1	<0.1	<0.1	<0.2	21.2	21.2	50	1.07
BH9	0.4	<0.1	0.4	1.53	<0.1	<0.1	0.4	0.4	20.3	20.3	50	0.98
BH10	<0.1	<0.1	<0.1	0.00	<0.1	<0.1	0.3	0.2	21.0	21.0	50	1.12
BH11	<0.1	-7.6	<0.1	-32.38	<0.1	<0.1	1.2	1.2	19.1	19.1	50	0.96
BH12	<0.1	<0.1	<0.1	0.02	<0.1	<0.1	1.1	1.1	18.8	18.8	50	0.95
BH14	<0.1	-4.7	<0.1	-15.01	<0.1	<0.1	1.4	1.4	18.4	18.4	50	1.00
BH15A	<0.1	<0.1	<0.1	0.05	<0.1	<0.1	0.3	0.3	20.8	20.8	50	1.17
DCS1	<0.1	<0.1	<0.1	-0.28	<0.1	<0.1	1.0	1.0	18.9	18.9	50	1.15
DCS2	<0.1	<0.1	<0.1	-0.21	<0.1	<0.1	1.0	1.0	19.1	19.1	50	1.01
DCS3	<0.1	<0.1	<0.1	-0.26	<0.1	<0.1	0.1	0.1	20.8	20.8	50	0.90
DCS4	<0.1	-19.2	<0.1	-89.02	<0.1	<0.1	0.1	<0.1	20.5	20.5	50	0.91

Additional gases (if required)

Borehole specific comments/observations
BH14 Flow: 6 mins to stable
DCS4 Flow: 10 mins to stable
DCS11 Flow: 8 mins to stable
DCS3 Diff pressure: 5 mins to stable
* BH6: Groundwater level was noted to be above ground level, however depth was not recorded

Meterological Data

Atmospheric Pressure (mb)	Start:	1008
Atmospheric Pressure (mb)	Finish:	1008
Pressure Rising or Falling	Steady	
Weather Conditions	Cloudy, showers	
Atmospheric Oxygen (% vol)	21.1	
Wind Speed & Direction	Moderate breeze, SW	
Ambient Air Temperature (°C)	18.0	

Site Data

Monitoring Personnel	Malcolm McGlone
GPS Instrument	
Gasmeter Serial Number	G506760
PID Serial Number	
Ground Conditions (vegetation stress, visual contamination):	

General Notes:

1. Instrument specification data and calibration information provided on a separate sheet

Ground Gas Monitoring and Flow Results

Project Number: AG2875A-20

Project Name: Catalyst Bicester, Wendlebury Road

Date and Time of Monitoring: 10/07/2020 12.00

Phase of Monitoring: 2 of 4

BH No.	Flow Range (litres/hr over 3 mins)			Differential Pressure (mb)	Methane % v/v		Carbon dioxide % v/v		Oxygen % v/v		Diameter of installation (mm)	Water level (m bgl)
	Max	Min	Avg		Peak	Steady	Peak	Steady	Min	Steady		
BH1	<0.1	<0.1	<0.1	0.02	<0.1	<0.1	2.0	2.0	20.1	20.1	50	1.40
BH2	<0.1	<0.1	<0.1	0.09	<0.1	<0.1	0.2	0.2	20.5	20.5	50	1.07
BH3	<0.1	<0.1	<0.1	0.05	<0.1	<0.1	0.8	0.8	20.0	20.0	50	1.78
BH4	<0.1	-0.3	<0.1	-4.20	<0.1	<0.1	0.6	0.6	20.1	20.1	50	1.03
BH6											50	*
BH7	1.0	-0.1	1.0	3.42	<0.1	<0.1	0.5	0.5	19.8	19.8	50	0.80
BH8	0.7	<0.1	0.7	2.45	<0.1	<0.1	0.4	0.4	19.9	19.9	50	1.04
BH9	0.9	<0.1	<0.1	2.74	<0.1	<0.1	0.5	0.5	19.3	19.3	50	1.05
BH10	<0.1	<0.1	<0.1	-0.02	<0.1	<0.1	0.1	0.1	20.1	20.1	50	1.12
BH11	<0.1	-8.1	<0.1	-10.09	<0.1	<0.1	0.9	0.9	20.1	20.1	50	0.95
BH12	1.1	<0.1	1.1	5.40	<0.1	<0.1	2.4	2.4	17.3	17.3	50	0.86
BH14	2.3	<0.1	<0.1	6.06	<0.1	<0.1	1.1	1.1	18.8	18.8	50	1.03
BH15A	<0.1	<0.1	<0.1	0.17	<0.1	<0.1	0.4	0.4	20.2	20.2	50	1.18
DCS1	<0.1	<0.1	<0.1	-0.02	<0.1	<0.1	0.9	0.9	19.7	19.7	50	1.14
DCS2	<0.1	<0.1	<0.1	0.02	<0.1	<0.1	0.1	0.1	20.8	20.8	50	0.95
DCS3	3.2	<0.1	<0.1	8.07	<0.1	<0.1	2.0	2.0	18.2	18.2	50	0.80
DCS4	<0.1	<0.1	<0.1	1.36	<0.1	<0.1	0.2	0.2	20.4	20.4	50	0.87

Additional gases (if required)

Borehole specific comments/observations
DCS4 diff pressure: 8 mins to stabilise
* BH6: Groundwater level was noted to be above ground level, however depth was not recorded

Meterological Data

Atmospheric Pressure (mb)	Start:	1010
Atmospheric Pressure (mb)	Finish:	1012
Pressure Rising or Falling	Rising	
Weather Conditions	50% cloud, dry	
Atmospheric Oxygen (% vol)	20.8	
Wind Speed & Direction	Light breeze sw	
Ambient Air Temperature (°C)	18.0	

Site Data

Monitoring Personnel	Malcolm McGlone
GPS Instrument	
Gasmeter Serial Number	G506760
PID Serial Number	
Ground Conditions (vegetation stress, visual contamination):	

General Notes:

1. Instrument specification data and calibration information provided on a separate sheet

APPLiED GEOLOGY

Ground Gas Monitoring and Flow Results

Project Number: AG2875A-20

Project Name: Catalyst Bicester, Wendlebury Road

Date and Time of Monitoring: 17/07/2020 11.45

Phase of Monitoring: 3 of 4

BH No.	Flow Range (litres/hr over 3 mins)			Differential Pressure (mb)	Methane % v/v		Carbon dioxide % v/v		Oxygen % v/v		Diameter of installation (mm)	Water level (m bgl)
	Max	Min	Avg		Peak	Steady	Peak	Steady	Min	Steady		
BH1	<0.1	<0.1	<0.1	0.02	<0.1	<0.1	1.5	1.5	19.7	19.7	50	1.48
BH2	<0.1	<0.1	<0.1	0.05	<0.1	<0.1	0.1	0.1	20.9	20.9	50	1.07
BH3	<0.1	<0.1	<0.1	0.02	<0.1	<0.1	0.4	0.4	20.6	20.6	50	0.63
BH4	0.1	<0.1	<0.1	2.78	<0.1	<0.1	1.0	1.0	18.4	18.4	50	0.96
BH6											50	*
BH7	<0.1	-8.1	1.0	-7.51	<0.1	<0.1	0.3	0.3	20.5	20.5	50	0.93
BH8	<0.1	<0.1	<0.1	-0.68	<0.1	<0.1	0.2	0.2	20.6	20.6	50	1.11
BH9	<0.1	<0.1	<0.1	-0.02	<0.1	<0.1	0.3	0.3	20.1	20.1	50	1.02
BH10	<0.1	<0.1	<0.1	-0.02	<0.1	<0.1	<0.1	<0.1	20.9	20.9	50	1.13
BH11	<0.1	-1.8	<0.1	-5.59	<0.1	<0.1	0.9	0.9	18.9	18.9	50	1.06
BH12	0.5	<0.1	<0.1	1.15	<0.1	<0.1	3.3	3.3	14.4	14.4	50	1.00
BH14	<0.1	-1.8	<0.1	-5.14	<0.1	<0.1	1.3	1.3	18.6	18.6	50	0.99
BH15A	<0.1	<0.1	<0.1	-0.09	<0.1	<0.1	0.3	0.3	20.5	20.5	50	1.24
DCS1	0.1	0.1	0.1	0.54	<0.1	<0.1	0.6	0.6	19.3	19.3	50	1.18
DCS2	<0.1	<0.1	<0.1	0.09	<0.1	<0.1	0.1	0.1	19.6	19.6	50	1.04
DCS3	<0.1	-2.9	<0.1	-7.20	<0.1	<0.1	1.9	1.9	17.6	17.6	50	0.80
DCS4	<0.1	-5.9	<0.1	-17.53	<0.1	<0.1	0.2	0.2	19.6	19.6	50	1.02

Additional gases (if required)

BH No.	VOCs (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	

Borehole specific comments/observations
*BH6: Groundwater recorded at 0.27m above ground level
DCS3: 6 mins for flow to stabilise
DCS4: 8 mins for flow to stabilise
BH14: 6 mins for flow to stabilise

Meterological Data

Atmospheric Pressure (mb)	Start:	1014
Atmospheric Pressure (mb)	Finish:	1013
Pressure Rising or Falling	Falling	
Weather Conditions	Dry, sunny	
Atmospheric Oxygen (% vol)	20.7	
Wind Speed & Direction	light air	
Ambient Air Temperature (°C)	26.0	

Site Data

Monitoring Personnel	Malcolm McGlone
GPS Instrument	
Gasmeter Serial Number	G506760
PID Serial Number	
Ground Conditions (vegetation stress, visual contamination):	

General Notes:

1. Instrument specification data and calibration information provided on a separate sheet

APPLiED GEOLOGY

Ground Gas Monitoring and Flow Results

Project Number: AG2875A-20

Project Name: Catalyst Bicester, Wendlebury Road

Date and Time of Monitoring: 24/07/2020 10.45

Phase of Monitoring: 4 of 4

BH No.	Flow Range (litres/hr over 3 mins)			Differential Pressure (mb)	Methane % v/v		Carbon dioxide % v/v		Oxygen % v/v		Diameter of installation (mm)	Water level (m bgl)
	Max	Min	Avg		Peak	Steady	Peak	Steady	Min	Steady		
BH1	<0.1	<0.1	<0.1	0.03	<0.1	<0.1	1.0	1.0	19.9	19.9	50	1.35
BH2	<0.1	<0.1	<0.1	-0.02	<0.1	<0.1	0.1	0.1	20.6	20.6	50	1.09
BH3	<0.1	<0.1	<0.1	0.07	<0.1	<0.1	0.5	0.5	20.4	20.4	50	1.46
BH4	2.1	<0.1	<0.1	7.38	<0.1	<0.1	1.5	1.5	17.4	17.4	50	0.96
BH6											50	*
BH7	<0.1	-3.9	<0.1	-10.48	<0.1	<0.1	0.4	0.4	20.4	20.4	50	0.90
BH8	<0.1	-0.3	<0.1	-2.27	<0.1	<0.1	0.2	0.2	20.7	20.7	50	1.15
BH9	-0.1	-0.5	-0.1	-1.61	<0.1	<0.1	0.3	0.3	20.3	20.3	50	1.02
BH10	<0.1	<0.1	<0.1	-0.02	<0.1	<0.1	0.1	0.1	21.0	21.0	50	1.15
BH11	-0.1	-0.2	-0.2	-0.69	<0.1	<0.1	1.1	1.1	19.4	19.4	50	1.06
BH12	<0.1	-1.0	<0.1	-3.16	<0.1	<0.1	3.3	3.3	15.5	15.5	50	1.09
BH14	-0.1	-0.1	-0.1	0.62	<0.1	<0.1	1.4	1.4	18.8	18.8	50	1.05
BH15A	<0.1	<0.1	<0.1	0.05	<0.1	<0.1	0.5	0.5	20.2	20.2	50	1.26
DCS1	<0.1	-0.1	-0.1	-0.59	<0.1	<0.1	0.8	0.8	19.5	19.5	50	1.17
DCS2	<0.1	<0.1	<0.1	0.02	<0.1	<0.1	0.3	0.3	20.2	20.2	50	1.06
DCS3	<0.1	-4.2	<0.1	-11.78	<0.1	<0.1	1.8	1.8	18.2	18.2	50	0.78
DCS4	0.1	0.1	0.1	0.45	<0.1	<0.1	0.4	0.4	19.7	19.7	50	1.09

Additional gases (if required)

Borehole specific comments/observations
*BH6: Groundwater recorded at 0.30m above ground level

Meterological Data

Atmospheric Pressure (mb)	Start: 1006
Atmospheric Pressure (mb)	Finish: 1008
Pressure Rising or Falling	Rising
Weather Conditions	50% cloud, dry
Atmospheric Oxygen (% vol)	20.9
Wind Speed & Direction	Light breeze sw
Ambient Air Temperature (°C)	20.0

Site Data

Monitoring Personnel	Malcolm McGlone
GPS Instrument	
Gasmeter Serial Number	G506760
PID Serial Number	
Ground Conditions (vegetation stress, visual contamination):	

General Notes:

1. Instrument specification data and calibration information provided on a separate sheet

APPLiED GEOLOGY

Gas Monitoring Equipment Specification and Accuracy Details

Instrument Specifications

Instrument	Atmospheric Pressure Range	Temperature Range	Flow Range	Flow Resolution	Borehole Pressure Range
GA5000	500-1500 mb +/- 5 mb	-10°C to + 50°C	0-20 lt/hr +/- 0.3 l/hr	0.1l/hr	.+500/-500 mbar +/- 4 mbar
Phocheck Tiger	-	-20 to + 60°C (Certified to -15 to + 45°C)	-	-	-

Instrument Accuracy

Instrument		Methane	Lower Explosive Limit	Carbon Dioxide	Oxygen	Volatile Organic Compounds	Hydrogen Sulphide	Carbon Monoxide
GA5000	Detection Range	0-100%	-	0 -100%	0-25%	NA	0 -50ppm response <30 secs	0 - 1000ppm response <30 Secs
	Detection Accuracy	.+/- 0.5% @ 0 to 70%, +/-1.5% @ 70 to 100% Response < 10 secs	N/A	.+/- 0.5% @ 0 to 60%, +/-1.5% @ 60 to 100% Response < 10 secs	.+/- 1.0% @ 0 to 25%, Response < 20 secs	NA	.+/- 1.5% FS	.+/- 2% of FS
Phocheck Tiger	Detection Range	N/A	N/A	N/A	N/A	1 ppb - 10,000 ppm	N/A	N/A
	Detection Accuracy	N/A	N/A	N/A	N/A	+/- 1ppb +- 5% of actual displayed accuracy +/- One digit Response < 2sec	N/A	N/A

Calibration Frequency

Instruments are calibrated annually.

Details of the instrument calibration certificates and service records are available if required.

Equipment Serial Numbers

GA5000 (G503948, G505383, G505737)

Phocheck Tiger - (T-108308, T-109597, T-109598, T-110423)

APPLiED GEOLOGY

APPENDIX E

SOIL CHEMICAL RESULTS COMPARED AGAINST SCREENING VALUES FOR HUMAN HEALTH

Site: **Catalyst Bicester, Wendlebury Road**
Job No: **AG2875-18**

Land Use: **Public Open Space (Parks)**
Dataset: **2018 Investigation**
Soil Organic Matter (%) **6.0 %**

Exploratory Hole Reference		TP1	TP3	TP4	TP5	TP8	TP12	TP13	TP14	TP16	TP18	**No. of samples (n)**	**Public Open Space (Parks)**	**Source/Justification**
Depth (m)		0.20-0.20	0.30-0.30	0.20-0.20	0.30-0.30	0.10-0.10	0.20-0.20	0.30-0.30	0.30-0.30	0.30-0.30	0.10-0.10			
Strata		Topsoil	Alluvium	Topsoil	Topsoil	Topsoil	Topsoil	Alluvium	Alluvium	Alluvium	Topsoil			
	Units													
Organic Matter (%)	%	7.9	1.3	7.3	4.5	8.5	7.9	4.7	3.5	3.4	6.9	10		
pH		7.9	8	7.9	8	7.2	7.8	8.3	8.2	7.8	7.9	10		
Arsenic	mg/kg	12	9.2	9.2	14	9.5	13	8.6	10	18	12	10	170	LQM/CIEH S4UL (2015)
Berylium	mg/kg	1.1	1.3	0.92	1.4	0.7	1.3	0.85	1.3	1.8	1	10	63	LQM/CIEH S4UL (2015)
Boron	mg/kg	16	17	15	13	12	16	16	12	13	17	10	46000	LQM/CIEH S4UL (2015)
Cadmium	mg/kg	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	10	560	LQM/CIEH S4UL (2015)
Chromium	mg/kg	33	40	32	43	22	39	30	41	61	30	10	33000	LQM/CIEH S4UL (2015)
Chromium (Hexavalent)	mg/kg	**4**						**4**				2	220	LQM/CIEH S4UL (2015)
Copper	mg/kg	37	17	25	29	20	33	16	17	23	29	10	44000	LQM/CIEH S4UL (2015)
Lead	mg/kg	65	13	26	47	27	51	11	13	19	26	10	1300	C4SL (2014)
Mercury	mg/kg	1.9	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	10	240	LQM/CIEH S4UL (2015)
Nickel	mg/kg	24	19	16	25	15	22	14	22	32	17	10	800	LQM/CIEH S4UL (2015)
Selenium	mg/kg	**1**	**1**	2.5	2.3	1.1	1.8	1.6	**1**	**1**	2	10	1800	LQM/CIEH S4UL (2015)
Vanadium	mg/kg	49	57	37	54	32	50	36	52	83	47	10	5000	LQM/CIEH S4UL (2015)
Zinc	mg/kg	110	68	55	87	74	96	34	44	110	55	10	170000	LQM/CIEH S4UL (2015)
Naphthalene	mg/kg	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	3000	LQM/CIEH S4UL (2015)
Acenaphthylene	mg/kg	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	30000	LQM/CIEH S4UL (2015)
Acenaphthene	mg/kg	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	30000	LQM/CIEH S4UL (2015)
Fluorene	mg/kg	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	20000	LQM/CIEH S4UL (2015)
Phenanthrene	mg/kg	**0.05**	**0.05**	**0.05**	0.39	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	6300	LQM/CIEH S4UL (2015)
Anthracene	mg/kg	**0.05**	**0.05**	**0.05**	0.12	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	150000	LQM/CIEH S4UL (2015)
Fluoranthene	mg/kg	0.31	**0.05**	**0.05**	0.72	0.41	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	6400	LQM/CIEH S4UL (2015)
Pyrene	mg/kg	0.33	**0.05**	**0.05**	0.56	0.38	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	15000	LQM/CIEH S4UL (2015)
Benzo[a]anthracene	mg/kg	0.27	**0.05**	**0.05**	1.3	0.36	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10		Genotoxic PAH see Benzo(a)pyrene
Chrysene	mg/kg	0.21	**0.05**	**0.05**	0.77	0.22	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10		Genotoxic PAH see Benzo(a)pyrene
Benzo[b]fluoranthene	mg/kg	0.3	**0.05**	**0.05**	1.2	0.42	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10		Genotoxic PAH see Benzo(a)pyrene
Benzo[k]fluoranthene	mg/kg	0.11	**0.05**	**0.05**	0.66	0.15	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10		Genotoxic PAH see Benzo(a)pyrene
Benzo[a]pyrene	mg/kg	0.27	**0.05**	**0.05**	1.1	0.34	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10	21	C4SL (2014)
Dibenzo[a,h]anthracene	mg/kg	**0.05**	**0.05**	**0.05**	0.36	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10		Genotoxic PAH see Benzo(a)pyrene
Indeno[1,2,3-cd]pyrene	mg/kg	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10		Genotoxic PAH see Benzo(a)pyrene
Benzo[g,h,i]perylene	mg/kg	**0.05**	**0.05**	**0.05**	0.27	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	10		Genotoxic PAH see Benzo(a)pyrene
Total of 16 PAHs	mg/kg													
Phenols (Total)	mg/kg	**1**						**1**				2	1300	LQM/CIEH S4UL (2015)
Benzene	mg/kg	**0.001**						**0.001**		**0.001**		3	110	LQM/CIEH S4UL (2015)
Toluene	mg/kg	**0.001**						**0.001**		**0.001**		3	100000	LQM/CIEH S4UL (2015)
Ethylbenzene	mg/kg	**0.001**						**0.001**		**0.001**		3	27000	LQM/CIEH S4UL (2015)
m&p Xylene	mg/kg	**0.001**						**0.001**		**0.001**		3	31000	LQM/CIEH S4UL (2015)
o-Xylene	mg/kg	**0.001**						**0.001**		**0.001**		3	33000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C5-C6	mg/kg	**0.001**						**0.001**		**0.001**		3	180000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C6-C8	mg/kg	**0.001**						**0.001**		**0.001**		3	320000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C8-C10	mg/kg	**0.001**						**0.001**		**0.001**		3	21000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C10-C12	mg/kg	**1**						**1**		**1**		3	24000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C12-C16	mg/kg	**2**						**2**		**2**		3	26000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C16-C21	mg/kg	**8**						**8**		**8**			-	-
Aliphatic TPH >C21-C35	mg/kg	8.7						**8**		11		3	490000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C35-C44	mg/kg	**8.4**						**8.4**		**8.4**		3	490000	LQM/CIEH S4UL (2015)
Total Aliphatic Hydrocarbons	mg/kg	**10**						**10**		11		3		
Aromatic TPH >C5-C7	mg/kg	**0.001**						**0.001**		**0.001**			92000	LQM/CIEH S4UL (2015)
Aromatic TPH >C7-C8	mg/kg	**0.001**						**0.001**		**0.001**		3	100000	LQM/CIEH S4UL (2015)
Aromatic TPH >C8-C10	mg/kg	**0.001**						**0.001**		**0.001**		3	9300	LQM/CIEH S4UL (2015)
Aromatic TPH >C10-C12	mg/kg	**1**						**1**		**1**		3	10000	LQM/CIEH S4UL (2015)
Aromatic TPH >C12-C16	mg/kg	**2**						**2**		**2**		3	10000	LQM/CIEH S4UL (2015)
Aromatic TPH >C16-C21	mg/kg	**10**						**10**		**10**		3	7800	LQM/CIEH S4UL (2015)
Aromatic TPH >C21-C35	mg/kg	**10**						**10**		**10**		3	7900	LQM/CIEH S4UL (2015)
Aromatic TPH >C35-C44	mg/kg	**8.4**						**8.4**		**8.4**		3	7900	LQM/CIEH S4UL (2015)
Total Aromatic Hydrocarbons	mg/kg	**10**						**10**		**10**				
Total Petroleum Hydrocarbons	mg/kg	**10**						**10**		11				
Pesticides/Herbicides Screen in Soil				Absent	-	Absent		Absent	Absent		Absent			LQM/CIEH S4UL (2015)
														LQM/CIEH S4UL (2015)
Asbestos in Soil		Not-detected			Not-detected	Not-detected		Not-detected		Not-detected				LQM/CIEH S4UL (2015)

Key -

Value within sample set exceeds screening value

Statistical value exceeds screening value

LQM/CIEH S4UL Reference No. S4UL3159 (2015)

Values in **bold** are reported at the laboratory limit of detection

Benzo(a)pyrene has been used as a 'surrogate marker for genotoxic PAH' as discussed in Appendix E of CL:AIRE SP1010 'Development of C4SL for Assessment of Land Affected by Contamination', December 2013.

This allows assessment of the combined carcinogenic risk associated with genotoxic PAH using only b(a)p. Genotoxic PAHs include Benz(a)pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(ah)anthracene, Indeno(123cd)pyrene, Benzo(ghi)perylene and have been

SOIL CHEMICAL RESULTS COMPARED AGAINST SCREENING VALUES FOR HUMAN HEALTH

Site: Catalyst Bicester, Wendlebury Road
Job No: AG2875A-20

Land Use: Public Open Space (Parks)
Dataset: 2020 Investigation
Soil Organic Matter (%) 6.0 %

Exploratory Hole Reference		DCS2	HDP1	DCS2	DCS1	BH12	DCS4	BH13	TP104	TP102	TP101	TP103	TP105	TP106	TP107	TP111	No. of samples (n)	Public Open Space (Parks)	Source/Justification
Depth (m)		0.1	0.1	0.7	0.1	0.1	0.3	0.1	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.1			
Strata		Made Ground	Topsoil	Alluvium	Topsoil	Topsoil	Topsoil/Made Ground	Topsoil	Topsoil	Alluvium	Topsoil	Topsoil	Topsoil	Topsoil	Alluvium	Topsoil			
	Units																		
Organic Matter (%)	%	1.2	4.8	2.1	7.6		7.9	5.5	2.6	1.7	5.5	6.9	6.4	7.1	5.3	3.5	14		
pH		8.1	7.8	7.8	7.4		7.8	8.2	8.4	8.4	8.7	8.3	8.1	8.4	8	8.5	14		
Arsenic	mg/kg	20	19	17	13		17	14	16	18	19	17	18	21	18	16	14	170	LQM/CIEH S4UL (2015)
Cadmium	mg/kg	**0.1**	0.2	0.19	0.27		0.27	0.29	0.22	0.16	0.17	0.45	0.39	0.39	0.35	0.21	14	560	LQM/CIEH S4UL (2015)
Chromium	mg/kg	5.8	13	22	20		25	18	19	11	13	35	27	27	25	21	14		LQM/CIEH S4UL (2015)
Chromium (Hexavalent)	mg/kg	**0.5**	**0.5**																LQM/CIEH S4UL (2015)
Copper	mg/kg	11	17	17	18		22	18	11	9.6	12	21	28	23	26	12	14	44000	LQM/CIEH S4UL (2015)
Lead	mg/kg	22	39	23	27		36	28	16	12	18	34	31	34	110	16	14	1300	C4SL (2014)
Mercury	mg/kg	0.12	0.23	0.11	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	0.12	0.31	**0.1**	14	240	LQM/CIEH S4UL (2015)
Nickel	mg/kg	7.7	13	21	18		23	13	12	9.8	11	22	16	18	25	14	14	800	LQM/CIEH S4UL (2015)
Selenium	mg/kg	**0.2**	**0.2**	**0.2**	0.51		0.42	0.78	**0.2**	**0.2**	**0.2**	0.88	0.96	1.2	0.22	**0.2**	14	1800	LQM/CIEH S4UL (2015)
Zinc	mg/kg	21	42	43	59		68	48	24	25	33	68	110	52	85	24	14	170000	LQM/CIEH S4UL (2015)
Naphthalene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14	3000	LQM/CIEH S4UL (2015)
Acenaphthylene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14	30000	LQM/CIEH S4UL (2015)
Acenaphthene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14	30000	LQM/CIEH S4UL (2015)
Fluorene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14	20000	LQM/CIEH S4UL (2015)
Phenanthrene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14	6300	LQM/CIEH S4UL (2015)
Anthracene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14	150000	LQM/CIEH S4UL (2015)
Fluoranthene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	0.66	**0.1**	14	6400	LQM/CIEH S4UL (2015)
Pyrene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	0.69	**0.1**	14	15000	LQM/CIEH S4UL (2015)
Benzo[a]anthracene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14		Genotoxic PAH see Benzo(a)pyrene
Chrysene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14		Genotoxic PAH see Benzo(a)pyrene
Benzo[b]fluoranthene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14		Genotoxic PAH see Benzo(a)pyrene
Benzo[k]fluoranthene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14		Genotoxic PAH see Benzo(a)pyrene
Benzo[a]pyrene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14	21	C4SL (2014)
Dibenzo[a,h]anthracene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14		Genotoxic PAH see Benzo(a)pyrene
Indeno[1,2,3-cd]pyrene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14		Genotoxic PAH see Benzo(a)pyrene
Benzo[g,h,i]perylene	mg/kg	**0.1**	**0.1**	**0.1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	14		Genotoxic PAH see Benzo(a)pyrene
Total of 16 PAHs	mg/kg	**2.0**	**2.0**	**2.0**	**2.0**		**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	14		
Phenols (Total)	mg/kg	**0.3**	**0.3**															1300	LQM/CIEH S4UL (2015)
Benzene	mg/kg	**0.001**	**0.001**	**0.001**	**0.001**		**0.001**	**0.001**		**0.001**	**0.001**	**0.001**		**0.001**	**0.001**	**0.001**	12	110	LQM/CIEH S4UL (2015)
Toluene	mg/kg	**0.001**	**0.001**	**0.001**	**0.001**		**0.001**	**0.001**		**0.001**	**0.001**	**0.001**		**0.001**	**0.001**	**0.001**	12	100000	LQM/CIEH S4UL (2015)
Ethylbenzene	mg/kg	**0.001**	**0.001**	**0.001**	**0.001**		**0.001**	**0.001**		**0.001**	**0.001**	**0.001**		**0.001**	**0.001**	**0.001**	12	27000	LQM/CIEH S4UL (2015)
m&p Xylene	mg/kg	**0.001**	**0.001**	**0.001**	**0.001**		**0.001**	**0.001**		**0.001**	**0.001**	**0.001**		**0.001**	**0.001**	**0.001**	12	31000	LQM/CIEH S4UL (2015)
o-Xylene	mg/kg	**0.001**	**0.001**	**0.001**	**0.001**		**0.001**	**0.001**		**0.001**	**0.001**	**0.001**		**0.001**	**0.001**	**0.001**	12	33000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C5-C6	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	180000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C6-C8	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	320000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C8-C10	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	21000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C10-C12	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	24000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C12-C16	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	26000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C16-C21	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	-	-
Aliphatic TPH >C21-C35	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	490000	LQM/CIEH S4UL (2015)
Aliphatic TPH >C35-C44	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	490000	LQM/CIEH S4UL (2015)
Total Aliphatic Hydrocarbons	mg/kg	**5.0**	**5.0**	**5.0**	**5.0**		**5.0**	**5.0**		**5.0**	**5.0**	**5.0**		**5.0**	**5.0**	**5.0**	12		
Aromatic TPH >C5-C7	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	92000	LQM/CIEH S4UL (2015)
Aromatic TPH >C7-C8	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	100000	LQM/CIEH S4UL (2015)
Aromatic TPH >C8-C10	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	9300	LQM/CIEH S4UL (2015)
Aromatic TPH >C10-C12	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	10000	LQM/CIEH S4UL (2015)
Aromatic TPH >C12-C16	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	10000	LQM/CIEH S4UL (2015)
Aromatic TPH >C16-C21	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	7800	LQM/CIEH S4UL (2015)
Aromatic TPH >C21-C35	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	7900	LQM/CIEH S4UL (2015)
Aromatic TPH >C35-C44	mg/kg	**1.0**	**1.0**	**1.0**	**1.0**		**1.0**	**1.0**		**1.0**	**1.0**	**1.0**		**1.0**	**1.0**	**1.0**	12	7900	LQM/CIEH S4UL (2015)
Total Aromatic Hydrocarbons	mg/kg	**5.0**	**5.0**	**5.0**	**5.0**		**5.0**	**5.0**		**5.0**	**5.0**	**5.0**		**5.0**	**5.0**	**5.0**	12		
Total Petroleum Hydrocarbons	mg/kg	**10.0**	**10.0**	**10.0**	**10.0**		**10.0**	**10.0**		**10.0**	**10.0**	**10.0**		**10.0**	**10.0**	**10.0**	12		
Asbestos ID	Detection	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND					
Asbestos ID	Description																		
Asbestos Quantity	%																		

Key -
Value within sample set exceeds screening value
Statistical value exceeds screening value

LQM/CIEH S4UL Reference No. S4UL3159 (2015)
Values in **bold** are reported at the laboratory limit of detection
Benzo(a)pyrene has been used as a 'surrogate marker for genotoxic PAH' as discussed in Appendix E of CL:AIRE SP1010 'Development of C4SL for Assessment of Land Affected by Contamination', December 2013.
This allows assessment of the combined carcinogenic risk associated with genotoxic PAH using only b(a)p. Genotoxic PAHs include Benz(a)pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(ah)anthracene, Indeno(123cd)pyrene, Benzo(ghi)perylene and have been marked with a * on the table.

Frankie Hadley-Jones
Applied Geology Ltd
Unit 23
Abbey Park
Stareton
Kenilworth
Warwickshire
CV8 2LY

e: frankie.hadley-jones@appliedgeology.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-91849

Project / Site name:	The Promised Land, Bicester	**Samples received on:**	06/07/2018
Your job number:	AG2875-18	**Samples instructed on:**	06/07/2018
Your order number:	13108	**Analysis completed by:**	13/07/2018
Report Issue Number:	1	**Report issued on:**	13/07/2018
Samples Analysed:	10 soil samples		

Signed: [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 18-91849

Project / Site name: The Promised Land, Bicester
Your Order No: 13108

Lab Sample Number				997412	997413	997414	997415	997416
Sample Reference				TP1	TP3	TP4	TP5	TP8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20-0.20	0.30-0.30	0.20-0.20	0.30-0.30	0.10-0.10
Date Sampled				02/07/2018	02/07/2018	02/07/2018	02/07/2018	03/07/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	12	13	17	12
Total mass of sample received	kg	0.001	NONE	1.0	1.1	1.0	1.1	1.0
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.9	8.0	7.9	8.0	7.2
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	46	35	40	24	38
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.023	0.017	0.020	0.012	0.019
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	22.8	17.4	20.2	12.2	18.8
Organic Matter	%	0.1	MCERTS	7.9	1.3	7.3	4.5	8.5
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.39	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.12	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.31	< 0.05	< 0.05	0.72	0.41
Pyrene	mg/kg	0.05	MCERTS	0.33	< 0.05	< 0.05	0.56	0.38
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.27	< 0.05	< 0.05	1.3	0.36
Chrysene	mg/kg	0.05	MCERTS	0.21	< 0.05	< 0.05	0.77	0.22
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.30	< 0.05	< 0.05	1.2	0.42
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.11	< 0.05	< 0.05	0.66	0.15
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.27	< 0.05	< 0.05	1.1	0.34
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.36	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.27	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1.80	< 0.80	< 0.80	7.42	2.28

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 18-91849

Project / Site name: The Promised Land, Bicester
Your Order No: 13108

Lab Sample Number				997412	997413	997414	997415	997416
Sample Reference				TP1	TP3	TP4	TP5	TP8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20-0.20	0.30-0.30	0.20-0.20	0.30-0.30	0.10-0.10
Date Sampled				02/07/2018	02/07/2018	02/07/2018	02/07/2018	03/07/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	9.2	9.2	14	9.5
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.3	0.92	1.4	0.70
Boron (total)	mg/kg	1	MCERTS	16	17	15	13	12
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	-	-	-
Chromium (III)	mg/kg	1	NONE	30	-	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	33	40	32	43	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	17	25	29	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	65	13	26	47	27
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.9	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	19	16	25	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	2.5	2.3	1.1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	49	57	37	54	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	68	55	87	74
Magnesium (water soluble)	mg/kg	5	NONE	7.0	< 5.0	5.9	6.1	7.1
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	-	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	8.7	-	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	-	-	-	-
TPHCWG - Total C5 - C44 Aliphatic & Aromatic	mg/kg	10	NONE	< 10	-	-	-	-
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	Absent	-	Absent

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 18-91849

Project / Site name: The Promised Land, Bicester
Your Order No: 13108

Lab Sample Number				997417	997418	997419	997420	997421
Sample Reference				TP12	TP13	TP14	TP16	TP18
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20-0.20	0.30-0.30	0.30-0.30	0.30-0.30	0.10-0.10
Date Sampled				02/07/2018	03/07/2018	03/07/2018	02/07/2018	03/07/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	22	15	25	21
Total mass of sample received	kg	0.001	NONE	0.89	1.2	0.95	0.93	1.0
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.8	8.3	8.2	7.8	7.9
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	70	54	40	62	55
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.035	0.027	0.020	0.031	0.028
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	35.0	26.8	19.9	30.8	27.5
Organic Matter	%	0.1	MCERTS	7.9	4.7	3.5	3.4	6.9
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 18-91849

Project / Site name: The Promised Land, Bicester
Your Order No: 13108

Lab Sample Number				997417	997418	997419	997420	997421
Sample Reference				TP12	TP13	TP14	TP16	TP18
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20-0.20	0.30-0.30	0.30-0.30	0.30-0.30	0.10-0.10
Date Sampled				02/07/2018	03/07/2018	03/07/2018	02/07/2018	03/07/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	8.6	10	18	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	0.85	1.3	1.8	1.0
Boron (total)	mg/kg	1	MCERTS	16	16	12	13	17
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-	-	-
Chromium (III)	mg/kg	1	NONE	-	29	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	39	30	41	61	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	16	17	23	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	51	11	13	19	26
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	14	22	32	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.8	1.6	< 1.0	< 1.0	2.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	50	36	52	83	47
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	96	34	44	110	55
Magnesium (water soluble)	mg/kg	5	NONE	10	5.9	6.1	8.2	8.9
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	< 8.0	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	< 8.0	-	11	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	< 8.4	-	< 8.4	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-	11	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	< 10	-	11	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	< 10	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	< 10	-	< 10	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	< 8.4	-	< 8.4	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	< 10	-	< 10	-
TPHCWG - Total C5 - C44 Aliphatic & Aromatic	mg/kg	10	NONE	-	< 10	-	11	-
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	Absent	Absent	-	Absent

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 18-91849

Project / Site name: The Promised Land, Bicester

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
997412	TP1	None Supplied	0.20-0.20	Brown loam and clay with vegetation.
997413	TP3	None Supplied	0.30-0.30	Brown loam and clay with vegetation.
997414	TP4	None Supplied	0.20-0.20	Brown loam and clay with vegetation.
997415	TP5	None Supplied	0.30-0.30	Brown loam and clay with vegetation.
997416	TP8	None Supplied	0.10-0.10	Brown loam and clay with vegetation.
997417	TP12	None Supplied	0.20-0.20	Brown loam and clay with vegetation.
997418	TP13	None Supplied	0.30-0.30	Brown clay and loam.
997419	TP14	None Supplied	0.30-0.30	Brown loam and clay with vegetation.
997420	TP16	None Supplied	0.30-0.30	Brown clay.
997421	TP18	None Supplied	0.10-0.10	Brown loam and clay with gravel and vegetation.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 18-91849

Project / Site name: The Promised Land, Bicester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
Pesticides and Herbicides in soil screening	In-house method	In-house method		W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

Final Report

Report No.:	18-21348-1
Initial Date of Issue:	26-Jul-2018
Client	Applied Geology
Client Address:	Unit 23, Abbey Park Stareton Kenilworth Warwickshire CV8 2LY
Contact(s):	Frankie Hadley Jones Lab Results
Project	AG2875-18 - The Promised Land, Bicester

Quotation No.:		**Date Received:**	19-Jul-2018
Order No.:	13163	**Date Instructed:**	19-Jul-2018
No. of Samples:	9		
Turnaround (Wkdays):	5	**Results Due:**	25-Jul-2018
Date Approved:	26-Jul-2018		

Approved By:

[redacted]

Details: Robert Monk, Technical Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: AG2875-18 - The Promised Land, Bicester

Client: Applied Geology				**Chemtest Job No.:**	18-21348	18-21348	18-21348	18-21348	18-21348	18-21348	18-21348	18-21348	18-21348
Quotation No.:				**Chemtest Sample ID.:**	656613	656614	656615	656616	656617	656618	656619	656620	656621
Order No.: 13163				Client Sample Ref.:	TP4	TP7	TP12	TP18	TP13	TP8	TP2	TP6	TP17
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	1.30	2.20	1.70	2.60	1.40	1.50	0.50	0.90	1.50
				Bottom Depth (m):	1.30	2.20	1.70	2.60	1.40	1.50	0.50	0.90	1.50
				Date Sampled:	02-Jul-2018	03-Jul-2018	02-Jul-2018	03-Jul-2018	03-Jul-2018	03-Jul-2018	02-Jul-2018	03-Jul-2018	02-Jul-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Magnesium (Water Soluble)	N	2120	g/l	0.010	< 0.010	0.016	< 0.010	0.015					
Sulphate (Acid Soluble)	M	2430	%	0.010	0.080	0.40	0.11	0.16					
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.14	0.88	0.27	0.51	0.085	< 0.010	< 0.010	< 0.010	0.71
Moisture	N	2030	%	0.020	23	22	19	18	17	13	7.3	9.2	12
Soil Colour	N	2040		N/A	Black	Black	Black	Grey					
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones					
Soil Texture	N	2040		N/A	Clay	Clay	Clay	Clay					
pH	M	2010		N/A	8.3	7.5	8.0	7.6	8.2	8.4	8.5	8.6	7.6
Magnesium (Water Soluble)	N	2120	mg/l	10.000							< 10	< 10	
Total Sulphur	M	2175	%	0.010	0.39	4.7	1.4	3.1					

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-15929-1
Initial Date of Issue:	30-Jun-2020
Client	Applied Geology
Client Address:	Unit 23, Abbey Park Stareton Kenilworth Warwickshire CV8 2LY
Contact(s):	Frankie Hadley Jones Lab Results
Project	AG2875A-20 The Promised Land Fam, Bicester

Quotation No.:		**Date Received:**	24-Jun-2020
Order No.:	15745	**Date Instructed:**	24-Jun-2020
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	30-Jun-2020
Date Approved:	30-Jun-2020		

Approved By:

[redacted]

Details: Glynn Harvey, Technical Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: AG2875A-20 The Promised Land Fam, Bicester

Client: Applied Geology					**Chemtest Job No.:**	20-15929	20-15929	20-15929	20-15929	20-15929
Quotation No.:					**Chemtest Sample ID.:**	1021453	1021454	1021455	1021456	1021457	1021458
					Sample Location:	DCS2	HDP1	DCS2	DCS1	BH12	DCS4
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.10	0.10	0.70	0.10	0.10	0.30
					Bottom Depth (m):	0.20	0.20	0.90	0.20		0.40
					Date Sampled:	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	15-Jun-2020	18-Jun-2020
					Asbestos Lab:	COVENTRY	COVENTRY		COVENTRY	LIVERPOOL	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type	U	2192		N/A		-	-		-	-	-
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A		-	-		-	-	-
Moisture	N	2030	%	0.020		10	18	19	25		43
Stones and Removed Materials	N	2030	%	0.020		< 0.020	< 0.020	< 0.020	< 0.020		< 0.020
Soil Colour	N	2040		N/A		Brown	Brown	Brown	Black	Brown	Brown
Other Material	N	2040		N/A		Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A		Sand	Sand	Sand	Sand	Sand	Sand
pH	M	2010		4.0		8.1	7.8	7.8	7.4		7.8
Magnesium (Water Soluble)	N	2120	g/l	0.010		< 0.010	< 0.010	< 0.010	< 0.010		< 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		0.29	0.061	0.056	< 0.010		< 0.010
Arsenic	M	2450	mg/kg	1.0		20	19	17	13		17
Cadmium	M	2450	mg/kg	0.10		< 0.10	0.20	0.19	0.27		0.27
Chromium	M	2450	mg/kg	1.0		5.8	13	22	20		25
Copper	M	2450	mg/kg	0.50		11	17	17	18		22
Mercury	M	2450	mg/kg	0.10		0.12	0.23	0.11	< 0.10		< 0.10
Nickel	M	2450	mg/kg	0.50		7.7	13	21	18		23
Lead	M	2450	mg/kg	0.50		22	39	23	27		36
Selenium	M	2450	mg/kg	0.20		< 0.20	< 0.20	< 0.20	0.51		0.42
Zinc	M	2450	mg/kg	0.50		21	42	43	59		68
Chromium (Trivalent)	N	2490	mg/kg	1.0		5.8	13				
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50				
Organic Matter	M	2625	%	0.40		1.2	4.8	2.1	7.6		7.9
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	< 5.0	< 5.0	< 5.0		< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0		< 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: AG2875A-20 The Promised Land Fam, Bicester

Client: Applied Geology		**Chemtest Job No.:**			20-15929	20-15929	20-15929	20-15929	20-15929	20-15929
Quotation No.:		**Chemtest Sample ID.:**			1021453	1021454	1021455	1021456	1021457	1021458
		Sample Location:			DCS2	HDP1	DCS2	DCS1	BH12	DCS4
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.10	0.10	0.70	0.10	0.10	0.30
		Bottom Depth (m):			0.20	0.20	0.90	0.20		0.40
		Date Sampled:			18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	15-Jun-2020	18-Jun-2020
		Asbestos Lab:			COVENTRY	COVENTRY		COVENTRY	LIVERPOOL	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0		< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10		< 10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30				

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-16650-1
Initial Date of Issue:	07-Jul-2020
Client	Applied Geology
Client Address:	Unit 23, Abbey Park Stareton Kenilworth Warwickshire CV8 2LY
Contact(s):	Frankie Hadley Jones Lab Results
Project	AG2875A-20 The Promised Land Farm, Bicester

Quotation No.:		**Date Received:**	01-Jul-2020
Order No.:	15745	**Date Instructed:**	01-Jul-2020
No. of Samples:	9		
Turnaround (Wkdays):	5	**Results Due:**	07-Jul-2020
Date Approved:	07-Jul-2020		

Approved By:

[redacted]

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: AG2875A-20 The Promised Land Farm, Bicester

Client: Applied Geology		**Chemtest Job No.:**			20-16650	20-16650	20-16650	20-16650	20-16650	20-16650	20-16650	20-16650	20-16650
Quotation No.:		**Chemtest Sample ID.:**			1024776	1024777	1024778	1024779	1024780	1024781	1024782	1024783	1024784
		Sample Location:			BH13	TP104	TP102	TP101	TP103	TP105	TP106	TP107	TP111
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.1	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.1
		Bottom Depth (m):			0.3	0.5	0.3	0.2	0.2	0.3	0.2	0.3	0.15
		Date Sampled:			25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-		
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-		
Moisture	N	2030	%	0.020	20	20	17	12	24	22	23	19	21
Stones and Removed Materials	N	2030	%	0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Roots	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH	M	2010		4.0	8.2	8.4	8.4	8.7	8.3	8.1	8.4	8.0	8.5
Magnesium (Water Soluble)	N	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.10	0.020	0.017	< 0.010	0.025	0.040	0.036	0.026	0.015
Arsenic	M	2450	mg/kg	1.0	14	16	18	19	17	18	21	18	16
Cadmium	M	2450	mg/kg	0.10	0.29	0.22	0.16	0.17	0.45	0.39	0.39	0.35	0.21
Chromium	M	2450	mg/kg	1.0	18	19	11	13	35	27	27	25	21
Copper	M	2450	mg/kg	0.50	18	11	9.6	12	21	28	23	26	12
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.12	0.31	< 0.10
Nickel	M	2450	mg/kg	0.50	13	12	9.8	11	22	16	18	25	14
Lead	M	2450	mg/kg	0.50	28	16	12	18	34	31	34	110	16
Selenium	M	2450	mg/kg	0.20	0.78	< 0.20	< 0.20	< 0.20	0.88	0.96	1.2	0.22	< 0.20
Zinc	M	2450	mg/kg	0.50	48	24	25	33	68	110	52	85	24
Organic Matter	M	2625	%	0.40	5.5	2.6	1.7	5.5	6.9	6.4	7.1	5.3	3.5
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0		< 5.0	< 5.0	< 5.0		< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0

Results - Soil

Project: AG2875A-20 The Promised Land Farm, Bicester

Client: Applied Geology		**Chemtest Job No.:**			20-16650	20-16650	20-16650	20-16650	20-16650	20-16650	20-16650	20-16650	20-16650
Quotation No.:		**Chemtest Sample ID.:**			1024776	1024777	1024778	1024779	1024780	1024781	1024782	1024783	1024784
		Sample Location:			BH13	TP104	TP102	TP101	TP103	TP105	TP106	TP107	TP111
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.1	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.1
		Bottom Depth (m):			0.3	0.5	0.3	0.2	0.2	0.3	0.2	0.3	0.15
		Date Sampled:			25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0		< 5.0	< 5.0	< 5.0		< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10		< 10	< 10	< 10		< 10	< 10	< 10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.66	< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.69	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

GEOLABS Limited
Unit D3 HRS Business Park
Granby Avenue
Birmingham
B33 0SJ

Tel: +44(0) 121 296 4600
Fax: +44(0) 121 296 4599
email: admin@geolabs.co.uk
web: www.geolabs.co.uk

Applied Geology
Unit 23
Abbey Park
Stareton
Kenilworth
Warwickshire
CV8 2LY

For the attention of Mr F Hadley-Jones

12 August 2018
Report No : GEO/27825/01

Dear Sirs

Our ref **GEO / 27825**
Your Ref **AG2875-18**

Date samples received	26/07/2018
Date written instructions received	26/07/2018
Date testing commenced	27/07/2018
Date of sample disposal	**09/09/2018**

Project **THE PROMISED LAND, BICESTER**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Geotechnical Test Summary
2	8	Liquid & Plastic Limits and Water Content
3	5	Particle Size Distribution

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory. This report should not be reproduced except in full without the written permission of the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of no less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**

[redacted]

J A Reynolds
Laboratory Manager

"Geolabs" and the Geolabs logo are registered trademarks in the name of Geolabs Limited
Registered Office: Bucknalls Lane Garston Watford Hertfordshire WD25 9XX Registered in England and Wales No: 3177641

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Borehole / Trial Pit	Depth (m)	Sample Ref	Type	Description	WC (%)	LL (%)	PL (%)	PI (%)	<425 µm (%)	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
TP11	0.80-0.80		B	Yellowish brown very clayey, very sandy fine to coarse GRAVEL.															Particle Size Distribution
TP13	2.20-2.20		B	Grey very clayey SAND with some gravel. Gravel is fine to coarse.	23.8	26	16	10	86										Particle Size Distribution
TP15	2.30-2.30		B	Grey very clayey SAND with some gravel. Gravel is fine to coarse.	14.3	26	16	10	81										Particle Size Distribution
TP16	2.10-2.10		D	Dark grey slightly sandy CLAY with some gravel. Gravel is fine to medium.	15.0	28	13	15	90										
TP2	0.60-0.60		B	Yellowish brown clayey sandy fine to coarse GRAVEL.															Particle Size Distribution
TP3	0.50-0.50		D	Greenish grey slightly sandy CLAY with rare gravel. Gravel is fine to coarse.	26.4	73	22	51	96										
TP3	1.30-1.30		D	Greenish grey CLAY.	38.2	73	25	48	100										
TP6	1.60-1.60		D	Black CLAY with rare fine gravel.	35.2	72	24	48	99										
TP8	0.60-0.60		D	Yellowish brown sandy CLAY with some gravel. Gravel is fine to medium.	17.2	32	12	20	84										
TP8	2.00-2.00		D	Dark grey CLAY.	36.0	75	24	51	100										

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS®

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Borehole / Trial Pit	Depth (m)	Sample Ref	Type	Description	WC (%)	LL (%)	PL (%)	PI (%)	<425 µm (%)	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
TP9	1.20-1.20		B	Yellowish brown clayey very sandy fine to medium GRAVEL.															Particle Size Distribution

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS®

BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

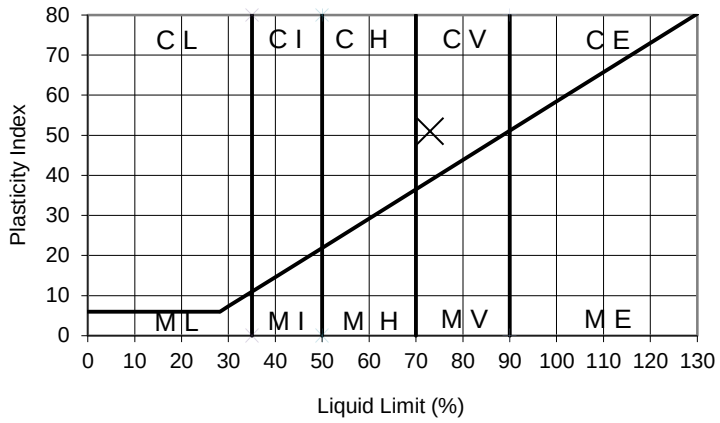
BH / TP	TP3
Depth (m)	0.50
Sample Type	D

Description:

Greenish grey slightly sandy CLAY with rare gravel. Gravel is fine to coarse.

Preparation : Sample as received

Water Content : (BS EN ISO 17892-1:2014)	26.4	%
Percentage passing 425µm sieve :	96	%
Liquid Limit :	73	%
Plastic Limit :	22	%
Plasticity Index :	51	
Equivalent Water Content of material passing 425µm sieve :	27	%
Liquidity Index :	0.11	



Checked and Approved by:

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

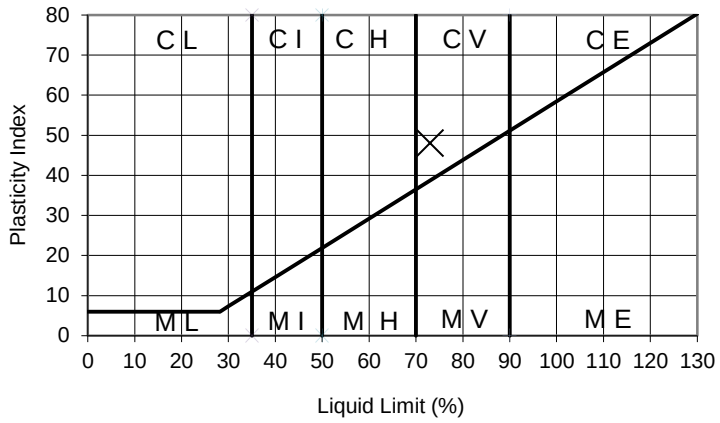
BH / TP	TP3
Depth (m)	1.30
Sample Type	D

Description:

Greenish grey CLAY.

Preparation : Sample as received

Water Content : (BS EN ISO 17892-1:2014)	38.2	%
Percentage passing 425µm sieve :	100	%
Liquid Limit :	73	%
Plastic Limit :	25	%
Plasticity Index :	48	
Equivalent Water Content of material passing 425µm sieve :	38	%
Liquidity Index :	0.28	



Checked and Approved by:

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

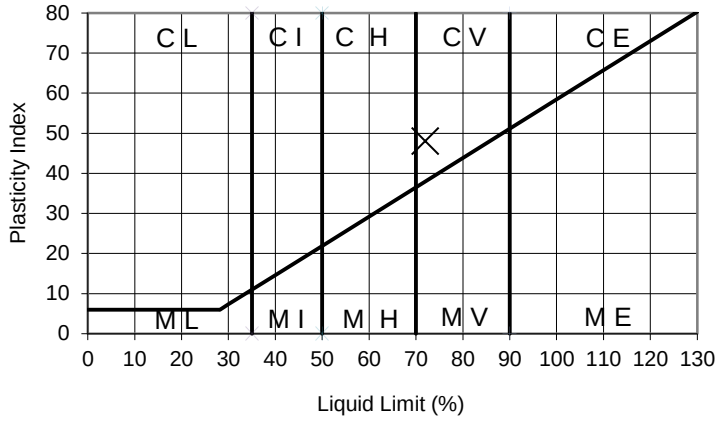
BH / TP	TP6
Depth (m)	1.60
Sample Type	D

Description:

Black CLAY with rare fine gravel.

Preparation : Sample as received

Water Content : (BS EN ISO 17892-1:2014)	35.2	%
Percentage passing 425µm sieve :	99	%
Liquid Limit :	72	%
Plastic Limit :	24	%
Plasticity Index :	48	
Equivalent Water Content of material passing 425µm sieve :	36	%
Liquidity Index :	0.24	



Checked and Approved by:

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

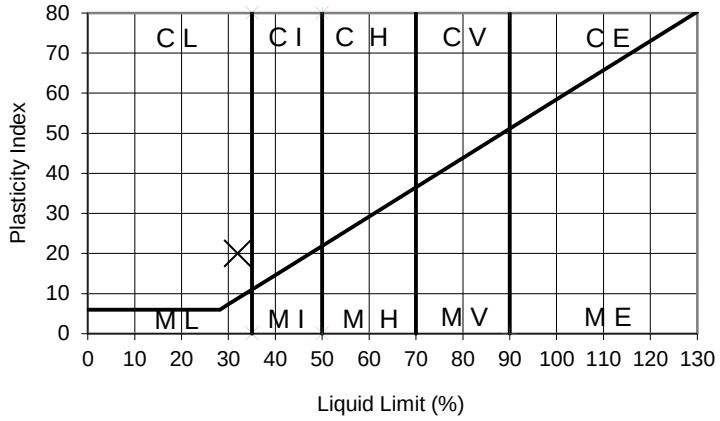
BH / TP	TP8
Depth (m)	0.60
Sample Type	D

Description:

Yellowish brown sandy CLAY with some gravel. Gravel is fine to medium.

Preparation : Sample washed and air dried

Water Content : (BS EN ISO 17892-1:2014)	17.2	%
Percentage passing 425µm sieve :	84	%
Liquid Limit :	32	%
Plastic Limit :	12	%
Plasticity Index :	20	
Equivalent Water Content of material passing 425µm sieve :	21	%
Liquidity Index :	0.43	



Checked and Approved by:

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

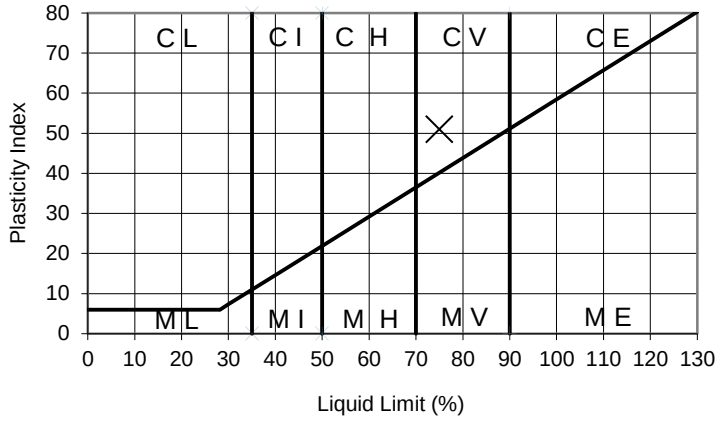
BH / TP	TP8
Depth (m)	2.00
Sample Type	D

Description:

Dark grey CLAY.

Preparation : Sample as received

Water Content : (BS EN ISO 17892-1:2014)	36.0	%
Percentage passing 425µm sieve :	100	%
Liquid Limit :	75	%
Plastic Limit :	24	%
Plasticity Index :	51	
Equivalent Water Content of material passing 425µm sieve :	36	%
Liquidity Index :	0.24	



Checked and Approved by:

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

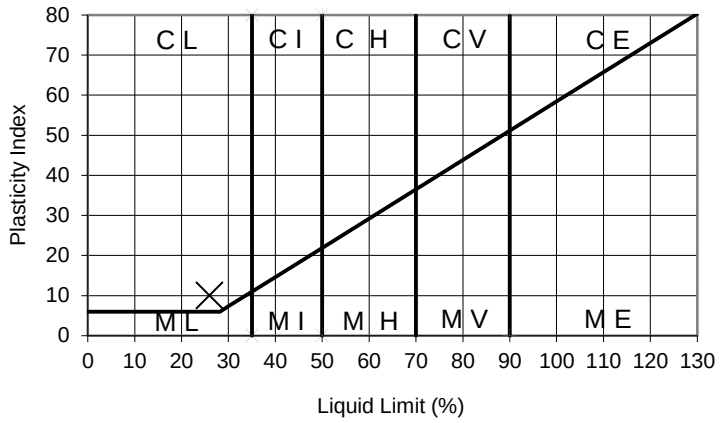
BH / TP	TP13
Depth (m)	2.20
Sample Type	B

Description:

Grey very clayey SAND with some gravel. Gravel is fine to coarse.

Preparation : Sample washed and air dried

Water Content : (BS EN ISO 17892-1:2014)	23.8	%
Percentage passing 425µm sieve :	86	%
Liquid Limit :	26	%
Plastic Limit :	16	%
Plasticity Index :	10	
Equivalent Water Content of material passing 425µm sieve :	28	%
Liquidity Index :	1.18	



Checked and Approved by:

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

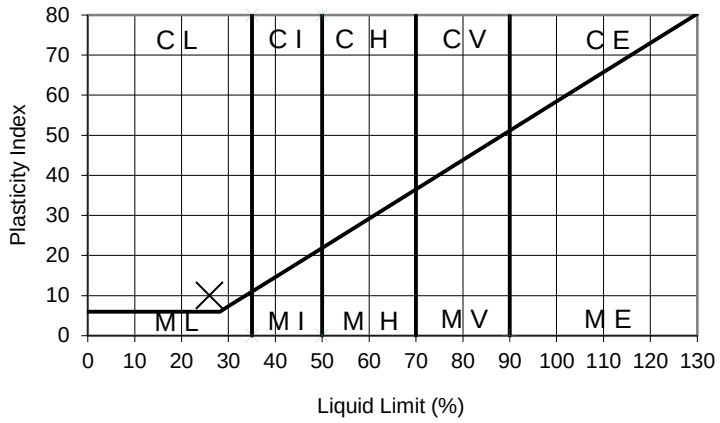
BH / TP	TP15
Depth (m)	2.30
Sample Type	B

Description:

Grey very clayey SAND with some gravel. Gravel is fine to coarse.

Preparation : Sample washed and air dried

Water Content : (BS EN ISO 17892-1:2014)	14.3	%
Percentage passing 425µm sieve :	81	%
Liquid Limit :	26	%
Plastic Limit :	16	%
Plasticity Index :	10	
Equivalent Water Content of material passing 425µm sieve :	18	%
Liquidity Index :	0.17	



Checked and Approved by:

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS1377 : Part 2 : 1990 Clauses 4.4 & 5

LIQUID AND PLASTIC LIMITS

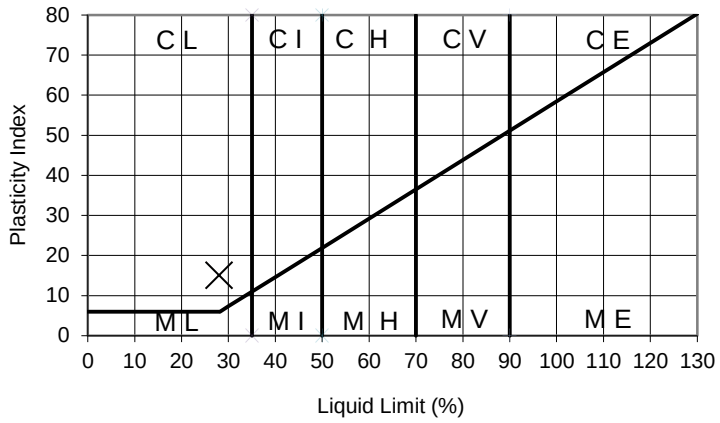
BH / TP	TP16
Depth (m)	2.10
Sample Type	D

Description:

Dark grey slightly sandy CLAY with some gravel. Gravel is fine to medium.

Preparation : Sample washed and air dried

Water Content : (BS EN ISO 17892-1:2014)	15.0	%
Percentage passing 425µm sieve :	90	%
Liquid Limit :	28	%
Plastic Limit :	13	%
Plasticity Index :	15	
Equivalent Water Content of material passing 425µm sieve :	17	%
Liquidity Index :	0.24	



Checked and Approved by:

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

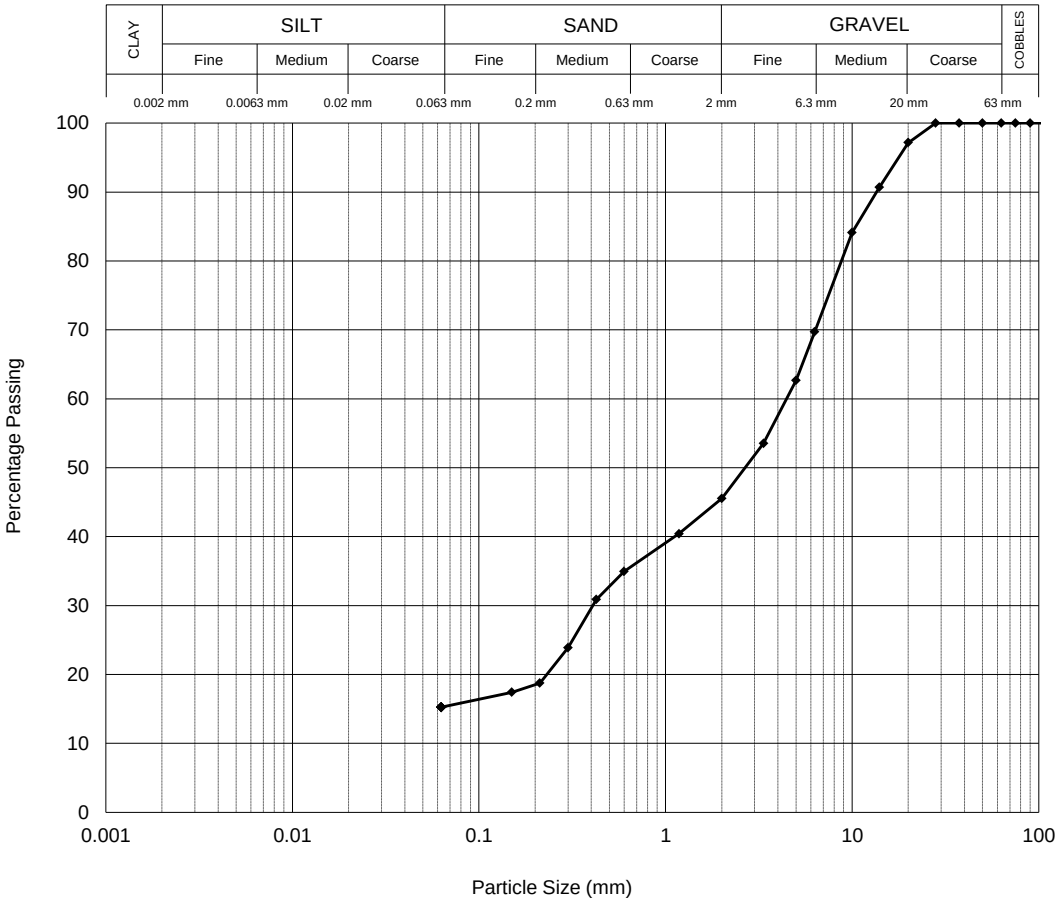
BH / TP No.	TP2
Depth (m)	0.60-0.60
Sample Type	B

Description

Yellowish brown clayey sandy fine to coarse GRAVEL.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	97
14.0 mm	91
10.0 mm	84
6.30 mm	70
5.00 mm	63
3.35 mm	54
2.00 mm	46
1.18 mm	40
600 µm	35
425 µm	31
300 µm	24
212 µm	19
150 µm	17
63 µm	15



Particle Proportions	
Cobbles	0
Gravel	54
Sand	30
Silt & Clay	16

Checked and Approved by

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

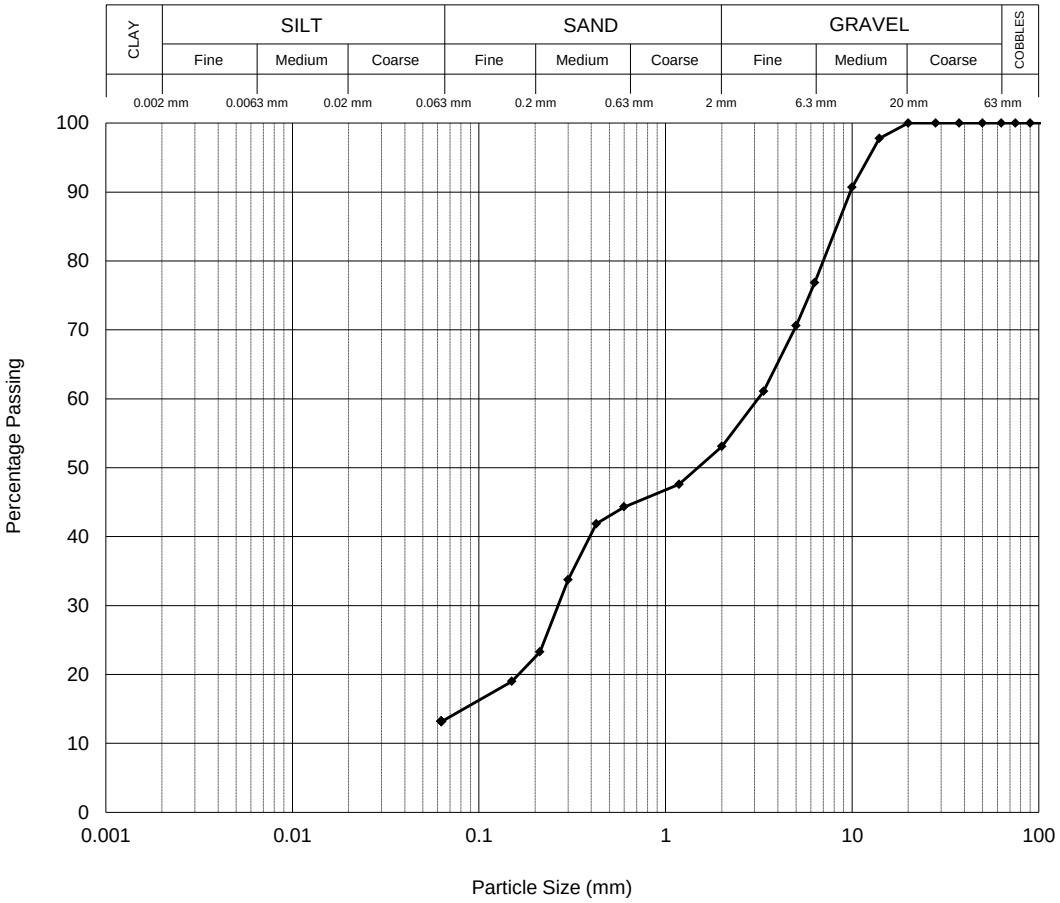
BH / TP No.	TP9
Depth (m)	1.20-1.20
Sample Type	B

Description

Yellowish brown clayey very sandy fine to medium GRAVEL.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	98
10.0 mm	91
6.30 mm	77
5.00 mm	71
3.35 mm	61
2.00 mm	53
1.18 mm	48
600 µm	44
425 µm	42
300 µm	34
212 µm	23
150 µm	19
63 µm	13



Particle Proportions	
Cobbles	0
Gravel	47
Sand	40
Silt & Clay	13

Checked and Approved by

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

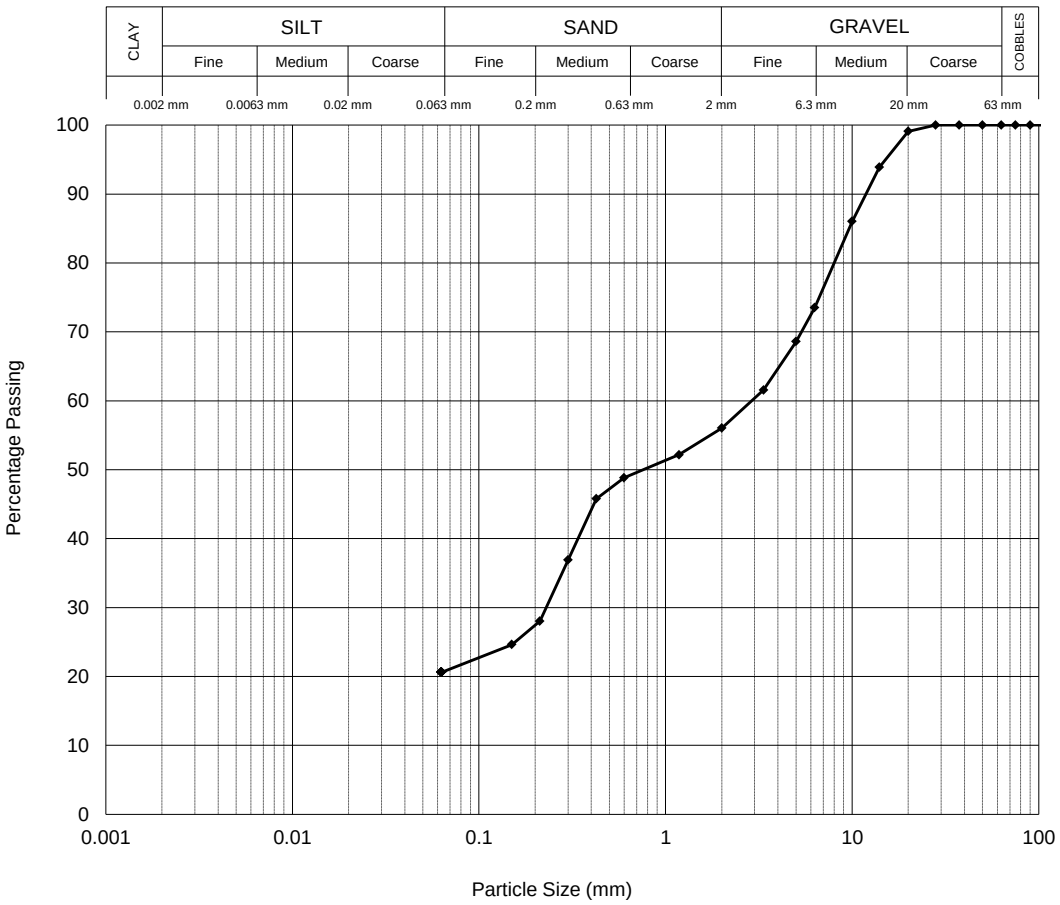
BH / TP No.	TP11
Depth (m)	0.80-0.80
Sample Type	B

Description

Yellowish brown very clayey, very sandy fine to coarse GRAVEL.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	99
14.0 mm	94
10.0 mm	86
6.30 mm	74
5.00 mm	69
3.35 mm	62
2.00 mm	56
1.18 mm	52
600 µm	49
425 µm	46
300 µm	37
212 µm	28
150 µm	25
63 µm	21



Particle Proportions	
Cobbles	0
Gravel	44
Sand	35
Silt & Clay	21

Checked and Approved by

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

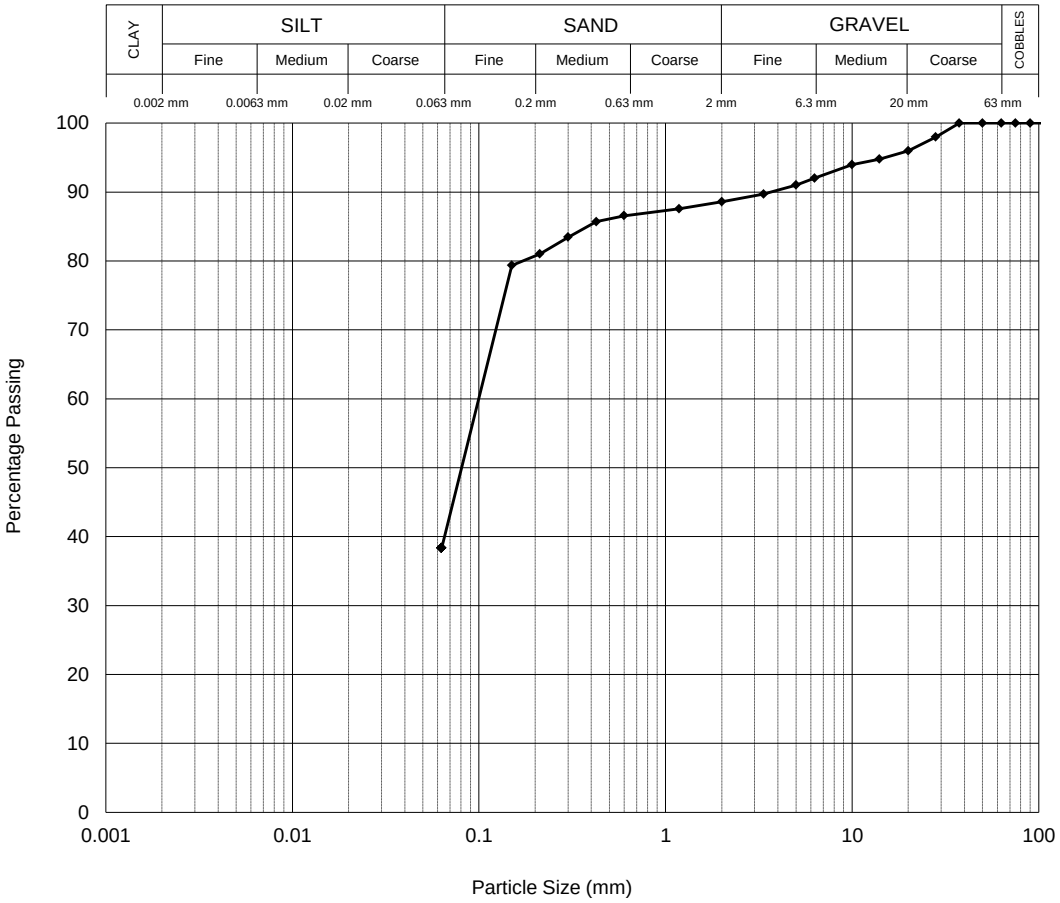
BH / TP No.	TP13
Depth (m)	2.20-2.20
Sample Type	B

Description

Grey very clayey SAND with some gravel. Gravel is fine to coarse.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	98
20.0 mm	96
14.0 mm	95
10.0 mm	94
6.30 mm	92
5.00 mm	91
3.35 mm	90
2.00 mm	89
1.18 mm	88
600 µm	87
425 µm	86
300 µm	83
212 µm	81
150 µm	79
63 µm	38



Particle Proportions	
Cobbles	0
Gravel	11
Sand	50
Silt & Clay	39

Checked and Approved by

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

Project Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

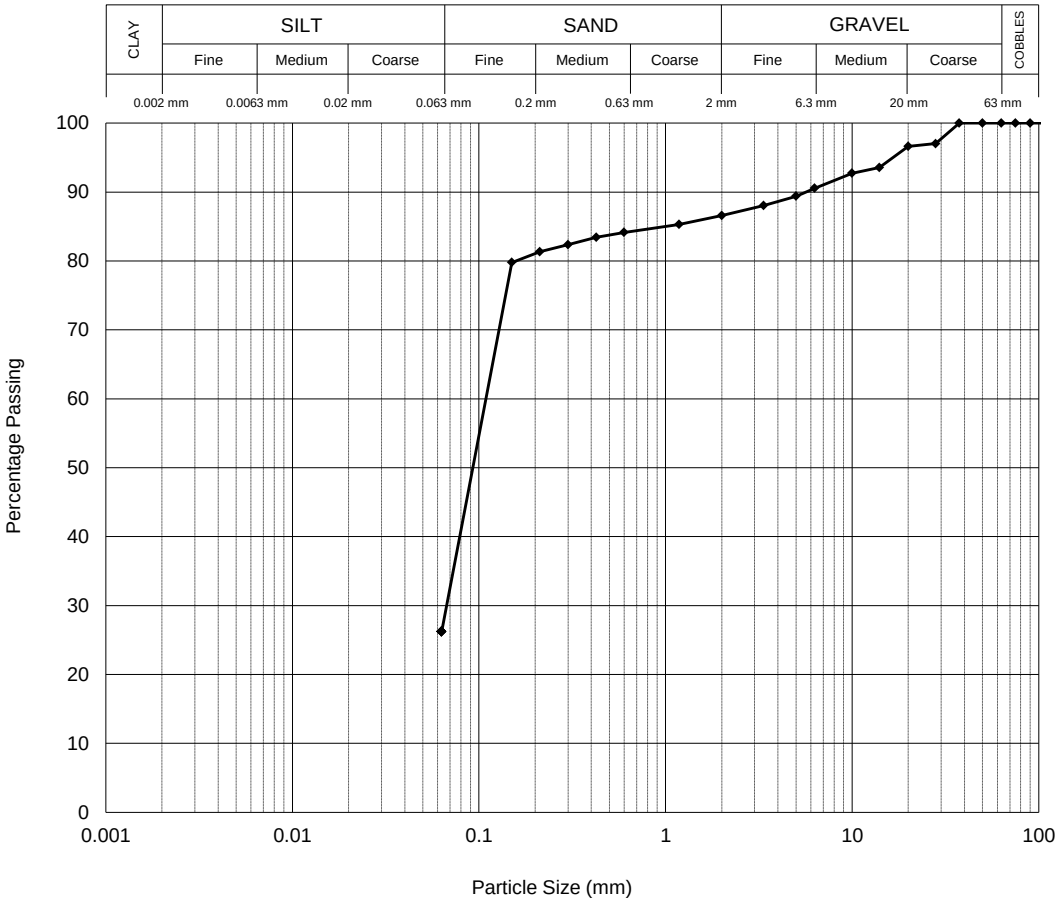
BH / TP No.	TP15
Depth (m)	2.30-2.30
Sample Type	B

Description

Grey very clayey SAND with some gravel. Gravel is fine to coarse.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	97
20.0 mm	97
14.0 mm	94
10.0 mm	93
6.30 mm	91
5.00 mm	89
3.35 mm	88
2.00 mm	87
1.18 mm	85
600 µm	84
425 µm	83
300 µm	82
212 µm	81
150 µm	80
63 µm	26



Particle Proportions	
Cobbles	0
Gravel	13
Sand	60
Silt & Clay	27

Checked and Approved by

[redacted]

J A Reynolds - Laboratory Manager
12/08/2018

Project Number:

GEO / 27825

roject Name:

THE PROMISED LAND, BICESTER
AG2875-18

GEOLABS

UKAS TESTING 1982

TERRA TEK
SITE INVESTIGATION & LABORATORY SERVICES

Applied Geology Ltd
Unit 23 Abbey Park
Stareton
Kenilworth
Warwickshire
CV8 2LY
For the attention of Kayleigh McGeoch

Report No: B24568
Issue No 01

LABORATORY TEST REPORT

Project Name	**THE PROMISED LAND FARM, BICESTER**		
Project Number	**B24568**	Date samples received	14/07/2020
Your Ref		Date written instructions received	14/07/2020
Purchase Order	15790	Date testing commenced	14/07/2020

Please find enclosed the results as summarised below

Figure / Table	Test Quantity	Description	ISO 17025 Accredited
1	20	BRE Suites - Soil	Yes
App S1	~	Sample Descriptions - Soil	N/A
App S2	~	Deviating Samples - Soil	N/A
App S3	~	Summary of In-House Analytical Test Methods - Soil	N/A

Remarks :

Issued by : Stephen Langman [redacted] Date of Issue : 23/07/2020

Approved Signatories :
G Wilson (JMD/Laboratories Director), S Langman (Laboratory Coordinator)

Key to symbols used in this report
S/C : Testing was sub-contracted

Unless we are notified to the contrary, samples will be disposed after a period of one month from this date.
The results reported relate to samples received in the laboratory only.
All results contained in this report are provisional unless signed by an approved signatory
This report should not be reproduced except in full without the written approval of the laboratory.
Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory.
The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw
our report if we have not received cleared funds in accordance with our standard terms and conditions
Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.
Feedback on the this report may be left via our website www.terratek.co.uk/contact-us

mCERTS UKAS TESTING 0126 25 YEARS 1990-2015

Moor Lane, Witton, Birmingham, B6 7HG
Tel: +44 (0)121 344 4838 Fax: +44 (0)121 356 3599
birmingham@terratek.co.uk
www.terratek.co.uk
Terra Tek Ltd is registered in Scotland No. 121594
Offices in Airdrie, Birmingham, Belfast and Chesham
Head Office : 62 Rochsolloch Road, Airdrie, ML6 9BG

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: THE PROMISED LAND FARM, BICESTER

Client:

Engineer:

Contract No B24568

Sample Identification				Lab Sample ID	Sulphate (acid soluble as SO4) %	Sulphate (soluble in 2:1 water extract) as SO4 g/l	pH	Total Sulphur %
Hole	Depth m	Sample Ref	Sample Type					
BH12	0.80		D	738151	~	0.08	8.0	~
BH5	0.90		D	738152	~	0.05	7.9	~
BH7	0.70		D	738153	~	0.02	7.2	~
BH1	0.80		D	738154	~	0.02	8.0	~
TP103	0.40-0.50		D	738155	~	0.01	8.2	~
BH2	0.60		D	738156	~	0.02	8.0	~
TP106	1.80-1.90		D	738157	0.20	0.90	7.5	1.24
TP107	1.40-1.50		D	738158	0.05	0.18	8.0	0.13
BH11	2.80		D	738159	0.13	0.89	8.1	2.01
BH13	3.40		D	738160	0.08	0.47	8.2	2.18
				Limits of Detection	0.01	0.01	~	0.01
				Terra Tek Analysis Method	TP171	TP169	TP019	TP129
				Accreditation M=Mcerts U=UKAS N=No accreditation	M	M	M	M

Originator	Checked & Approved
DAB	[redacted] 23/07/2020

BRE SD1 SUITE - SOIL

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: THE PROMISED LAND FARM, BICESTER

Client:

Engineer:

Contract No B24568

Sample Identification				Lab Sample ID	Sulphate (acid soluble as SO4) %	Sulphate (soluble in 2:1 water extract) as SO4 g/l	pH	Total Sulphur %
Hole	Depth m	Sample Ref	Sample Type					
BH7	1.75		D	738161	0.10	0.22	8.2	0.38
BH5	1.80		D	738162	0.06	0.16	8.1	0.32
TP111	0.80-0.90		D	738163	0.03	0.03	8.1	0.03
BH3	2.45		D	738164	0.13	0.29	8.1	0.08
TP110	2.00-2.10		D	738165	0.15	0.94	8.0	1.75
TP101	1.10-1.20		D	738166	~	0.05	8.6	~
TP105	1.80-1.90		D	738167	~	0.20	8.4	~
BH10	1.00		D	738168	~	0.12	8.2	~
BH15	1.65		D	738169	~	0.04	8.2	~
BH4	1.00		D	738170	~	0.02	8.4	~
Limits of Detection					0.01	0.01	~	0.01
Terra Tek Analysis Method					TP171	TP169	TP019	TP129
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M

Originator	Checked & Approved
DAB	[redacted] 23/07/2020

BRE SD1 SUITE - SOIL

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

Sample Identification				Lab Sample ID	Date Sampled	Temperature on receipt °C	PRIMARY MATRIX	Secondary Matrix	Additional matrix	% Loss at 30C	% Retained 2mm
Exploratory Hole	Depth m	Sample Ref	Sample Type								
BH12	0.80		D	738151	15/06/20		CLAY	Fine gravel		15.6	16.6
BH5	0.90		D	738152	22/06/20		CLAY	Fine gravel		16.1	10.8
BH7	0.70		D	738153	23/06/20		Sandy CLAY	Fine gravel		11.5	29.6
BH1	0.80		D	738154	18/06/20		CLAY	Fine gravel		18.1	20.1
TP103	0.40-0.50		D	738155	25/06/20		CLAY	Fine gravel		19.2	5.2
BH2	0.60		D	738156	19/06/20		Clayey SAND	Fine gravel		17.1	11.6
TP106	1.80-1.90		D	738157	26/06/20		Sandy CLAY	Fine gravel		15.0	9.2
TP107	1.40-1.50		D	738158	26/06/20		Sandy CLAY	Fine gravel		18.1	3.7
BH11	2.80		D	738159	16/06/20		CLAY	Fine gravel		19.6	16.0
BH13	3.40		D	738160	15/06/20		CLAY	Fine gravel		17.0	7.4
BH7	1.75		D	738161	23/06/20		CLAY	Fine gravel		13.4	33.0
BH5	1.80		D	738162	22/06/20		CLAY	Fine gravel		20.6	13.4
TP111	0.80-0.90		D	738163	26/06/20		CLAY	Fine gravel		19.8	20.4
BH3	2.45		D	738164	19/06/20		CLAY			23.1	
TP110	2.00-2.10		D	738165	26/06/20		CLAY	Fine gravel		17.1	15.6

Notes

Terra Tek are accredited for clay, sand and loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials such as gravel, are not accredited where they comprise the major component of the sample.

Results are expressed on a dry-weight basis (samples dried at <30^{o}C) except where stated.

The laboratory removes any material > 2mm prior to analysis. The quantity and nature of the material is shown as the secondary and additional matrix types in the above table.

Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors List, which is subject to performance assessment, will be selected.

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

Sample Identification				Lab Sample ID	Date Sampled	Temperature on receipt °C	PRIMARY MATRIX	Secondary Matrix	Additional matrix	% Loss at 30C	% Retained 2mm
Exploratory Hole	Depth m	Sample Ref	Sample Type								
TP101	1.10-1.20		D	738166	25/06/20		SAND	Fine to medium gravel		6.8	53.9
TP105	1.80-1.90		D	738167	25/06/20		SAND	Fine to medium gravel		8.4	56.5
BH10	1.00		D	738168	25/06/20		Sandy CLAY	Fine to medium gravel		15.1	26.8
BH15	1.65		D	738169	22/06/20		CLAY	Fine gravel		14.0	48.0
BH4	1.00		D	738170	19/06/20		Sandy CLAY	Fine to medium gravel		11.4	31.4

Notes

Terra Tek are accredited for clay, sand and loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials such as gravel, are not accredited where they comprise the major component of the sample.

Results are expressed on a dry-weight basis (samples dried at <30^{o}C) except where stated.

The laboratory removes any material > 2mm prior to analysis. The quantity and nature of the material is shown as the secondary and additional matrix types in the above table.

Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors List, which is subject to performance assessment, will be selected.

Originator	Checked & Approved	SAMPLE DESCRIPTIONS	Appendix S1
DAB	[redacted] 23/07/2020		Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

Sample Identification				Lab Sample ID	Date Sampled	Deviating conditions						Preservatives used
Exploratory Hole	Depth m	Sample Ref	Sample Type			Sampling date has not been provided	Exceeded maximium holding time for selected test(s)	Presence of headspace in sample vial	Poorly fitting cap or lid	Damaged container		
BH12	0.80		D	738151	15/06/20							
BH5	0.90		D	738152	22/06/20							
BH7	0.70		D	738153	23/06/20							
BH1	0.80		D	738154	18/06/20							
TP103	0.40-0.50		D	738155	25/06/20							
BH2	0.60		D	738156	19/06/20							
TP106	1.80-1.90		D	738157	26/06/20							
TP107	1.40-1.50		D	738158	26/06/20							
BH11	2.80		D	738159	16/06/20							
BH13	3.40		D	738160	15/06/20							
BH7	1.75		D	738161	23/06/20							
BH5	1.80		D	738162	22/06/20							
TP111	0.80-0.90		D	738163	26/06/20							
BH3	2.45		D	738164	19/06/20							
TP110	2.00-2.10		D	738165	26/06/20							

NOTES
1 Results reported for samples classified as deviating may be compromised. Deviation types are shown as "X" or "Yes" in the table above.
2 The absence of "X" or "Yes" in the table above indicates no reported deviations.
3 Deviations due to use of incorrect sample container are shown on result tables.
4 Deviating results are indicated within result tables.

Originator	Checked & Approved
DAB	[redacted] 23/07/2020

DEVIATING SAMPLES - SOIL

Appendix S2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

Sample Identification				Lab Sample ID	Date Sampled	Deviating conditions						Preservatives used
Exploratory Hole	Depth m	Sample Ref	Sample Type			Sampling date has not been provided	Exceeded maximium holding time for selected test(s)	Presence of headspace in sample vial	Poorly fitting cap or lid	Damaged container		
TP101	1.10-1.20		D	738166	25/06/20							
TP105	1.80-1.90		D	738167	25/06/20							
BH10	1.00		D	738168	25/06/20							
BH15	1.65		D	738169	22/06/20							
BH4	1.00		D	738170	19/06/20							

NOTES
1 Results reported for samples classified as deviating may be compromised. Deviation types are shown as "X" or "Yes" in the table above.
2 The absence of "X" or "Yes" in the table above indicates no reported deviations.
3 Deviations due to use of incorrect sample container are shown on result tables.
4 Deviating results are indicated within result tables.

Originator	Checked & Approved
DAB	[redacted] 23/07/2020

DEVIATING SAMPLES - SOIL

Appendix S2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
GP001	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Preparation of soil samples for chemical analysis	Yes	Yes	N/A
GP012	BS EN 12457-3: Characterisation of Waste - Compliance test for leaching of granular waste materials and sludges (two-stage batch test)	Preparation of soil samples for two-stage leachate test			Dry
TP019	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of pH in 2.5:1 water/soil extract using pH meter.	Yes	Yes	Dry
TP032	MAFF Book 427: The Analysis of Agricultural Materials: Method 8	Determination of water soluble boron by colorimetry	Yes		Dry
TP040	APHA/AWWA, 19th edition: Method 3500Cr-D	Determination of hexavalent chromium by colorimetry.	Yes		Dry
TP041	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of organic matter by titrimetry.	Yes		Dry
TP042	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of loss on ignition at 50-440°C by gravimetry	Yes	Yes	Dry
TP045	GACHAMJA A.M. Chromatography and Analysis: 1992 9-11 (modified)	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS	Yes	Yes	Dry
TP046	MEWAM method: Phenols in water and Effluents: 4-aminoantipyrine method	Determination of monohydric phenols by steam distillation/colorimetry	Yes	Yes	Dry
TP047	MEWAM method: Cyanide in Waters etc	Determination of free cyanide by steam distillation/colorimetry	Yes		Dry
TP048	MEWAM method: Cyanide in Waters etc	Determination of total cyanide by steam distillation/colorimetry.	Yes	Yes	Dry
TP049	MEWAM method: Cyanide in Waters etc	Determination of complex cyanide by calculation	Yes		Dry
TP050	MEWAM method: Determination of Thiocyanate ,1985	Determination of thiocyanate by colorimetry	Yes	Yes	Dry
TP051	USEPA Method 9030B	Determination of acid soluble sulphides by steam distillation/colorimetry.	Yes	Yes	Wet
TP067	TNRCC Method 1005: 2001 (modified)	Determination of pentane/acetone extractable petroleum hydrocarbons (C8 - C40) by GC/FID	Yes	Yes	Wet
TP072	In-house documented method	Determination of ammoniacal nitrogen by colorimetry			Dry
TP073	In-house documented method	Determination of anionic detergent (MBAS) by colorimetry			Dry
TP074	In-house documented method	Determination of water soluble fluoride by ion selective electrode			Dry
TP098	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of acid soluble chloride by titrimetry			Dry
TP099	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at 30°C ± 5°C) except where stated.
3. The laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors list, which is subject to performance assessment, will be selected.

Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)	Appendix S3
N/A	N/A		Sheet 1 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: THE PROMISED LAND FARM, BICESTER

Client:

Engineer:

Contract No B24568

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
TP100	Wisconsin DNR Modified GRO method, Method for Determining Gasoline Range Organics	Determination of Volatile Petroleum Hydrocarbons/GRO.	Yes	Yes	Wet
TP110	USEPA Methods 8082A & 3665A	Determination of Total & Speciated 7 PCB Congeners by GC/MS SIM	Yes	Yes	Wet
TP114	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of carbonate in soil (rapid titration method)			Dry
TP126	TNRCC Method 1006 (modified)	Extracted petroleum hydrocarbons from TP067 split into aromatic and aliphatic fractions. Analysed by GC/FID.	Yes		Wet
TP129	In-house documented method	Determination of total sulphur by ICP-OES spectroscopy	Yes	Yes	Dry
TP134	In-house documented method	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP135	USEPA Methods 8100 & 8270D. In-house method TP045	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS (with concentration stage)			Dry
TP137	BS7755: Section 3.9: 1995/ISO 11466:1995	Determination of acid extractable metals in soil by ICP-OES	Selected	Selected	Dry
TP145	USEPA Methods 3550C & 8270D	Determination of Semi-Volatile Organic Compounds by GC/MS	Yes	Yes	Wet
TP147	USEPA Methods 8082A & 3665A	Determination of total & speciated WHO 12 PCB Congeners by GC/MS SIM.			Wet
TP150	USEPA Methods 8081B & 8141B	Determination of pesticides and herbicides in soil by GC/MS SIM			Dry
TP152	USEPA Method 556	Determination of carbonyls by GC/MS.			Wet
TP154	USEPA Method 5021. Wisconsin DNR modified GRO method	Determination of volatiles in by GC/MS headspace	Yes	Selected	Wet
TP158	USEPA Method 1671	Determination of glycols by GC/FID DI			Wet
TP169	In-house documented method	Determination of water soluble sulphate in 2:1 water/soil extract by ICP-OES spectroscopy	Yes	Yes	Dry
TP171	In-house documented method	Determination of acid soluble sulphate by ICP-OES spectroscopy	Yes	Yes	Dry
TP174	In-house documented method	Determination of Total Organic Carbon in soils by high temperature combustion & NDIR detection			Dry
TP178	In-house documented method	Determination of water soluble nitrate by ion selective electrode			Dry
TP185	In-house documented method	Determination of loss on ignition at 150-440°C by gravimetry	No	No	Dry

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at 30°C ± 5°C) except where stated.
3. The laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors list, which is subject to performance assessment, will be selected.

Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)	Appendix S3
N/A	N/A		Sheet 2 of 2

TERRA TEK
SITE INVESTIGATION & LABORATORY SERVICES

Applied Geology Ltd
Unit 23 Abbey Park
Stareton
Kenilworth
Warwickshire
CV8 2LY
For the attention of Kayleigh McGeoch

Report No: B24568
Issue No 02

LABORATORY TEST REPORT

Project Name	**THE PROMISED LAND FARM, BICESTER**		
Project Number	**B24568**	Date samples received	14/07/2020
Your Ref		Date written instructions received	14/07/2020
Purchase Order	15790	Date testing commenced	14/07/2020

Please find enclosed the results as summarised below

Figure / Table	Test Quantity	Description	ISO 17025 Accredited
	6	One Dimensional Consolidation	Yes
	~	As attached report	S/C

Remarks :

Issued by : Stephen Langman Date of Issue : 27/07/2020

[redacted]

Approved Signatories :
G Wilson (JMD/Laboratories Director), S Langman (Laboratory Coordinator)

Key to symbols used in this report
S/C : Testing was sub-contracted

Unless we are notified to the contrary, samples will be disposed after a period of one month from this date.
The results reported relate to samples received in the laboratory only.
All results contained in this report are provisional unless signed by an approved signatory
This report should not be reproduced except in full without the written approval of the laboratory.
Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory.
The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw
our report if we have not received cleared funds in accordance with our standard terms and conditions
Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.
Feedback on the this report may be left via our website www.terratek.co.uk/contact-us

mCERTS UKAS TESTING 0126 25 YEARS 1990-2015

Moor Lane, Witton, Birmingham, B6 7HG
Tel: +44 (0)121 344 4838 Fax: +44 (0)121 356 3599
birmingham@terratek.co.uk
www.terratek.co.uk
Terra Tek Ltd is registered in Scotland No. 121594
Offices in Airdrie, Birmingham, Belfast and Chesham
Head Office : 62 Rochsolloch Road, Airdrie, ML6 9BG

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

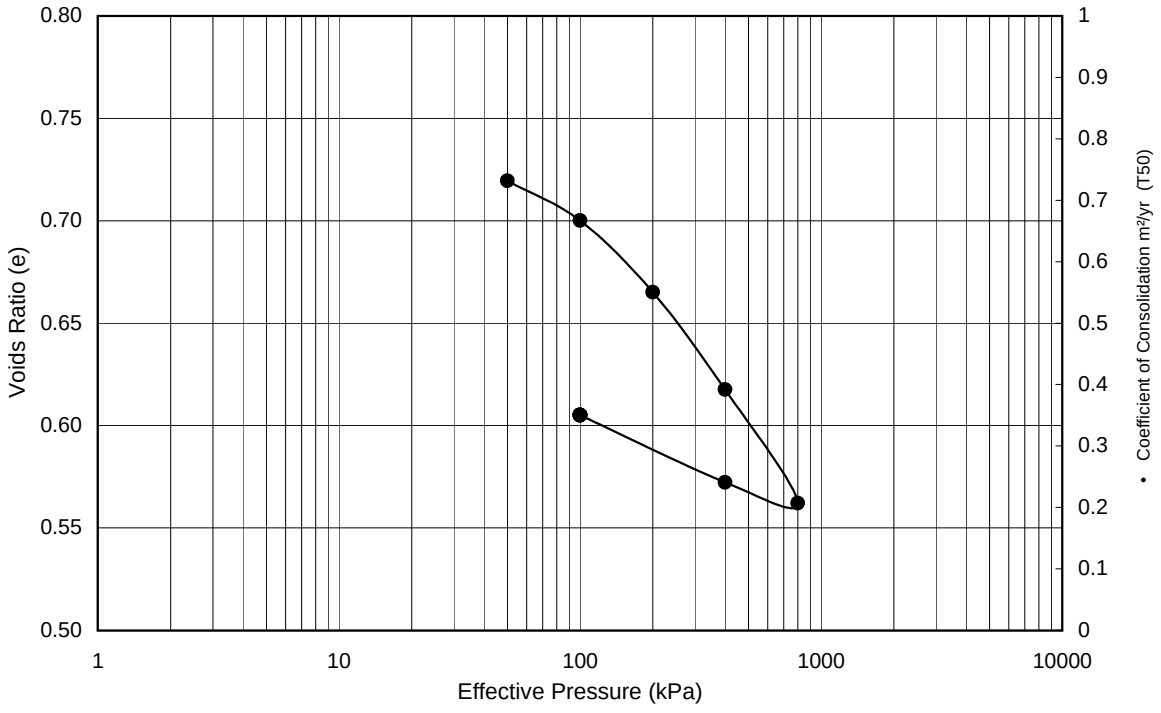
Hole ID BH10
Sample Ref
Depth (m) 2.00-2.45
Sample Type U

Non Engineering Description: Dark brown CLAY with occasional gravel. Gravel is fine.

Initial Moisture Content	28 %	Final Moisture Content	23 %	
Initial Voids Ratio	0.742	Final Voids Ratio	0.605	
Initial Bulk Density	1.96 Mg/m³	Particle Density	2.68 Mg/m³	Assumed
Initial Dry Density	1.54 Mg/m³	Degree of saturation	100 %	
Specimen Dimensions	19.98mm x 75.00mm dia			
Laboratory temperature	20±2°C			

Specimen taken 50mm below top of (U100) tube by vertical extrusion with horizontal orientation

Pressure Range kPa	M_v m²/MN	C_v (root time) m²/year	C_v (log time) m²/year	Voids ratio (e)	C_{sec}	Duration days
2 - 50	0.273	6.16	5.39	0.719		1
50 - 100	0.225	4.06	0.61	0.700		1
100 - 200	0.206	1.86	0.53	0.665		1
200 - 400	0.143	1.05	0.39	0.618		1
400 - 800	0.086	1.13	0.34	0.562		1
800 - 400	0.016	4.07	0.93	0.572		1
400 - 100	0.069	1.33	0.31	0.605		1



Originator	Checked & Approved
AF	[redacted] 27/07/2020

ONE DIMENSIONAL CONSOLIDATION
BS1377:PART 5:1990

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

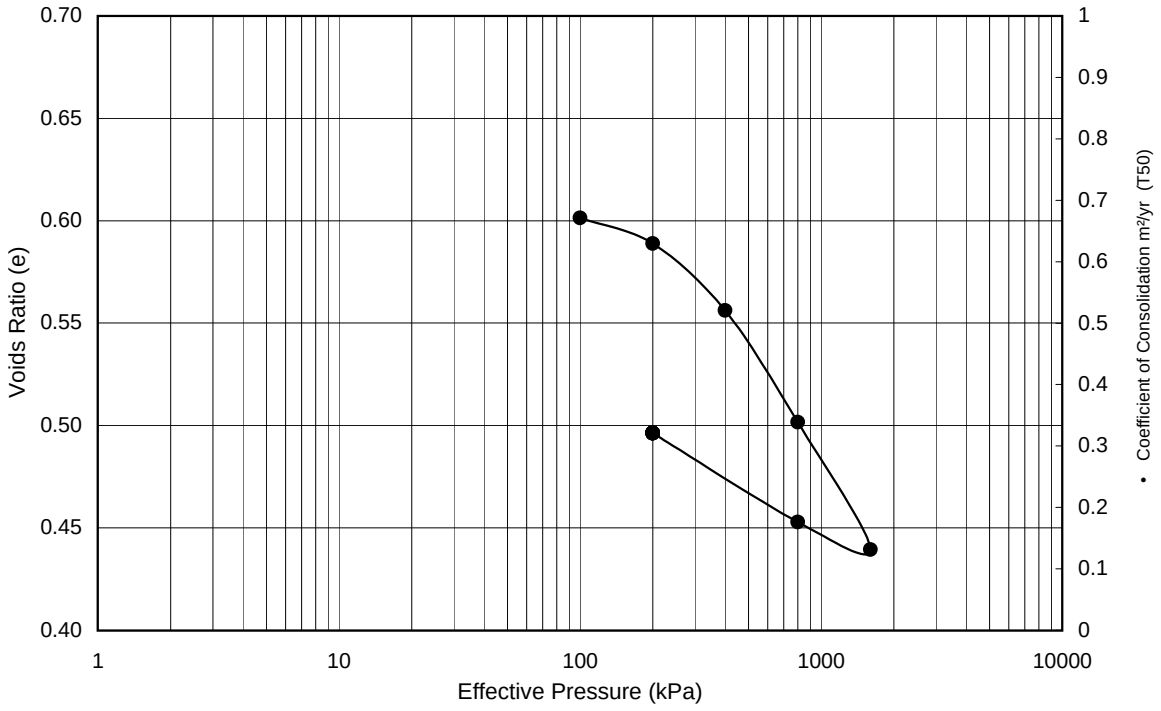
Hole ID BH13
Sample Ref
Depth (m) 4.10-4.55
Sample Type U

Non Engineering Description: Dark brown CLAY with occasional gravel. Gravel is fine to medium.

Initial Moisture Content	23 %	Final Moisture Content	21 %	
Initial Voids Ratio	0.647	Final Voids Ratio	0.496	
Initial Bulk Density	2.01 Mg/m³	Particle Density	2.68 Mg/m³	Assumed
Initial Dry Density	1.63 Mg/m³	Degree of saturation	97 %	
Specimen Dimensions	20.04mm x 75.08mm dia			
Laboratory temperature	20±2°C			

Specimen taken 50mm below top of (U100) tube by vertical extrusion with horizontal orientation

Pressure Range kPa	M_v m²/MN	C_v (root time) m²/year	C_v (log time) m²/year	Voids ratio (e)	C_{sec}	Duration days
2 - 100	0.286	swelling	swelling	0.601		1
100 - 200	0.077	3.32	0.63	0.589		1
200 - 400	0.103	1.61	0.38	0.556		1
400 - 800	0.088	0.28	0.23	0.502		1
800 - 1600	0.052	0.27	0.23	0.439		1
1600 - 800	0.012	2.23	1.22	0.453		1
800 - 200	0.050	0.27	0.18	0.496		1



Originator	Checked & Approved
AF	[redacted] 27/07/2020

ONE DIMENSIONAL CONSOLIDATION
BS1377:PART 5:1990

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

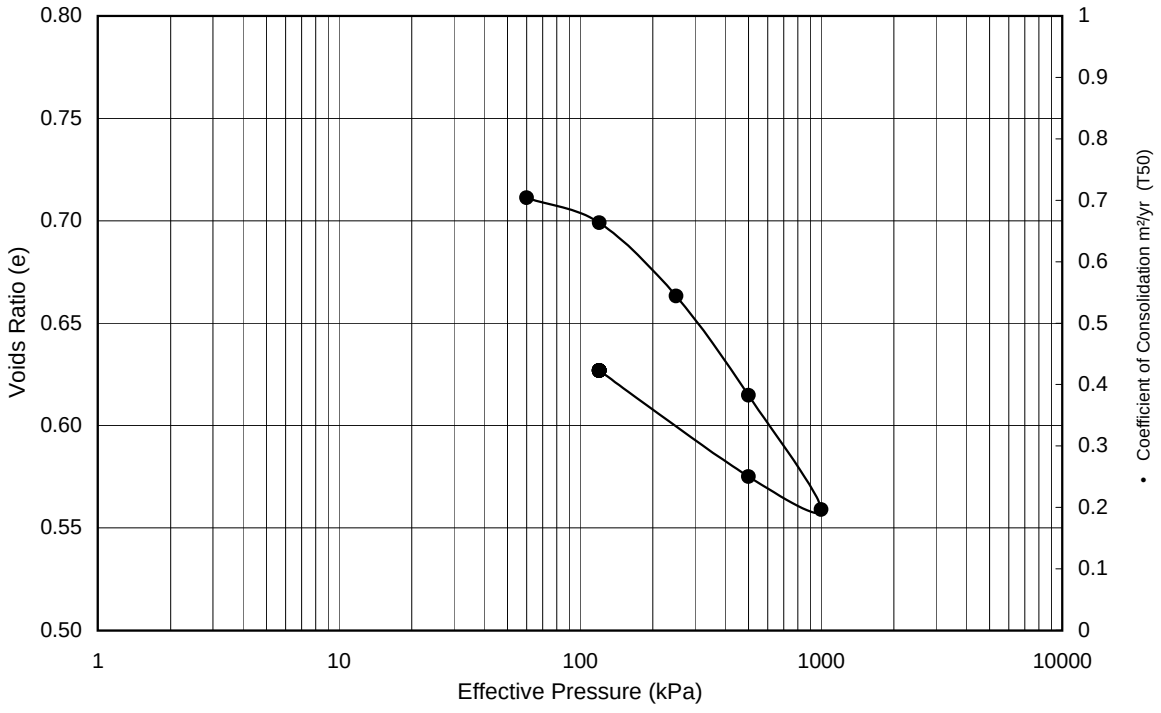
Hole ID BH14
Sample Ref
Depth (m) 2.90-3.35
Sample Type U

Non Engineering Description: Dark brown CLAY with occasional gravel. Gravel is fine to medium.

Initial Moisture Content	28 %	Final Moisture Content	24 %	
Initial Voids Ratio	0.721	Final Voids Ratio	0.627	
Initial Bulk Density	1.99 Mg/m³	Particle Density	2.68 Mg/m³	Assumed
Initial Dry Density	1.56 Mg/m³	Degree of saturation	103 %	
Specimen Dimensions	20.00mm x 75.02mm dia			
Laboratory temperature	20±2°C			

Specimen taken 50mm below top of (U100) tube by vertical extrusion with horizontal orientation

Pressure Range kPa	M_v m²/MN	C_v (root time) m²/year	C_v (log time) m²/year	Voids ratio (e)	C_{sec}	Duration days
2 - 60	0.095	swelling	swelling	0.711		1
60 - 120	0.118	4.36	0.76	0.699		1
120 - 250	0.162	3.26	0.23	0.663		1
250 - 500	0.117	0.29	0.20	0.615		1
500 - 1000	0.069	0.24	0.21	0.559		1
1000 - 500	0.021	0.95	0.44	0.575		1
500 - 120	0.087	0.47	0.17	0.627		1



Originator	Checked & Approved
AF	[redacted] 27/07/2020

ONE DIMENSIONAL CONSOLIDATION
BS1377:PART 5:1990

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

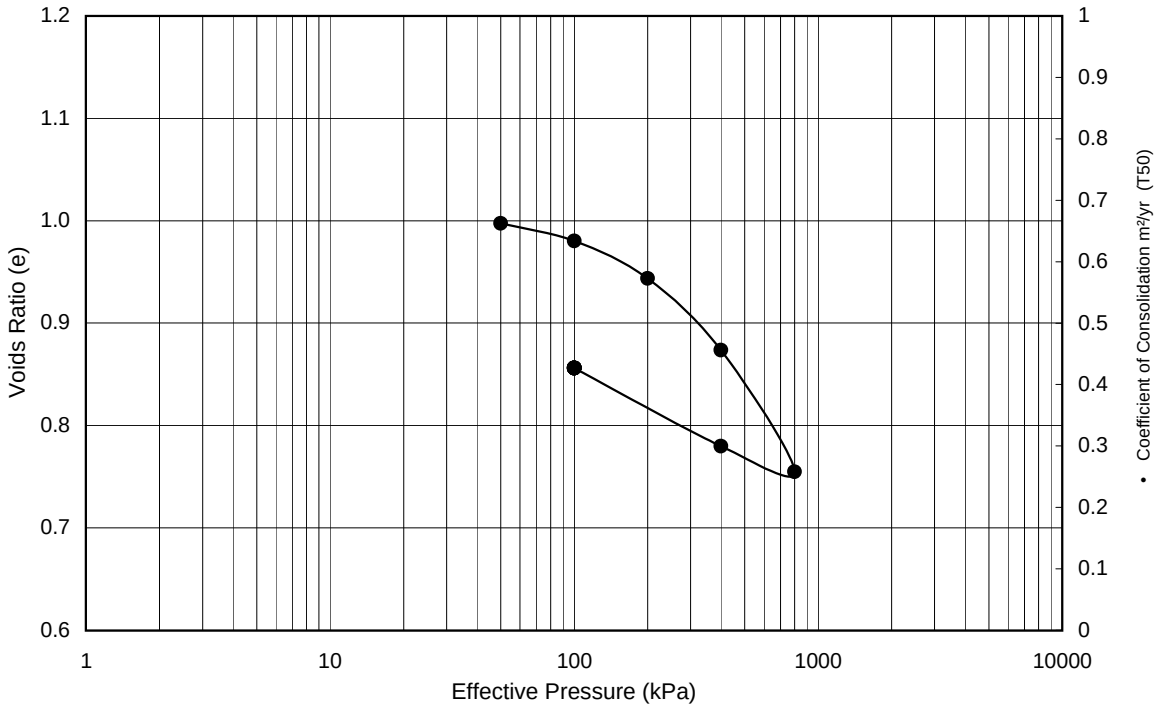
Hole ID BH3
Sample Ref
Depth (m) 2.00-2.45
Sample Type U

Non Engineering Description: Grey/brown mottled CLAY.

Initial Moisture Content	38 %	Final Moisture Content	34 %	
Initial Voids Ratio	1.010	Final Voids Ratio	0.856	
Initial Bulk Density	1.84 Mg/m³	Particle Density	2.68 Mg/m³	Assumed
Initial Dry Density	1.33 Mg/m³	Degree of saturation	101 %	
Specimen Dimensions	19.95mm x 74.96mm dia			
Laboratory temperature	20±2°C			

Specimen taken 50mm below top of (U100) tube by vertical extrusion with horizontal orientation

Pressure Range kPa	M_v m²/MN	C_v (root time) m²/year	C_v (log time) m²/year	Voids ratio (e)	C_{sec}	Duration days
2 - 50	0.129	7.20	7.35	0.998		1
50 - 100	0.173	5.03	0.20	0.980		1
100 - 200	0.185	0.31	0.19	0.944		1
200 - 400	0.180	0.18	0.18	0.874		1
400 - 800	0.159	0.23	0.16	0.755		1
800 - 400	0.036	0.42	0.31	0.780		1
400 - 100	0.143	0.15	0.13	0.856		1



Originator	Checked & Approved
AF	[redacted] 27/07/2020

ONE DIMENSIONAL CONSOLIDATION
BS1377:PART 5:1990

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

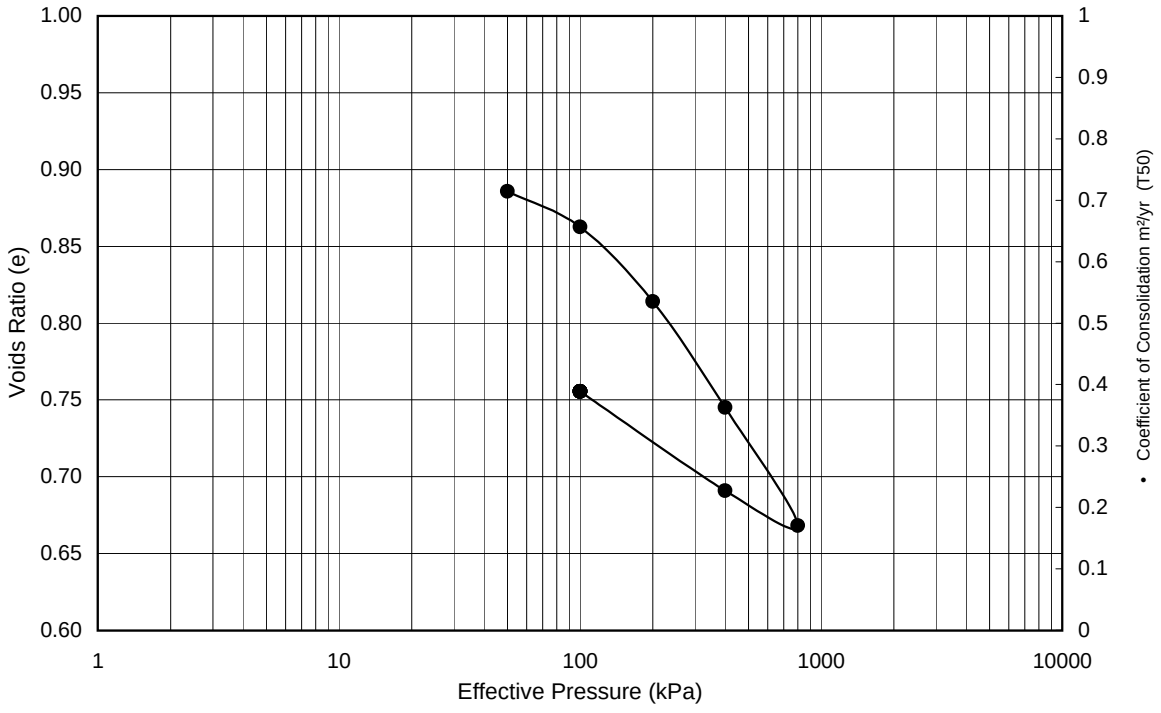
Hole ID BH5
Sample Ref
Depth (m) 2.00-2.45
Sample Type U

Non Engineering Description: Dark brown CLAY.

Initial Moisture Content	34 %	Final Moisture Content	30 %	
Initial Voids Ratio	0.901	Final Voids Ratio	0.756	
Initial Bulk Density	1.89 Mg/m³	Particle Density	2.68 Mg/m³	Assumed
Initial Dry Density	1.41 Mg/m³	Degree of saturation	101 %	
Specimen Dimensions	19.90mm x 74.97mm dia			
Laboratory temperature	20±2°C			

Specimen taken 50mm below top of (U100) tube by vertical extrusion with horizontal orientation

Pressure Range kPa	M_v m²/MN	C_v (root time) m²/year	C_v (log time) m²/year	Voids ratio (e)	C_{sec}	Duration days
2 - 50	0.162	3.60	1.82	0.886		1
50 - 100	0.247	0.47	0.21	0.863		1
100 - 200	0.261	0.38	0.13	0.814		1
200 - 400	0.190	0.14	0.14	0.745		1
400 - 800	0.110	0.16	0.16	0.668		1
800 - 400	0.034	0.71	0.32	0.691		1
400 - 100	0.128	0.14	0.12	0.756		1



Originator	Checked & Approved
AF	[redacted] 27/07/2020

ONE DIMENSIONAL CONSOLIDATION
BS1377:PART 5:1990

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site THE PROMISED LAND FARM, BICESTER

Client

Engineer

Contract No B24568

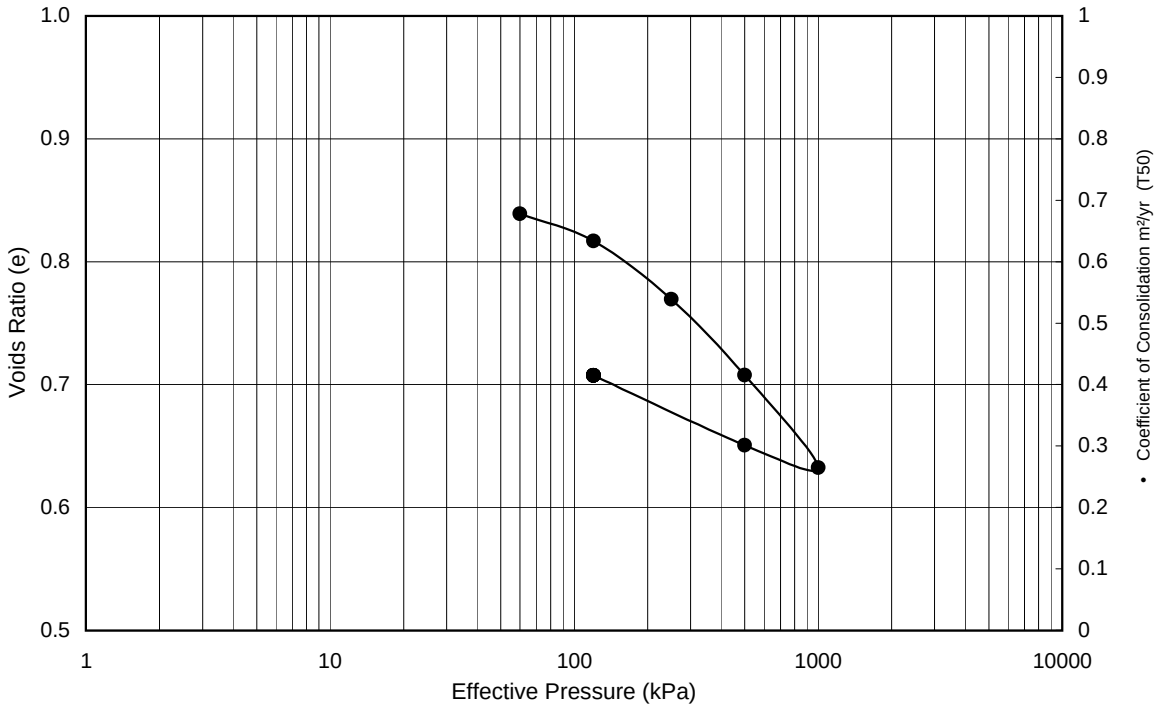
Hole ID BH8
Sample Ref
Depth (m) 3.00-3.45
Sample Type U

Non Engineering Description: Dark brown CLAY with occasionl gravel. Gravel is fine.

Initial Moisture Content	31 %	Final Moisture Content	28 %	
Initial Voids Ratio	0.848	Final Voids Ratio	0.707	
Initial Bulk Density	1.90 Mg/m³	Particle Density	2.68 Mg/m³	Assumed
Initial Dry Density	1.45 Mg/m³	Degree of saturation	99 %	
Specimen Dimensions	20.03mm x 74.96mm dia			
Laboratory temperature	20±2°C			

Specimen taken 50mm below top of (U100) tube by vertical extrusion with horizontal orientation

Pressure Range kPa	M_v m²/MN	C_v (root time) m²/year	C_v (log time) m²/year	Voids ratio (e)	C_{sec}	Duration days
2 - 60	0.088	8.20	14.83	0.839		1
60 - 120	0.201	2.55	0.28	0.817		1
120 - 250	0.201	0.68	0.24	0.769		1
250 - 500	0.140	0.24	0.22	0.708		1
500 - 1000	0.088	0.27	0.24	0.632		1
1000 - 500	0.022	1.05	0.69	0.651		1
500 - 120	0.091	0.24	0.22	0.707		1



Originator	Checked & Approved
AF	[redacted] 27/07/2020

ONE DIMENSIONAL CONSOLIDATION
BS1377:PART 5:1990

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 3874700 Fax: 0191 3874710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL – Tel: 01722 735 300 Fax: 01722 735 999

LABORATORY REPORT CERTIFICATE

UKAS TESTING
1367

Contract Title: The Promised Land Farm, Bicester – **AEG Reference:** SLS1191 B24568

Client: Terra Tek Limited

We certify that Laboratory testing was carried out on samples from the above contract in accordance with techniques outlined in BS 1377: 1990, BS EN ISO 17892:2014 or other appropriate standards as quoted. The samples were received on 17th July 2020 and the following results, given on the attached enclosures, were obtained.

The tests carried out are indicated in the attached table showing the enclosure number and the total number of pages.

For and on behalf of Allied Exploration & Geotechnics Limited

☐ Nick Vater (Managing Director)

☐ Kevin Warriner (HSE & Quality Director)

☑ Michelle Selkirk (Laboratory Manager)

Signed [redacted] Date: 24 July 2020

Tests marked not UKAS accredited in this certificate are not included in the UKAS accreditation schedule for our laboratory. Any opinions and interpretations expressed herein are outside the scope of the laboratory's UKAS accreditation.

Please note the material was derived from samples taken outside the control of the laboratory.

LABORATORY REPORT CERTIFICATE

ENCLOSURES

Enclosure Number	Description	UKAS Accredited	Reference	No. of Pages
0	Laboratory Report Certificate	N/A		3
1	Sample Description Sheets	N/A		2
2	Plasticity Index and Moisture Content	Yes	BS 1377 Part 2 1990 (BS EN ISO 17892-1:2014)	2
3	Particle Size Distribution Sieving	Yes	BS 1377 Part 2 1990	6
4	Undrained Shear Strength in Triaxial Cell without Pore Water Pressure Measurement	Yes	BS 1377 Part 7 1990	2

LABORATORY REPORT CERTIFICATE

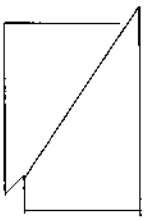
ABBREVIATIONS

All the abbreviations used on the laboratory certificates are given below:

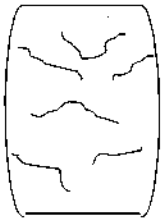
Br	Brittle	**PSD**	Particle Size Distribution by sieve analysis
C	Compound	**SB**	Shear Box
CBR	California Bearing Ratio	**SED**	Sedimentation Analysis
CDT	Consolidated Drained Triaxial	**SO4**	Sulphate (total, water extract, groundwater)
CL	Chloride content (water or soil)	**CP2**	Dry Density/Moisture Content 2.5kg rammer
US	Unsuitable sample for test	**CP4**	As above using 4.5kg rammer
UUT	Undrained Unconsolidated Triaxial	**CPV**	As above using vibrating hammer
HSV	Vane Test	**CUT**	Consolidated Undrained Triaxial
IS	Insufficient sample for test	**R**	Remoulded
LOI	Loss On Ignition	**U**	Undisturbed
M	Multi-stage testing	**MC**	Moisture Content
MCV	Moisture Content Value	**PL**	Point Load
NAT	Natural preparation method	**NMC**	Natural (or as received) moisture content
P	Plastic	**PFH**	Permeability Falling Head Method
OED	Oedometer	**PTXL**	Permeability in Triaxial Cell
OMC	Optimum Moisture Content	**ORG**	Organic content
B	Large disturbed (bulk) sample	**PD**	Particle Density (SG)
J	Small disturbed (jar) sample	**PI**	Liquid limit, plastic limit and plasticity index

Typical Mode of Failure for Triaxial Testing

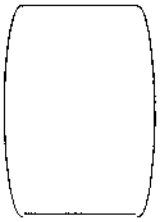
Brittle



Compound



Plastic



ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 **Fax:** 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 **Fax:** 01772 736 999

LABORATORY SAMPLE DESCRIPTION SHEET

Exploratory Hole No.	Sample Depth (m)	ID	Description	Laboratory Tests/Remarks
BH01	0.80	D	Brown slightly sandy slightly gravelly CLAY of high plasticity with occasional rootlets.	MC PI
BH01	2.55	UT	Medium strength grey CLAY of high plasticity. Sample includes shell fragments.	MC PI UUT
BH02	2.00	UT	Low strength brown slightly sandy CLAY.	UUT
BH03	2.00	UT	Low strength grey with brown mottling CLAY of very high plasticity.	MC PI UUT
BH04	1.65	B	Brown very clayey very gravelly SAND.	PSD
BH04	2.00	UT	Medium strength grey slightly sandy CLAY.	UUT
BH05	0.90	D	Brown sandy slightly gravelly CLAY of intermediate plasticity.	MC PI
BH05	2.00	UT	Low strength grey CLAY of high plasticity.	MC PI UUT
BH06	3.10	UT	Medium strength grey CLAY.	UUT
BH07	0.70	D	Brown sandy gravelly CLAY of low to intermediate plasticity.	MC PI
BH07	1.20	B	Brown clayey very sandy GRAVEL.	PSD
BH07	3.00	UT	Medium strength brown CLAY.	UUT
BH08	3.00	UT	Medium strength fissured grey CLAY of high plasticity.	MC PI UUT
BH09	3.00	UT	Low strength grey CLAY.	UUT
BH10	2.00	UT	Low strength grey CLAY of high plasticity.	MC PI UUT
BH11	4.20	UT	Medium strength grey slightly sandy CLAY.	UUT
BH12	0.80	D	Brown sandy gravelly CLAY of intermediate plasticity.	MC PI
BH13	4.10	UT	High strength grey slightly sandy slightly gravelly CLAY of high plasticity.	MC PI UUT
BH13	4.70	UT	Medium strength grey slightly gravelly CLAY.	UUT
BH14	2.90	UT	High strength grey slightly sandy slightly gravelly CLAY of high plasticity.	MC PI UUT
BH14	4.20	UT	Medium strength grey slightly sandy CLAY.	UUT

Contract Title :-	Client :-
The Promised Land Farm, Bicester	Terra Tek

Signed [redacted] Name :-

Date of issue :-	Certificate No :-	AEG Contract No. :-
24/07/2020	SD/SLS1191/1	SLS1191

UKAS TESTING 1367

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

LABORATORY SAMPLE DESCRIPTION SHEET

Exploratory Hole No.	Sample Depth (m)	ID	Description	Laboratory Tests/Remarks
BH15	2.00	UT	Low strength grey CLAY of high plasticity with an outer layer of brown sand and gravel.	MC PI UUT
BH15	3.90	UT	Medium strength grey CLAY.	UUT
TP101	1.40	B	Brown very silty very gravelly SAND.	PSD
TP104	1.60	B	Brown slightly clayey very sandy GRAVEL.	PSD
TP105	1.40	B	Brown slightly clayey very sandy GRAVEL.	PSD
TP107	1.30	B	Grey very silty SAND.	PSD

Contract Title :-	Client :-
The Promised Land Farm, Bicester	Terra Tek

Signed : [redacted]	Name :-		Page 2 of 2
Date of issue :- 24/07/2020	Certificate No :- SD/SLS1191/2	AEG Contract No. :- SLS1191	

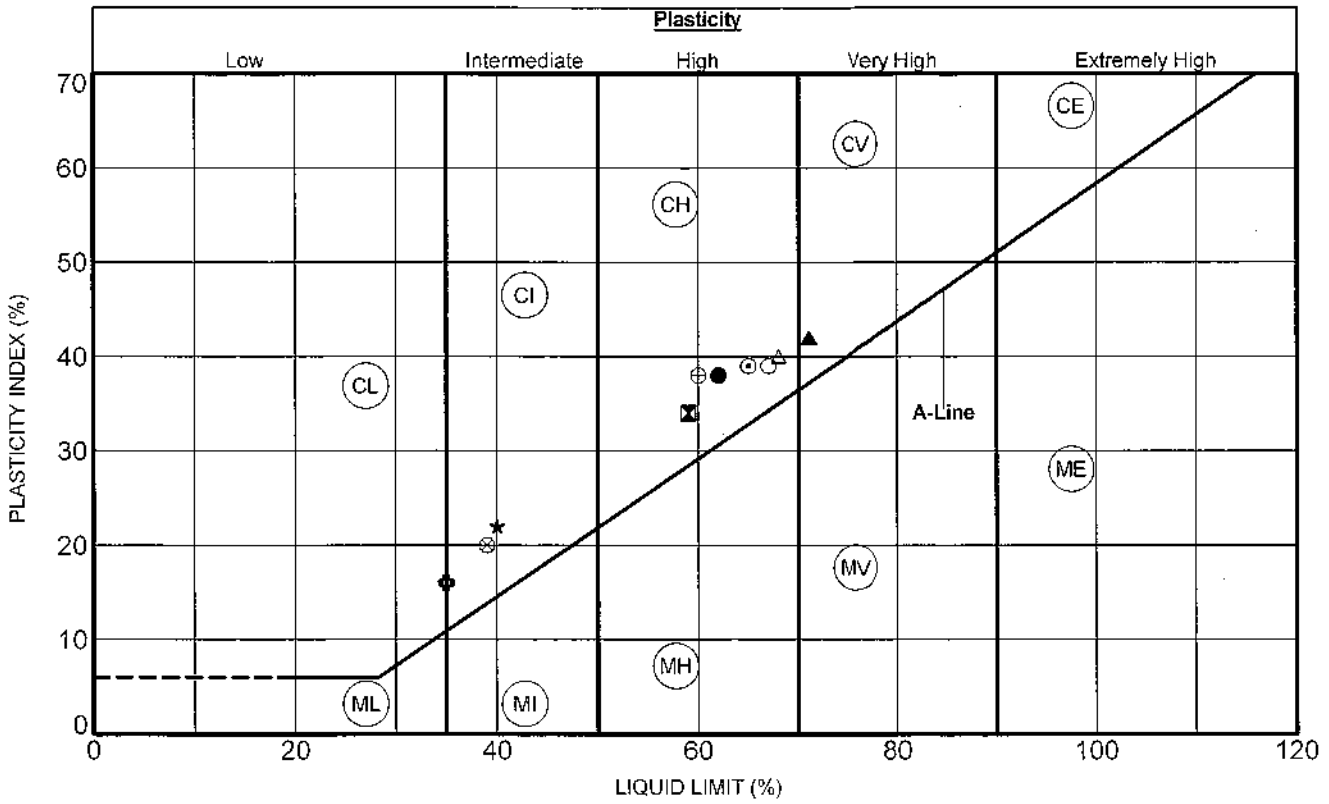
UKAS TESTING 1367

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham. DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

ATTERBERG LIMITS & NATURAL MOISTURE CONTENT

Test Method :- BS 1377 : Part 2 : Clause 3.2, 4.1 to 4.4 & 5 : 1990



Exploratory Hole No.	Depth (m)	Sample Type/Ref.	Specific Depth (m)	LL	PL	PI	I_L	Preparation Method	<0.425mm (%)	m/c (%)	Date Tested	Coarse Material Removed (%)
● BH01	0.80	D	0.80	62	24	38	0.02	Natural		24.6	17/07/2020	9
⊠ BH01	2.55	UT	2.55	59	25	34	-0.01	Natural		24.6	20/07/2020	4
▲ BH03	2.00	UT	2.35	71	29	42	0.20	Natural		37.4	17/07/2020	0
★ BH05	0.90	D	0.90	40	18	22	0.11	Natural		20.5	17/07/2020	1
⊙ BH05	2.00	UT	2.00	65	26	39	0.12	Natural		30.6	17/07/2020	1
❖ BH07	0.70	D	0.70	35	19	16	-0.01	Natural		18.8	17/07/2020	18
○ BH08	3.00	UT	3.00	67	28	39	0.12	Natural		32.5	17/07/2020	1
△ BH10	2.00	UT	2.30	68	28	40	0.05	Natural		30.0	17/07/2020	0
⊗ BH12	0.80	D	0.80	39	19	20	0.09	Natural		20.7	17/07/2020	10
⊕ BH13	4.10	UT	4.10	60	22	38	0.07	Natural		24.6	17/07/2020	1

For description of sample please refer to the Laboratory Sample Description Sheet. # = Insufficient for 4 point PI
If sample is prepared in the natural state we are unable to determine % retained on the 0.425mm test sieve.

Contract Title :-	Client :-
The Promised Land Farm, Bicester	Terra Tek

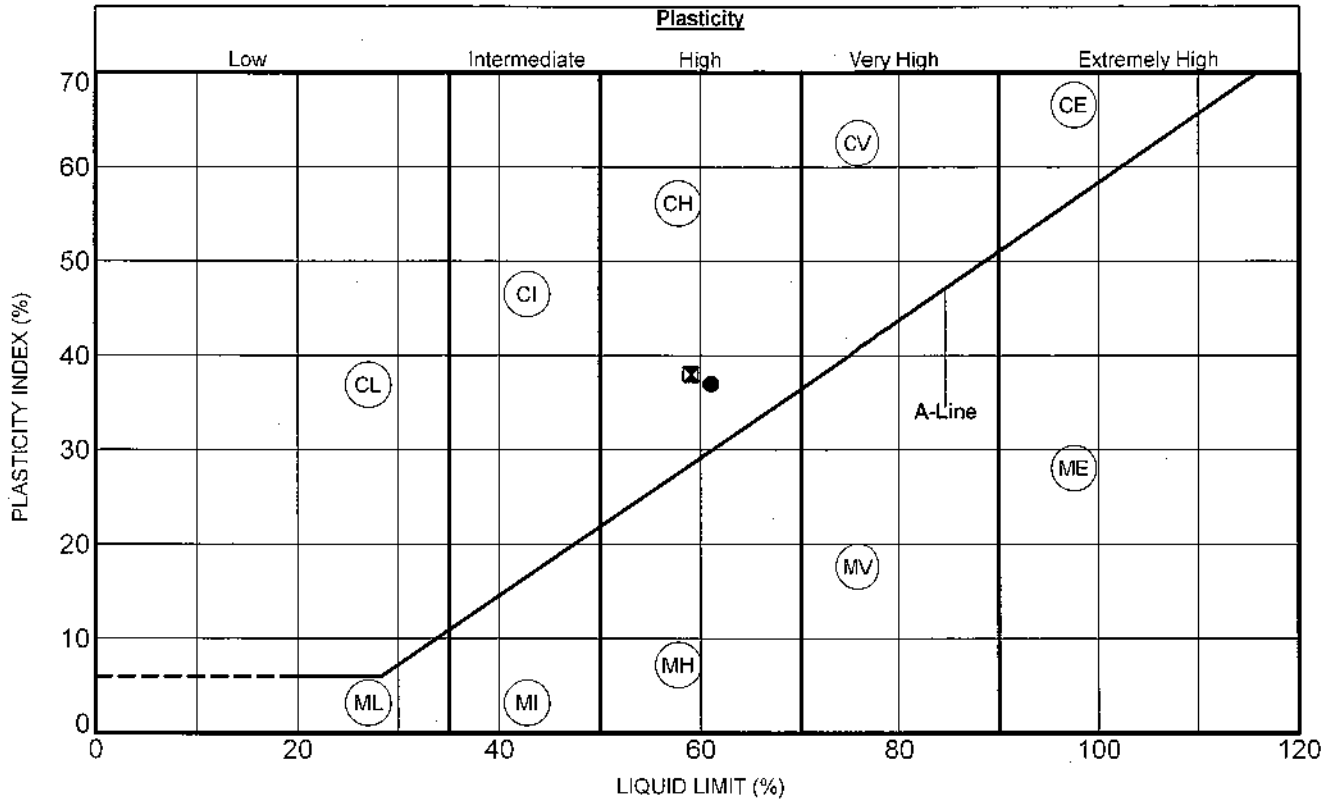
Signed : [redacted]	Name :-		Page 1 of 2
Date of issue :- 24/07/2020	Certificate No :- PI/SLS1191/1	AEG Contract No. :- **SLS1191**	UKAS TESTING 1367

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 26 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 736 999

ATTERBERG LIMITS & NATURAL MOISTURE CONTENT

Test Method :- BS 1377 : Part 2 : Clause 3.2, 4.1 to 4.4 & 5 : 1990



Exploratory Hole No.	Depth (m)	Sample Type/Ref.	Specific Depth (m)	LL	PL	PI	I_L	Preparation Method	<0.425mm (%)	m/c (%)	Date Tested	Coarse Material Removed (%)
● BH14	2.90	UT	2.90	61	24	37	0.09	Natural		27.3	20/07/2020	6
⊠ BH15	2.00	UT	2.00	59	21	38	0.18	Natural		27.9	20/07/2020	0

For description of sample please refer to the Laboratory Sample Description Sheet. # = Insufficient for 4 point PI
If sample is prepared in the natural state we are unable to determine % retained on the 0.425mm test sieve.

Contract Title :-	Client :-
The Promised Land Farm, Bicester	Terra Tek

Signed :- [redacted]	Name :-		Page 2 of 2
Date of issue :- 24/07/2020	Certificate No :- PI/SLS1191/2	AEG Contract No. :- **SLS1191**	UKAS TESTING 1367

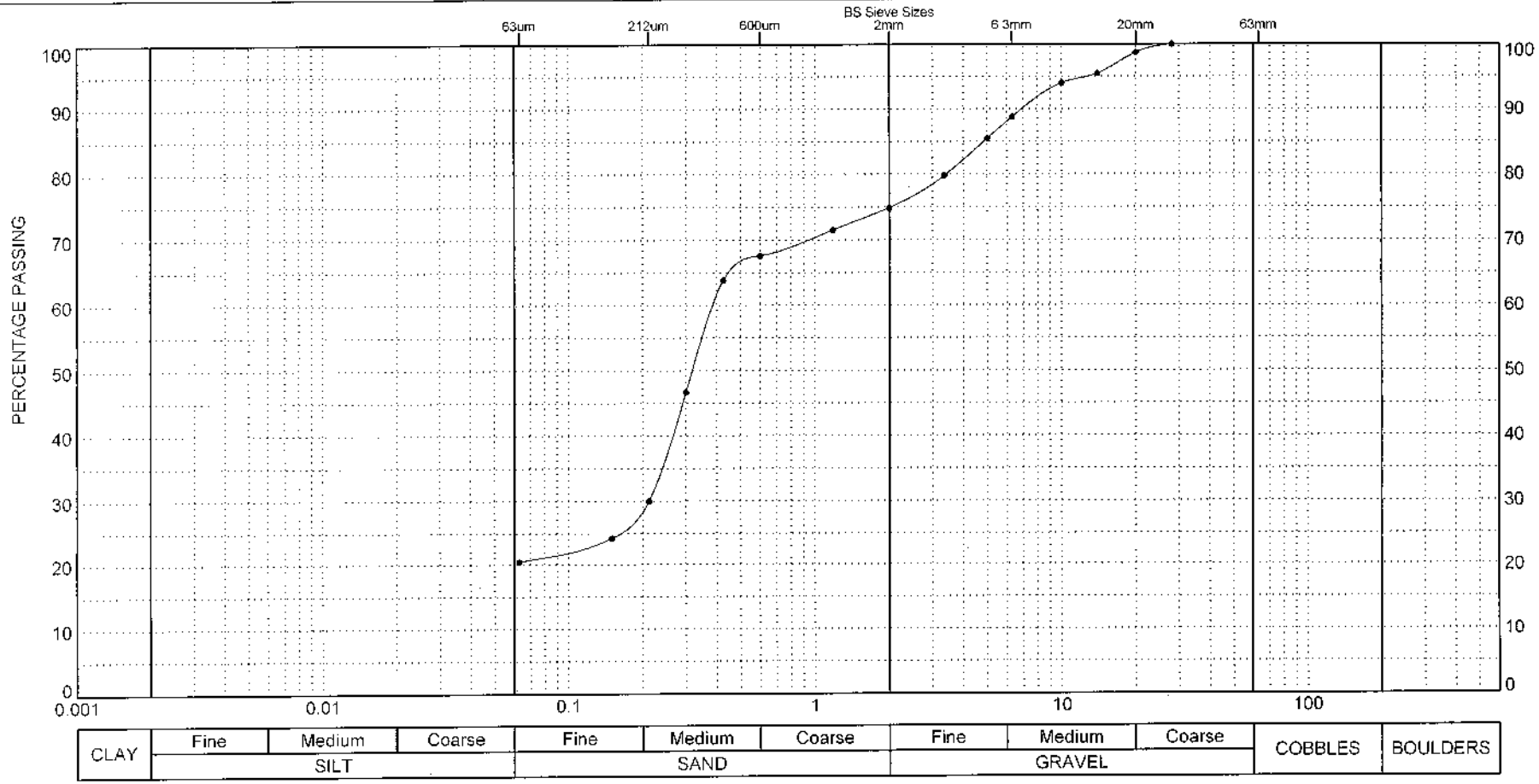
ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

PARTICLE SIZE DISTRIBUTION

BS1377 : Part 2 : Clause 9.2 & 9.4 : 1990

Exploratory Hole No :- **BH04**	Depth (m) :- **1.65**	Sample Type & No :- **B**	Specific Depth (m) :- **1.65**	Date Tested :- **21/07/2020**



Sieve Size (mm)	Passing (%)
28	100.0
20	98.7
14	95.5
10	94.0
6.3	88.8
5	85.5
3.35	79.8
2	74.9
1.18	71.5
0.6	67.6
0.425	63.9
0.3	46.7
0.212	30.0
0.15	24.3
0.063	20.4

For description of sample please refer to the Laboratory Sample Description Sheet

Date of issue :-	Certificate No :-	Signed :-	Name :-	Page 1 of 1
23/07/2020	PSD/SLS1191/BH04/B/1.65	[redacted]		

Client :-	Contract Title :-	AEG Contract No :-
Terra Tek	The Promised Land Farm, Bicester	SLS1191

UKAS TESTING 1367

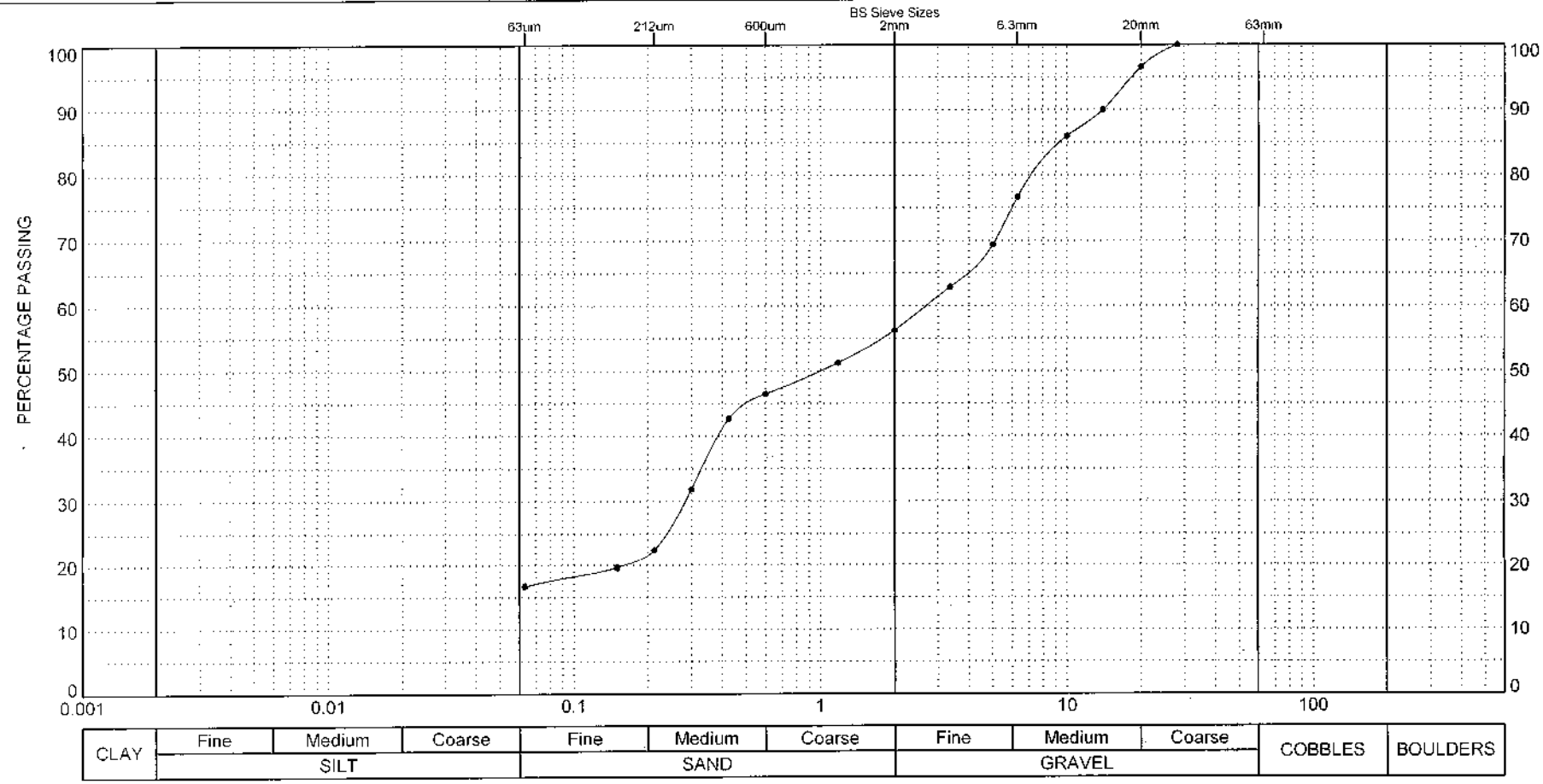
ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

PARTICLE SIZE DISTRIBUTION

BS1377 : Part 2 : Clause 9.2 & 9.4 : 1990

Exploratory Hole No :- **BH07**	Depth (m) :- **1.20**	Sample Type & No :- **B**	Specific Depth (m) :- **1.20**	Date Tested :- **21/07/2020**



Sieve Size (mm)	Passing (%)
28	100.0
20	96.6
14	90.0
10	86.0
6.3	76.7
5	69.4
3.35	62.9
2	56.3
1.18	51.3
0.6	46.5
0.425	42.7
0.3	31.9
0.212	22.6
0.15	19.7
0.063	16.8

For description of sample please refer to the Laboratory Sample Description Sheet

Date of issue :-	Certificate No :-	Signed :-	Name :-	Page 1 of 1
23/07/2020	PSD/SLS1191/BH07/B/1.20	[redacted]	[illegible]	

Client :-	Contract Title :-	AEG Contract No :-
Terra Tek	The Promised Land Farm, Bicester	SLS1191

UKAS TESTING 1367

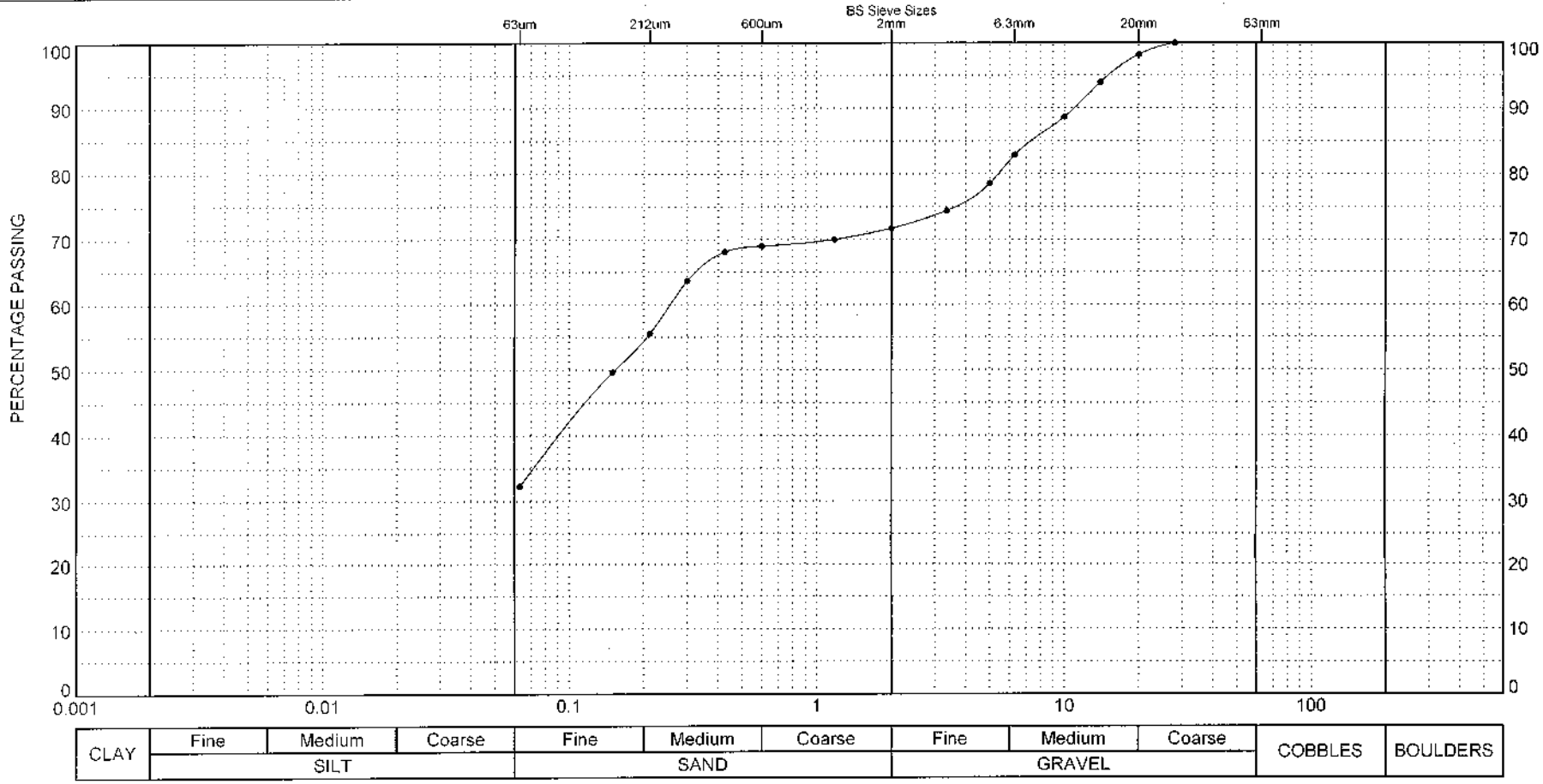
ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 900 Fax: 01772 735 999

PARTICLE SIZE DISTRIBUTION

BS1377 : Part 2 : Clause 9.2 & 9.4 : 1990

Exploratory Hole No :- **TP101**	Depth (m) :- **1.40**	Sample Type & No :- **B**	Specific Depth (m) :- **1.40**	Date Tested :- **21/07/2020**



Sieve Size (mm)	Passing (%)
28	100.0
20	98.2
14	94.0
10	88.7
6.3	82.9
5	78.6
3.35	74.4
2	71.7
1.18	70.0
0.6	69.0
0.425	68.1
0.3	63.7
0.212	55.6
0.15	49.7
0.063	32.3

For description of sample please refer to the Laboratory Sample Description Sheet

Date of issue :-	Certificate No :-	Signed :-	Name :-	Page 1 of 1
23/07/2020	PSD/SLS1191/TP101/B/1.40	[redacted]		

Client :-	Contract Title :-	AEG Contract No :-
Terra Tek	The Promised Land Farm, Bicester	SLS1191

UKAS TESTING 1367

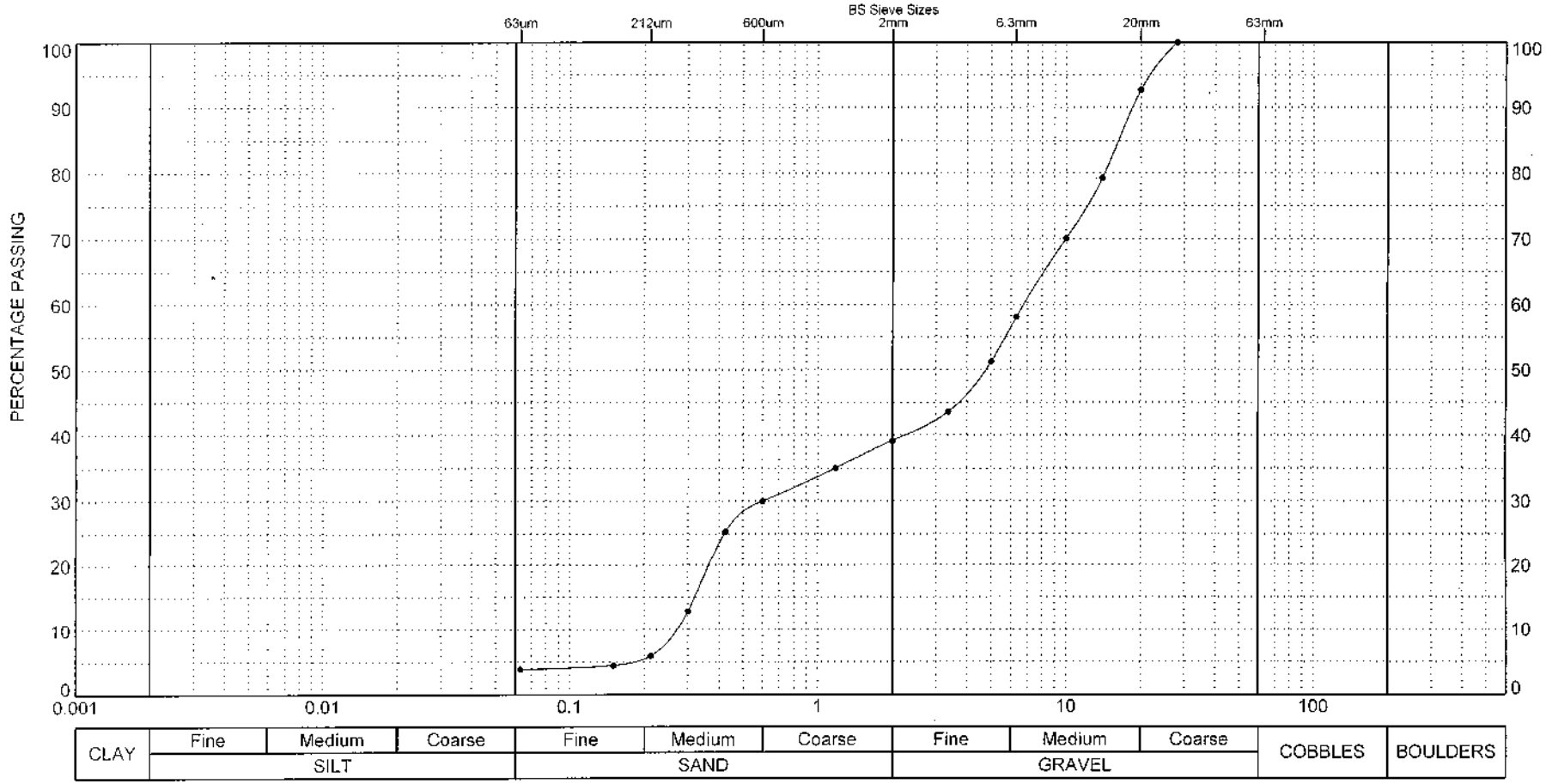
ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Skreet, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

PARTICLE SIZE DISTRIBUTION

BS1377 : Part 2 : Clause 9.2 & 9.4 : 1990

Exploratory Hole No :- **TP104**	Depth (m) :- **1.60**	Sample Type & No :- **B**	Specific Depth (m) :- **1.60**	Date Tested :- **21/07/2020**



Sieve Size (mm)	Passing (%)
28	100.0
20	92.7
14	79.3
10	70.1
6.3	58.1
5	51.3
3.35	43.6
2	39.2
1.18	35.0
0.6	30.0
0.425	25.4
0.3	12.9
0.212	6.0
0.15	4.5
0.063	3.9

For description of sample please refer to the Laboratory Sample Description Sheet

Date of issue :-	Certificate No :-	Signed	Name :-	Page 1 of 1
23/07/2020	PSD/SLS1191/TP104/B/1.60	[redacted]		

Client :-	Contract Title :-	AEG Contract No :-
Terra Tek	The Promised Land Farm, Bicester	SLS1191

UKAS TESTING 1367

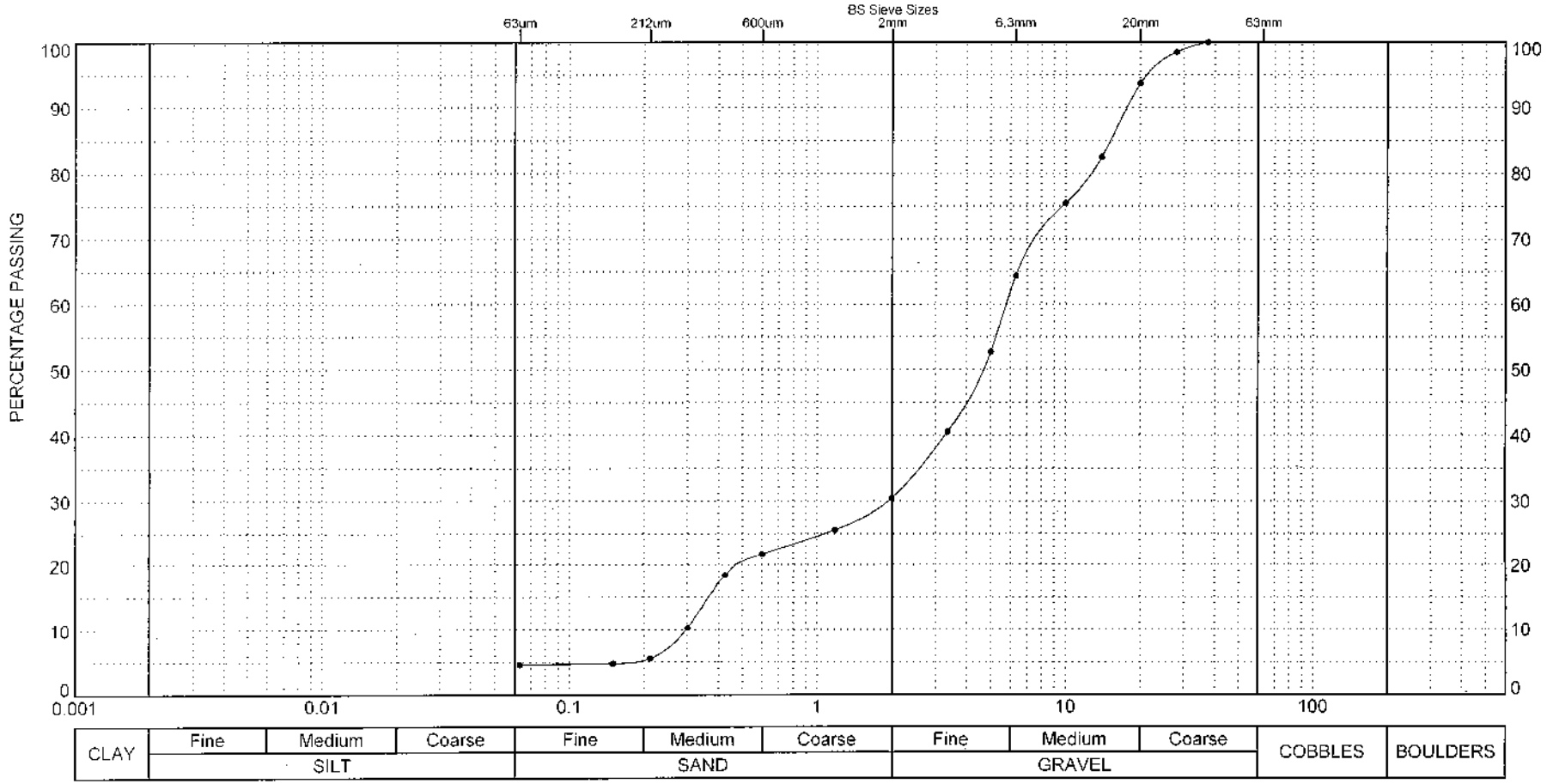
ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

PARTICLE SIZE DISTRIBUTION

BS1377 : Part 2 : Clause 9.2 & 9.4 : 1990

Exploratory Hole No :- TP105	Depth (m) :- 1.40	Sample Type & No :- B	Specific Depth (m) :- 1.40	Date Tested :- 21/07/2020



Sieve Size (mm)	Passing (%)
37.5	100.0
28	98.5
20	93.7
14	82.5
10	75.5
6.3	64.4
5	52.8
3.35	40.6
2	30.5
1.18	25.6
0.6	21.9
0.425	18.5
0.3	10.3
0.212	5.6
0.15	4.8
0.063	4.6

For description of sample please refer to the Laboratory Sample Description Sheet

Date of issue :-	Certificate No :-	Signed :-	Name :-	Page 1 of 1
23/07/2020	PSD/SLS1191/TP105/B/1.40	[redacted]	[illegible]	

Client :-	Contract Title :-	AEG Contract No :-
Terra Tek	The Promised Land Farm, Bicester	SLS1191

UKAS TESTING 1367

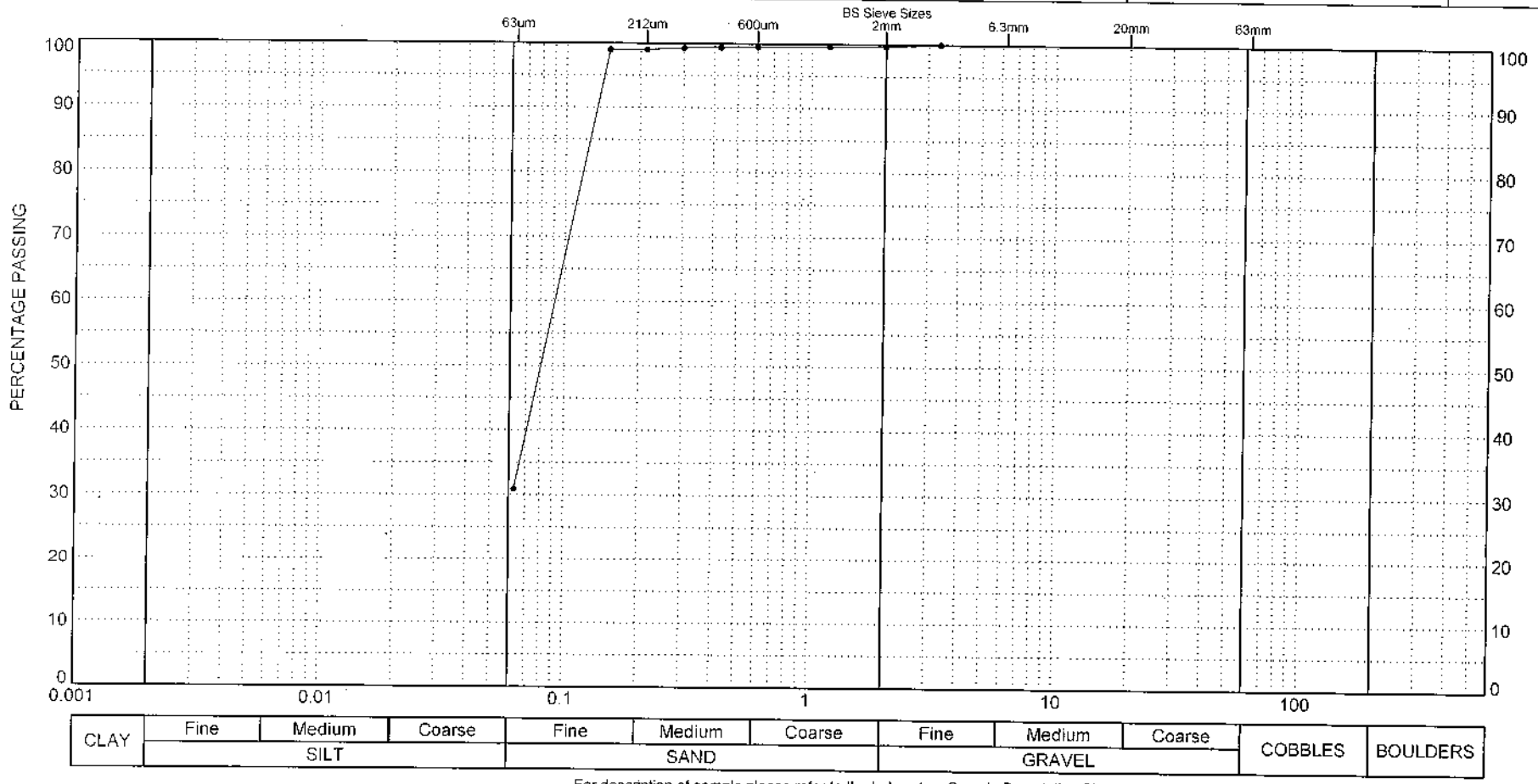
ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

PARTICLE SIZE DISTRIBUTION

BS1377 : Part 2 : Clause 9.2 & 9.4 : 1990

Exploratory Hole No :- **TP107**	Depth (m) :- **1.30**	Sample Type & No :- **B**	Specific Depth (m) :- **1.30**	Date Tested :- **21/07/2020**



Sieve Size (mm)	Passing (%)
3.35	100.0
2	99.7
1.18	99.6
0.6	99.5
0.425	99.4
0.3	99.3
0.212	99.0
0.15	99.0
0.063	30.9

For description of sample please refer to the Laboratory Sample Description Sheet

Date of issue :-	Certificate No :-	Signed :-	Name :-	Page 1 of 1
23/07/2020	PSD/SLS1191/TP107/B/1.30	[redacted]	[redacted]	

Client :-	Contract Title :-	AEG Contract No :-
Terra Tek	The Promised Land Farm, Bicester	SLS1191

UKAS TESTING 1367

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

BS 1377 : Part 7 : Clauses 8 & 9 : 1990 Part 2 Clause 3.2

Exploratory Hole	Sample ID Depth (m)	Sample ID Type	Specific Depth (m)	Diameter (mm)	Length (mm)	Prep. Method	Stage No.	Initial Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Membrane Thickness (mm)	Membrane Correction (kPa)	Cell Pressure (kPa)	Corrected Deviator Stress (kPa)	Failure Strain (%)	Mode of Failure	cu (kPa)	Date Tested
BH01	2.55	UT	2.75	102.4	210.3	UNDISTURBED	1	24.6	1.96	1.57	0.3	0.30	50	93	10.0	C	46	17/07/2020
BH02	2.00	UT	2.15	99.5	210.6	UNDISTURBED	1	31.0	1.92	1.46	0.3	0.78	40	65	12.0	C	32.5	20/07/2020
BH03	2.00	UT	2.10	102.8	210.5	UNDISTURBED	1	38.6	1.86	1.34	0.4	0.89	40	62	10.0	C	31	17/07/2020
BH04	2.00	UT	2.00	103.0	210.7	UNDISTURBED	1	27.3	1.95	1.53	0.3	0.53	40	138	7.5	C	69	20/07/2020
BH05	2.00	UT	2.15	102.5	212.8	UNDISTURBED	1	32.6	1.89	1.43	0.3	0.76	40	71	12.0	C	35.5	17/07/2020
BH06	3.10	UT	3.20	102.5	211.0	UNDISTURBED	1	31.5	1.90	1.44	0.4	1.45	60	88	19.5	C	44	20/07/2020
BH07	3.00	UT	3.20	101.4	210.6	UNDISTURBED	1	30.9	1.91	1.46	0.3	0.47	60	103	6.5	BR	51.3	20/07/2020
BH08	3.00	UT	3.25	98.9	211.3	UNDISTURBED	1	31.7	1.90	1.44	0.4	0.98	60	98	11.0	C	49.1	17/07/2020
BH09	3.00	UT	3.05	101.9	211.2	UNDISTURBED	1	29.2	1.91	1.48	0.4	0.50	60	78	5.0	BR	39	20/07/2020
BH10	2.00	UT	2.05	102.2	211.5	UNDISTURBED	1	27.7	1.98	1.55	0.3	1.04	40	76	18.5	C	38.2	17/07/2020
BH11	4.20	UT	4.30	102.5	212.4	UNDISTURBED	1	24.6	2.00	1.61	0.3	0.53	85	133	7.5	BR	66.6	20/07/2020
BH13	4.10	UT	4.35	102.9	211.9	UNDISTURBED	1	24.3	2.01	1.62	0.4	0.40	80	223	9.0	C	112	17/07/2020
BH13	4.70	UT	4.73	101.8	211.0	UNDISTURBED	1	26.6	1.95	1.54	0.4	0.84	90	145	9.5	C	72.7	20/07/2020
BH14	2.90	UT	3.15	102.2	210.5	UNDISTURBED	1	27.3	1.90	1.49	0.3	0.61	60	167	9.0	C	83.3	17/07/2020
BH14	4.20	UT	4.21	103.8	211.0	UNDISTURBED	1	28.5	1.91	1.49	0.4	0.80	85	116	9.0	BR	57.9	20/07/2020

For description of sample please refer to the Laboratory Sample Description Sheet. Please note the rate of strain was 2% per minute and the orientation of the test specimen was vertical. Latex membrane used.

Date of issue :- 24/07/2020	Certificate No :- TXL/SLS1191/1	Signed : [redacted]	Name :-
Client :- Terra Tek	Contract Title :- The Promised Land Farm, Bicester		AEG Contract No :- SLS1191

UKAS TESTING 1367

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

BS 1377 : Part 7 : Clauses 8 & 9 : 1990 Part 2 Clause 3.2

Exploratory Hole	Sample ID Depth (m)	Sample ID Type	Specific Depth (m)	Diameter (mm)	Length (mm)	Prep. Method	Stage No.	Initial Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Membrane Thickness (mm)	Membrane Correction (kPa)	Cell Pressure (kPa)	Corrected Deviator Stress (kPa)	Failure Strain (%)	Mode of Failure	cu (kPa)	Date Tested
BH15	2.00	UT	2.00	99.8	213.2	UNDISTURBED	1	27.9	1.92	1.50	0.4	1.52	40	71	20.0	C	35.4	17/07/2020
BH15	3.90	UT	3.93	103.0	210.6	UNDISTURBED	1	26.9	1.92	1.51	0.4	0.40	80	119	8.0	C	59.7	20/07/2020

For description of sample please refer to the Laboratory Sample Description Sheet. Please note the rate of strain was 2% per minute and the orientation of the test specimen was vertical. Latex membrane used.

Date of issue :- 23/07/2020	Certificate No :- TXL/SLS1191/2	Signed :- [redacted]	Name :-	Page 2 of 2
Client :- Terra Tek	Contract Title :- The Promised Land Farm, Bicester			AEG Contract No :- SLS1191

UKAS TESTING 1367

APPENDIX F

APPENDIX F

STANDARD FIELDWORK AND ASSESSMENT PROCEDURES

Scope of Work

The scope of work undertaken is defined in Section 1 of the Report. It should be noted that Applied Geology Limited does not provide arboricultural surveys, specialist surveys for the detection of invasive plant species (such as Japanese Knotweed) or protected species of wildlife. Information from environmental and ecological datasets is included from a review of the MAGIC (Multi-Agency Geographic Information for the Countryside) website, however, if a full assessment of Environmental or Ecological aspects is required, it is recommended that other specialists are consulted. Similarly, information on flood risk is included; obtained from the Environment Agency Web site and the GroundSure report; but this is not intended to be a full hydrological study and, if a flood risk assessment is needed, additional analysis by others is recommended to confirm this aspect of the development. Also, whilst our field staff have undergone asbestos awareness training, Applied Geology does not undertake asbestos surveys or provide specific advice relating to asbestos-containing materials. Any suspected asbestos-containing materials observed by our field staff will be mentioned in the report but further assessment by others may be required.

Fieldwork

Fieldwork is generally carried out in accordance with BS5930 (2015) “Code of Practice for Site Investigations” and BS10175 (2011) Investigation of Potentially Contaminated Sites, unless otherwise stated.

Prior to commencement on site, statutory services plans are generally obtained and verbal enquiries are also made regarding the positions of private or statutory services on site. Prior to excavation or drilling, locations are scanned with a cable avoidance tool (CAT) and service pits are generally excavated at borehole positions, where possible.

Descriptions and depths of the various strata recovered are presented on the exploratory hole records, reproduced in the report appendices, together with sample depths, the results of in-situ testing, comments on groundwater inflows, and any other pertinent information. The strata descriptions are in general accordance with BS5930:2015. Disturbed plastic pot and glass amber jar samples are recovered from the various strata and stored and transported in cool boxes, where relevant, for possible future laboratory testing.

Light cable percussion boreholes are generally drilled using a Pilcon Wayfarer or Dando rig and are advanced using equipment to bore 200/150mm diameter boreholes. Disturbed plastic pot samples are recovered from all deposits encountered to allow examination and laboratory testing. Certain strata are cased off due to their tendency to collapse, particularly in the presence of groundwater inflows and/or to reduce the risk of cross contamination. In situ Standard Penetration Tests, using Split Spoon (SPT) and Cone (CPT) are undertaken in the boreholes to provide a measure of the relative density of the granular (coarse grained) deposits or shear strength of the clay/chalk/ weathered rock deposits using industry recognised correlation guidelines of shear strength against SPT “N” value results. Within the fine grained (cohesive) deposits, “undisturbed” 100mm driven open tube samples were recovered from the various deposits to provide samples for examination and laboratory testing. On encountering groundwater, boring is usually suspended for 20 minutes while any rise in water level is recorded. Full details of the groundwater observations and monitoring results during boring operations are included on the borehole records. All boreholes without monitoring wells installed are usually backfilled with arisings upon completion, unless otherwise stated on the individual logs.

Unless otherwise stated on the relevant logs, trial pits are excavated using a wheeled backhoe excavator, usually with a 0.6m wide bucket. The excavations are logged from the ground surface by an Engineering Geologist / Geo-environmental Engineer and relevant field testing, appropriate to the soils encountered, is carried out on samples brought to the surface. Representative disturbed soil

samples are collected from selected horizons for subsequent laboratory testing. The trial pits are usually unshored and where reasonable, left open for a period of time to allow observations of pit stability and depth and inflow rate of any groundwater ingress. The excavations are backfilled with arisings prior to moving on to the next position. Any trial pits carried out as part of this or previous investigations may represent soft spots and conduits/sumps for groundwater or surface water. In excavations, such materials may also be loose and unstable.

Driven Continuous Sampling (DCS) boreholes are drilled using a track mounted Global mini-rig or similar using sampling tubes of varying diameter (decreasing with depth). Samples of the deposits encountered are recovered in 1m long clear plastic liners, which are logged and sub-sampled on site by an Engineering Geologist. Generally for geotechnical investigations, during the drilling process in-situ Standard Penetration Tests (SPTs) are undertaken at selected depths to provide a measure of the relative density of the granular (coarse grained) deposits or shear strength of the clay/chalk/ weathered rock deposits using industry recognised correlation guidelines of shear strength against SPT “N” value results. Groundwater seepages are noted during drilling if encountered. All boreholes without monitoring wells installed are usually backfilled with arisings upon completion.

Unless specifically stated in the report, exploratory hole locations should be regarded as approximate. Consideration should be given to accurate location of the exploratory holes where it is considered they may impact on proposed development.

It should be noted that groundwater levels at any particular site may fluctuate due to rainfall, seasonal variations etc and, therefore, levels may be different to those measured during the course of the fieldwork and monitoring period.

Laboratory Testing

The geotechnical testing was carried out in accordance with BS 1377:1990 Method of Tests for Soils for Civil Engineering Purposes and was undertaken by a UKAS accredited specialist laboratory. Chemical testing was undertaken by a UKAS accredited specialist chemical testing laboratory and MCERTS accredited methods, in accordance with Environment Agency recommendations, were specified where available.

Contamination Assessment – Human Health

Applied Geology Limited has followed the guidance given in the CLR 11 publication and other available guidance to assess the contaminant concentrations. Details of the methodology followed are briefly outlined below.

The available chemical data is sorted into appropriate datasets depending on sampling regime and ground conditions. An initial generic quantitative risk assessment is undertaken on this data using statistical tests, where appropriate, and relevant screening values. Risk to human health has been initially assessed by comparing soil results against various published screening criteria. These have been sourced from the following, in order of preference:

- DEFRA. Category 4 Screening Levels (C4SL), March 2014;
- LQM/CIEH S4UL for Human Health Risk Assessment (S4UL), 2015*;
- Environment Agency/DEFRA, Soil Guideline Values (SGV) published in 2009;
- EIC/AGS/CL:AIRE Soil Generic Assessment Criteria (GAC), 2010.

*- © Land Quality Management Limited reproduced with permission; Publication Number S4UL3159. All rights reserved

Except for lead and benzo(a)pyrene, the assessments will be carried out by comparing results against the LQM/CIEH S4UL in the first instance, where these values are exceeded, then reference will be made to the C4SLs where such exist. Lead will only be compared to the C4SL because no S4UL exists for lead. For Benzo(a)pyrene, Applied Geology has chosen to adopt the approach presented by the C4SL committee rather than the approach proposed by LQM/CIEH. Further discussion on this is presented below.

It is our view, and the view of others in the industry, that the C4SL were derived for use in both the Part IIA system and through the planning system, as they allow identification of those sites that fall within Category 4 (not contaminated) and are therefore able to be developed with no further remedial action. The C4SLs are considered to represent a contamination level that is 'low' from a toxicological view point, which we therefore consider to be 'acceptable' under planning.

Historically, the level of contamination has been assessed with reference to SGV values which were derived to represent a 'minimal' level of contamination. The SGVs are still valid and can be used alongside C4SL, however both screening values are only intended to provide guidance as to the level of contamination and, where concentrations fall below these screening values, the site is not contaminated (and is within Category 4). Exceedance of a SGV/S4UL/C4SL does not automatically indicate that an 'unacceptable' risk exists at a site; simply that further consideration of that particular contaminant is required.

At this time, there are two toxicological methodologies that can be used in the derivation of screening criteria for PAHs; Relative Potency Factor (RPFs) or the Surrogate Marker approach. Applied Geology has chosen (based on the latest guidance from the Health Protection Agency (HPA) to use the surrogate marker approach proposed in the C4SL methodology, whereby benzo(a)pyrene can be used as a surrogate marker for all 'genotoxic' (gene damaging) PAHs. The surrogate marker approach estimates the toxicity of a mixture of PAHs in an environmental matrix by using data from toxicity studies in which a PAH mixture of known composition was tested. Exposure to the surrogate marker benzo(a)pyrene is assumed to represent exposure to all the PAHs in the environmental matrix. Thus, the level of toxicity ascribed to the surrogate represents the toxicity of the PAH mixture. This allows an assessment of the combined carcinogenic risk associated with genotoxic PAHs using only benzo(a)pyrene. In order to confirm that the mixture of genotoxic PAH in the soil is similar to the coal tar mixture used in the toxicological study, various PAH ratios are plotted and checked to see that they fall within the limits set in HPA, 2010.

Contamination Assessment – Water Quality

Risks to water quality has been assessed by following the Environment Agency guidance on groundwater protection (previously known as GP3), updated on their website in March 2017, see https://www.gov.uk/government/policies/water-quality and 'The Environment Agency's approach to groundwater protection' (March 2017 Version 1.0).

For hazardous substances, which should be prevented from entering groundwater, the screening criteria are initially set as the limit of detection, however, if groundwater has already been impacted, an appropriate environmental standard will then be used. For hazardous substances, background quality may also be taken into account.

For non-hazardous compounds, their release should not result in any pollution or significant risk of pollution in the future, as such comparison with UK DWS or EQS standards will allow determination of whether pollution could occur. Typically screening criteria will be sourced from the following:

- Environmental Standards (ES), which are defined in European legislation such as the Water Framework Directive (WFD) (2000/60/EC) and the Priority Substances Directive (PSD) (2008/105/EC) a daughter directive of the WFD.
- The River Basin Districts Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) Direction, 2010.
- UK Water Supply (Water Quality) Regulations, 2010.
- UK quality standards for water to be used for direct abstraction to potable supply e.g. Surface Water (Abstraction for Drinking Water) (Classification) Regulations, 1996.
- World Health Organisation (WHO) Guidelines for Drinking Water Quality.

Re-use of Soils and Waste Soil Disposal

It is noted that if any excavated material is to be reused on site, a Waste Management Plan (WMP) and / or a Materials Management Plan (MMP) will probably be required. Any such materials must be suitable for re-use without further treatment, and only the quantity necessary for the specified works should be used. Any materials not within these definitions may need to be considered as waste whereby a Waste Management Licence Exemption may also be required.

A specific categorisation and assessment of potential waste soils arising from the proposed development has not been undertaken as part of the investigation, unless otherwise detailed in the report text. However, generic comments and advice are made below for the reader.

All waste soils should be sorted to prevent mixtures of waste types. Where possible, any waste soil should be recycled and the volume of soil to be disposed of should be minimised. Any excavated soil material and excess spoil disposed of off-site should be treated as Waste and classified as Inert, Non-hazardous or Hazardous, prior to removal from site, as required by the “Duty of Care” (Environmental Protection Act, 1990) legislation together with Annex II of Directive 1999/31/EC (“Landfill Directive”). Initially, Basic Characterisation of the waste is required whereby the material should be described and its source of origin recorded (a site plan, exploratory hole records and the certificates of chemical analysis in this report should be included). This should also include data on its composition and leaching behaviour, its European Waste Catalogue (EWC) code, and where relevant any hazardous properties according to Annex III of Directive 91/689/EEC. This information should be provided to the licensed waste contractor.

Soils excavated on many sites would generally fall under the EWC description “Soil and Stones”, EWC code 17 05 04. Waste Acceptance Criteria (WAC) testing is required for many Inert wastes and generally for all Hazardous Waste but not for non-hazardous waste. There are certain restrictions for inert wastes regarding topsoil and peat. Any asbestos must be disposed of by suitably licensed contractors to a suitably licensed facility.

Health & Safety Aspects

As outlined within the HSE publication ‘Successful Health and Safety Management - HSG65’, this report should inform your development of safe systems of work and information as an input into the safety management system.

When developing risk control systems we suggest making reference to the CIRIA report 132 "A guide for safe working on contaminated sites" and the HSE document "Protection of workers and the general public during the development of contaminated land – HSG66". All risk control measures should be in accordance with the guidelines laid down within the Management of Health and Safety at Work Regulations 1999.

The contents of this report may be used to supplement the contents of the Health and Safety File as required under the Construction Design and Management (CDM) Regulations.

Where excavations are undertaken on site, trench support or the angle of batter should be designed by an appropriately qualified engineer or competent person to suit the required depth and the ground and groundwater conditions. Care should be taken when digging excavations to prevent undermining or causing loss of support to the foundations of the nearby adjoining structures. Surcharging such as from spoil or vehicle movements close to excavation sides should be avoided. Practical guidance on trench excavation is given in CIRIA Report 97 Trenching Practice. Guidance on groundwater control is given in CIRIA Report 113 Control of groundwater for temporary works. Temporary works should be designed by a suitably qualified engineer or a competent person particularly where personnel access is necessary, in accordance with the requirements of the Construction (Design and Management) (CDM) Regulations.