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## TECHNICAL NOTE

### ADDENDUM TO GROUND INVESTIGATION REPORT, SYMMETRY PARK, OXFORD- Rev. A.

<b>Client:</b>	Tritax Symmetry Ltd	<b>Version:</b>	Final
<b>Reference:</b>	TE1585-TE-00-XX-TN-GE-001-V01	<b>Author:</b>	Spyridon Theodoridis/Jenny Mullen
<b>Date:</b>	23/8/22	<b>Approved:</b>	Jenny Mullen

#### ***RE: Investigation of Historical Foot and Mouth Pyre***

##### **1. Introduction**

Tier Environmental was instructed by Tritax Symmetry Ltd (the Client) to undertake a ground investigation of an historic foot and mouth pyre at the proposed Symmetry Park, Oxford (the Site). The Site is located at Grange Farm, Little Chesterton, Bicester, Oxfordshire, OX25 3PD and shown in Drawing No. TE1585-TE-00-XX-DR-GE-001-V01 (Appendix A).

The proposed development comprises the erection of a combined research, development, and production facility together with associated infrastructure and the realignment of an existing watercourse.

This technical note presents the results of the investigation to locate and determine the extent of the historic foot and mouth pyre. This investigation was undertaken following the Preliminary Risk Assessment and ground investigation of the wider Site which is detailed in the following Tier Environmental reports:

- Preliminary Risk Assessment Report Unit 1 Oxford North, Symmetry Park, Oxfordshire v. 3.0 (TE1585-TE-00-XX-GE-001-VO2)
- Ground Investigation Report for Oxford North, Symmetry Park V.4 (TE1585-TE-00-RP-GE-004-VO4)

##### **2. Site Works**

The Ground Investigation was conducted between the 7<sup>th</sup> and 9<sup>th</sup> February 2022 and was supervised by a suitably qualified Tier Environmental engineer. The investigation comprised:

- 5 No. machine excavated trenches from north to south to confirm the location of residual material from a foot and mouth pyre

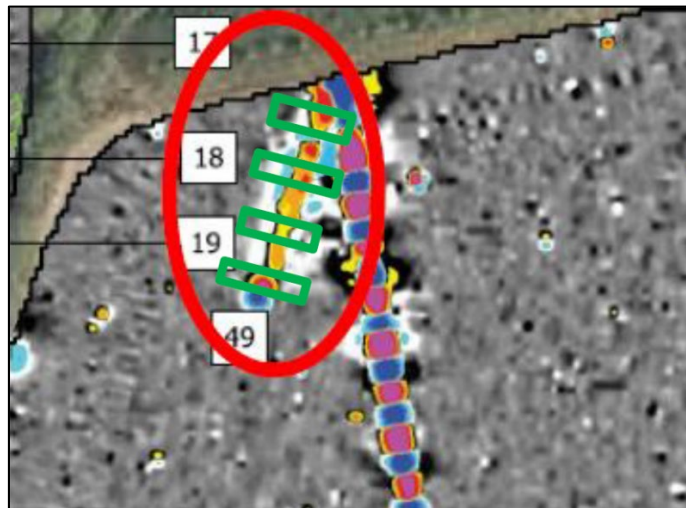


- 8 No. windowless sample boreholes (WS7 to WS14) within the trenches directly through the pyre material to determine the extent of any ash associated with the pyre and facilitate environmental soil sampling.
- 5 No. windowless sample boreholes (WS15 to WS19) around the perimeter of the pyre to allow for environmental sampling and installation of combined gas and groundwater monitoring wells.

### 3. Geophysical Survey

A geophysical survey of the Site was undertaken by TigerGeo in August 2021. The survey identified an anomaly in the vicinity of the suspected foot and mouth pyre (Figure 1). Results of the survey are presented in 'Junction 9, M40, Bicester, Geophysical Survey Report' (TigerGeo Ltd, 2021).

Figure 1. Possible location of the Foot and Mouth Pyre.



### 4. Ground Conditions

#### Trenches

5 No. trenches (Trenches 1 to 5) were excavated perpendicular to the line of the foot and mouth pyre to depths of circa 0.30m below ground level (bgl) or until a distinct change in colour (denoting a burial scar) was observed in the soils. The locations of the trenches are shown on the Exploratory Hole Plan in Appendix A, Drawing No. TE1585-TE-00-XX-DR-GE-001\_FOOT & MOUTH LP. Photos of the trenches are presented in Appendix C.

The width of the residual foot and mouth pyre was found to range between 2.10m in the north and 1.30m in the south with an average width of circa 1.90m.

The pyre scar was not identified in Trench 5. Extension of Trench 4 revealed the southernmost extent of the pyre at approximately 44.00m southwest of the existing fence line.



A trench was extended to the north, up to the existing fence line and the material associated with the pyre was observed to continue beyond. The northern extent of this material, adjacent to the fence line was located approximately 36.80m from the western corner of the field in which the pyre is located.

On completion of the excavations the trenches were backfilled with arisings.

### **Window Sampling**

In 5 No. window sample locations (WS7, WS8, WS12, WS13 and WS14) a layer of black sandy gravel of clinker was encountered (Made Ground 2), anticipated to be associated with the pyre, recording thicknesses of between 0.20m to 0.35m. The clinker was overlain by topsoil and Made Ground described as greyish brown and dark brown silty and sandy clay.

Table 1 shows a summary of the strata encountered at these locations. The locations of the window sample boreholes are shown in Appendix A, Drawing TE1585-TE-00-XX-DR-GE-001\_FOOT & MOUTH LP.

Arisings were placed on a tarpaulin sheet which was disinfected with EndoSan50 solution after sampling. Remains of the clinker and ash were collected separately in hazardous material bags for safe removal off site and the remaining disinfected spoil (clay) was used to backfill the boreholes.

*Table 1: Strata summary of the locations WS7 to WS15.*

Location	Topsoil	Made Ground 1 (Clay)	Made Ground 2 (Clinker)	Kellaway Clay Member	Peterborough Member
WS7	0.0m – 0.30m bgl	0.30m – 0.60m bgl	0.60m – 0.95m bgl	0.95m – 2.30m bgl	2.30 – 3.30m bgl
WS8	0.0m – 0.35m bgl	0.35m – 1.10m bgl	1.10m – 1.30m bgl	1.30m – 2.30m bgl	2.30 – 3.30m bgl
WS9	0.0m – 0.35m bgl	0.35m – 1.30m bgl	Not Present	1.30m – 2.30m bgl	2.30 – 3.30m bgl
WS10	0.0m – 0.30m bgl	0.30m – 1.40m bgl	Not Present	1.40m – 2.40m bgl	2.40 – 3.40m bgl
WS11	0.0m – 0.30m bgl	0.30m – 1.40m bgl	Not Present	1.40m – 2.40m bgl	Not encountered
WS12	0.0m – 0.30m bgl	0.30m – 0.60m bgl	0.60m – 0.80m bgl	0.80m – 2.00m bgl	Not encountered
WS13	0.0m – 0.30m bgl	0.30m – 0.80m bgl	0.80m – 1.00m bgl	1.00m – 2.00m bgl	Not encountered
WS14	0.0m – 0.30m bgl	0.30m – 0.90m bgl	0.90m – 1.10m bgl	1.10m – 2.00m bgl	Not encountered

5 No. additional window sampler holes were completed within 10.0m of the perimeter of the pyre to depths of 4.44m bgl to 5.45m bgl. Table 2 shows the strata summary at these locations and the depth of the monitoring installation response zones. The window sample logs are presented in Appendix B.

*Table 2: Strata summary of WS15 to WS19 and their response zone.*

Location	Topsoil	Subsoil	Kellaway Clay Member	Peterborough Member	Response zone
WS15	0.0m – 0.30m bgl	0.30m – 1.00m bgl	1.00m – 1.90m bgl	1.90m – 5.07m bgl	1.00m – 4.00m bgl
WS16	0.0m – 0.30m bgl	0.30m – 0.90m bgl	0.90m – 1.80m bgl	1.80m – 4.44m bgl	Not installed



Location	Topsoil	Subsoil	Kellaway Clay Member	Peterborough Member	Response zone
WS17	0.0m – 0.40m bgl	0.40m – 1.00m bgl	1.00m – 2.20m bgl	2.20m – 5.42m bgl	1.00m – 4.00m bgl
WS18	0.0m – 0.30m bgl	0.30m – 1.40m bgl	1.40m – 2.50m bgl	2.50m bgl – 5.45m bgl	1.00m – 4.00m bgl
WS19	0.0m – 0.30m bgl	0.30m – 1.00m bgl	1.00m – 2.50m bgl	2.50m bgl – 4.88m bgl	Not installed

## 5. Geochemical testing

Samples of the Made Ground (clay) overlying the clinker and samples of the natural strata below the clinker were tested for contaminants including metals, Polycyclic Aromatic Hydrocarbons, Total Petroleum Hydrocarbons and asbestos. The testing was undertaken by Element Materials Technology, a UKAS and MCerts (where appropriate for soils analysis) accredited laboratory. Test results are presented in Appendix D.

No measured concentrations of potential contaminants of concern were reported in excess of the respective GACs protective of human health for a commercial development assuming an SOM value of 1%.

Two samples of Made Ground 1 (clay) were screened for asbestos. No asbestos was detected.

3 No groundwater samples were tested for speciated TPH (CWG). Concentrations of TPH were all recorded below the limit of detection.

5 No samples of the residual foot and mouth pyre material were tested for anthrax. The testing was conducted by the Food, Water and Environmental Microbiology Laboratory. Anthrax was not detected. The test results are presented in Appendix E.

## 6. Gas and groundwater monitoring

A gas and groundwater monitoring visit was undertaken on the 15<sup>th</sup> February 2022. Ground gas concentrations were monitored at three locations WS15, WS17 and WS18. Peak and steady carbon dioxide readings were recorded between 1.2%-1.6% and peak and steady methane concentrations were recorded as 0.1% at all locations. Peak carbon monoxide concentrations ranged between 2ppm and 12ppm and steady concentrations were recorded from Non Detect to 4ppm.

The groundwater level was recorded between 0.15m bgl to 0.76m bgl. The monitoring results are presented in Appendix F.

## 7. Material Volumes

Table 3 shows an estimation of the volumes of Topsoil, Made Ground 1 (Clay) and Made Ground 2 (clinker) associated with the Foot and Mouth pyre. Based on these volumes, the volume of clinker (Made Ground 2) is anticipated to be 22m<sup>3</sup>. It is assumed that approximately 40m<sup>3</sup> of material to include the clinker, and partial overlying Made Ground and underlying natural strata will be removed



for disposal based on the requirements for segregation and potential cross contamination of these strata.

Table 3: Estimate of the volume of soil and clinker within the Foot and Mouth pyre footprint

Area of the Foot and Mouth pit	Volume of topsoil (m <sup>3</sup> )	Volume of Made Ground 1 (m <sup>3</sup> )	Volume of Made Ground 2 (m <sup>3</sup> )	Total volume (m <sup>3</sup> )
88m <sup>2</sup>	26.4 <sup>1</sup>	44 <sup>2</sup>	22 <sup>3</sup>	92.4
1. Assumes width of pyre to be 2.0m and length of 44m from existing fence line to the south of Trench 4 2. Assumes thickness of topsoil to be 0.3m 3. Assumes thickness of Made Ground 1 (clay) to be 0.5m 4. Assumes thickness of Made Ground 2 (clinker) to be 0.25m				

## 8. Disposal of Foot and Mouth Material

Proposals for excavation and disposal of the material associated with the foot and mouth pyre will need to be agreed with the Animal and Plant Health Agency (APHA) prior to excavation.

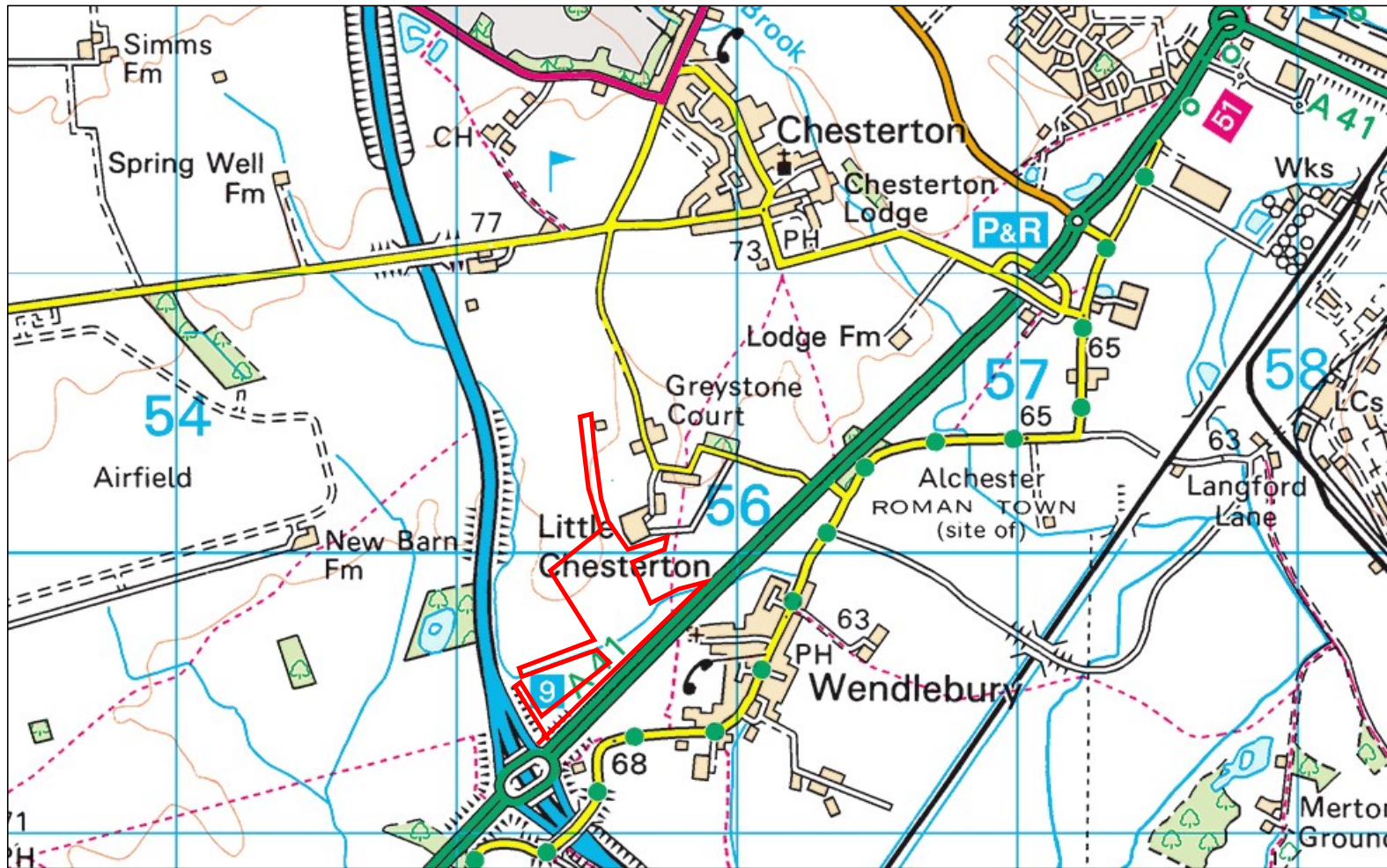
APHA registered waste carriers will be required for transportation of the material to the chosen disposal facility.

## 9. Conclusions

- The southernmost extent of the residual Foot and Mouth pyre was identified at 44.0m from the fence line. The northern end appears to extend north of the field beyond the fence line.
- The residual pyre material appears to range from 2.10m wide in the north to 1.30m wide in the south with an average width of circa 1.90m.
- Samples of the clinker material was not found to contain anthrax.
- The estimated volume of clinker is approximately 22m<sup>3</sup>. It is assumed that approximately 40m<sup>3</sup> of material will require off site disposal based on the requirements for segregation and the potential cross contamination of strata overlying and underlying the clinker.
- Proposals for excavation, transportation and disposal of the residual foot and mouth material will need to be agreed with the APHA prior to excavation of the material.



## **APPENDIX A: DRAWINGS**



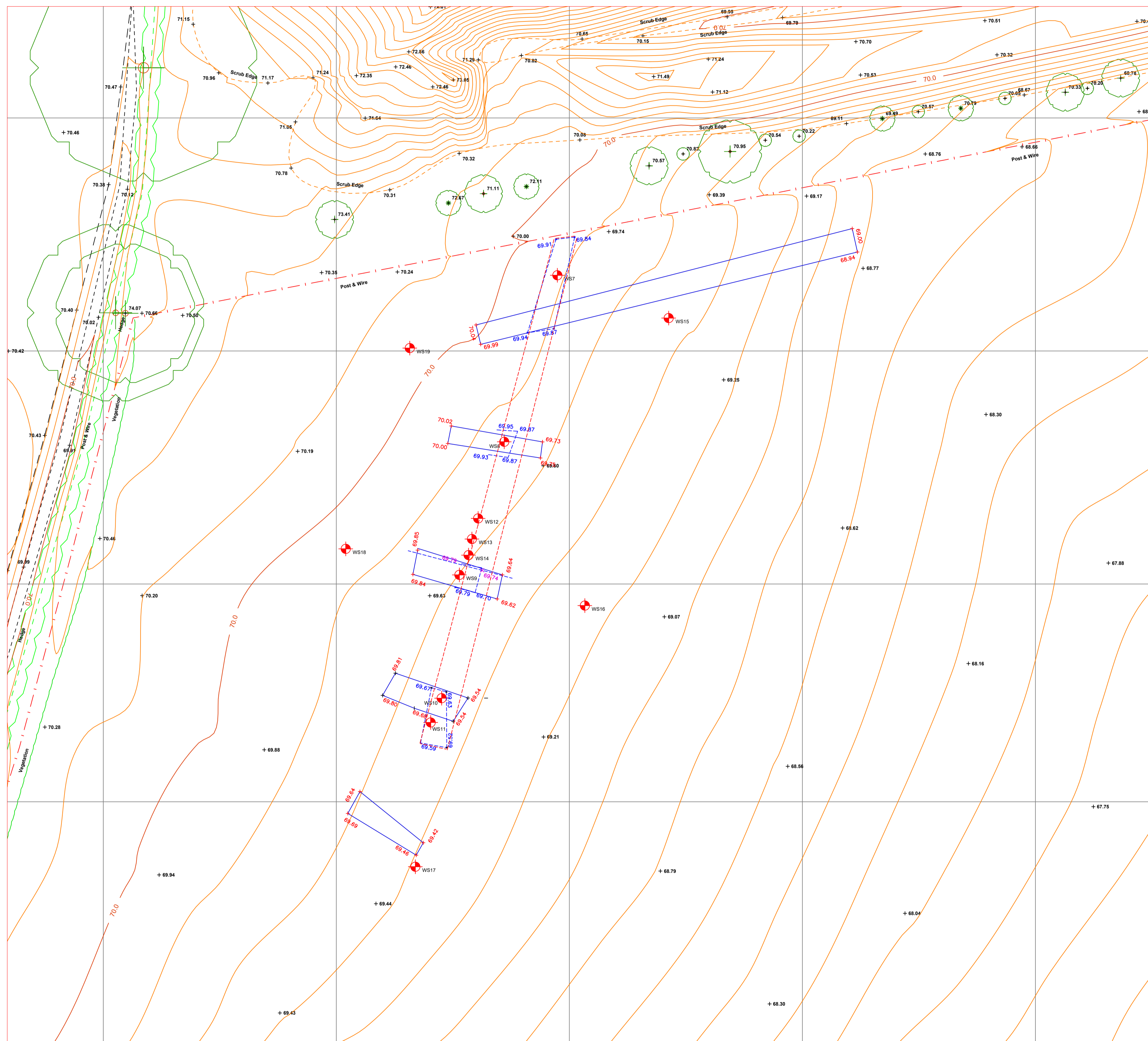
**Legend:**

— Site Boundary



Tier Environmental Ltd,  
Suite 513, Chadwick House,  
Warrington Road,  
Birchwood, WA3 6AE

<b>CLIENT:</b> Tritax Symmetry Ltd		
<b>PROJECT TITLE:</b> Oxford North, Symmetry Park, Oxfordshire		
<b>DRAWING TITLE:</b> Site Location Plan		
<b>DRAWING REF:</b> TE1585-TE-00-XX-DR-GE-001-V01		
<b>AUTHOR:</b> SDM	<b>REVIEWER:</b> SDM	<b>SCALE:</b> NTS
<b>DRAWING DATE:</b> June 2021		<b>DRAWING STATUS:</b> FINAL



Notes

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS TOGETHER WITH THE APPROPRIATE SPECIFICATIONS.
- IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK ALL DIMENSIONS ON SITE. DIMENSIONS MUST NOT BE SCALED FROM THIS DRAWING. ANY DISCREPANCIES TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT IN WRITING.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS ARE IN METRES, UNLESS NOTED OTHERWISE

001	24.08.2022	By - CS
Revisions		
Status		
<b>FINAL</b>		



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Client

**TRITAX\_SYMMETRY**

Project

**OXFORD\_NORTH**

Title

**FOOT\_AND\_MOUTH\_LOCATION\_PLAN**

Scale	Drawn	Revision
<b>NTS</b>	<b>CS</b>	
Date	Checked	<b>001</b>
<b>24.08.2022</b>	<b>JM</b>	

Drawing Ref :  
 TE1585-TE-00-XX-DR-GE-001\_FOOT & MOUTH LP

**TE1585** **001**





## **APPENDIX B: EXPLORATORY HOLE LOGS**



# Borehole Log

Borehole No.

**WS7**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455498.94 - 219966.46

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.95

Scale  
1:50

Client: Tritax Symmetry

Dates: 08/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	ES		0.30	69.65		TOPSOIL: Grass over soft to firm, dark brown CLAY. Numerous rootlets.	
		0.70	ES		0.60	69.35		TOPSOIL	
		1.10	ES		0.95	69.00		MADE GROUND: Firm, greyish brown, slightly sandy CLAY. Sand is fine.	
		1.50	ES		1.30	68.65		MADE GROUND	
					2.30	67.65		MADE GROUND: Black, sandy, angular, fine to coarse GRAVEL of clinker. Sand is fine to coarse.	1
							MADE GROUND		
							Firm, greyish brown, slightly sandy CLAY. Sand is fine.		
							KELLAWAYS CLAY MEMBER		
							Firm, grey, mottled yellowish brown, silty, locally very silty CLAY.	2	
							KELLAWAYS CLAY MEMBER		
							Weathered bedrock, recovered as stiff to very stiff, dark grey CLAY.		
							PETERBOROUGH MEMBER		
					3.30	66.65		End of borehole at 3.30 m	3
									4
									5
									6
									7
									8
									9
									10

## Remarks

1) No groundwater ingress. 2) Terminated at target depth. 3) Minimal recovery from 2.30-3.30m bgl.





# Borehole Log

Borehole No.

**WS8**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455494.41 - 219952.20

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.87

Scale  
1:50

Client: Tritax Symmetry

Dates: 08/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.35	69.52		TOPSOIL: Grass over soft to firm, dark brown CLAY. Numerous rootlets.
					1.10	68.77		TOPSOIL MADE GROUND: Soft to firm, dark brown, locally yellowish brown, sandy CLAY. Sand is fine.
		1.20	ES		1.30	68.57		MADE GROUND
		1.50	ES					MADE GROUND: Black, sandy, angular, fine to coarse GRAVEL of clinker. Sand is fine to coarse.
				2.30	67.57		Weathered bedrock, recovered as stiff to very stiff, dark grey CLAY. PETERBOROUGH MEMBER	
				3.30	66.57		End of borehole at 3.30 m	

Remarks

1) No groundwater ingress. 2) Terminated at target depth. 3) Minimal recovery between 0.30m bgl - 1.30m bgl.





# Borehole Log

Borehole No.

**WS9**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455490.55 - 219940.77

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.78

Scale  
1:50

Client: Tritax Symmetry

Dates: 08/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES		0.35	69.43	TOPSOIL: Grass over soft to firm, dark brown CLAY. Numerous rootlets. TOPSOIL	
		1.50	ES		1.30	68.48	MADE GROUND: Soft to firm, dark brown, silty CLAY. MADE GROUND	
					2.30	67.48	Firm, grey, mottled yellowish brown, silty, locally very silty CLAY. KELLAWAYS CLAY MEMBER	
					3.30	66.48	Weathered bedrock, recovered as stiff to very stiff, dark grey CLAY. PETERBOROUGH MEMBER	
							End of borehole at 3.30 m	

Remarks

1) No groundwater ingress. 2) Terminated at target depth.





# Borehole Log

Borehole No.

**WS10**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455489.04 - 219930.19

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.63

Scale  
1:50

Client: Tritax Symmetry

Dates: 08/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES		0.30	69.33		TOPSOIL: Grass over soft to firm, dark brown CLAY. Numerous rootlets. TOPSOIL
		1.50	ES		1.40	68.23		MADE GROUND: Soft to firm, dark brown, silty CLAY. MADE GROUND
					2.40	67.23		Firm, grey, mottled yellowish brown, silty, locally very silty CLAY. KELLAWAYS CLAY MEMBER
					3.40	66.23		Weathered bedrock, recovered as stiff to very stiff, dark grey CLAY. PETERBOROUGH MEMBER
							End of borehole at 3.40 m	



## Remarks

1) No groundwater ingress. 2) Terminated at target depth. 3) Minimal recovery between 0.40m bgl - 1.40m bgl.





# Borehole Log

Borehole No.

**WS11**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455488.08 - 219928.12

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.62

Scale  
1:50

Client: Tritax Symmetry

Dates: 08/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	69.32		TOPSOIL: Grass over soft to firm, dark brown CLAY. Numerous rootlets. TOPSOIL
					1.40	68.22		MADE GROUND: Soft to firm, dark brown, silty CLAY. MADE GROUND
					2.40	67.22		Firm, grey, mottled yellowish brown, silty, locally very silty CLAY. KELLAWAYS CLAY MEMBER
							----- End of borehole at 2.40 m	



## Remarks

1) No groundwater ingress. 2) No samples taken. 3) Terminated at target depth.





# Borehole Log

Borehole No.

**WS12**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455492.17 - 219945.63

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.78

Scale  
1:50

Client: Tritax Symmetry

Dates: 08/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	69.48		TOPSOIL: Grass over soft to firm, dark brown CLAY. Numerous rootlets.
					0.60	69.18		TOPSOIL
		0.75	ES		0.80	68.98		MADE GROUND: Firm, greyish brown, slightly sandy CLAY. Sand is fine.
		1.00	ES					MADE GROUND
								MADE GROUND
					2.00	67.78		Firm, grey, mottled yellowish brown, silty, locally very silty CLAY.
								KELLAWAYS CLAY MEMBER
								End of borehole at 2.00 m

Remarks  
1) No groundwater ingress. 2) Terminated at target depth.





# Borehole Log

Borehole No.

**WS13**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455491.62 - 219943.86

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.77

Scale  
1:50

Client: Tritax Symmetry

Dates: 08/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	69.46		TOPSOIL: Grass over soft to firm, dark brown CLAY. Numerous rootlets.
					0.80	68.96		TOPSOIL
		0.90	ES		1.00	68.76		MADE GROUND: Firm, greyish brown, slightly sandy CLAY. Sand is fine.
		1.20	ES					MADE GROUND
							MADE GROUND: Black, sandy, angular, fine to coarse GRAVEL of clinker. Sand is fine to coarse.	
							MADE GROUND	
							Firm, grey, mottled yellowish brown, silty, locally very silty CLAY.	
							KELLAWAYS CLAY MEMBER	
				2.00	67.76		End of borehole at 2.00 m	

Remarks  
1) No groundwater ingress. 2) Terminated at target depth.







# Borehole Log

Borehole No.

**WS14**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455491.35 - 219942.46

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.71

Scale  
1:50

Client: Tritax Symmetry

Dates: 08/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	69.41		TOPSOIL: Grass over soft to firm, dark brown CLAY. Numerous rootlets.	1
					0.90	68.81		TOPSOIL	
		1.00	ES		1.10	68.61		MADE GROUND: Firm, greyish brown, slightly sandy CLAY. Sand is fine.	
		1.30	ES					MADE GROUND	
					2.00	67.71		MADE GROUND: Black, sandy, angular, fine to coarse GRAVEL of clinker. Sand is fine to coarse.	2
							MADE GROUND		
								Firm, grey, mottled yellowish brown, silty, locally very silty CLAY.	3
								KELLAWAYS CLAY MEMBER	
								End of borehole at 2.00 m	4
									5
									6
									7
									8
									9
									10

Remarks

1) No groundwater ingress. 2) Terminated at target depth.





# Borehole Log

Borehole No.

**WS15**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455508.51 - 219962.82

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.50

Scale  
1:50

Client: Tritax Symmetry

Dates: 09/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	69.20		TOPSOIL: Grass over soft, dark brown, silty CLAY. Numerous rootlets.
								TOPSOIL
								Soft, greyish brown, silty CLAY.
								SUBSOIL
		1.20		N=9 (1,2/2,2,2,3)	1.00	68.50		Medium shear strength, grey mottled yellowish brown, extremely closely spaced, thinly to thickly laminated, sandy, slightly clayey SILT. Sand is fine. KELLAWAYS CLAY MEMBER
		2.00 2.00	ES	N=9 (2,2/2,2,2,3)	1.90	67.60		Weathered bedrock, recovered as medium strength, stiff, dark grey, extremely closely spaced, thinly laminated, slightly silty CLAY. PETERBOROUGH MEMBER
	3.00		N=17 (2,3/3,4,5,5)	2.80	66.70		Weathered bedrock, recovered as medium strength stiff to very stiff, dark grey, closely spaced, thickly laminated, slightly silty CLAY. PETERBOROUGH MEMBER	
	4.00		N=20 (2,3/4,5,5,6)					
	5.00		50 (25 for 40mm/50 for 30mm)	4.90 5.07	64.60 64.43		Weathered bedrock, recovered as extremely weak, extremely closely spaced, thickly laminated MUDSTONE. PETERBOROUGH MEMBER End of borehole at 5.07 m	

## Remarks

1) Inspection pit for service clearance, 2) No groundwater ingress. 3) Annulus shrank past 4.00m bgl immediately after drilling and prior to the installation. 4) Terminated at target depth.





# Borehole Log

Borehole No.

**WS16**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455501.32 - 219938.14

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.33

Scale  
1:50

Client: Tritax Symmetry

Dates: 09/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	69.03		TOPSOIL: Grass over soft, dark brown, silty CLAY. Numerous rootlets.	1 2 3 4 5 6 7 8 9 10
					0.90	68.43		TOPSOIL Soft, greyish brown, silty CLAY.	
		1.20		N=12 (2,2/3,3,3,3)				SUBSOIL	
		1.50	ES					Medium shear strength, grey mottled yellowish brown, extremely closely spaced, thinly to thickly laminated, sandy, slightly clayey SILT. Sand is fine. KELLAWAYS CLAY MEMBER	
		2.00		N=8 (1,2/2,2,2,2)	1.80	67.53		Weathered bedrock, recovered as medium strength, stiff, dark grey, extremely closely spaced, thinly laminated, slightly silty CLAY. PETERBOROUGH MEMBER	
		3.00		N=13 (2,2/3,3,3,4)	3.00	66.33		Weathered bedrock, recovered as medium strength stiff to very stiff, dark grey, closely spaced, thickly laminated, slightly silty CLAY. PETERBOROUGH MEMBER	
		4.00		N=50 (7,9/50 for 295mm)	4.00	65.33		Weathered bedrock, recovered extremely weak, extremely closely spaced, thinly to thickly laminated MUDSTONE. PETERBOROUGH MEMBER	
					4.44	64.89		End of borehole at 4.44 m	

## Remarks

1) Inspection pit for service clearance, 2) No groundwater ingress. 3) Backfilled with arisings. 4) Terminated at 4.44m bgl due to refusal.





# Borehole Log

Borehole No.

**WS17**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455486.78 - 219915.73

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 69.45

Scale  
1:50

Client: Tritax Symmetry

Dates: 09/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.40	69.05		TOPSOIL: Grass over soft, dark brown, silty CLAY. Numerous rootlets.
								TOPSOIL Soft, greyish brown, slightly sandy, silty CLAY. Sand is fine.
		1.20		N=8 (1,1/1,2,2,3)	1.00	68.45		SUBSOIL Low shear strength becoming medium shear strength, grey mottled yellowish brown, extremely closely spaced, thinly to thickly laminated, sandy, slightly clayey SILT. Sand is fine.
		2.00		N=9 (2,2/2,2,2,3)	2.20	67.25		KELLAWAYS CLAY MEMBER Weathered bedrock, recovered as medium strength, stiff, dark grey, extremely closely spaced, thinly laminated, slightly silty CLAY.
		3.00 3.00	ES	N=13 (2,3/3,3,3,4)	2.80	66.65		PETERBOROUGH MEMBER Weathered bedrock, recovered as medium strength stiff to very stiff, dark grey, closely spaced, thickly laminated, slightly silty CLAY.
		4.00		N=17 (2,3/3,4,5,5)				PETERBOROUGH MEMBER
		5.00		N=50 (6,6/50 for 265mm)	5.20 5.42	64.25 64.03		Weathered bedrock, recovered extremely weak, extremely closely spaced, thickly laminated MUDSTONE. PETERBOROUGH MEMBER End of borehole at 5.42 m

**Remarks**

1) Inspection pit for service clearance, 2) No groundwater ingress. 3) Annulus shrank past 4.00m bgl immediately after drilling and prior to the installation. 4) Terminated at 5.42m bgl due to refusal.





# Borehole Log

Borehole No.

**WS18**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455480.81 - 219942.99

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 70.10

Scale  
1:50

Client: Tritax Symmetry

Dates: 09/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	69.80		TOPSOIL: Grass over soft, dark brown, silty CLAY. Numerous rootlets.	
								TOPSOIL	
			1.20		N=9 (1,2/2,2,2,3)	1.40	68.70		Medium shear strength, soft to firm, greyish brown, silty CLAY.
			2.00		N=12 (2,2/2,3,3,4)				SUBSOIL
			2.30	ES		2.50	67.60		Medium shear strength, grey mottled yellowish brown, extremely closely spaced, thinly laminated, sandy, slightly clayey SILT. Sand is fine.
			2.30						KELLAWAYS CLAY MEMBER
		3.00		N=12 (2,2/2,3,3,4)	3.00	67.10		Weathered bedrock, recovered as medium strength, stiff, dark grey, extremely closely spaced, thinly laminated, slightly silty CLAY.	
								PETERBOROUGH MEMBER	
		4.00		N=34 (5,7/7,8,9,10)				Weathered bedrock, recovered as high shear strength becoming medium strength, stiff to very stiff, dark grey, closely spaced, thickly laminated, slightly silty CLAY.	
								PETERBOROUGH MEMBER	
		5.00		N=24 (3,4/5,6,6,7)					
					5.45	64.65		End of borehole at 5.45 m	

## Remarks

1) Inspection pit for service clearance, 2) Groundwater ingress at 2.30m bgl. 3) Annulus shrank past 4.00m bgl immediately after drilling and prior to the installation. 4) Terminated at target depth.





# Borehole Log

Borehole No.

**WS19**

Sheet 1 of 1

Project Name: Oxford North Symmetry Park

Project No.  
TE1585

Co-ords: 455486.29 - 219960.21

Hole Type  
WS

Location: Little Chesterton, Bicester

Level: 70.19

Scale  
1:50

Client: Tritax Symmetry

Dates: 09/02/2022 -

Logged By  
ST

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	69.89		TOPSOIL: Grass over soft, dark brown, silty CLAY. Numerous rootlets.	
								TOPSOIL	
								Soft, greyish brown, silty CLAY.	
								SUBSOIL	
			1.20		N=9 (1,1/2,2,2,3)	1.00	69.19		Medium shear strength, grey mottled yellowish brown, extremely closely spaced, thinly to thickly laminated, slightly sandy, clayey SILT. Sand is fine.
			2.00		N=8 (1,1/2,2,2,2)				KELLAWAYS CLAY MEMBER
		2.60	ES		2.50	67.69		Weathered bedrock, recovered as medium strength, stiff, dark grey, mottled dark brown, extremely closely spaced, thinly laminated, slightly silty CLAY.	
		3.00		N=12 (2,2/2,3,3,4)				PETERBOROUGH MEMBER	
		4.00		N=33 (3,4/5,7,10,11)	3.50	66.69		Weathered bedrock, recovered as medium shear strength becoming high shear strength, stiff to very stiff, dark grey, closely spaced, thickly laminated, slightly silty CLAY.	
		4.45		N=50 (11,12/50 for 275mm)	4.70	65.49		PETERBOROUGH MEMBER	
					4.88	65.31		Weathered bedrock, recovered extremely weak, extremely closely spaced, thickly laminated MUDSTONE.	
								PETERBOROUGH MEMBER	
								End of borehole at 4.88 m	

## Remarks

1) Inspection pit for service clearance, 2) No groundwater ingress. 3) Annulus shrank past 4.00m bgl immediately after drilling and prior to the installation. 4) Terminated at 4.88m bgl due to refusal.





## **APPENDIX C: PHOTOS**

Project Name    Oxford North, Symmetry Park Project No.        TE1585 Engineer            Spyridon Theodoridis Client                Tritax Symmetry Ltd	Photographic Record		
			
		North End of Foot and Mouth pit	
Photographed By		Date	08/02/2022



Project Name    Oxford North, Symmetry Park Project No.        TE1585 Engineer            Spyridon Theodoridis Client               Tritax Symmetry Ltd	Photographic Record		
			
		South End of Foot and Mouth pit	
Photographed By		Date	08/02/2022



## **APPENDIX D: SOIL AND WATER CHEMICAL TEST RESULTS**

Tier Environmental  
Suite 513, Chadwick House  
Warrington Rd  
Birchwood  
Warrington  
WA3 6AE



**Attention :** Adrian Read  
**Date :** 21st February, 2022  
**Your reference :** TE1585  
**Our reference :** Test Report 22/2144 Batch 1  
**Location :**  
**Date samples received :** 10th February, 2022  
**Status :** Final Report  
**Issue :** 1

Sixteen samples were received for analysis on 10th February, 2022 of which eleven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**Authorised By:**



**Hayley Prowse**  
Project Manager

Please include all sections of this report if it is reproduced

# Element Materials Technology

Client Name: Tier Environmental  
 Reference: TE1585  
 Location:  
 Contact: Adrian Read  
 EMT Job No: 22/2144

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	10-12	13-15	16-18	22-24	25-27	28-30	31-33	37-39	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS7	WS7	WS8	WS9	WS9	WS10	WS12	WS13	WS14	WS16			
Depth	0.40	1.10	1.50	0.50	1.50	1.50	1.00	1.20	1.30	1.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	09/02/2022			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	LOD/LOR	Units	Method No.
Arsenic #	7.8	-	-	10.3	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	-	-	0.2	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Chromium #	46.3	-	-	51.3	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Copper #	10	-	-	13	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Lead #	9	-	-	15	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
Mercury #	<0.1	-	-	<0.1	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Nickel #	29.0	-	-	16.2	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM15
Selenium #	<1	-	-	<1	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Total Sulphate as SO4 #	157	-	-	653	-	-	-	-	-	-	<50	mg/kg	TM50/PM29
Zinc #	24	-	-	49	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	-	-	<0.04	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	-	<0.03	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	-	<0.05	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-	-	<0.04	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.05	-	-	<0.03	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	-	-	<0.04	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.07	-	-	<0.03	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Pyrene #	0.06	-	-	<0.03	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	-	-	<0.06	-	-	-	-	-	-	<0.06	mg/kg	TM4/PM8
Chrysene #	0.04	-	-	<0.02	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	-	-	<0.07	-	-	-	-	-	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	-	-	<0.04	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	-	-	<0.04	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	-	-	<0.04	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	-	-	<0.04	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	-	-	<0.6	-	-	-	-	-	-	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	-	-	<0.05	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	-	-	<0.02	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	75	-	-	96	-	-	-	-	-	-	<0	%	TM4/PM8
EPH >C8-C10 (EH_1D_Total) #	<5	-	<5	<5	-	-	-	<5	<5	<5	<5	mg/kg	TM5/PM8
EPH >C10-C12 (EH_1D_Total) #	<10	-	<10	<10	-	-	-	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C12-C16 (EH_1D_Total) #	<10	-	<10	<10	-	-	-	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C16-C21 (EH_1D_Total) #	<10	-	<10	<10	-	-	-	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C21-C35 (EH_1D_Total) #	<10	-	<10	94	-	-	-	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C35-C40 (EH_1D_Total)	<10	-	<10	<10	-	-	-	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C8-C40 (EH_1D_Total)	<30	-	<30	94	-	-	-	<30	<30	<30	<30	mg/kg	TM5/PM8

# Element Materials Technology

**Client Name:** Tier Environmental  
**Reference:** TE1585  
**Location:**  
**Contact:** Adrian Read  
**EMT Job No:** 22/2144

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	10-12	13-15	16-18	22-24	25-27	28-30	31-33	37-39	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS7	WS7	WS8	WS9	WS9	WS10	WS12	WS13	WS14	WS16	LOD/LOR	Units	Method No.
Depth	0.40	1.10	1.50	0.50	1.50	1.50	1.00	1.20	1.30	1.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	09/02/2022			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022	10/02/2022			
TPH CWG													
<b>Aliphatics</b>													
>C5-C6 (HS_1D_AL) #	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	-	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	-	<4	-	-	<4	<4	<4	-	-	-	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	-	<7	-	-	<7	<7	<7	-	-	-	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	-	<7	-	-	<7	<7	<7	-	-	-	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_1D_AL)	-	<7	-	-	<7	<7	<7	-	-	-	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	-	<26	-	-	<26	<26	<26	-	-	-	<26	mg/kg	TM5/PM8/PM16/PM12/PM15
<b>Aromatics</b>													
>C5-EC7 (HS_1D_AR) #	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	-	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	-	<4	-	-	<4	<4	<4	-	-	-	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	-	<7	-	-	<7	<7	<7	-	-	-	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	-	<7	-	-	<7	<7	<7	-	-	-	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_1D_AR)	-	<7	-	-	<7	<7	<7	-	-	-	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	-	<26	-	-	<26	<26	<26	-	-	-	<26	mg/kg	TM5/PM8/PM16/PM12/PM15
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	-	<52	-	-	<52	<52	<52	-	-	-	<52	mg/kg	TM5/PM8/PM16/PM12/PM15
MTBE #	-	<5	-	-	<5	<5	<5	-	-	-	<5	ug/kg	TM36/PM12
Benzene #	-	<5	-	-	<5	<5	<5	-	-	-	<5	ug/kg	TM36/PM12
Toluene #	-	<5	-	-	<5	<5	<5	-	-	-	<5	ug/kg	TM36/PM12
Ethylbenzene #	-	<5	-	-	<5	<5	<5	-	-	-	<5	ug/kg	TM36/PM12
m/p-Xylene #	-	9	-	-	<5	<5	<5	-	-	-	<5	ug/kg	TM36/PM12
o-Xylene #	-	<5	-	-	<5	<5	<5	-	-	-	<5	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	-	-	<0.15	-	-	-	-	-	-	<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	19.0	25.1	20.2	30.7	20.6	22.7	26.9	21.1	21.5	19.5	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-	-	<0.3	-	-	-	-	-	-	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0080	-	-	0.1274	-	-	-	-	-	-	<0.0015	g/l	TM38/PM20
Total Organic Carbon #	0.31	-	-	1.26	-	-	-	-	-	-	<0.02	%	TM21/PM24
pH #	7.52	-	-	6.04	-	-	-	-	-	-	<0.01	pH units	TM73/PM11



# Element Materials Technology

**Client Name:** Tier Environmental  
**Reference:** TE1585  
**Location:**  
**Contact:** Adrian Read  
**EMT Job No:** 22/2144

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.									Please see attached notes for all abbreviations and acronyms		
Sample ID											
Depth											
COC No / misc											
Containers											
Sample Date											
Sample Type											
Batch Number											
Date of Receipt									LOD/LOR	Units	Method No.
TPH CWG											
<b>Aliphatics</b>											
>C5-C6 (HS_1D_AL) #	<0.1								<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1								<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1								<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<0.2								<0.2	mg/kg	TMS/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4								<4	mg/kg	TMS/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	<7								<7	mg/kg	TMS/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	<7								<7	mg/kg	TMS/PM8/PM16
>C35-C40 (EH_1D_AL)	<7								<7	mg/kg	TMS/PM8/PM16
Total aliphatics C5-40 (EH+HS_1D_AL)	<26								<26	mg/kg	TMS/TM36/PM8/PM12/PM16
<b>Aromatics</b>											
>C5-EC7 (HS_1D_AR) #	<0.1								<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1								<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1								<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2								<0.2	mg/kg	TMS/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4								<4	mg/kg	TMS/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	<7								<7	mg/kg	TMS/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	<7								<7	mg/kg	TMS/PM8/PM16
>EC35-EC40 (EH_1D_AR)	<7								<7	mg/kg	TMS/PM8/PM16
Total aromatics C5-40 (EH+HS_1D_AR)	<26								<26	mg/kg	TMS/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	<52								<52	mg/kg	TMS/TM36/PM8/PM12/PM16
MTBE #	<5								<5	ug/kg	TM36/PM12
Benzene #	<5								<5	ug/kg	TM36/PM12
Toluene #	<5								<5	ug/kg	TM36/PM12
Ethylbenzene #	<5								<5	ug/kg	TM36/PM12
m/p-Xylene #	<5								<5	ug/kg	TM36/PM12
o-Xylene #	<5								<5	ug/kg	TM36/PM12
Total Phenols HPLC	-								<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	24.5								<0.1	%	PM4/PM0
Hexavalent Chromium #	-								<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-								<0.0015	g/l	TM38/PM20
Total Organic Carbon #	-								<0.02	%	TM21/PM24
pH #	-								<0.01	pH units	TM73/PM11





**Client Name:** Tier Environmental

**Reference:** TE1585

**Location:**

**Contact:** Adrian Read

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 22/2144						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.  
Only analyses which are accredited are recorded as deviating if set criteria are not met.

# NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/2144

## SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

## WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

## STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

## DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

## SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

## DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

## BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

**NOTE**

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

**REPORTS FROM THE SOUTH AFRICA LABORATORY**

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

**Measurement Uncertainty**

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

**Customer Provided Information**

Sample ID and depth is information provided by the customer.

**ABBREVIATIONS and ACRONYMS USED**

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

## HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 22/2144

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes

EMT Job No: 22/2144

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEPA Method 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes		AD	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No

Tier Environmental  
Suite 513, Chadwick House  
Warrington Rd  
Birchwood  
Warrington  
WA3 6AE

**Attention :** Adrian Read  
**Date :** 24th February, 2022  
**Your reference :** TE1585  
**Our reference :** Test Report 22/2518 Batch 1  
**Location :** Oxford North  
**Date samples received :** 16th February, 2022  
**Status :** Final Report  
**Issue :** 1

Three samples were received for analysis on 16th February, 2022 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**Authorised By:**



**Hayley Prowse**  
Project Manager

Please include all sections of this report if it is reproduced



# Element Materials Technology

**Client Name:** Tier Environmental  
**Reference:** TE1585  
**Location:** Oxford North  
**Contact:** Adrian Read  
**EMT Job No:** 22/2518

**Report :** Liquid

**Liquids/products:** V=40ml vial, G=glass bottle, P=plastic bottle  
 H=H<sub>2</sub>SO<sub>4</sub>, Z=ZnAc, N=NaOH, HN=HNO<sub>3</sub>

EMT Sample No.	1-7	8-14	15-21										
Sample ID	WS15	WS17	WS18										
Depth	2.00	2.00	2.00										
COC No / misc													
Containers	V H H N P G	V H H N P G	V H H N P G										
Sample Date	15/02/2022	15/02/2022	15/02/2022										
Sample Type	Liquid	Liquid	Liquid										
Batch Number	1	1	1										
Date of Receipt	16/02/2022	16/02/2022	16/02/2022										
										LOD/LOR	Units	Method No.	
MTBE	<5	<5	<5							<5	ug/l	TM36/PM12	
Benzene	<5	<5	<5							<5	ug/l	TM36/PM12	
Toluene	<5	<5	<5							<5	ug/l	TM36/PM12	
Ethylbenzene	<5	<5	<5							<5	ug/l	TM36/PM12	
m/p-Xylene	<5	<5	<5							<5	ug/l	TM36/PM12	
o-Xylene	<5	<5	<5							<5	ug/l	TM36/PM12	
<b>TPH CWG</b>													
<b>Aliphatics</b>													
>C5-C6	<10	<10	<10							<10	ug/l	TM36/PM12	
>C6-C8	<10	<10	<10							<10	ug/l	TM36/PM12	
>C8-C10	<10	<10	<10							<10	ug/l	TM36/PM12	
>C10-C12	<5	<5	<5							<5	ug/l	TM5/PM16/PM30	
>C12-C16	<10	<10	<10							<10	ug/l	TM5/PM16/PM30	
>C16-C21	<10	<10	<10							<10	ug/l	TM5/PM16/PM30	
>C21-C35	<10	<10	<10							<10	ug/l	TM5/PM16/PM30	
>C35-C40	<10	<10	<10							<10	ug/l	TM5/PM16/PM30	
Total aliphatics C5-40	<10	<10	<10							<10	ug/l	TM5/PM5/PM12/PM16/PM30	
<b>Aromatics</b>													
>C5-EC7	<10	<10	<10							<10	ug/l	TM36/PM12	
>EC7-EC8	<10	<10	<10							<10	ug/l	TM36/PM12	
>EC8-EC10	<10	<10	<10							<10	ug/l	TM36/PM12	
>EC10-EC12	<5	<5	<5							<5	ug/l	TM5/PM16/PM30	
>EC12-EC16	<10	<10	<10							<10	ug/l	TM5/PM16/PM30	
>EC16-EC21	<10	<10	<10							<10	ug/l	TM5/PM16/PM30	
>EC21-EC35	<10	<10	<10							<10	ug/l	TM5/PM16/PM30	
>EC35-EC40	<10	<10	<10							<10	ug/l	TM5/PM16/PM30	
Total aromatics C5-40	<10	<10	<10							<10	ug/l	TM5/PM5/PM12/PM16/PM30	
Total aliphatics and aromatics(C5-40)	<10	<10	<10							<10	ug/l	TM5/PM5/PM12/PM16/PM30	

Please see attached notes for all abbreviations and acronyms



# NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/2518

## SOILS and ASH

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It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

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As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

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Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

## DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

## BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

**NOTE**

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

**REPORTS FROM THE SOUTH AFRICA LABORATORY**

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

**Measurement Uncertainty**

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

**Customer Provided Information**

Sample ID and depth is information provided by the customer.

**ABBREVIATIONS and ACRONYMS USED**

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B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
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LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
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BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

**HWOL ACRONYMS AND OPERATORS USED**

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 22/2518

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				



## **APPENDIX E: ANTHRAX TEST RESULTS**





**Senders Ref No.** : WS12

**Sender Name and Address**

**Tier Environmental Ltd**  
 Suite 513, Chadwick House,  
 Warrington Road, Birchwood  
 Warrington  
 WA3 6AE

**Lab Ref No.** : YO2202308-01

**Receiving Laboratory** : FWE-York

**Place of Sampling** : OXFORD NORTH, GRANGE  
 FARM, LITTLE CHESTERTON,  
 BICESTER  
 OX25 3PD

**Sample Point** : Other - see sample details

**Sampled By** : NOT KNOWN

**Purchase Order Number** : TE1585

**Date and Time of Sampling** : 08/02/2022 00:00

**Date and Time Received** : 10/02/2022 10:00

**Date and Time Examined** : 16/02/2022 11:53

**Temp at Sampling (°C)** : Not Entered

**Temp on Receipt (°C)** : Ambient

**Condition of Coolbox on receipt** : Sample not received in UKHSA coolbox

**Sample Type** : Bacillus anthracis detection

**Food Category** : Not Applicable

**Sample Description** : SOIL 0.75M

**Use By/Best Before** :

**BatchNo.** :

**Reason for Sampling** : Pathogen screen

**Country of Origin** :

**Non-PHE Survey** :

**Reference / Notes**

**Condition of sample on receipt** : Satisfactory

**MICROBIOLOGICAL EXAMINATION - ENVIRONMENTAL**

**FINAL TEST REPORT**

Test (Performed at receiving laboratory unless stated)	Method Ref.	Result	Unit	Interpretation
<i>Bacillus anthracis</i> (anthrax) spores	~ FNES121	Not Detected in (See Below)		
		Note:		
		Sample weight tested 25.66g		
Total (non-Anthrax) spore count	~ FNES121	Moderate		

**Opinions and Interpretation**

~ The laboratory is accredited under UKAS for the test *Bacillus anthracis* , but NOT for Total (non-Anthrax) spore count

Authorised By : Kathryn Tomlinson - Food Examiner

Date Report Issued: 21/02/2022 10:51

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Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

Information regarding the impact of measurement uncertainty on result interpretation will be provided on request.

Results apply to the sample as received. Where the laboratory has been responsible for sampling (refer to 'Sampled By' field above), this sampling activity is not UKAS accredited.

Key to symbols: < = less than > = greater than CFU = 'Colony Forming Units' MPN = 'Most Probable Number' / = 'Per'  
 GU = 'Genomic Units'



**Senders Ref No.** : WS7

**Sender Name and Address**

**Tier Environmental Ltd**  
 Suite 513, Chadwick House,  
 Warrington Road, Birchwood  
 Warrington  
 WA3 6AE

**Lab Ref No.** : YO2202308-02

**Receiving Laboratory** : FWE-York

**Place of Sampling** : OXFORD NORTH, GRANGE  
 FARM, LITTLE CHESTERTON,  
 BICESTER  
 OX25 3PD

**Sample Point** : Other - see sample details

**Sampled By** : NOT KNOWN

**Purchase Order Number** : TE1585

**Date and Time of Sampling** : 08/02/2022 00:00

**Date and Time Received** : 10/02/2022 10:00

**Date and Time Examined** : 16/02/2022 11:53

**Temp at Sampling (°C)** : Not Entered

**Temp on Receipt (°C)** : Ambient

**Condition of Coolbox on receipt** : Sample not received in UKHSA coolbox

**Sample Type** : Bacillus anthrax detection

**Food Category** : Not Applicable

**Sample Description** : SOIL 0.70M

**Use By/Best Before** :

**BatchNo.** :

**Reason for Sampling** : Pathogen screen

**Country of Origin** :

**Non-PHE Survey** :

**Reference / Notes**

**Condition of sample on receipt** : Satisfactory

**MICROBIOLOGICAL EXAMINATION - ENVIRONMENTAL**

**FINAL TEST REPORT**

Test (Performed at receiving laboratory unless stated)	Method Ref.	Result	Unit	Interpretation
<i>Bacillus anthracis</i> (anthrax) spores	~ FNES121	Not Detected in (See Below)		
		Note:		
		Sample weight tested 25.58g		
Total (non-Anthrax) spore count	~ FNES121	Moderate		

**Opinions and Interpretation**

~ The laboratory is accredited under UKAS for the test *Bacillus anthracis* , but NOT for Total (non-Anthrax) spore count

Authorised By : Kathryn Tomlinson - Food Examiner

Date Report Issued: 21/02/2022 10:51

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 GU = 'Genomic Units'



**Senders Ref No.** : WS8

**Sender Name and Address**

**Tier Environmental Ltd**  
 Suite 513, Chadwick House,  
 Warrington Road, Birchwood  
 Warrington  
 WA3 6AE

**Lab Ref No.** : YO2202308-03

**Receiving Laboratory** : FWE-York

**Place of Sampling** : OXFORD NORTH, GRANGE  
 FARM, LITTLE CHESTERTON,  
 BICESTER  
 OX25 3PD

**Sample Point** : Other - see sample details

**Sampled By** : NOT KNOWN

**Purchase Order Number** : TE1585

**Date and Time of Sampling** : 08/02/2022 00:00

**Date and Time Received** : 10/02/2022 10:00

**Date and Time Examined** : 16/02/2022 11:53

**Temp at Sampling (°C)** : Not Entered

**Temp on Receipt (°C)** : Ambient

**Condition of Coolbox on receipt** : Sample not received in UKHSA coolbox

**Sample Type** : Bacillus anthracis detection

**Food Category** : Not Applicable

**Sample Description** : SOIL 1.20M

**Use By/Best Before** :

**BatchNo.** :

**Reason for Sampling** : Pathogen screen

**Country of Origin** :

**Non-PHE Survey** :

**Reference / Notes**

**Condition of sample on receipt** : Satisfactory

**MICROBIOLOGICAL EXAMINATION - ENVIRONMENTAL**

**FINAL TEST REPORT**

Test (Performed at receiving laboratory unless stated)	Method Ref.	Result	Unit	Interpretation
<i>Bacillus anthracis</i> (anthrax) spores	~ FNES121	Not Detected in (See Below)		
		Note:		
		Sample weight tested 25.36g		
Total (non-Anthrax) spore count	~ FNES121	Low		

**Opinions and Interpretation**

~ The laboratory is accredited under UKAS for the test *Bacillus anthracis* , but NOT for Total (non-Anthrax) spore count

Authorised By : Kathryn Tomlinson - Food Examiner

Date Report Issued: 21/02/2022 10:52

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Key to symbols: < = less than > = greater than CFU = 'Colony Forming Units' MPN = 'Most Probable Number' / = 'Per'  
 GU = 'Genomic Units'



**Senders Ref No.** : WS13

**Sender Name and Address**

**Tier Environmental Ltd**  
 Suite 513, Chadwick House,  
 Warrington Road, Birchwood  
 Warrington  
 WA3 6AE

**Lab Ref No.** : YO2202308-04

**Receiving Laboratory** : FWE-York

**Place of Sampling** : OXFORD NORTH, GRANGE  
 FARM, LITTLE CHESTERTON,  
 BICESTER  
 OX25 3PD

**Sample Point** : Other - see sample details

**Sampled By** : NOT KNOWN

**Purchase Order Number** : TE1585

**Date and Time of Sampling** : 09/02/2022 00:00

**Date and Time Received** : 10/02/2022 10:00

**Date and Time Examined** : 16/02/2022 11:53

**Temp at Sampling (°C)** : Not Entered

**Temp on Receipt (°C)** : Ambient

**Condition of Coolbox on receipt** : Sample not received in UKHSA coolbox

**Sample Type** : Bacillus anthracis detection

**Food Category** : Not Applicable

**Sample Description** : SOIL 0.90M

**Use By/Best Before** :

**BatchNo.** :

**Reason for Sampling** : Pathogen screen

**Country of Origin** :

**Non-PHE Survey** :

**Reference / Notes**

**Condition of sample on receipt** : Satisfactory

**MICROBIOLOGICAL EXAMINATION - ENVIRONMENTAL**

**FINAL TEST REPORT**

Test (Performed at receiving laboratory unless stated)	Method Ref.	Result	Unit	Interpretation
<i>Bacillus anthracis</i> (anthrax) spores	~ FNES121	Not Detected in (See Below)		
		Note:		
		Sample weight tested 26.23g		
Total (non-Anthrax) spore count	~ FNES121	Low		

**Opinions and Interpretation**

~ The laboratory is accredited under UKAS for the test *Bacillus anthracis* , but NOT for Total (non-Anthrax) spore count

Authorised By : Kathryn Tomlinson - Food Examiner

Date Report Issued: 21/02/2022 10:53

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 GU = 'Genomic Units'



**Senders Ref No.** : WS14

**Sender Name and Address**

**Tier Environmental Ltd**  
 Suite 513, Chadwick House,  
 Warrington Road, Birchwood  
 Warrington  
 WA3 6AE

**Lab Ref No.** : YO2202308-05

**Receiving Laboratory** : FWE-York

**Place of Sampling** : OXFORD NORTH, GRANGE  
 FARM, LITTLE CHESTERTON,  
 BICESTER  
 OX25 3PD

**Sample Point** : Other - see sample details

**Sampled By** : NOT KNOWN

**Purchase Order Number** : TE1585

**Date and Time of Sampling** : 09/02/2022 00:00

**Date and Time Received** : 10/02/2022 10:00

**Date and Time Examined** : 16/02/2022 11:53

**Temp at Sampling (°C)** : Not Entered

**Temp on Receipt (°C)** : Ambient

**Condition of Coolbox on receipt** : Sample not received in UKHSA coolbox

**Sample Type** : Bacillus anthrax detection

**Food Category** : Not Applicable

**Sample Description** : SOIL 1.00M

**Use By/Best Before** :

**BatchNo.** :

**Reason for Sampling** : Pathogen screen

**Country of Origin** :

**Non-PHE Survey** :

**Reference / Notes**

**Condition of sample on receipt** : Satisfactory

**MICROBIOLOGICAL EXAMINATION - ENVIRONMENTAL**

**FINAL TEST REPORT**

Test (Performed at receiving laboratory unless stated)	Method Ref.	Result	Unit	Interpretation
<i>Bacillus anthracis</i> (anthrax) spores	~ FNES121	Not Detected in (See Below)		
		Note:		
		Sample weight tested 27.45g		
Total (non-Anthrax) spore count	~ FNES121	Moderate		

**Opinions and Interpretation**

~ The laboratory is accredited under UKAS for the test *Bacillus anthracis* , but NOT for Total (non-Anthrax) spore count

Authorised By : Kathryn Tomlinson - Food Examiner

Date Report Issued: 21/02/2022 10:53

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 GU = 'Genomic Units'



## **APPENDIX F: GAS AND GROUNDWATER MONITORING RESULTS**

## GAS MONITORING ACROSS BOREHOLE LOCATIONS



<b>JOB DETAILS:</b>		<b>Job No:</b>	TE1585		
<b>Client:</b>	Tritax Symmetry	<b>Visit No:</b>	1	of	1
<b>Site:</b>	Oxford North	<b>Operator:</b>	Spyridon Theodoridis		
<b>Date:</b>	15/02/2022	<b>Project Manager:</b>	Sean Lee		

Monitoring Point	GAS CONCENTRATIONS												FLOW DATA		WELL AND WATER DATA					Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppm)		Hydrogen sulphide (ppm)		Oxygen (%v/v)		Flow rate (l/hr)		Water Depth (mbgl)	Depth of Well (mbgl)	Ground Level (mAOD)	Water Level (mAOD)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Lowest	Steady	Peak	Steady						
WS15	0.1	0.1	2.0	2.0	1.6	1.6	12	4	ND	ND	11.8	11.8	14.6	5.5	0.76	3.96				
WS17	0.1	0.1	2.0	2.0	1.2	1.2	2	1	ND	ND	23.9	23.9	22.7	12.8	0.15	3.97				
WS18	0.1	0.1	2.0	2.0	1.3	1.2	4	ND	ND	ND	22.9	22.9	18.2	15.0	0.62	4.00				
<b>Max</b>	0.1	0.1	2.0	2.0	1.6	1.6	<u>12.0</u>	4.0	ND	ND	23.9	23.9	<u>22.7</u>	<u>15.0</u>	0.76	4.00				
<b>Min</b>	0.1	0.1	2.0	2.0	1.2	1.2	2.0	ND	ND	ND	11.8	11.8	<u>14.6</u>	<u>5.5</u>	0.15	3.96				

<b>METEOROLOGICAL AND SITE INFORMATION:</b>	
<b>State of ground:</b>	
<b>Wind:</b>	
<b>Cloud cover:</b>	
<b>Precipitation:</b>	
<b>Barometric pressure (mbar):</b>	
<b>Pressure trend:</b>	
<b>Ground gas meter:</b>	GA5000
<b>Ambient Gas concentration:</b>	

<input type="checkbox"/> Dry	<input type="checkbox"/> Moist	<input checked="" type="checkbox"/> Wet	<input type="checkbox"/> Snow	<input type="checkbox"/> Frozen
<input type="checkbox"/> Calm	<input type="checkbox"/> Light	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Strong	
<input type="checkbox"/> None	<input type="checkbox"/> Slight	<input type="checkbox"/> Cloudy	<input checked="" type="checkbox"/> Overcast	
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Slight	<input type="checkbox"/> Moderate	<input type="checkbox"/> Heavy	
	<input type="checkbox"/> 1002 Before	<input type="checkbox"/> Steady	<input type="checkbox"/> 1002 After	
	<input type="checkbox"/> Falling		<input checked="" type="checkbox"/> Rising	

<b>CH<sub>4</sub></b> <input type="checkbox"/> 0.1%	<b>CO<sub>2</sub></b> <input type="checkbox"/> 0.1%	<b>O<sub>2</sub></b> <input type="checkbox"/> 23.9%
---	---	---