OAKLANDS FARM SOLAR PARK

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Additional Land Classification Survey at Park Farm
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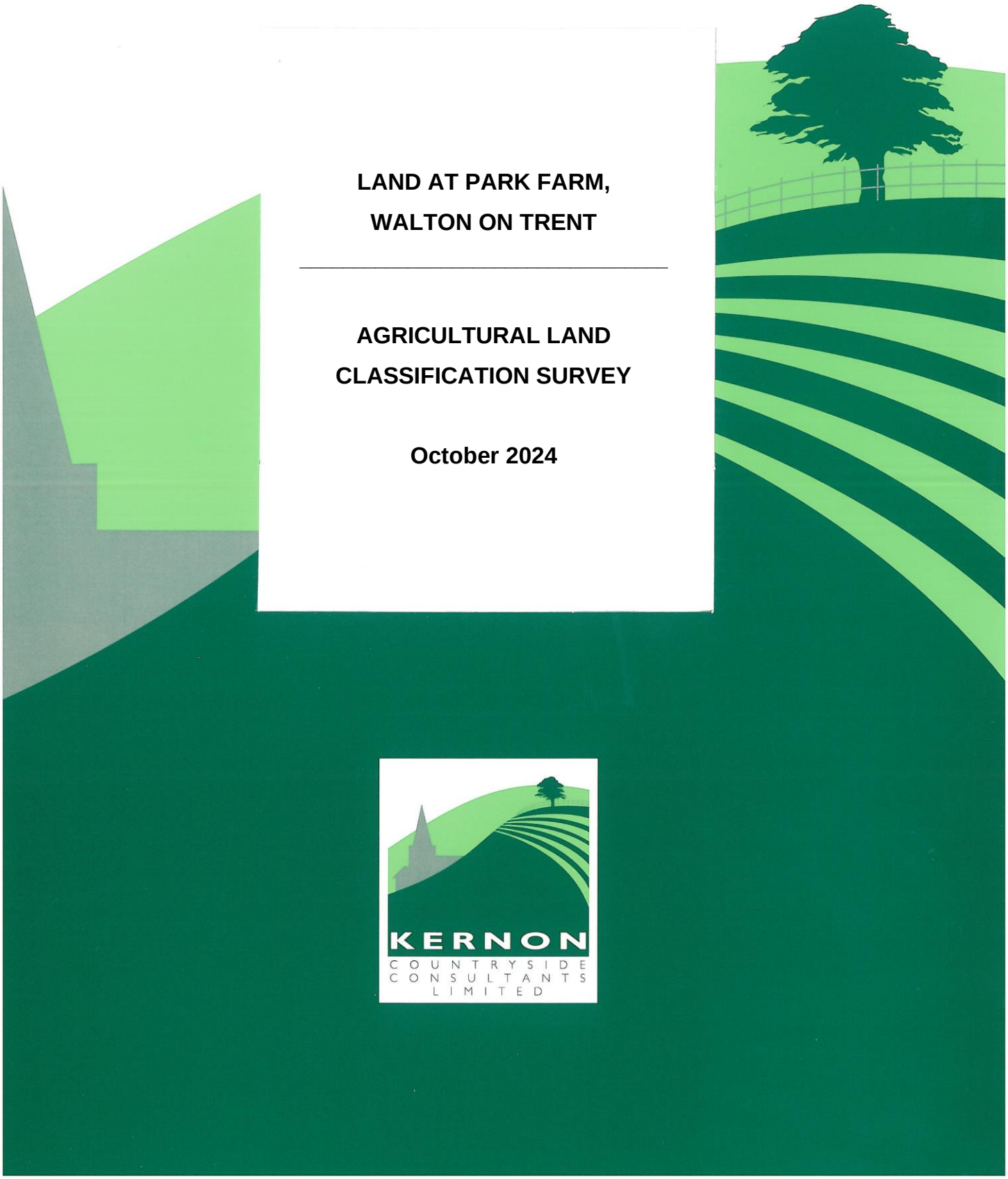
LAND AT PARK FARM, WALTON ON TRENT

AGRICULTURAL LAND CLASSIFICATION SURVEY

October 2024



LAND AT PARK FARM,
WALTON ON TRENT

AGRICULTURAL LAND
CLASSIFICATION SURVEY

October 2024

Authorised By APK 10/24

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APPENDICES

PLANS

1 INTRODUCTION

1.1 This report sets out the results of an Agricultural Land Classification (ALC) survey across a site of approximately 58.4 hectares east of Walton on Trent.

1.2 The ALC follows a detailed soil survey over 48 ha carried out in April 2021, plus an expanded area of 10.2 ha in two parcels, surveyed August 2024.

1.3 This report:

- describes the methodology in section 2;
- describes the factors affecting agricultural land quality in section 3;
- and sets out the ALC grades in section 4.

2 METHODOLOGY

2.1 The ALC was carried out by Robert Askew BSc(Hons), MSc, F.I. Soil Sci CSci. Rob is a Chartered Scientist (CSci), and a Fellow (F. I. Soil Sci) of the British Society of Soil Science (BSSS). This ALC survey has been carried out by a soil scientist who meets the requirements of the BSSS Professional Competency Standard (PSC) scheme for ALC (see BSSS PCS Document 2 '*Agricultural Land Classification of England and Wales*'[1]). The BSSS PSC scheme is endorsed, amongst others, by the Department for Environment, Food and Rural Affairs (Defra), Natural England, the Science Council, and the Institute of Environmental Assessment and Management (IEMA). The field survey was carried out by Adrian Rochford HND, Fellow of the Institute of Professional Soil Scientists. Adrian was a qualified ALC surveyor for the Farming and Rural Conservation Agency (part of MAFF) from 1996 to 2009 and has been an ALC and soil advisor since.

2.2 This assessment is based upon the findings of a study of published information on climate, geology and soil in combination with a soil investigation carried out in accordance with the Ministry of Agriculture, Fisheries and Food (MAFF) [2] '*Agricultural Land Classification of England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land*', October 1988 (henceforth referred to as the 'the ALC Guidelines').

2.3 The ALC system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The ALC system divides agricultural land into five grades (Grade 1 'Excellent' to Grade 5 'Very Poor'), with Grade 3 subdivided into Subgrade 3a 'Good' and Subgrade 3b 'Moderate'. Agricultural land classified as Grade 1, 2 and Subgrade 3a falls in the '*best and most versatile*' category in Paragraphs 180 and 181 of the National Planning Policy Framework (NPPF), revised December 2023. Further details of the ALC system and national planning policy implications are set out by Natural England in its Technical Information Note 049[3].

[1] British Society of Soil Science. Professional Competency Scheme Document 2 'Agricultural Land Classification of England and Wales'. Available online @ https://www.soils.org.uk/sites/default/files/events/flyers/ipss-competency-doc2.pdf Last accessed September 2024

[2] The Ministry of Agriculture, Fisheries and Food (MAFF) was incorporated within the Department for Environment, Food and Rural Affairs (Defra) in June 2001

[3] Natural England (December, 2012). 'Agricultural Land Classification: protecting the best and most versatile agricultural land (TIN049)'. Available online @ http://publications.naturalengland.org.uk/publication/35012 Last accessed September 2024

2.4 A detailed ALC survey was carried out in April 2021 and August 2024. The 2021 survey involved examination of the soil's physical properties at 49 auger-bore locations on a 100m by 100m grid, as shown on **Plan KCC3018/01B**. One soil pit (Pit 1) was excavated with a spade to examine certain soil physical properties, such as stone content and subsoil structure, in more detail.

2.5 An additional area was surveyed in August 2024 involving 10 auger-bore locations plus one soil pit. These are shown in red on **Plan KCC3018/01B**.

2.5 The sample locations were located using a hand-held Garmin E-Trec Geographic Information System (GIS) to enable the sample locations to be relocated for verification, if necessary.

2.6 The soil profile was examined at each sample location to a maximum depth of approximately 1.2 m by hand with the use of a 5 cm diameter Dutch (Edleman) soil auger. The soil profile at each sample location was described using the '*Soil Survey Field Handbook: Describing and Sampling Soil Profiles*' (Ed. J.M. Hodgson, Cranfield University, 1997). Each soil profile was ascribed a grade following the ALC Guidelines.

3 FACTORS AFFECTING LAND QUALITY

3.1 As described in the ALC Guidelines, the main physical factors influencing agricultural land quality are:

- climate;
- site;
- soil; and
- interactive limitations.

3.2 These factors are considered in turn below.

Climate

3.3 Interpolated climate data relevant to determining of the ALC grade of land at the Study Area is given in Table 1 below.

Table 1: ALC Climate Data for Oaklands Solar Farm, Walton on Trent, Staffs

Climate Parameter	**Grid Ref:** SK237182
Average Altitude (m)	64
Average Annual Rainfall (mm)	640
Accumulated Temperature above 0˚C (January – June)	1397
Moisture Deficit (mm) Wheat	105
Moisture Deficit (mm) Potatoes	96
Field Capacity Days (FCD)	139
Grade according to climate	1

3.4 Agricultural land quality at the Study Area is mainly not limited by climate regarding to Figure 1 '*Grade according to climate*' on page 6 of the ALC Guidelines, in which in absence of any other limiting factor the land will be determined as Grade 1.

3.5 Due to the average annual rainfall, agricultural land across the Study Area is predicted to be at field capacity (i.e., near saturation point) for approximately 139 days per year, mainly over the late autumn, winter and early spring. Moisture Deficit (MD) values range between approximately 105mm for wheat, and 96mm for potatoes.

3.6 The climate interacts with soil physical properties, i.e., soil texture and wetness class. It can limit agricultural land quality due to soil wetness, and/or soil droughtiness, as described under 'interactive limitations' below.

Study Area

3.7 The Study Area is located to the east of Walton-on-Trent, Staffordshire. The approximate centre of the study area is located at British National Grid (BNG) reference SK 23764 18281. The western boundary is formed by a tributary of the River Trent. The remainder of the Site is surrounded by agricultural land.

3.8 With regard to the ALC Guidelines, agricultural land quality can be limited by one or more of three main site factors as follows:

- gradient;
- micro-relief (i.e., complex change in slope angle over short distances); and
- risk of flooding.

3.9 **Gradient and Micro-Relief**. The main part of the Study Area is located on a west-facing slope, with the highest elevation in the east at approximately 84 metres (m) Above Ordnance Datum (AOD) and descending to approximately 59 mAOD along the western boundary and along the northern boundary near Walton Road. The quality of agricultural land is limited by gradient in the north-west (Auger-bore locations 2, 4 and 5, **Plan KCC3018/01B**), where the gradient exceeds 7°, but is less than 11°, i.e., the land is limited to Subgrade 3b following Table 1 of the ALC Guidelines. No part of the Study Area is limited by micro-relief (i.e., complex changes in slope angle and direction over short distances).

3.10 **Risk of Flooding**. From the Government Flood Map for Planning website[4], the Study Area is mainly within Flood Zone 1 with regions of Flood Zone 3 in the western region of the Study Area bordering the River Trent. Overall, the agricultural land within the study area is not limited by flooding (re Table 2 '*Grade according to flood risk in summer*' and/or Table 3 '*Grade according to flood risk in winter*' of the ALC Guidelines).

Soil

3.11 **Geology/Soil Parent Material**. British Geological Survey (BGS) online[5] information has been utilised to identify the Bedrock underlying the Study Area and any Superficial (Drift) Deposits over the Bedrock. This information helps to determine the parent material[6] from and within which a soil has formed. From the BGS information, the Park Farm Study Area is underlain entirely by sandstone (Edwalton Member), with mudstone (Gunthorpe Member) underlying the higher ground in the east.

[4] Government Flood Map for Planning website. Available online @ https://flood-map-for-planning.service.gov.uk/ Last accessed September 2024

[5] British Geological Survey 'Geology of Britain Viewer'. Available online @ http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/Viewer.html Last accessed September 2024

[6] British Geological Survey. A 'parent material' is a soil science name for a weathered rock or deposit form and within which a soil has formed. In the UK, parent materials provide the basic foundations and building blocks of soil, influencing their texture, structure, drainage and chemistry. Available online @ Soil Parent Material Model – British Geological Survey (bgs.ac.uk) Last accessed September 2024

3.12 Most of the sandstone is not covered by any superficial deposits, and the soils are developed directly from the sandstone parent material. The sandstone along the western boundary, flanking the watercourse, is covered by a superficial covering of alluvium (clay, silt, sand and gravel). In the northwest, the sandstone is covered by glaciofluvial deposits of sand and gravel. The mudstone bedrock underlying the higher ground in the east is covered by glacial till (Thrussington Member).

3.13 Soil information on the National Soil Map[1] indicates that land at the Site is covered by soils grouped in three soil associations, namely:

(i) Wick 1 Association (541r) around Park Farm buildings in the north of the Study Area underlain by sandstone not covered by any superficial deposits. This soil association consists of deep and well-drained coarse (sandy) loams and sandy soils that sometimes occur over gravel;
(ii) Dunnington Heath Association (572g) in the central part of the Study Area. This association consists of reddish, coarse (sandy) and fine (clay and or silt) loams over clayey soils with slowly permeable subsoils and slight seasonal waterlogging; and
(iii) Brockhurst 2 Association (711c) in the southern cable corridor near the tributary of the River Trent. This area is covered by alluvium. This association consists of slowly permeable and seasonally waterlogged, reddish, fine (clay and/or silt) loams over clay, or clay soils throughout;
(iv) Hodnet Association in the eastern part. This association consists of reddish fine loamy or coarse (sandy) loams with slowly permeable subsoils and slight seasonal waterlogging.

3.14 **Soil Survey**. The detailed soil surveys carried out in April 2021 and August 2024 determined sandy loam and sandy clay loam soils developed over sandstone on the lower ground in the central and western parts of the Site. Much of the lighter, sandier, soils are well drained (Wetness Class I) but some soils near the watercourse along the western boundary are slowly permeable and seasonally waterlogged (Wetness Class III).

3.15 The soils in the east, developed in glacial till over mudstone, comprise heavy clay loam soils which have slowly permeable subsoil (Wetness Class IV). The profiles are seasonally waterlogged as a result. Some of the topsoils on high ground in the east, i.e., auger-bore 34, 35, 36 40 and 41, **Plan KCC3018/01B**) are slightly to moderately stony, are and limited to Subgrade 3a by the size of stones (2-6cm), following Table 5 of the ALC Guidelines.

[1]Cranfield University (2024) Soil site report, Soil Report for location 423602E, 318487N, 2km x 2km, Cranfield University.

3.16 A log of all the soil profiles recorded from both surveys is given as **Appendices KCC1** and **KCC2**. Two soil pits were excavated with a spade to examine certain soil physical properties, such as subsoil structure, in more detail. A description of the soil pits is given as **Appendices KCC3** and **KCC4**.

Interactive Limitations

3.17 From the information above, together with the findings of the detailed soil survey (see Soil Profile Logs given as **Appendices KCC1** and **KCC2**), it has been determined that the quality of agricultural land over the Study Area is limited by soil droughtiness on lighter (sandier) and well drained soils during the growing season, and by soil wetness on heavier, seasonally waterlogged soils during the wettest times of the year (i.e., autumn and winter), as described below.

3.18 **Soil Droughtiness**. As shown in the soil profile logs given as **Appendices KCC1** and **KCC2**, moisture balance (MB) calculations for the ALC reference crops (winter wheat and maincrop potatoes) have determined that the soil profiles mainly have MB values of between -20 to -50mm for wheat, and/or between -30mm to -55mm for potatoes. These MB values limit the quality of agricultural land to Subgrade 3b (re Table 8 'Grade according to droughtiness' of the ALC Guidelines).

3.19 Soil profiles that have calculated MB values of between +5mm and -20mm for wheat, and between -10mm and -30mm for potatoes. These profiles are limited by soil droughtiness to Subgrade 3a (re Table 8 'Grade according to droughtiness' of the ALC Guidelines).

3.20 Occasionally, soil profiles that have calculated MB values of between +30mm and +5mm for wheat, and between +10mm and -10mm for potatoes. These profiles are limited by soil droughtiness to Grade 2 (re Table 8 'Grade according to droughtiness' of the ALC Guidelines).

3.21 **Soil Wetness**. From the ALC Guidelines, a soil wetness limitation exists where '*the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock*'. Agricultural land quality at the Study Area is limited by soil wetness as per Table 2 below (based on Table 6 'Grade According to Soil Wetness – Mineral Soils' in the ALC Guidelines).

Table 2: Predicted ALC Grade According to Soil Wetness

Wetness Class	Texture of the Top 25 cm	126-150 Field Capacity Days
I	Sandy Loam, Sandy Silt Loam	1
	Medium Clay Loam*, Sandy Clay Loam	1
	Heavy Silty Clay Loam**, Heavy Clay Loam**	2
	Clay, Silty Clay	3a
II	Sandy Loam, Sandy Silt Loam	1
	Medium Clay Loam*, Sandy Clay Loam	2
	Heavy Silty Clay Loam**, Heavy Clay Loam**	3a
	Clay, Silty Clay	3b
III	Sandy Loam, Sandy Silt Loam	2
	Medium Clay Loam*, Sandy Clay Loam	3a
	Heavy Silty Clay Loam**, Heavy Clay Loam**	3b
	Clay, Silty Clay	3b
IV	Sandy Loam, Sandy Silt Loam	3a
	Medium Clay Loam*, Sandy Clay Loam	3b
	Heavy Silty Clay Loam**, Heavy Clay Loam**	3b
	Clay, Silty Clay	3b
Key * <27% clay; and ** >27% clay		

3.22 Therefore, in a climate area with 139 field capacity days (FCD), the soil profiles in Wetness Class III and IV with heavy clay loam topsoils are limited to Subgrade 3b. Whilst, the soil profiles in Wetness Class III with sandy clay loam topsoils are limited to Subgrade 3a.

Predicted ALC

3.23 MAFF Provisional ALC information (1:250,000) indicates that agricultural land around Walton-on-Trent is Grade 2 and Grade 3 (not differentiated between Subgrade 3a and Subgrade 3b). No detailed (post-1988) ALC survey information covers the Study Area. However, there is a large proportion of Subgrade 3b to the south and east, with smaller regions of Grade 1, Grade 2 and Subgrade 3a.

4 AGRICULTURAL LAND CLASSIFICATION GRADING AT THE SITE

4.1 The agricultural land within the study area has been classified mainly as Subgrade 3b with smaller regions of Subgrade 3a and Grade 2. The area and proportion of agricultural land in each ALC grade has been measured from an ALC map given as **Plan KCC3018/03**. The findings are reported in Table 3 below.

Table 3: Agricultural Land Classification – Oakland Solar Farm, Walton On Trent

ALC Grade	**2021 Survey (Ha)**	**2024 Survey**	**Combined (Ha)**	**Area (% of Total Site)**
Grade 1 (Excellent)	0	0	0	0
Grade 2 (Very Good)	4.5	0	4.5	8
Subgrade 3a (Good)	7.3	8.1	15.4	26
Subgrade 3b (Moderate)	36.4	2.1	38.5	66
Grade 4 (Poor)	0	0	0	0
Grade 5 (Very Poor)	0	0	0	0
Non-agricultural / Other land	0	0	0	0
Total	**48.2**	**10.2**	**58.4**	**100**

Appendix KCC1

2021 Soil Profile Logs

Project Number	Project Name	Parcel
C783	KCC3018 Oakland Farm, Walton on Trent, Derbyshire	

Date of Survey	Survey Type	Surveyor(s)	Company
14/04/2021	Detailed ALC	AR	Askew Land and Soil

Weather	Relief	Land use and vegetation
Mild, sunny, slight breeze.	West to southwest facing slope	LEY (Ley Grass)

Grid Reference	Postcode	Altitude	Area
SK237182	DE15 9UF	64	50

MAFF prov	MAFF detailed	Flooding
Grade 2	No post 1988 ALC	Flood Zopne 1, with FZ3 to the west

AAR	AT0	MDw	MDp	FCD	Climate grade
640	1397		105	96	1

Bedrock	Superficial deposits
Edwalton Sandstone; Gunthorpe Mudstone in east	Alluvium along west boundary; till in east

Soil association(s) 1:250,000	Detailed soil information
Whimple 3	No detailed SSEW soil surveys

Revision Number	Date Revised
2	30/04/2021

Point	Grid ref.			Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour			%	> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape					MBw	MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade
1	SK 23300	18600	423300	318600	60	≤7	W	0	30	30	7.5YR4/3						SCL - San	5											NON -	Non-calcare			128	0	2	WC III	3a	Wetness			3a
								30	55	25	5YR4/3					No	SCL - San	2											NON -	No	No										
								55	120	65	5YR4/4	FD - Fr	5Y6/2			No	C - Clay	0											NON -	No	Yes										
2	SK 23400	18600	423400	318600	60	≤7	W	0	35	35	7.5YR4/2						MSL - Me	5											NON -	Non-calcare			96	-24	3a	WC I	1	Droughtiness			3a
								35	70	35	7.5YR4/4					No	LMS - Lo	2											NON -	No	No										
								70	120	50	7.5YR5/6					No	MS - Mec	2											NON -	No	No										
3	SK 23400	18500	423400	318500	60	≤7	W	0	30	30	7.5YR4/2						SCL - San	5											NON -	Non-calcare			109	-6	2	WC I	1	Droughtiness			2
								30	65	35	7.5YR4/3					No	MSL - Me	10											NON -	No	No										
								65	120	55	7.5YR5/4					No	MS - Mec	20											NON -	No	No										
4	SK 23500	18500	423500	318500	68	≤7	W	0	40	40	7.5YR4/2						MSL - Me	5											NON -	Non-calcare			130	1	2	WC III	2	Droughtiness Wetness			2
								40	55	15	7.5YR4/3					No	MSL - Me	2											NON -	No	No										
								55	120	65	5YR5/4	FD - Fr	5Y6/2			No	C - Clay	0											NON -	No	Yes										
5	SK 23600	18500	423600	318500	73	≤7	W	0	25	25	7.5YR4/3						MSL - Me	5											NON -	Non-calcare			113	-8	2	WC I	1	Droughtiness			2
								25	60	35	7.5YR4/4					No	MSL - Me	5											NON -	No	No										
								60	120	60	7.5YR5/4					No	LMS - Lo	10											NON -	No	No										
6	SK 23700	18500	423700	318500	73	≤7	W	0	32	32	7.5YR4/2						HCL - Cla	1											NON -	Non-calcare			129	1	2	WC IV	3b	Wetness			3b
								32	120	88	5YR5/4	CD - C	5Y6/2			Yes	C - Clay	0											NON -	Yes	Yes										
7	SK 23800	18500	423800	318500	78	≤7	W	0	35	35	7.5YR4/3						HCL - Cla	1											NON -	Non-calcare			130	2	2	WC IV	3b	Wetness			3b
								35	120	85	5YR5/3	CD - C	5Y6/2	CD - C	7.5YR5/8	Yes	C - Clay	1											NON -	Yes	Yes										
8	SK 23500	18400	423500	318400	68	≤7	W	0	30	30	7.5YR4/2						HCL - Cla	10											NON -	Non-calcare			147	3	2	WC I	2	Droughtiness Wetness			2
								30	55	25	7.5YR4/3					No	SCL - San	2											NON -	No	No										
								55	120	65	7.5YR5/3	CD - C	7.5YR5/6			Yes	SCL - San	2											NON -	No	No										
9	SK 23600	18400	423600	318400	73	≤7	W	0	35	35	7.5YR4/2						HCL - Cla	2											NON -	Non-calcare			130	2	2	WC IV	3b	Wetness			3b
								35	120	85	5YR4/4	FD - Fr	5Y6/2			No	C - Clay	0											NON -	No	Yes										
10	SK 23700	18400	423700	318400	73	≤7	W	0	32	32	7.5YR4/2						C - Clay	0											NON -	Non-calcare			127	-1	2	WC IV	3b	Wetness			3b
								32	120	88	5YR4/4	FD - Fr	5Y6/2			No	C - Clay	0											NON -	No	Yes										
11	SK 23800	18400	423800	318400	78	≤7	W	0	44	44	7.5YR4/3						SCL - San	4											NON -	Non-calcare			138	8	2	WC II	2	Droughtiness Wetness			3b
								44	75	31	7.5YR4/4					No	HCL - Cla	1											NON -	Yes	No										
								75	120	45	5YR4/4	CP - Cl	2.5Y6/2			Yes	C - Clay	0											NON -	Yes	Yes										
12	SK 23600	18300	423600	318300	59	≤7	W	0	27	27	10YR4/2						C - Clay	0											NON -	Non-calcare			125	-3	2	WC IV	3b	Wetness			3b
								27	120	93	2.5Y6/2	CP - Cl	7.5YR5/6			Yes	C - Clay	0											NON -	No	Yes										

Point	Grid ref.			Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour			%	> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape					MBw	MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade
28	SK 24100	18200	424100	318200	81	≤7	W	LEY	0	40	40	7.5YR3/3					MSL - Me	12			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	-11	-18	3a	WC I	1	Droughtiness			3a
								40	60	20	7.5YR3/4					No	LMS - Loa	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
								60	120	60	7.5YR5/4					No	MS - Mec	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
29	SK 24200	18200	424200	318200	73	≤7	W	LEY	0	40	40	7.5YR3/3					SCL - San	10	6		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	-1	-8	3a	WC I	1	Droughtiness			3a
								40	50	10	7.5YR3/4					No	SCL - San	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
								50	120	70	10YR6/3	CD - C	10YR5/6			Yes	LMS - Loa	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
30	SK 24300	18200	424300	318200	68	≤7	W	LEY	0	35	35	7.5YR3/3					SCL - San	12	6		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	24	1	2	WC I	1	Droughtiness			2
								35	60	25	7.5YR3/4					No	SCL - San	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
								60	120	60	7.5YR4/4					No	SCL - San	20			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
31	SK 23800	18100	423800	318100	64	≤7	W	LEY	0	30	30	7.5YR4/3					HCL - Cla	10			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	19	5	2	WC IV	3b	Wetness			3b
								30	60	30	5YR5/4	CD - C	2.5Y6/2			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	Yes	Yes								
								60	120	60	5YR4/4	FD - F	2.5Y6/2			No	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	No	No								
32	SK 23900	18100	423900	318100	76	≤7	W	LEY	0	30	30	7.5YR3/3					C - Clay	10			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	16	2	2	WC IV	3b	Wetness			3b
								30	50	20	5YR5/3	MD - F	2.5Y6/2			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	Yes	Yes								
								50	120	70	5YR4/4	CD - C	5Y6/2			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	Yes	Yes								
33	SK 24000	18100	424000	318100	84	≤7	W	LEY	0	30	30	7.5YR3/3					SCL - San	15			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	10	-3	2	WC IV	3b	Wetness			3b
								30	120	90	5YR5/3	CP - C	2.5Y6/2			Yes	C - Clay	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	No	Yes								
34	SK 24100	18100	424100	318100	84	≤7	W	LEY	0	35	35	7.5YR3/2					SCL - San	20	13	3	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	18	-2	2	WC I	1	Droughtiness			2
								35	45	10	7.5YR4/4					No	SCL - San	20			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
								45	70	25	10YR6/3	CP - C	7.5YR5/6			Yes	MSL - Me	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	Yes	No								
								70	120	50	7.5YR6/3	CP - C	5YR5/6			Yes	SC - Sand	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	No	No								
35	SK 24200	18100	424200	318100	81	≤7	W	LEY	0	40	40	7.5YR3/2					MSL - Me	15	10	6	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	-2	-9	3a	WC I	1	Droughtiness			3a
								40	55	15	7.5YR3/3					No	MSL - Me	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
								55	120	65	10YR6/3	CP - C	7.5YR4/6			Yes	LMS - Loa	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
36	SK 24300	18100	424300	318100	71	≤7	W	LEY	0	36	36	7.5YR3/3					SCL - San	15	10	6	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	18	-1	2	WC I	1	Droughtiness			2
								36	55	19	7.5YR4/3					No	MSL - Me	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
								55	80	25	5YR4/4					No	SCL - San	20			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
								80	120	40	5YR4/4					No	SC - Sand	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	No	No								
37	SK 23800	18000	423800	318000	64	≤7	W	LEY	0	35	35	7.5YR4/3					HCL - Cla	10			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	42	11	1	WC II	3a	Wetness			3a
								35	70	35	2.5Y6/2	CP - C	10YR5/6			Yes	SCL - San	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
								70	120	50	2.5Y6/2	CP - C	10YR5/6			Yes	MSL - Me	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Moderate	NON -	No	No								
38	SK 23900	18000	423900	318000	76	≤7	W	LEY	0	34	34	7.5YR4/3					HCL - Cla	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	23	9	2	WC IV	3b	Wetness			3b
								34	120	86	5YR5/3	MP - M	2.5Y6/2			Yes	C - Clay				HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	Yes	Yes								
39	SK 24000	18000	424000	318000	84	≤7	W	LEY	0	35	35	7.5YR4/3					SCL - San	20			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare	-37	-21	3b	WC IV	3b	Droughtiness	Wetness		3b
								35	50	15	5YR4/4	CP - C	2.5Y6/2			Yes	C - Clay	40			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor	NON -	Yes	Yes								
								50	70	20							C - Clay	50			HR - All hard rocks or stones (i.e. those which cannot be scratched wi							Poor			Yes								

Point	Grid ref.			Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour			%	> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape					MBw	MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade
40	SK 24100	18000	424100	318000	84	≤7	W	LEY	0	35	35	7.5YR3/2					SCL - San	20	12	4	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			6	-12	3a	WC I	1	Droughtiness			3a
									35	45	10	7.5YR5/3	CD - C	7.5YR5/6		Yes	LMS - Loa	20			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	Yes		No									
									45	120	75	5YR5/4	CD - C	10YR6/3		Yes	SC - Sand	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Poor		NON -	Yes		No									
41	SK 24200	18000	424200	318000	81	≤7	W	LEY	0	36	36	7.5YR3/2					MSL - Me	25	16	3	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			-11	-16	3a	WC I	1	Droughtiness			3a
									36	50	14	7.5YR3/3				No	SCL - San	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									50	75	25	7.5YR5/4				No	LMS - Loa	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									75	120	45	7.5YR5/4				No	MS - Mec	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
42	SK 23800	17900	423800	317900	71	≤7	W	LEY	0	35	35	7.5YR4/3					HCL - Cla	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			26	12	2	WC IV	3b	Wetness			3b
									35	45	10	2.5Y5/2	CP - C	10YR5/6		Yes	HCL - Cla	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	Yes		No									
									45	120	75	5YR5/4	CP - C	2.5Y6/2		Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Poor		NON -	Yes		Yes									
43	SK 23900	17900	423900	317900	79	≤7	W	LEY	0	35	35	7.5YR3/3					C - Clay	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			20	6	2	WC IV	3b	Wetness			3b
									35	120	85	5YR5/3	CP - C	2.5Y6/2		Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Poor		NON -	Yes		Yes									
44	SK 24000	17900	424000	317900	80	≤7	W	LEY	0	35	35	7.5YR3/3					SCL - San	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			22	8	2	WC III	3a	Wetness			3a
									35	45	10	7.5YR5/3	MP - M	7.5YR5/8		Yes	C - Clay	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									45	120	75	5YR5/3	MD - M	2.5Y6/2		Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Poor		NON -	Yes		Yes									
45	SK 24100	17900	424100	317900	80	≤7	W	LEY	0	36	36	10YR4/2					MSL - Me	25	16	6	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			-31	-17	3b	WC I	1	Droughtiness			3b
									36	50	14	10YR4/4				No	MSL - Me	25			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									50	70	20						MSL - Me	50			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate					No									
46	SK 24200	17900	424200	317900	78	≤7	W	LEY	0	38	38	7.5YR3/2					SCL - San	20	12	6	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			10	-9	2	WC I	1	Droughtiness			2
									38	60	22	7.5YR4/3				No	SCL - San	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	Yes		No									
									60	70	10	7.5YR5/4				No	LMS - Loa	15			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									70	90	20	7.5YR6/4				No	MS - Mec	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									90	120	30	5YR5/3	CD - C	5YR5/6		Yes	SCL - San	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate			No		No									
47	SK 23900	17800	423900	317800	79	≤7	W	LEY	0	38	38	7.5YR3/3					HCL - Cla	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			28	15	2	WC III	3b	Wetness			3b
									38	55	17	10YR5/3	CD - C	10YR5/6		Yes	C - Clay	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									55	120	65	5YR5/3	CD - C	2.5Y6/2		Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Poor		NON -	Yes		Yes									
48	SK 24000	17800	424000	317800	80	≤7	W	LEY	0	35	35	7.5YR3/3					SCL - San	8			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			22	-9	2	WC I	1	Droughtiness			2
									35	60	25	10YR5/3	CD - C	10YR5/6		Yes	LMS - Loa	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									60	120	60	5YR4/4				No	SCL - San	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
49	SK 24100	17800	424100	317800	80	≤7	W	LEY	0	35	35	7.5YR3/3					SCL - San	10			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger							NON -	Non-calcare			21	6	2	WC II	2	Droughtiness Wetness			2
									35	50	15	7.5YR4/3				No	SCL - San	5			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	No		No									
									50	60	10	7.5YR6/3	CD - C	7.5YR5/8		Yes	SCL - San	10			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Moderate		NON -	Yes		No									
									60	120	60	5YR5/3	CD - C	2.5Y6/2		Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched wi					Poor		NON -	No		Yes									
	END																																						

Point	Grid ref.			Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour			%	> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape					MBw	MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade
13	SK 23700	18300	423700	318300	59	≤7	W	0	24	24	10YR4/2						HCL - Cla	0																					
								24	120	96	2.5Y5/2	CP - Cl	7.5YR4/6			Yes	C - Clay	0											NON -	Non-calcare	126	-2	2	WC IV	3b	Wetness			3b
																													NON -	Yes		Yes						
14	SK 23800	18300	423800	318300	64	≤7	W	0	35	35	7.5YR4/2						HCL - Cla	5																					
								35	55	20	7.5YR4/4					No	C - Clay	2											NON -	Non-calcare	133	6	2	WC III	3b	Wetness			3b
								55	120	65	5YR5/4	CD - C	2.5Y6/2			Yes	C - Clay	0											NON -	Yes		Yes						
15	SK 23900	18300	423900	318300	80	≤7	W	0	32	32	5YR4/2						HCL - Cla	10																					
								32	120	88	5YR5/4	CD - C	2.5Y6/2			Yes	C - Clay	0											NON -	Non-calcare	125	-3	2	WC IV	3b	Wetness			3b
																													NON -	Yes		Yes						
16	SK 23600	18200	423600	318200	59	≤7	W	0	25	25	10YR3/2						C - Clay	0																					
								25	45	20	2.5Y5/3	CD - C	10YR5/6			Yes	C - Clay	0											NON -	Non-calcare	143	40	1	WC IV	3b	Wetness			3b
								45	65	20	10YR2/1					No	HP - Hum	0											NON -	No		No						
								65	75	10	2.5Y5/1					No	SCL - San	50											NON -	No		No						
								75	95	20							SCL - San	50														No						
17	SK 23700	18200	423700	318200	59	≤7	W	0	50	50	10YR4/3						HCL - Cla	0																					
								50	120	70	2.5Y5/2	CP - Cl	7.5YR5/6			Yes	C - Clay	0											NON -	Non-calcare	139	11	1	WC II	3a	Wetness			3a
																													NON -	Yes		Yes						
18	SK 23800	18200	423800	318200	64	≤7	W	0	32	32	7.5YR4/2						HCL - Cla	15																					
								32	120	88	5YR5/4	CD - C	2.5Y6/2			Yes	C - Clay	0											NON -	Non-calcare	122	-6	2	WC IV	3b	Wetness			3b
																													NON -	Yes		Yes						
19	SK 23900	18200	423900	318200	80	≤7	W	0	35	35	7.5YR4/2						HCL - Cla	10																					
								35	95	60	7.5YR4/4					No	C - Clay	15											NON -	Non-calcare	126	0	2	WC I	1	Droughtiness			2
								95	120	25	5YR5/4					No	C - Clay	0											NON -	No		Yes						
20	SK 23600	18100	423600	318100	61	≤7	W	0	35	35	10YR3/2						C - Clay	5																					
								35	45	10	10YR2/1					No	OC - Orga	0											NON -	Non-calcare	97	-5	2	WC IV	3b	Wetness			3b
								45	55	10	2.5Y5/2					No	SC - Sand	50											NON -	No		No						
								55	75	20							SC - Sand	50														No						
21	SK 23700	18100	423700	318100	61	≤7	W	0	32	32	10YR4/2						HCL - Cla	0																					
								32	120	88	2.5Y6/1	CP - Cl	7.5YR5/6			Yes	C - Clay	0											NON -	Non-calcare	130	2	2	WC IV	3b	Wetness			3b
																													NON -	Yes		Yes						
22	SK 23500	18000	423500	318000	62	≤7	W	0	28	28	10YR4/2						C - Clay	0																					
								28	120	92	10YR5/2	CP - Cl	7.5YR4/6			Yes	C - Clay	0											NON -	Non-calcare	125	-3	2	WC IV	3b	Wetness			3b
																													NON -	No		Yes						
23	SK 23600	18000	423600	318000	61	≤7	W	0	27	27	10YR4/2						C - Clay	0																					
								27	120	93	5Y5/1	CP - Cl	7.5YR5/6			Yes	C - Clay	0											NON -	Non-calcare	125	-3	2	WC IV	3b	Wetness			3b
																													NON -	No		Yes						
24	SK 23700	18000	423700	318000	61	≤7	W	0	34	34	7.5YR4/3						C - Clay	5																					
								34	120	86	2.5Y5/3	CP - Cl	7.5YR5/6			Yes	C - Clay	2											NON -	Non-calcare	124	-4	2	WC IV	3b	Wetness			3b
																													NON -	No		Yes						

Point	Grid ref			Alt (m)	Slope °	Aspect	Land use	Depth (cm)		Matrix		Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1			Stones - type 2			Ped			SUBS STR	CaCO3	Mn C	SPL	Drought		Wet		Final ALC		
	NGR	X	Y					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour			%	> 2cm	> 6cm	%	> 2cm	> 6cm	Type	Strength	Size	Shape				MBw	MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade
25	SK 23500	17900	423500	317900	63	≤7	W	0	28	28	10YR4/2						C - Clay	0																			
								28	120	92	10YR5/2	MP - F	7.5YR5/6			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger						NON - N	Non-calcare	125	-3	2	WC IV	3b	Wetness			3b
																					HR - All hard rocks or stones (i.e. those which cannot be scratched w						NON - N	No	Yes										
26	SK 23600	17900	423600	317900	66	≤7	W	0	30	30	7.5YR3/3						C - Clay	8																			
								30	120	90	2.5Y6/2	CP - C	10YR5/6			Yes	C - Clay	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger						NON - N	Non-calcare	119	-8	2	WC IV	3b	Wetness			3b
																					HR - All hard rocks or stones (i.e. those which cannot be scratched w						NON - N	Yes	Yes										
27	SK 23700	17900	423700	317900	66	≤7	W	0	35	35	7.5YR4/3						HCL - Cla	10																			
								35	45	10	10YR5/3	CD - C	10YR5/6			Yes	HCL - Cla	10			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger						NON - N	Non-calcare	130	3	2	WC II	3a	Wetness			3a
								45	120	75	10YR3/1					No	C - Clay	10			HR - All hard rocks or stones (i.e. those which cannot be scratched w						NON - N	No	No										
END																																				

Mottle form
FF - Few Faint
FD - Few Distinct
FP - Few Prominent
CF - Common Faint
CD - Common Distinct
CP - Common Prominent
MF - Many Faint
MD - Many Distinct
MP - Many Prominent
VF - Very many Faint
VD - Very many Distinct
VP - Very many Prominent

Texture
C - Clay
CHK - Chalk
CS - Coarse Sand
CSL - Coarse sandy loam
CSZL - Coarse sandy silt loam
FP - Fibrous and semifibrous peats
FS - Fine Sand
FSL - Fine sandy loam
FSZL - Fine sandy silt loam
HCL - Clay loam (heavy)
HP - Humified peats
HZCL - Silty clay loam (heavy)
IMP - Impenetrable to roots
LCS - Loamy Coarse Sand
LFS - Loamy fine sand
LMS - Loamy medium sand
LP - Loamy peats
MCL - Clay loam (medium)
MS - Medium Sand
MSL - Medium sandy loam
MSZL - Medium sandy silt loam
MZ - Marine Light Silts
MZCL - Silty clay loam (medium)
OC - Organic clays
OL - Organic loams
OS - Organic sands
PL - Peaty loams
PS - Peaty sands
SC - Sandy clay
SCL - Sandy clay loam
SP - Sandy peats
ZC - Silty clay
ZL - Silt loam

Stone Type
CH - Chalk or chalk stones
FSST - Soft fine grained sandstones
GH - Gravel with non-porous (hard) stones
GS - Gravel with porous stones (mainly soft stone types listed above)
HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)
MSST - Soft, medium or coarse grained sandstones
SI - Soft 'weathered' igneous or metamorphic rocks or stones
SLST - Soft oolitic or dolomitic limestones
ZR - Soft, argillaceous or silty rocks or stones

Ped. Shape
SG - Single grain
GRA - Granular
SAB - Subangular Blocky
AB - Angular Blocky
PRIS - Prismatic
PLAT - Platy
MASS - Massive
NA - N/A

Subsoil Structure Condition
Not Applicable
Good
Moderate
Poor

Soil or Ped. Strength
Loose
Very friable
Friable
Firm
Very firm
Extremely firm
Extremely hard
N/A

Calcareousness
NON - Non-calcareous (<0.5% CaCO3)
VSC - Very slightly calcareous (0.5 - 1% CaCO3)
SC - Slightly calcareous (1 - 5% CaCO3)
MC - Moderately calcareous (5 - 10% CaCO3)
VC - Very calcareous (>10% CaCO3)

Ped. Size
VF - Very Fine
F - Fine
M - Medium
C - Coarse
VC - Very Coarse
NA - N/A

Degree of Ped. Development
W - Weak
M - Moderate
S - Strong
NA - Not applicable

Wetness Class
WC I
WC II
WC III
WC IV
WC V
WC VI

ALC Grades
1
2
3a
3b
4
5
Non-Ag

Gley
None
Gley
N/A

Appendix KCC2

2024 Soil Profile Logs

Point	Grid ref.			Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y					Top	Bttm	Thick	Munsell co	Form	Munsell co	Form	Munsell co			%	> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape					MBw	MBp	Gd	WC	Gw	Limitation	Limitation	Limitation	Grade
1	SK 23866 1	423866	319372	60	≤7	Level	CER	0	35	35	7.5YR4/2						MSL - Med	10	6	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% C			0	-6	3a	WC I	1	Droughtiness			3a
								35	55	20	7.5YR4/3						MSL - Med	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								55	80	25	7.5YR5/3	MP - Many	5YR4/6			Yes	LMS - Loar	20		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								80	120	40	10YR6/2					Yes	MS - Medi	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
2	SK 23742 1	423742	319329	61	≤7	Level	CER	0	30	30	10YR3/2						MCL - Clay	10	8	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% C			30	5	2	WC I	1	Droughtiness			2
								30	65	35	10YR6/2	CD - Comr	10YR5/6			Yes	SCL - Sand	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								65	120	55	10YR4/1					No	MSL - Med	25		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
3	SK 23624 1	423624	319195	66	≤7	Level	CER	0	38	38	10YR4/2						MSL - Med	5		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% C			-8	-13	3a	WC I	1	Droughtiness			3a
								38	60	22	10YR4/1					No	LMS - Loar	10		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								60	120	60	10YR6/2	CD - Comr	7.5YR5/6			Yes	LMS - Loar	25		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
4	SK 23621 1	423621	318977	66	≤7	Level	CER	0	30	30	10YR4/2						MSL - Med	10		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% C			-17	-18	3a	WC I	1	Droughtiness			3a
								30	50	20	10YR4/5					No	MSL - Med	25		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								50	120	70							LMS - Loar	50		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non-calcareou		No								
5	SK 23597 1	423597	318850	66	≤7	Level	CER	0	38	38	10YR4/2						MSL - Med	10		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% C			-13	-15	3a	WC I	1	Droughtiness			3a
								38	50	12	10YR4/5					No	MSL - Med	25		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								50	120	70							LMS - Loar	50		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non-calcareou		No								
6	SK 23566 1	423566	318672	71	≤7	Level	CER	0	30	30	10YR4/2						MSL - Med	10	6	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% C			-11	-16	3a	WC I	1	Droughtiness			3a
								30	40	10	10YR4/4						MSL - Med	10		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								40	70	30	10YR5/6					No	LMS - Loar	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								70	120	50	10YR6/6					No	MS - Medi	10		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
7	SK 23448 1	423448	318663	71	≤7	Level	CER	0	30	30	10YR4/2						MSL - Med	10	6	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% C			0	-8	3a	WC I	1	Droughtiness			3a
								30	50	20	10YR4/4					No	MSL - Med	10		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
								50	120	70	10YR5/6					No	LMS - Loar	10		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non	No	No								
8	SK 23509 1	423509	317854	63	≤7	Level	CER	0	30	30	10YR4/3						C - Clay	0											NON - Non-calcareous (<0.5% C			22	8	2	WC IV	3b	Wetness			3b
								30	120	90	2.5Y5/1	CP - Comn	7.5YR4/6			Yes	C - Clay	0										Poor	NON - Non	No	Yes								
9	SK 23476 1	423476	317764	63	≤7	Level	CER	0	25	25	10YR4/2	CP - Comn	7.5YR4/6			Yes	HCL - Clay	0											NON - Non-calcareous (<0.5% C			22	8	2	WC IV	3b	Wetness			3b
								25	120	95	2.5Y6/1	MP - Many	7.5YR5/8			Yes	C - Clay	0										Poor	NON - Non	No	Yes								
10	SK 23427 1	423427	317631	65	≤7	Level	CER	0	25	25	10YR4/2	CP - Comn	7.5YR4/6			Yes	C - Clay	0											NON - Non-calcareous (<0.5% C			20	6	2	WC IV	3b	Wetness			3b
								25	120	95	2.5Y5/1	CP - Comn	7.5YR4/6			Yes	C - Clay	0										Poor	NON - Non	No	Yes								
	END																																						

Appendix KCC3

2021 Description of Soil Pit

Project	Location	Date	Surveyor(s)	Company
C783	KCC3018 Oaklands Solar Farm, Walton on Trent, Staffordshire	14-Apr-21	AR	Askew Land and Soil

Pit	WC	Grade	Limitation(s)	Notes
1	IV	3b	Wetness	

Grid Ref.			Altitude	Nearest	Topography				Flora		Weather and conditions			
Square	East	North		point	Gradient	Aspect	Slope form	Surface	Culivation type	Vegetation types	Temp	Sky	Wind	Precipitation
SK	237	183	59	AB13	<7°	West	Straight				Mild	Cloudy	Slight	Dry

Horizon	Depth		Matrix			Gleying			Mottles			Stone content					Calc.	Mn C	Ped/soil structure				Horizon boundary		Biopores	SPL
	Top	Bttm	Texture	Colour	Munsell	Gley	Colour	Munsell	Form	Colour	Munsell	%	H	Type	S	Type			Dev.	Size	Structure	Strength	Distinct	Form	0.5mm	
1	0	24	Heavy Clay Loam	Dark Greyish Brown	10YR4/2							0					Non	No	Mod	Fine	Subangular Blocky	Firm	Clear	Smooth	>0.5%	No
2	24	120	Clay	Greyish Brown	2.5Y5/2	Yes	Greyish Bro	2.5Y5/2	CP	Strong Brown	7.5YR4/6	0					Non	No	Poor	coarse	Angular	Firm	n/a	n/a	<0.5%	Yes

Pit	WC	Grade	Limitation(s)	Notes

Grid Ref.			Altitude	Nearest	Topography				Flora		Weather and conditions			
Square	East	North		point	Gradient	Aspect	Slope form	Surface	Culivation type	Vegetation types	Temp	Sky	Wind	Precipitation

Horizon	Depth		Matrix			Gleying			Mottles			Stone content					Calc.	Mn C	Ped/soil structure				Horizon boundary		Biopores	SPL
	Top	Bttm	Texture	Colour	Munsell	Gley	Colour	Munsell	Form	Colour	Munsell	%	H	Type	S	Type			Dev.	Size	Structure	Strength	Distinct	Form		

Appendix KCC4

2024 Description of Soil Pit

Soil Survey						Surveyor	AR
Easting (X)	423476	Northing (Y)	317764	Alt (m)	63	Grid Reference	SK 23476 17764
Land Use	PGR	Reference	9 (Pit 1)	Slope °	≤7		
Bedrock	Edwalton Member - Sandstone	Superficial	Glaciofluvial Deposits	Aspect	Level	Date	15/08/2024

Layer		Topsoil	2	3	4	5	6	7
Lower Depth (cm)		25	120					
Texture		HCL - Clay loam	C - Clay					
Matrix Colour		10YR4/2	2.5Y6/1					
Gley (Y/N)		Yes	Yes					
Ochreous Mottles	Form	CP - Common Pr	MP - Many Prominent					
	Munsell Colour	7.5YR4/6	7.5YR5/8					
Grey Mottles	Form							
	Munsell Colour							
Manganese (Y/N)			No					
% Stones (type 1)		0	0					
Stones > 2cm								
Stones > 6cm								
Stone Type								
% Stones (type 2)								
Stones > 2cm								
Stones > 6cm								
Stone Type								
CaCO3		NON - Non-calca	NON - Non-calcareous (<0.5% CaCO3)					
Shape of Peds.		AB - Angular Blo	PRIS - Prismatic					
Size of Peds.		M - Medium	C - Coarse					
Subsoil Structure		Not Applicable	Poor					
Soil or Ped. Strength		Firm	Very firm					
Degree of Ped. Development		M - Moderate	W - Weak					
Slowly Permeable Layer (Y/N)		No	Yes					

MDw	MDp	FCD
104	95	140

Wetness	Class (WC)	WC IV
	Grade (WE)	3b

Notes	Calculated Moisture Balance (MB): Wheat = 22mm; Potatoes = 8mm (Grade according to droughtiness = Grade 2)

Appendix KCC5

Laboratory Analysis

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 28/08/2024

UKAS TESTING 0998

Contract	KCC3018_Oaklands Cable Route
Serial No.	45579_1A

Client:

Kernon Countryside Consultants Limited
Greenacres Barn,
Stoke Common Lane,
Purton Stoke,
Swindon
SN5 4LL

Soil Property Testing Ltd

15, 16, 18 Halcyon Court, St Margaret's Way,
Stukeley Meadows, Huntingdon,
Cambridgeshire, PE29 6DG

Tel: 01480 455579
Email: enquiries@soilpropertytesting.com
Website: www.soilpropertytesting.com

Samples Submitted By:

Kernon Countryside Consultants Limited

Samples Labelled:

KCC3018_Oaklands Cable Route

Approved Signatories:

☑ **J.C. Garner B.Eng (Hons) FGS**
Technical Director & Quality Manager

☐ **W. Johnstone**
Materials Lab Manager

[redacted]

Date Received: 21/08/2024

Samples Tested Between: 21/08/2024 **and** 28/08/2024

Remarks:

For the attention of Sarah Kernon
Your Reference No: KCC3018

This is an amended Test Report for 45579_1 dated 28/08/2024 and includes the percentages of clay and silt fraction which were omitted from the original report

Notes:

1. All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.
2. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
3. Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.
4. This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.
5. The results within this report only relate to the items tested or sampled.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 28/08/2024

0998

Contract	KCC3018_Oaklands Cable Route		
Serial No.	45579_1A	Target Date	05/09/2024
Scheduled By	Kernon Countryside Consultants Limited		

Schedule Remarks	

Bore Hole No.	Type	Sample Ref.	Top Depth	Particle Size Distribution (BS1377)																Sample Remarks
KCC3018_AB3	D	1	0.00	1																
Totals				1																End of Schedule

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 28/08/2024

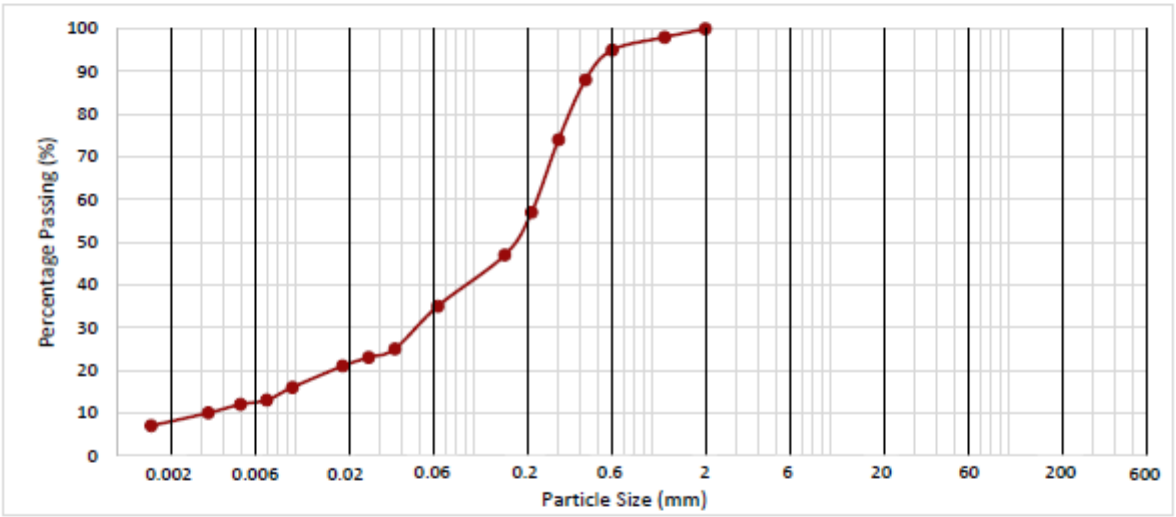
UKAS TESTING 0998

Contract	KCC3018_Oaklands Cable Route
Serial No.	45579_1A

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
KCC3018_AB3	0.00 - 0.25	D	1	Dark brown slightly gravelly clayey very silty SAND/sandy SILT with frequent recently active roots. Gravel is fine and medium subangular and subrounded quartzite	Material greater than 2mm removed before test

Method of Test:	Hydrometer + Pre-sieve	Method of Pretreatment:	Not required



CLAY			SILT			SAND			GRAVEL			COBBLES	BOULDERS
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse		

Hydrometer

Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
0.0362	25	27
0.0258	23	
0.0185	21	
0.0097	16	Clay by Dry Mass (%)
0.0069	13	
0.0049	12	
0.0033	10	8
0.0016	7	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	100	65
1.18	98	
0.600	95	
0.425	88	
0.300	74	
0.212	57	
0.150	47	
0.063	35	

Fines By Dry Mass (%)	
<0.063mm	35

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		0
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3		
5		

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5

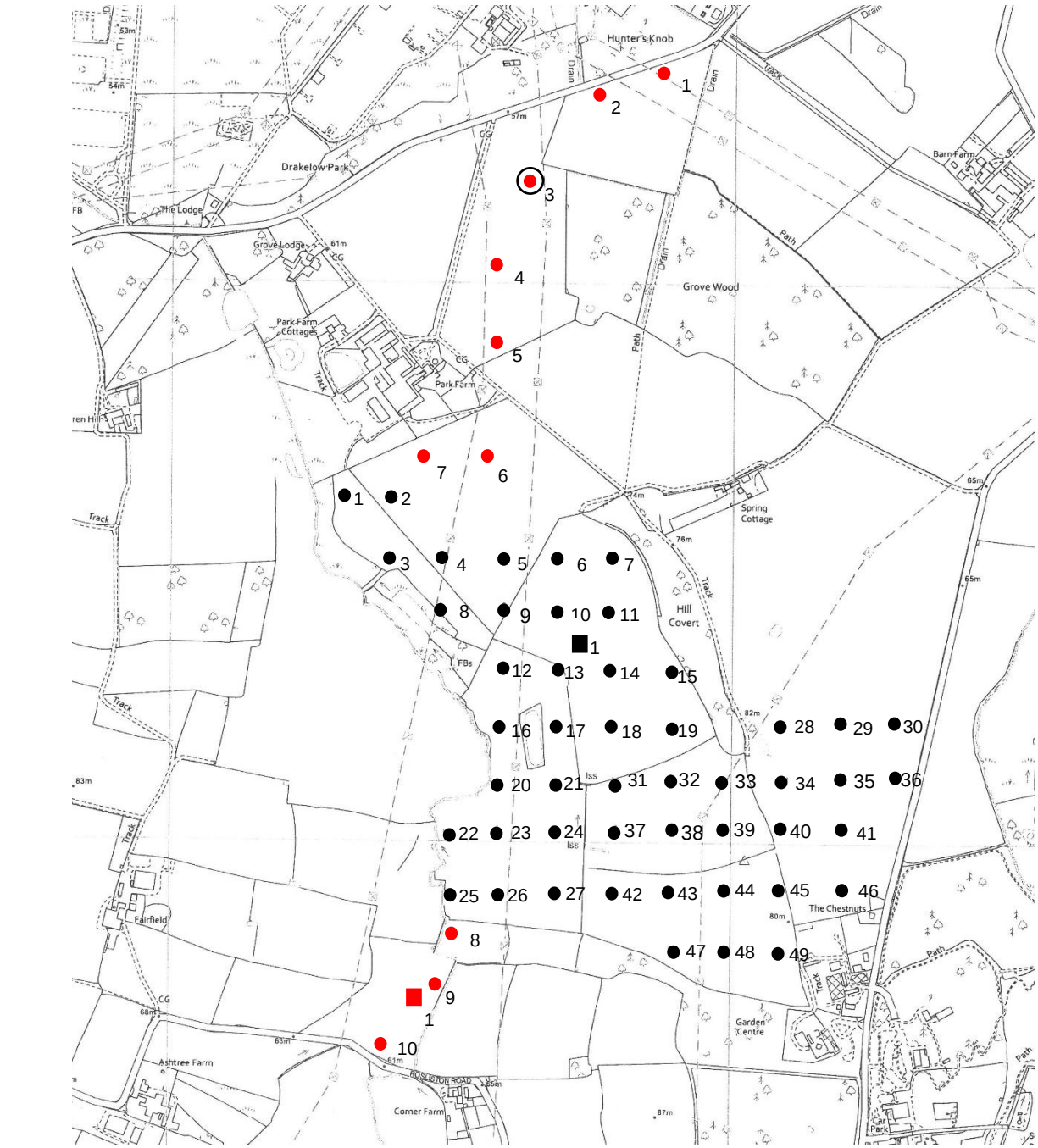
Method of test: BS1377: Part 2: 1990: 9.2,9.5

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments:

Plan KCC3018/01B

Auger Point Plan



KEY

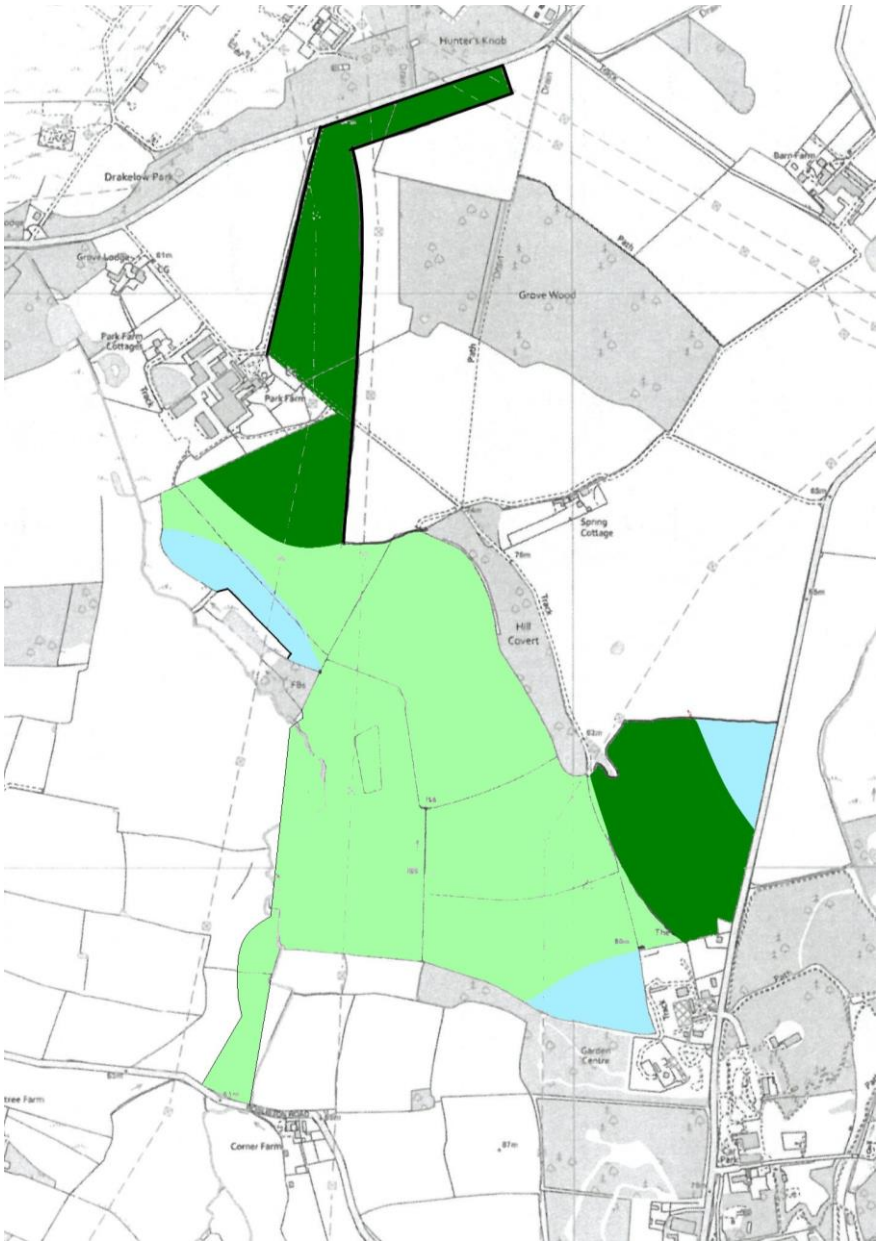
- ● Auger sample location
- ■ Soil pit
- ○ Soil Sample
- ● 2024 Survey Samples

PLAN	**KCC3018/01B**		
TITLE	**Auger Points Plan**		
SITE	Oaklands Solar Farm (Park Farm)		
CLIENT	BayWa.r.e. UK Limited		
NUMBER	**KCC3018/01B 04/24hr**		
DATE	August 2024	**SCALE**	NTS

KERNON COUNTRYSIDE CONSULTANTS LTD
GREENACRES BARN, PURTON STOKE, SWINDON, WILTSHIRE SN5 4LL
Tel 01793 771 333 Email: info@kernon.co.uk

Plan KCC3018/03

Agricultural Land Classification Plan



KEY		Ha	%	PLAN	KCC3018/03		
	Grade 1			TITLE	Agricultural Land Classification		
	Grade 2	4.5	8	SITE	Oakland Solar Farm (Park Farm)		
	Grade 3a	15.4	26	CLIENT	BayWa.r.e. UK Limited		
	Grade 3b	38.5	66	NUMBER	KCC3018/03 08/24hr		
	Grade 4			DATE	August 2024	SCALE	NTS
	Grade 5			KERNON COUNTRYSIDE CONSULTANTS LTD GREENACRES BARN, PURTON STOKE, SWINDON, WILTSHIRE, SN5 4LL Tel 01793 771 333 Email: info@kernon.co.uk			
	Non-agricultural						
	Urban						
	Not surveyed						

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