



Solar Farm on Land South of Berrington, Shrewsbury, Shropshire, SY5 6HA

Agricultural Land Classification

August 2022

ADAS GENERAL NOTES

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Agricultural Land Classification

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK ADAS Ltd.

EXECUTIVE SUMMARY

ADAS have been instructed by Eenergy International Ltd to undertake an agricultural land classification survey of 41.4 ha of Land South of Berrington, Shrewsbury, Shropshire, SY5 6HA.

The survey has identified non-calcareous over well drained loamy sand soils over sand and fine loamy soils over clayey soils with slightly impeded or impeded drainage. These soils form agricultural land of Grade 2 (22.4 ha, 54.1%), Subgrade 3a (12.4 ha, 29.9%) and Subgrade 3b (4.9 ha, 11.8%) quality. Approximately 1.7 ha area was not surveyed. The main limitations to the agricultural use of the land include soil wetness or soil droughtiness.

CONTENTS

1	INTRODUCTION.....	1
1.1	Site Environment	1
1.2	Agricultural Use.....	1
1.3	Published Information	1
1.3.1	Geology.....	1
1.3.2	Soils.....	1
2	METHODOLOGY.....	2
3	SOILS.....	3
3.1	Soil Types	3
3.1.1	Sandy soil	3
3.1.2	Fine loamy topsoil over clay.....	3
3.2	Laboratory Analysis.....	4
4	AGRICULTURAL LAND CLASSIFICATION	5
4.1	Climate	5
4.2	Results	6
	Grade 1.....	6
	Grade 2.....	6
	Subgrade 3a	6
	Subgrade 3b	6
	Grade 4.....	6
	Grade 5.....	7
	Non-agricultural.....	7
	Urban 7	
4.3	Summary of grade areas.....	7
5	CONCLUSION.....	8
	APPENDIX 1 – OBSERVATION LOCATION MAP	I
	APPENDIX 2 – AGRICULTURAL LAND CLASSIFICATION MAP	II
	APPENDIX 3 – ALC SURVEY DETAILS.....	III
	APPENDIX 4 – LABORATORY ANALYSIS.....	XII
	APPENDIX 5 – DESCRIPTION OF ALC GRADES	XV

1 INTRODUCTION

ADAS have been instructed by Eenergy International Ltd to undertake an agricultural land classification survey. This report provides information on the soils and agricultural quality of 41.4 ha of Land South of Berrington, Shrewsbury, Shropshire, SY5 6HA. The report is based on a survey of the land undertaken in January 2022.

1.1 Site Environment

The survey spans two agricultural fields separated by a track. The land falls very gently (0-3°) from the boundary with Cliff Hollow to the southern boundary. In the north-western part of the site there is a 'valley' feature with some slopes of 8°. The land is bordered by roads on the northern and western boundaries and woodland and agricultural land on the southern boundary. A minor road forms the most eastern boundary, and the most eastern field adjoins an area of agricultural land. The land has an average elevation of approximately 90m AOD.

1.2 Agricultural Use

At the time of survey, the land was supporting a green cover crop.

1.3 Published Information

1.3.1 Geology

1:50,000 scale BGS information¹ records the basal geology of the site as mudstone, sandstone, and conglomerate of the Salop Formation. Overlaying glacio-fluvial deposits sand and gravel belonging to the Permian and Carboniferous Geological Periods are recorded at the western boundary of the site. Much of the site is covered with deposits of Till.

1.3.2 Soils

The national soils map, published at 1:250,000 scale, records the site as belonging to the Salwick soil association.

The Salwick soil association is described as an association of fine loamy soil with slight seasonal waterlogging and well drained coarse loamy soils.

No detailed post-1988 agricultural land classification is publicly available for this site. The provisional ALC map, published at 1:250,000 scale, records the land as being of Grade 3 quality².

¹ British Geological Survey, 2019. *Geology of Britain viewer*. Online resource: <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>

² Defra, 2020. *Interactive map of Great Britain*. Online resource: <https://magic.defra.gov.uk/MagicMap.aspx>

2 METHODOLOGY

A detailed soil survey was carried out in January 2022. The survey was based on observations at intersects of a 100 m grid, giving a sampling density of one observation per hectare. During the survey soils were examined via a combination of auger borings and soil description pits to a maximum depth of 1.2 m. A log of the details of each observation point is attached to this report as Appendix 3. A map showing the location of each observation point is attached to this report as Appendix 1.

Two soil description pits were dug at this site. Three topsoil samples, two from the pits and one from observation point 16 were submitted to NRM laboratories for particle size distribution analysis by the pipette methodology to confirm site findings. The results of this analysis is are given in Section 3 and in Appendix 4.

3 SOILS

3.1 Soil Types

The soils are formed in sand and gravel of glaciofluvial deposits at the western boundary of the site and over the rest of the site deposits of Till (sand and clays deposits). The soils vary in characteristics across this site. Most soil profiles are clayey, with gleyed³ and poorly structured, slowly permeable clayey subsoil at depths of between 38 cm and 80 cm beneath the topsoil and upper subsoil. The main variation is the presence of and depth to reddish clay. In the north-western corner of the site the soils are sandy.

3.1.1 Sandy soil

These soils have either a loamy sand or sandy loam topsoil overlying a well-drained and structured upper subsoil loamy medium sand and medium sand lower subsoil. The topsoil and upper subsoil very slightly stony (0-5%), with small, rounded stones. The lower subsoil is stoneless.

An example soil profile is described below from the pit at observation 2 (pit excavated to 50cm and augered to 120 cm) (see Map 1).

0-35 cm	Reddish brown (5YR4/4) loamy medium sand; very slightly stony (0-5%), with a few small, rounded stones; weakly developed fine granular structure; very friable; common fine fibrous roots.
29-50 cm	Dark red (2.5YR 3/6) medium sand; stoneless; loose structure; very friable; very few fine fibrous roots;
50-120 cm	Dark red (2.5YR 3/6) medium sand; stoneless; loose structure; very friable.

These soils are well drained and belong to Wetness Class I.

3.1.2 Fine loamy topsoil over clay

These soils have a fine loamy topsoil overlying gleyed, poorly structured, slowly permeable clayey upper subsoil and lower subsoil. The topsoil is very slightly (0-5%), with a few small, rounded stones. The upper and lower subsoil is very slightly (0-5%) stony.

An example soil profile is described below from the pit at observation 7 (see Map 1).

0-38 cm	Brown (7.5YR4/4) sandy clay loam; very slightly stony (0-5%) with small, rounded stone; weakly developed medium subangular blocky structure; friable; common fibrous roots;
38-50 cm	Reddish brown (5YR5/3) clay with common faint strong brown (7.5YR 5/8) mottles and light reddish brown ped faces (5YR6/3); stoneless; weakly developed coarse angular blocky structure; firm; few roots fine; <0.5% macropores;
50-80+ cm	Reddish brown (5YR5/3) clay with common faint strong brown (7.5YR 5/8) mottles; stoneless; weakly developed coarse angular blocky structure; firm; few roots fine; <0.5% macropores; (augered below 50cm).

These soils have impeded and mainly belong to Wetness Class IV. They have a low capacity to absorb excess winter rainfall.

³ Gleying is a soil colouring indicative of periodic or permanent waterlogging.

3.2 Laboratory Analysis

Samples representative of the top 25 cm of the soil profile were taken from observations at 5 and 28. These soils were submitted to NRM Laboratories for particle size distribution (PSD) analysis. The laboratory report is given in Appendix 4. The textures are confirmed in the table below.

Table 3.2: PSD analysis results

Observation	PSD Analysis
2	Loamy sand
7	Sandy clay loam
16	Heavy clay loam

4 AGRICULTURAL LAND CLASSIFICATION

The Agricultural Land Classification (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 for food production. The limitations can operate in one or more of four principal ways; they may affect the range of crops which can be grown, the level of crop yield, the consistency of crop yield, and the cost of obtaining a crop.

The classification system gives considerable weight to flexibility of cropping, whether actual or potential, however the ability of some land to produce consistently high yields of a narrower range of crops is also taken into account.

The Agricultural Land Classification (ALC) system classifies land into five grades numbered 1 to 5, with grade 3 divided into two subgrades (3a and 3b). The system was devised and introduced by the then Ministry of Agriculture, Fisheries and Food (MAFF) in the 1960s and revised in 1988. A description of the grades used in the ALC system is attached to this report as Appendix 5.

4.1 Climate

The agricultural climate is an important factor in assessing the agricultural quality of land, and the agricultural climate of this site has been calculated using the Climatological Data for Agricultural Land Classification⁴. The relevant site data for an average elevation of 88 m AOD is given below.

Table 4.1: Agro-climatic variables

Average Annual Rainfall (AAR)	688 mm
January-June Accumulated Temperature (AT0)	1394 day °C
Field Capacity Days (FCD)	149
Field Capacity Period	Late November - late Mar
Moisture Deficit Wheat (MDW)	98 mm
Moisture Deficit Potatoes (MWP)	87 mm
Climate (upper grade limit)	1

The site is located in lowland England and there is no agro-climatic limitation to agriculture.

⁴ Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

4.2 Results

The results of the soil survey described in section 3 were used in conjunction with the agro-climatic data above to classify the land according to the revised guidelines for Agricultural Land Classification issued in 1988 by the Ministry of Agriculture, Fisheries and Food (now Defra)⁵.

This report has identified agricultural land of Grade 2, Subgrade 3a and Subgrade 3b quality. The principal limitations to agricultural use of the land are either soil wetness or soil droughtiness.

Grade 1

No land of this quality has been mapped.

Grade 2

Land of this quality is mapped across the southern part of the site. Included within the land mapped as Grade 2 are profiles of Grade 1 land quality. The landform is slightly undulating and the soil profile characteristics variable in the deposits of Till. The topsoils have either a sandy loam or sandy clay loam texture over lying subsoils of either sandy clay loam or clay at depth. The soils are either well drained or have slightly impeded drainage and mostly belong to Wetness Class I. The main limitations to agriculture are soil droughtiness or wetness for profiles with slightly impeded drainage.

Subgrade 3a

Land of this quality is found in the north western part of the site and in areas in the northern part of the site. Close to the north western boundary the soil is formed on sand and gravel Glacio-fluvial deposits. The loamy sand soils are well drained and overlie sand. The soils belong to Wetness Class I and soil droughtiness limits the soils to Subgrade 3a.

Other land in Subgrade 3a on the site has either a medium clay or sandy clay loam texture overlying clay below a depth of 38cm from the surface and with no evidence of gleying above a depth of 40cm. These soils belong to Wetness Class III and the main limitation to agricultural use is soil wetness.

Subgrade 3b

Land of this quality is found in areas where there are topsoils of either sandy clay loam or heavy clay loam overlying clay at a depth of 38cm from the surface with evidence of gleying within 40cm of the surface. These soils are poorly structured and slowly permeable within 40 cm depth. They have impeded drainage and belong to Wetness Class IV.

On such land the principal limitation to agriculture is soil wetness.

Grade 4

No land of this quality has been mapped.

⁵ MAFF, (1988). *Agricultural Land Classification for England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land*.

Grade 5

No land of this quality has been mapped.

Non-agricultural

No land of this quality has been mapped.

Urban

No land of this quality has been mapped.

Not Surveyed

Approximately 1.3ha of land was not surveyed due to a late change in the red line boundary.

4.3 Summary of grade areas

The boundaries between the different grades of land are shown on Appendix 2. The area occupied by each grade is shown below.

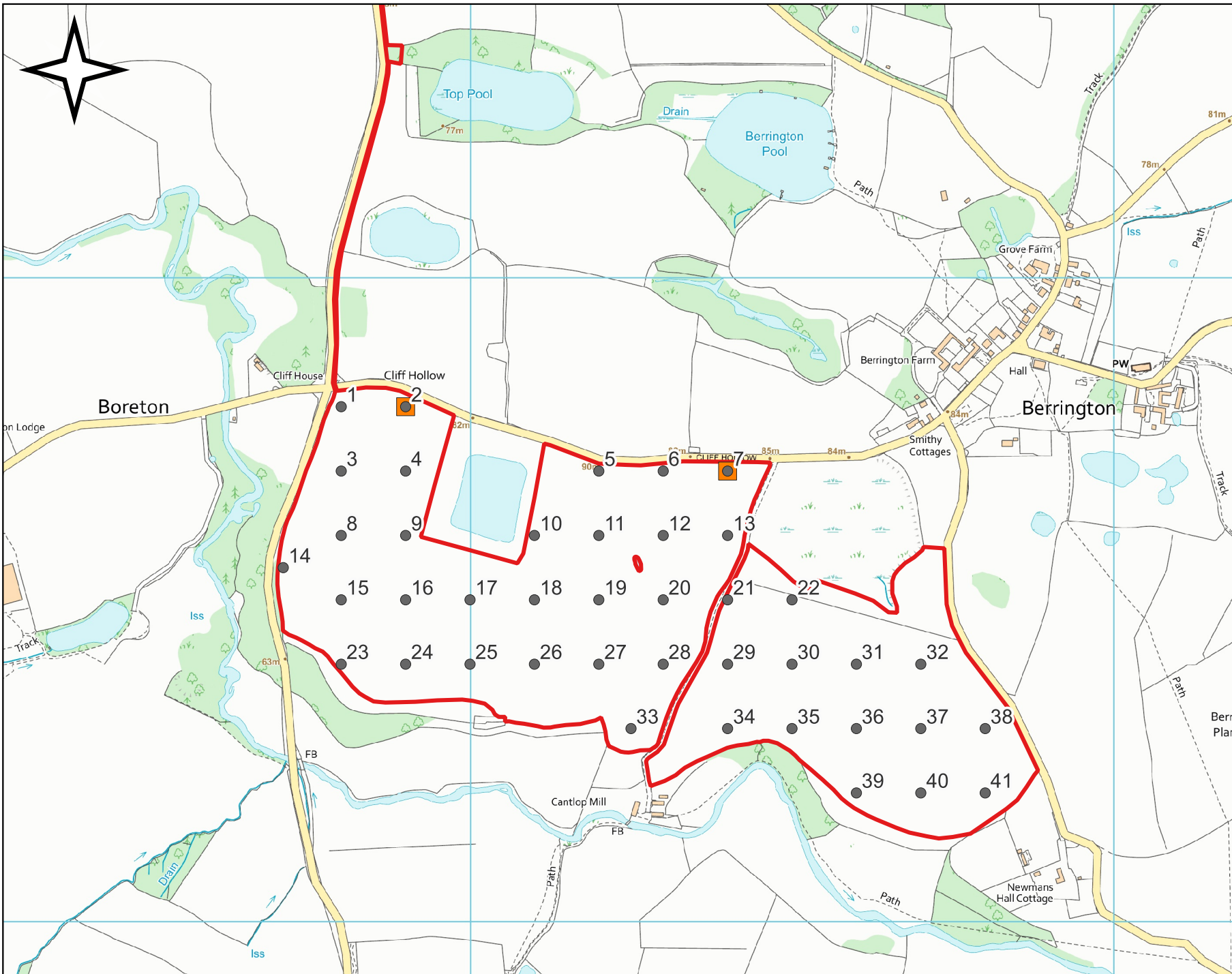
Table 4.3: Grade areas

Grade / subgrade	Area (ha)	Area (%)
Grade 1	-	-
Grade 2	22.4	54.1
Subgrade 3a	12.4	29.9
Subgrade 3b	4.9	11.8
Grade 4	-	-
Grade 5	-	-
Non-agricultural		
Urban	-	-
Not Surveyed	1.7	4.2
Total	41.4	100

5 CONCLUSION

ADAS have been instructed by Eenergy International Ltd to undertake an agricultural land classification survey of 41.4 ha of Land South of Berrington, Shrewsbury, Shropshire, SY5 6HA.

The survey has identified non-calcareous over well drained loamy sand soils over sand and fine loamy soils over clayey soils with slightly impeded or impeded drainage. These soils form agricultural land of Grade 2 (22.4 ha, 54.1%), Subgrade 3a (12.4 ha, 29.9%) and Subgrade 3b (4.9 ha, 11.8%) quality. The principal limitations to the agricultural use of the land are either soil wetness or soil droughtiness.



Title
Appendix 1
Observation Plan


Project
Land South of Cliff Hollow,
Shrewsbury, Shropshire, SY5
6HA - ALC

Client

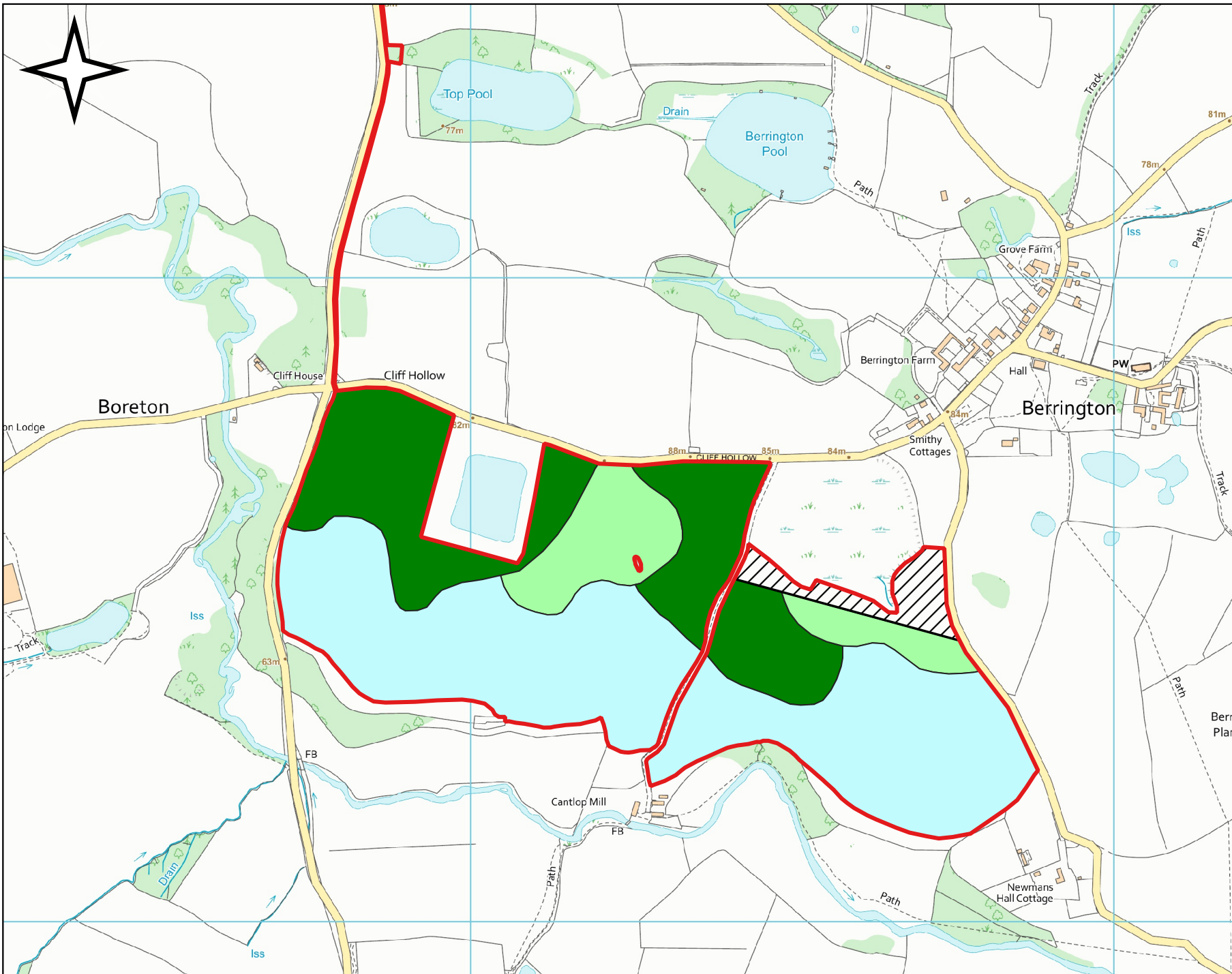
 **economy**
Powering renewables.

- Augers
- Pits
- ▭ Survey Area

Date: 10 / 08 / 2022

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Title
Appendix 2
Agricultural Land
Classification Plan (ALC)

Project
Land South of Cliff Hollow,
Shrewsbury, Shropshire, SY5
6HA - ALC

Client

Survey Area

ALC Grade

- 1
- 2
- 3a
- 3b
- 4
- 5
- Non agric
- Urban
- Not surveyed

Date: 10 / 08 / 2022

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APPENDIX 3 – ALC SURVEY DETAILS

Auger	Depth (cm)	Colour	Texture	Mottling	SPL	CaCO ₃	Stones (%)			Notes	Agricultural Land Classification						
							Total	>2cm	>6cm		Litho ¹	(°)	W C	WE grade	DR grade	Overall grade	Limit(s)
1	40	7.5YR4/4	LS(M)	o			2	2		1	augered to 100cm	<7	I	2	3a	3a	DR
	100	5YR4/4	S(M)	o								Droughtiness Calculation					
	120	5YR4/4	S(M)	o								MDW	MDP	MBW	MBP	Grade W	Grade P
											98	87	-13.9	-19.2	3a	3a	
2	38	5YR4/4	LS(M)	o								<7	I	2	3a	3a	DR
	80	5YR4/4	S(M)	o								Droughtiness Calculation					
	100	2.5YR4/6	S(M)	o								MDW	MDP	MBW	MBP	Grade W	Grade P
	120	2.5YR4/6	S(M)	o								98	87	-13.9	-19.7	3a	3a
3	35	7.5YR4/4	SL(M)	o			2	2		1	augered to 100cm	<7	I	1	2	2	DR
	40	5YR3/4	SL(M)	o								Droughtiness Calculation					
	70	5YR3/4	LS(M)	o								MDW	MDP	MBW	MBP	Grade W	Grade P
	100	5YR3/4	SL(M)	o								98	87	39.7	0.5	1	2
	120	5YR3/4	SL(M)	o													
											more clay						
4	25	5YR3/4	SL(M)	o			2	2			augered to 100cm	8	I	1	3a	3a	DR
	70	5YR3/4	LS(M)	o								Droughtiness Calculation					
	100	5YR3/4	S(M)	o								MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR3/4	S(M)	o								98	87	-16.7	-12.9	3a	3a
											slope in this part						

5	38	7.5YR4/4	SCL	o	yes	2	2	1	some manganese weathered SST pockets	<7	IV	3b	1	3b	WE	
	60	5YR4/4	C	x						Droughtiness Calculation						
	120	5YR4/4	C	o						MDW	MDP	MBW	MBP	Grade W	Grade P	
											98	87	40.6	27.6	1	1
6	30	7.5YR4/4	SCL	o	yes	2	2	1	fig 8	<7	III	3a	1	1	3a	
	45	5YR4/4	SCL	o						Droughtiness Calculation						
	60	2.5YR4/4	C	o						MDW	MDP	MBW	MBP	Grade W	Grade P	
	90	7.5YR4/4	CL(M)	o						98	87	51.5	26.5	1	1	
	120	7.5YR4/4	CL(M)	x												
7	28	7.5YR4/3	SCL	o	yes	2	2	1		<7	III	3a	1	3a	WE	
	40	5YR4/4	CL(H)	o						Droughtiness Calculation						
	100	5YR4/4	C	xxx						MDW	MDP	MBW	MBP	Grade W	Grade P	
	120	5YR4/4	C	xxx						98	87	39.9	26.9	1	1	
8	30	7.5YR4/4	SL(M)	o		2	2	1		<7	I	1	1	1		
	40	7.5YR3/4	SL(M)	o						Droughtiness Calculation						
	100	5YR4/4	SCL	o						MDW	MDP	MBW	MBP	Grade W	Grade P	
	120	5YR4/4	SCL	o						98	87	52.0	23.0	1	1	
9	38	7.5YR4/4	CL(M)	o	yes	2	2	1	fig 8	<7	III	3a	2	3a	WE	
	40	5YR4/4	C	o						Droughtiness Calculation						
	80	5YR4/4	C	o						MDW	MDP	MBW	MBP	Grade W	Grade P	
	100	2.5YR3/6	S(M)	o						98	87	28.3	31.3	2	1	
	120	2.5YR3/6	S(M)	o												

10	30	7.5YR4/3	SCL	o	yes	1	1	1		<7	III	3a	1	3a	WE
	43	5YR4/3	SCL	o						Droughtiness Calculation					
	100	5YR4/4	C	xx						MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	C	o						98	87	39.2	26.2	1	1
11	38	5YR4/4	CL(h)	o	yes	2	2	1		<7	IV	3b	1	3b	WE
	70	5YR3/4	C	o						Droughtiness Calculation					
	120	5YR3/4	C	o						MDW	MDP	MBW	MBP	Grade W	Grade P
					98	87	44.3	31.3	1	1					
12	38	7.5YR4/4	SCL	o	yes	2	2	1			IV	3b	1	3b	WE
	90	5YR4/4	C	o						Droughtiness Calculation					
	120	5YR4/4	C	o						MDW	MDP	MBW	MBP	Grade W	Grade P
					98	87	40.6	27.6	1	1					
13	38	7.5YR3/4	SCL	o		2	2	1	Mn 40cm +	<7	I	1	1	1	WE
	90	5YR4/4	SCL	x						Droughtiness Calculation					
	120	5YR4/4	SCL	o						MDW	MDP	MBW	MBP	Grade W	Grade P
					98	87	53.4	24.4	1	1					
14	40	7.5YR4/4	SCL	o						<7	I	1	1	1	
	60	5YR3/4	SCL	o						Droughtiness Calculation					
	80	5YR4/4	SL(M)	o						MDW	MDP	MBW	MBP	Grade W	Grade P
	100	7.5YR5/6	S(M)	o						98	87	33.0	26.0	1	1
	120	7.5YR5/6	S(M)	o											

15	40	5YR3/4	SL(M)	o			2	2		1		<7	I	1	1	1	
	60	5YR4/4	SL(M)	o			10			1		Droughtiness Calculation					
	120	5YR4/4	SCL	o								MDW	MDP	MBW	MBP	Grade W	Grade P
												98	87	52.3	21.9	1	1
16	38	5YR3/4	CL(M)	o									IV	3b	1	3b	3b
	90	5YR4/4	C	o	yes							Droughtiness Calculation					
	120	5YR4/4	C	x	yes							MDW	MDP	MBW	MBP	Grade W	Grade P
												98	87	45.6	32.6	1	1
17	30	5YR4/3	CL(H)	o			2	2		1		<7	I	2	1	1	2
	80	5YR4/3	CL(H)	o								Droughtiness Calculation					
	120	5YR4/5	CL(H)	o								MDW	MDP	MBW	MBP	Grade W	Grade P
												98	87	57.0	30.0	1	1
18	33	5YR4/3	CL(H)	o			2	2		1		<7	IV	3b	1	3b	WE
	100	5YR3/4	C	o	yes							Droughtiness Calculation					
	120	5YR3/4	C	o	yes							MDW	MDP	MBW	MBP	Grade W	Grade P
												98	87	43.5	30.5	1	1
19	30	5YR4/3	CL(M)	o			5	5		1		<7	I	1	1	1	
	35	7.5YR4/3	CL(H)	o								Droughtiness Calculation					
	50	5YR4/4	SCL	o								MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	SCL	o		10				1		98	87	54.0	25.0	1	1

20	30	5YR4/3	SCL	o	yes	2	2		1			III	3a	1	3a	WE
	45	5YR4/4	SCL	o							Droughtiness Calculation					
	70	5YR4/4	C	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	C	o							98	87	38.5	25.5	1	1
21	35	7.5YR3/4	SCL	o	yes	2	2		1		<7	III	3a	1	3a	WE
	40	5YR4/3	SCL	o							Droughtiness Calculation					
	43	5YR4/3	CL(H)	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	90	5YR4/4	C	o							98	87	39.9	26.9	1	1
	120	5YR4/4	C	o												
22	38	7.5YR4/4	SCL	o		2	2		1	manganese 38cm+	<7	IV	3b	1	3b	WE
	90	5YR3/4	C	o							Droughtiness Calculation					
	120	5YR3/4	C	o							MDW	MDP	MBW	MBP	Grade W	Grade P
											98	87	40.6	27.6	1	1
23	30	7.5YR4/4	SL(M)	o		2	2		1		<7	I	1	1	1	
	40	5YR4/4	SL(M)	o							Droughtiness Calculation					
	70	5YR3/4	SZL(F)	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	90	2.5YR3/6	S(M)	o							98	87	38.0	41.0	1	1
	120	2.5YR3/6	S(M)	o												
24	40	7.5YR4/4	SCL	o		5	5		1		<7	III	3a	1	3a	WE
	60	7.5YR4/4	SCL	o							Droughtiness Calculation					
	80	5YR4/4	C	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	C	o							98	87	38.3	22.3	1	1
					yes	10		1	stony 70cm+							
					yes											

25	30	5YR4/4	SL(M)	o		2	2		1	stony 60cm	<7	I	1	2	2	DR
	40	5YR4/4	SL(M)	o							Droughtiness Calculation					
	60	5YR4/4	LS(M)	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	LS(M)	o							98	87	6.8	-1.6	2	2
26	38	5YR3/4	SCL	o		2	2		1	fig 8		II	2	1	2	WE
	40	5YR3/4	CL(H)	o							Droughtiness Calculation					
	80	5YR4/4	CL(H)	xxx							MDW	MDP	MBW	MBP	Grade W	Grade P
	90	5YR4/4	C	o							98	87	46.6	27.6	1	1
	120	5YR4/4	C	o												
27	35	7.5YR4/3	SCL	o	auger stopped	2	2		1	manganese >40cm		I	1	1	1	
	40	5YR4/3	SCL	x							Droughtiness Calculation					
	120	5YR4/3	SCL	o							MDW	MDP	MBW	MBP	Grade W	Grade P
28	40	5YR4/3	SCL	o		2	2		1			I	1	1	1	
	65	5YR4/4	SCL	o							Droughtiness Calculation					
	120	5YR4/4	SCL	o							MDW	MDP	MBW	MBP	Grade W	Grade P
29	38	7.5YR4/4	CL(H)	o		2	2		1	difficult to auger 60cm gravel 60cm	<7	I	2	1	3a	WE
	45	5YR4/4	C	o							Droughtiness Calculation					
	60	5YR4/4	SCL	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	SCL	o							98	87	50.5	25.3	1	1

30	33	7.5YR4/4	SCL	o	yes	2	2		1		<7	III	3a	1	3a	WE
	43	5YR5/3	SCL	o							Droughtiness Calculation					
	90	5YR4/4	C	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	C	o							98	87	39.2	26.2	1	1
31	35	7.5YR3/4	SCL	o	yes	2	2		1	MN	<7	II	2	1	2	WE
	40	7.5YR4/4	SCL	x							Droughtiness Calculation					
	70	5YR5/4	CL(H)	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	100	5YR4/4	C	o							98	87	43.9	26.9	1	1
	120	5YR4/4	C	o												
32	38	7.5YR4/4	SCL	o	yes	2	2		1	MN	<7	IV	3b	1	3b	WE
	100	5YR4/4	C	x							Droughtiness Calculation					
	120	5YR4/4	C	o							MDW	MDP	MBW	MBP	Grade W	Grade P
											98	87	40.6	27.6	1	1
33	40	5YR4/3	SCL	o		2	2		1			I	1	1	1	
	80	5YR4/4	SL(M)	o							Droughtiness Calculation					
	90	5YR4/4	SCL	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	SCL	o							98	87	56.7	24.7	1	1
34	38	7.5YR3/4	SCL	o		2	2		1		<7	I	1	1	1	
	40	5YR4/3	SCL	o							Droughtiness Calculation					
	60	5YR5/3	SCL	xx							MDW	MDP	MBW	MBP	Grade W	Grade P
	90	2.5YR3/6	SCL	o							98	87	53.4	MBP	1	1
	120	2.5YR3/6	SCL	o												

35	35	7.5YR4/4	SCL	o		2	2		1		mn	<7	I	1	2	2	DR	
	40	5YR4/4	SCL	o									Droughtiness Calculation					
	60	5YR4/3	SCL	x									MDW	MDP	MBW	MBP	Grade W	Grade P
	90	5YR4/4	CL(H)	o									98	87	22.9	24.9	2	1
	120	5YR4/4	CL(H)	o														
36	38	7.5YR4/4	CL(H)	o		2	2		1		MN	<7	IV	3b				
	100	5YR4/4	C	xx	yes								Droughtiness Calculation					
	120	5YR4/4	C	o									MDW	MDP	MBW	MBP	Grade W	Grade P
													98	87	44.3	31.3	1	1
37	38	7.5YR3/4	SCL	o		2	2		1			<7	I	1	2	2	DR	
	43	5YR4/4	SCL	o									Droughtiness Calculation					
	70	5YR4/4	LS(M)	o									MDW	MDP	MBW	MBP	Grade W	Grade P
	80	5YR4/6	S(M)	o		10			1				98	87	7.2	3.3	2	2
	120	5YR4/6	S(M)	o														
38	38	7.5YR4/4	SCL	o		2	2		1		STONE AT 70CM	<7	I	1	2	2	DR	
	50	5YR3/4	SCL	o									Droughtiness Calculation					
	70	5YR4/4	SL(M)	o									MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/4	S(M)	o		10			1				98	87	23.6	24.4	2	1
39	33	7.5YR4/4	SCL	o							mn	<7	I	1	1	1		
	40	5YR4/4	SCL	o									Droughtiness Calculation					
	100	5YR4/6	SCL	x									MDW	MDP	MBW	MBP	Grade W	Grade P
	120	5YR4/6	SCL	o									98	87	53.6	24.6	1	1

40	30	7.5YR3/4	SCL	o							<7	I	1	1	1	
	40	7.5YR4/3	SCL	o							Droughtiness Calculation					
	70	5YR4/3	SCL	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	90	5YR4/4	SL(M)	o							98	87	58.0	24.0	1	1
	120	5YR4/4	SL(M)	o												
41	35	7.5YR3/4	SCL	o							<7	I	1	1	1	
	43	5YR3/4	SCL	x					mn		Droughtiness Calculation					
	80	5YR4/4	CL(H)	o							MDW	MDP	MBW	MBP	Grade W	Grade P
	90	5YR4/4	CL(H)	o							98	87	48.7	27.7	1	1
	120	5YR4/4	C	o												

Key to auger records:

Colour	Texture	Texture suffixes	Mottle intensity	Limitations
Bk - black	C - clay	Calcareous:	o – unmottled.	CL - climate
Br - brown	ZC - silty clay	v sl ca - very slightly calcareous	x – a few to common rusty root channel mottles (topsoil) or a few ochreous mottles (subsoil).	DE - depth
Bu - blue	SC - sandy clay	sl ca - slightly calcareous	xx – common to many ochreous mottles and/or dull structure faces.	DR - droughtiness
Dk - dark	CL - clay loam (H-heavy, M-medium)	ca - calcareous	xxx – greyish or pale colours dominant in matrix or ped faces and common to many ochreous mottles (gleyed horizon).	ER - erosion
Du - dusky	ZCL - silty clay loam (H-heavy, M-medium)	v ca - calcareous	xxxx – dominantly grey, often with some ochreous mottles (gleyed horizon).	FL - flooding
Gn - green	SCL - sandy clay loam			GR - gradient
Gr - grey	SZL - sandy silt loam (F-fine, M-medium, C-coarse)	Stoniness (by volume):		MR - microrelief
Li - light	ZL - silt loam	v sl st - very slightly stony (1-5%)		ST - stoniness
Ol - olive	SL - sandy loam (F-fine, M-medium, C-coarse)	sl st - slightly stony (6-15%)		TX - texture
Pi - pink	LS - loamy sand (F-fine, M-medium, C-coarse)	m st - moderately stony (16-35%)		WE - wetness/workability
Pl - pale	S - sand (F-fine, M-medium, C-coarse)	v st - very stony (36-70%)		
Rd - red	Org - organic (S-sand, L-loam, C-clay)	ex st - extremely stony (>70%)		
St - strong	Pty - peaty (S-sand, L-loam)			
V - very	Pt - peat (S-sandy, L-loamy, H-humified, SF-semi-fibrous, F-fibrous)	Other:		
Wk - weak	R - bedrock	fm – ferrimanganiferous concentrations		
Yl - yellow				

APPENDIX 4 – LABORATORY ANALYSIS

APPENDIX 5 – DESCRIPTION OF ALC GRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. The ‘*best and most versatile agricultural land*’ falls into grades 1, 2 and subgrade 3a – which collectively comprises about one-third of the agricultural land in England and Wales. About half the land in England and Wales is either of moderate quality (subgrade 3b) or poor quality (grade 4). Although less significant on a national scale, such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in grade 5, which mostly occurs in the uplands.

Grade 1 – excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 – very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 – good to moderate quality land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a – good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b – moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 – poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 – very poor quality agriculture land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.