

**APPENDIX 8.1**  
**LAND CLASSIFICATION REPORT**



# **AGRICULTURAL LAND CLASSIFICATION ALLESTON FARM**

CLIENT: ALLESTON CLEAN ENERGY  
PROJECT: ALLESTON FARM  
DATE: 30<sup>TH</sup> JANUARY 2024 – ISSUE 3  
ISSUED BY: JAMES FULTON MRICS FAAV

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## 1. EXECUTIVE SUMMARY

- 1.1 This report assesses the Agricultural Land Classification (ALC) grading of 95 Hectares of land at Alleston Farm, Pembrokeshire.
- 1.2 The limiting factor found to be soil wetness, a combination of the climatic regime, soil water regime and texture of the top 25cm of the soil.
- 1.3 The land is graded as follows:

Grade 2:	7.3 Ha
Grade 3a:	34.9 Ha
Grade 3b:	46.4 Ha
Non-Agricultural	6.4 Ha

## 2. INTRODUCTION

- 2.1 Amet Property Ltd have been instructed by Alleston Clean Energy to produce an Agricultural Land Classification (ALC) report on an 95-hectare site on land at Alleston Farm, Pembroke.
- 2.2 The report's author is James Fulton BSc (Hons) MRICS FAAV who has worked as a chartered surveyor, agricultural valuer, and agricultural consultant since 2004, has a degree in agriculture which included modules on soils and over 10 years' experience in advising farmers on soil structure and cultivation methods and in producing agricultural land classification reports. Additional information on authors experience is found at **appendix 1**.
- 2.3 The report is based on a site visit conducted by James Fulton and 1 assistant surveyor on the 1<sup>st</sup> and 2<sup>nd</sup> April 2023 during which the conditions were rain first thing on the 1<sup>st</sup> and then brightened up for the rest of the survey. Soils were moist at all horizons. An additional survey was carried out in January 2024 to assess the sample points identified on the plan as A – I that were later additions to the scheme. The weather during the additional visit was overcast with soils described as moist and over wet at one location.
- 2.4 During the inspections 3 trial pits were dug to a depth of 120cm. In addition to the trial pits an auger was used to take approximately one sample per hectare on the proposed development site to a depth of 120cm (or as deep as possible if sample points became impenetrable) with smaller trial pits at some of these locations to confirm soil structure and colour where it was not clear from the auger samples. A plan of auger points and trial pit locations can be found at **appendix 2**. The trial pit locations were selected as they were representative of the soils found on site. Where subsoils were inspected with a spade, descriptions of structure have been recorded based on the soil survey field handbook<sup>1</sup>; where an auger has been used the structure is described as good, moderate or poor based on figure 9,10 and 11 in the MAFF<sup>2</sup> guidance. Colours are described using Munsell Colours<sup>3</sup>.
- 2.5 The surveyed area extends to 95Ha of which 88.6Ha is agricultural. The land is a mixture of arable and grassland made up of 12 fields and a lot of small paddocks used for grazing horses. The site is centred around Alleston Farm accessed from the Lower Lamphey Road to the north with the centre of the site being approximately 1 mile southeast of Pembroke.
- 2.6 Further information has been obtained from the MAGIC website, the Soil Survey of England and Wales, the British Geological Survey, the Meteorological Office and 1:250,000 series Agricultural Land Classification maps.

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<sup>1</sup> Hodgson, JM (1997) Soil Survey Field Handbook

<sup>2</sup> MAFF (1988) - *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land*. MAFF Publications

<sup>3</sup> Munsell Color (2009) Munsell Soil Color Charts

- 2.7 The collected information has been judged against the Ministry of Agriculture Fisheries and Food Agricultural Land Classification of England and Wales revised guidelines and criteria for grading the quality of agricultural land.
- 2.8 The principal factors influencing agricultural production are climate, site and soil and the interaction between them MAFF (1988) & Natural England (2012)<sup>4</sup>.
- 2.9 The report is prepared and formatted considering the latest BSSS guidance<sup>5</sup>.

### **3. PUBLISHED INFORMATION**

- 3.1 The British Geological Survey 1:50,000 scale map shows the bedrock geology to be extremely variable with a strip running east west of Black Rock Subgroup and Gully Oolite Formation – Limestone to the north of the site. Another strip running east west of Avon Group – Limestone and Mudstone, interbedded is identified around the area of the farmyard. Next moving south is a strip of Skrinkle Sandstone Formation - sandstone and then a strip of Ridgeway Conglomerate Formation – conglomerate. Finally the most southerly part of the site is described as Milford Haven Group – Argillaceous rocks and sandstone, interbedded.
- 3.2 The soils to the north of the site are identified as being East Keswick 3 Association – Well drained fine loamy soils often deep but sometimes over limestone. The soils to the south of the site are identified as Milford Association – Well drained fine loamy reddish soils over rock.
- 3.3 The WAG predictive agricultural land classification map shows a strip to the north of the site being grade 2, most of the rest of site as grade 3a and some small areas to the west and on the steep slopes being grade 3b.

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<sup>4</sup> MAFF (1988) - *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.* MAFF Publications

Natural England (2012) - *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land, Second Edition*

<sup>5</sup> BSSS (2022) Working with Soil Guidance Note on Assessing Agricultural Land Classification Surveys in England and Wales

#### 4. CLIMATE

- 4.1 Climate has a major, and in places overriding, influence on land quality affecting both the range of potential agricultural uses and the cost and level of production.
- 4.2 There is published agro-climatic data for England and Wales provided by the Meteorological Office, such data for the subject site is listed in the table below.

Agro-Climatic Data – Full details can be found at **appendix 3**

Grid Reference	200377 200055
Altitude (ALT)	31
Average Annual Rainfall (AAR)	1117
Accumulated Temperature - Jan to June (ATO)	1538
Duration of Field Capacity (FCD)	227
Moisture Deficit Wheat	84
Moisture Deficit Potatoes	71

- 4.3 The north of the site has lower rainfall which because the cutoff for wetness is 225FCD may have an impact on land grade. An assessment of the number of Field Capacity days of the relevant sample points has been carried out and can be found at **appendix 3**.
- 4.4 The main parameters used in assessing the climatic limitation are average annual rainfall (AAR), as a measure of overall wetness; and accumulated temperature (ATO), as a measure of the relative warmth of a locality.
- 4.5 The AAR and ATO limit the site to grade 2
- 4.6 There was no evidence of flooding seen during the initial site visit and it was not considered that flood risk would not result in a limitation to land grade. At the time of the January 2024 site visit there was significant evidence of flooding around the watercourse to the north which along with local anecdotal evidence would suggest that this area suffers from regular flooding and so a grade 3b limitation has been applied to this strip either side of the watercourse.

## 5. STONINESS

- 5.1 The whole site had between 5% and 15% stones in the topsoil. The stones were small to medium in size usually between 1 cm and 4cm across with lines of larger stones that had possible been pulled up by a subsoiler or other mechanical operation. Stones are hard and subangular.



The sample points became impenetrable to a soil auger at various depths which was due to a layer of tightly meshed small to medium sized stones rather than a rock layer.

## 6. GRADIENT AND MICRORELIEF

- 6.1 The gradient across most of the site is gently sloping with certain areas around the watercourse to the south where the slope is between 8 and 10 degrees resulting in a grade 3b limitation.





## 7. SOILS

- 7.1 The soils found on site largely follow the expectations set by the national soils map. Full information on the sample points along with trial pit descriptions and photographs and lab test results can be found at **appendix 4**.
- 7.2 The topsoil is either dark brown (7.5YR 3/4 or occasionally 3/3) or dark reddish brown (5YR 3/4). The topsoil texture is either heavy clay loam or medium clay loam and even where it is a medium clay loam it is only 2% to 3% less clay than a heavy clay loam.
- 7.3 There are 2 very distinct subsoils. The first is brown (7.5YR 4/4) or occasionally reddish brown (5YR 4/4) clay or heavy clay loam with a medium angular blocky or coarse subangular blocky structure. The second is a dark yellowish brown (10YR 4/4) coarse sandy loam. The coarse sandy loam subsoils are all to the east of the site predominantly in the northeast corner.
- 7.4 Where subsoils could be identified (prior to finding an impenetrable layer) it was very rare to be able to identify an upper and lower subsoil. Usually just one subsoil was identified either to the full depth of the auger or to an impenetrable layer.
- 7.5 A mat of small to medium sized stones often prevented augering at between 25 and 80cm. Because this was identified as a layer of stones rather than rock it is assumed that at all points soil continued beneath the stone layer and so soil depth is not considered to be a limiting factor.

## INTERACTIVE FACTORS

### 8. WETNESS

- 8.1 An assessment of the wetness class of each sample point was made based on the flow chart at Figure 6 in the MAFF guidance. The wetness class and topsoil texture were then assessed against Table 6 of the MAFF guidance to determine the ALC grade according to wetness. The wetness assessment can be found at **appendix 4**.
- 8.2 There is no slowly permeable layer or gleying identified on site and so the site is assessed as wetness class I.
- 8.3 Table 6, wetness class I, >225 FCD gives a limit of grade 3a for medium clay loam topsoil and grade 3b for heavy clay loam topsoil. On areas to the north where the rainfall is lower Table 6, wetness class I, 176-225 FCD gives a limit of Grade 2 for medium clay loam topsoil and grade 3a for heavy clay loam topsoil.

## 9. DROUGHTINESS

- 9.1 Droughtiness limits are defined in terms of moisture balance for wheat and potatoes using the formula:

$$MB \text{ (Wheat)} = AP \text{ (Wheat)} - MD \text{ (Wheat)}$$

and

$$MB \text{ (Potatoes)} = AP \text{ (Potatoes)} - MD \text{ (Potatoes)}$$

Where:

MB = Moisture Balance

AP = Crop Adjusted available water capacity

MD = Moisture deficit

- 9.2 Moisture deficit for wheat and potatoes can be found in the agro-climatic data and are as follows:

$$MD \text{ (Wheat)} = 84$$

$$MD \text{ (Potatoes)} = 71$$

- 9.3 Crop adjusted available water is calculated by reference to the total available water and easily available water which is calculated by reference to soil texture and structural condition and the stone content.
- 9.4 The moisture balance was calculated for the trial pit locations and locations and can be found at **appendix 4**.
- 9.5 Because it was found that the stone layer that made the sample point impenetrable to the soil auger was made of small stones and had soil below it, droughtiness is not considered to be a significant limitation to land grade.

## 10. AGRICULTURAL LAND CLASSIFICATION

10.1 The Agricultural Land Classification provides a framework for classifying land according to which its physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can operate in one or more of four principle ways: they may affect the range of crops that can be grown, the level of yield, the consistency of yield and the cost of obtaining it.

10.2 The principle physical factors influencing agricultural production are climate, site and soil and the interactions between them which together form the basis for classifying land into one of 5 grades; grade 1 being of excellent quality and grade 5 being land of very poor quality. Grade 3 land, which constitutes approximately half of all agricultural land in the United Kingdom is divided into 2 subgrades – 3a and 3b. A full definition of all of the grades can be found at **appendix 5**.

10.3 This assessment sets out that the site is limited by wetness.

10.4 The breakdown of land by classification is:

Grade 2:	7.3 Ha
Grade 3a:	34.9 Ha
Grade 3b:	46.4 Ha
Non-Agricultural	6.4 Ha

10.5 A plan of the land grading can be found at **appendix 6**.

## **Appendix 1 – Details of the Authors Experience**

James Fulton

### **Professional Education and Qualifications**

BSc (Hons) Agriculture, University of Nottingham (2004)

Member of the Royal Institution of Chartered Surveyors (MRICS) (2008)

Fellow of the Central Association of Agricultural Valuers (FAAV) (2009)

### **Relevant Work Experience**

While working for a regional firm from 2004 until 2016 as part of my work I provided advice to farmers on soils, cultivation techniques and cropping and was involved in field trials which assessed cropping and cultivation techniques and how they impacted soil structure. At the same time I worked alongside an experienced surveyor who produced Agricultural Land Classification reports and I received training in field survey techniques and the ALC process to the point where I was able to produce ALC reports.

In 2016 I left my employer and formed Amet Property Ltd providing development consultancy and other rural practice surveying services. Of all of the services that we provide Agricultural Land Classification reports is the single largest area of work accounting for approximately 70% of all of my working time.

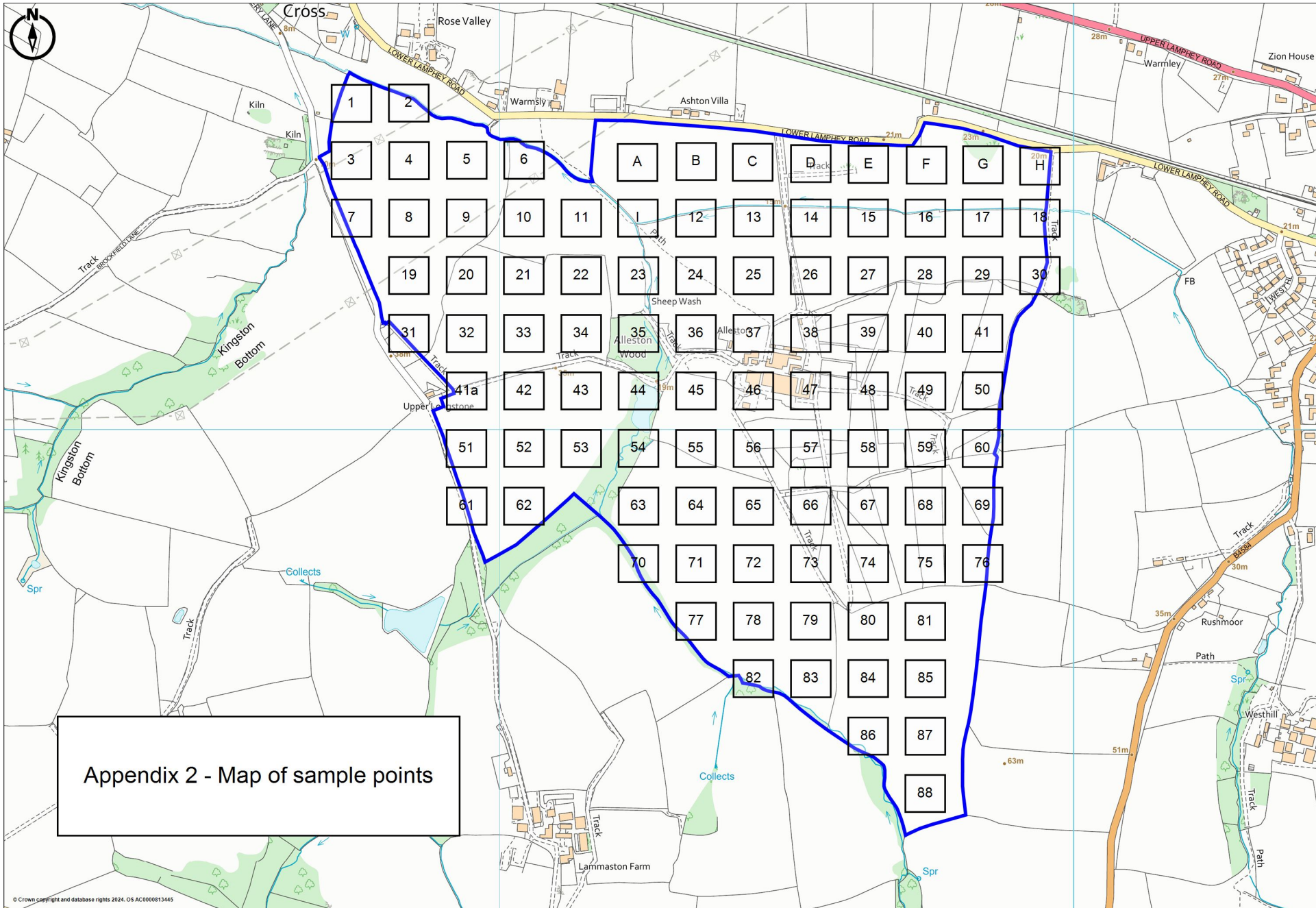
While I am not a member of the BSSS I meet the minimum competencies set out by the BSSS in Document 1 *Foundation skills in field soil investigation, description and interpretation* and Document 2 *Agricultural Land Classification (England and Wales)*

### **Professional Standards**

As a member of the Royal Institution of Chartered Surveyors and Fellow of the Central Association of Agricultural Valuers I am bound by their professional standards and am only able to carry out work where I am suitably qualified and experienced to do so. Due to the formal and practical training that I have received I am able to competently produce Agricultural Land Classification reports.

### **Assistant Surveyors**

All assistant surveyors have completed the BSSS working with soil course and have been trained to meet the requirements of BSSS Document 1 *Foundation skills in field soil investigation, description, and interpretation*.



Appendix 2 - Map of sample points

### Appendix 3 – Climatic Data

Site Details: Alleston Farm

Grid reference (centre of site): 200377 200055

Altitude: Mean 31.36m AOD

Climatic data from surrounding locations:

Grid Reference	ALT	AAR	LR_AAR	ASR	ATO	ATS	MDW	MDP	FCD
20002000	25	1110	1.2	470	1545	2410	85	73	226
20002050	19	1101	1.3	480	1550	2416	84	72	226
20502000	46	1114	1.5	485	1520	2384	81	67	226
20502050	46	1121	2.3	510	1518	2382	77	63	229

Altitude Adjusted

Grid Reference	AAR	ATO	FCD	MDW	MDP	Proximity Adjustment
20002000	1117.63	1537.75	227.10	83.81	71.44	98.44%
20002050	1117.07	1535.91	228.32	81.61	68.86	0.58%
20502000	1092.04	1536.69	222.82	84.04	70.98	0.67%
20502050	1087.33	1534.69	224.13	80.86	68.03	0.31%

Sample point	Easting	Northing	Altitude	FCD	Column in Table 6
1	199700	200500	14	224.01	176-225
2	199800	200500	14	224.02	176-225
3	199700	200400	15	224.21	176-225
4	199800	200400	15	224.22	176-225
5	199900	200400	14	224.05	176-225
6	200000	200400	15	224.22	176-225
7	199700	200300	18	224.75	176-225
8	199800	200300	19	224.93	176-225
9	199900	200300	21	225.28	>225
10	200000	200300	20	225.11	>225
11	200100	200300	17	224.58	176-225
12	200300	200300	15	224.21	176-225
13	200400	200300	14	224.01	176-225
14	200500	200300	15	224.16	176-225
15	200600	200300	16	224.29	176-225
16	200700	200300	18	224.6	176-225
17	200800	200300	19	224.72	176-225
18	200900	200300	18	224.48	176-225
22	200100	200200	19	224.95	176-225
23	200200	200200	19	224.94	176-225
24	200300	200200	19	224.92	176-225
25	200400	200200	19	224.9	176-225
26	200500	200200	20	225.05	176-225
27	200600	200200	21	225.19	>225
28	200700	200200	21	225.15	>225
29	200800	200200	21	225.1	>225
30	200900	200200	22	225.21	>225
35	Non-Agricultural				
40	200700	200100	24	225.68	>225
41	200800	200100	23	225.46	>225






Appendix 4 - Assessment of sample points








Sample No	Altitude	Topsoil				Upper Subsoil						Lower Subsoil						Grade limit by Gradient	Wetness Assessment			Grade limit by Wetness	Grade by most limiting factor
		Depth	Texture	Colour	Stoniness	Mottles	Depth	Texture	Colour	Stoniness	Mottles	Structure	Depth	Texture	Colour	Stoniness	Mottles		Structure	Depth to SPL	Gley		
1	14	0-30	MCL	7.5YR 3/4	10%		30-80	HCL	7.5YR 4/4	5%		Moderate	80	IMP						I	2	2	
2	14	0-30	MCL	7.5YR 3/4	10%		30-75	HCL	7.5YR 4/4	5%		Moderate	75	IMP						I	2	2	
3	15	0-30	HCL	7.5YR 3/4	10%		30-80	C	7.5YR 4/4	5%	CG	Moderate	80	IMP						I	3a	3a	
4	15	0-30	MCL	7.5YR 3/4	10%		30-80	HCL	7.5YR 4/4	5%		Moderate	80	IMP						I	2	2	
5	14	0-30	HCL	7.5YR 3/3	10%		30	IMP												I	3a	3a	
6	15	0-35	HCL	7.5YR 3/3	10%		35-75	C	7.5YR 4/4	5%	COG	Moderate	75	IMP						I	3a	3a	
7	18	0-30	HCL	7.5YR 3/4	10%		30-80	C	7.5YR 4/4	5%	CG	Moderate	80	IMP						I	3a	3a	
8	19	0-30	HCL	7.5YR 3/4	10%		30-80	C	7.5YR 4/4	5%	CG	Moderate	80	IMP						I	3a	3a	
9	21	0-30	MCL	7.5YR 3/4	10%		30-40	HCL	7.5YR 4/4	10%	CB	Moderate	40	IMP						I	3b	3b	
10	20	0-30	HCL	7.5YR 3/4	10%		30-120	C	7.5YR 4/4	5%	COG	MAB								I	3b	3b	
11	17	0-35	HCL	7.5YR 3/4	10%		35-50	C	7.5YR 4/4	5%		Moderate	50	IMP						I	3a	3a	
12	15	0-35	HCL	7.5YR 3/4	10%		35-50	C	7.5YR 3/4		COB	Moderate	50	IMP						I	3a	3a	
13	14	0-35	HCL	7.5YR 3/4	10%		35-60	St C	7.5YR 3/4		CB	Moderate	60-120	St C	7.5YR 4/6		CB	Poor		I	3a	3a	
14	15	0-35	MCL	7.5YR 3/4	10%		35-120	HCL	10YR 4/4	5%	FB	Moderate								I	2	2	
15	16	0-35	MCL	7.5YR 3/4	10%		35-120	cSL	10YR 4/4	5%	FB	Moderate								I	2	2	
16	18	0-35	MCL	7.5YR 3/4	10%		35-120	cSL	10YR 4/4	5%	FB	Moderate								I	2	2	
17	19	0-35	MCL	7.5YR 3/4	10%		35-120	cSL	10YR 4/4	5%	FB	Moderate								I	2	2	
18	18	0-35	MCL	7.5YR 3/4	10%		35-120	cSL	10YR 4/4	5%	FB	Moderate								I	2	2	
19	25	0-35	HCL	7.5YR 3/4	10%		35-80	C	5YR 3/4	5%	CG	Moderate	80	IMP						I	3b	3b	
20	27	0-35	HCL	7.5YR 3/4	15%		35	IMP												I	3b	3b	
21	24	0-35	HCL	7.5YR 3/4	15%		35	IMP												I	3b	3b	
22	19	0-35	HCL	7.5YR 3/4	15%		35-50	C	5YR 4/4	10%	FB	MAB	50	IMP						I	3a	3a	
23	19	0-35	HCL	7.5YR 3/4	10%		35-50	C	5YR 4/4	5%	FB	Moderate	50	IMP						I	3a	3a	
24	19	0-35	HCL	7.5YR 3/4	10%		35-75	St C	7.5YR 4/4		COG	Moderate	75	IMP						I	3a	3a	
25	19	0-35	HCL	7.5YR 3/4	10%		35-60	St C	7.5YR 4/4		COG	Moderate	60	IMP						I	3a	3a	
26	20	0-35	MCL	7.5YR 3/4	10%		35-55	St C	7.5YR 4/4	5%	FB	Moderate	55-120	C	7.5YR 4/6		FB	Poor		I	2	2	
27	21	0-35	MCL	7.5YR 3/4	10%		35-120	cSL	7.5YR 4/4	5%	FB	Moderate								I	3a	3a	
28	21	0-35	MCL	7.5YR 3/4	10%		35-75	cSL	7.5YR 4/4	5%	CB	Moderate	75	IMP						I	3a	3a	
29	21	0-35	MCL	7.5YR 3/4	10%		35-120	cSL	10YR 4/4	5%	FB	Moderate								I	3a	3a	
30	22	0-35	MCL	7.5YR 3/4	10%		35-120	cSL	10YR 4/4	5%	FB	MAB								I	3a	3a	
31	31	0-30	MCL	5YR 3/4	10%		30	IMP												I	3a	3a	
32	33	0-35	MCL	5YR 3/4	15%		35	IMP												I	3a	3a	
33	31	0-35	MCL	5YR 3/4	10%		35-40	HCL	5YR 3/4	20%	CB	Moderate	40	IMP						I	3a	3a	
34	26	0-30	HCL	5YR 3/4	10%		30-40	C	5YR 3/4	15%	COG	Moderate	40	IMP						I	3b	3b	
35	23	NOT AVAILABLE FOR AGRICULTURE																					
36	23	0-35	HCL	7.5YR 3/4	10%		35-75	St C	7.5YR 4/4		COG	Moderate	75	IMP						I	3b	3b	
37	22	0-35	HCL	7.5YR 3/4	10%		35-50	St C	7.5YR 4/4		CB	Moderate	50	IMP						I	3b	3b	
38	22	0-35	MCL	7.5YR 3/4	10%		35-65	cSL	7.5YR 4/4	5%	FB	Moderate	65	IMP						I	3a	3a	
39	25	0-35	MCL	7.5YR 3/4	10%		35-75	cSL	7.5YR 4/4	5%	FB	Moderate	75	IMP						I	3a	3a	
40	24	0-30	MCL	7.5YR 3/4	10%		30-50	cSL	5YR 3/4	5%	CB	Moderate	50	IMP						I	3a	3a	
41	23	0-30	MCL	7.5YR 3/4	10%		30-50	cSL	5YR 3/4	5%	CB	Moderate	50	IMP						I	3a	3a	
41a	37	0-30	HCL	5YR 3/4	15%		30	IMP												I	3b	3b	
42	35	0-25	HCL	5YR 3/4	25%		25	IMP												I	3b	3b	
43	31	0-45	HCL	5YR 3/4	10%		45	IMP												I	3b	3b	
44	29	NOT AVAILABLE FOR AGRICULTURE																					
45	27	0-30	MCL	5YR 3/4	10%		30-50	cSL	5YR 4/4		CGB	Moderate	50	IMP						I	3a	3a	
46	24	0-30	MCL	7.5YR 3/4	10%		30-80	C	5YR 3/4	5%	COG	Moderate	80	IMP						I	3a	3a	
47	26	0-30	MCL	7.5YR 3/4	10%		30-60	C	5YR 3/4	5%	COG	Moderate	60	IMP						I	3a	3a	
48	26	0-35	MCL	7.5YR 3/4	10%		35	IMP												I	3a	3a	
49	27	0-35	MCL	7.5YR 3/4	10%		35	IMP												I	3a	3a	
50	29	0-30	MCL	7.5YR 3/4	10%		30-50	cSL	5YR 3/4	5%	CB	Moderate	50	IMP						I	3a	3a	
51	46	0-30	HCL	5YR 3/4	5%		30	IMP												I	3b	3b	
52	43	0-30	HCL	5YR 3/4	5%		30	IMP												I	3b	3b	
53	35	0-45	HCL	5YR 3/4	10%		45	IMP												I	3b	3b	
54	29	NOT AVAILABLE FOR AGRICULTURE																					
55	29	0-30	MCL	5YR 3/4	10%		30-55	cSL	5YR 4/4		CGB	Moderate	55	IMP						I	3a	3a	
56	29	0-30	MCL	5YR 3/4	10%		30-50	cSL	5YR 4/4		CGB	Moderate	50	IMP						I	3a	3a	
57	29	0-30	MCL	7.5YR 3/4	10%		30-40	C	5YR 3/4	5%	COG	Moderate	40	IMP						I	3a	3a	
58	29	0-30	MCL	7.5YR 3/4	10%		30-50	C / HCL	5YR 4/4		COG	CSAB	50	IMP						I	3a	3a	
59	29	0-30	HCL	7.5YR 3/4	10%		30	IMP												I	3b	3b	

Sample No	Altitude	Topsoil				Upper Subsoil						Lower Subsoil						Grade limit by Gradient	Wetness Assessment				Grade limit by Wetness	Grade by most limiting factor
		Depth	Texture	Colour	Stoniness	Mottles	Depth	Texture	Colour	Stoniness	Mottles	Structure	Depth	Texture	Colour	Stoniness	Mottles		Structure	Depth to SPL	Gley	Wetness Class		
60	29	0-30	MCL	7.5YR 3/4	10%		30	IMP												I	3a	3a		
61	49	0-35	HCL	5YR 3/4	10%		35	IMP												I	3b	3b		
62	41	0-35	HCL	5YR 3/4	10%		35	IMP												I	3b	3b		
63	35	0-30	MCL	5YR 3/4	10%		30	IMP												I	3a	3b		
64	40	0-35	MCL	5YR 3/4	10%		35	IMP												I	3a	3a		
65	43	0-30	MCL	5YR 3/4	10%		30-50	cSL	5YR 4/4		CGB	Moderate	50	IMP						I	3a	3a		
66	44	0-35	HCL	5YR 3/4	15%		35	IMP												I	3b	3b		
67	45	0-45	HCL	5YR 3/4	15%		45	IMP												I	3b	3b		
68	45	0-30	HCL	7.5YR 3/4	10%		30	IMP												I	3b	3b		
69	44	0-30	HCL	7.5YR 3/4	10%		30-65	C	5YR 5/4		Moderate	65	IMP							I	3b	3b		
70	40	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
71	43	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
72	46	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
73	48	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
74	50	0-20	HCL	5YR 3/4	10%		20	IMP												I	3b	3b		
75	51	0-20	MCL	5YR 3/4	10%		20	IMP												I	3a	3a		
76	53	0-20	MCL	5YR 3/4	10%		20	IMP												I	3a	3a		
77	40	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
78	46	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
79	53	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
80	54	0-25	HCL	5YR 3/4	10%		25	IMP												I	3b	3b		
81	56	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
82	44	0-30	HCL	5YR 3/4	10%		30-40	cSL	5YR 4/4	25%		Moderate	40	IMP						I	3b	3b		
83	48	0-30	HCL	5YR 3/4	10%		30-75	cSL	5YR 3/4	5%	CGB	Moderate	75	IMP						I	3b	3b		
84	55	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
85	57	0-30	HCL	5YR 3/4	10%		30	IMP												I	3b	3b		
86	49	0-30	HCL	7.5YR 3/4	10%		30-120	cSL	5YR 4/4	5%	CGB	Moderate								I	3b	3b		
87	55	0-30	HCL	5YR 3/4	10%		30-120	cSL	5YR 3/4	5%	CGB	Moderate								I	3b	3b		
88	54	0-30	HCL	5YR 3/4	10%		30-60	cSL	5YR 3/4	5%	CGB	Moderate	60	IMP						I	3b	3b		
A	16	0-30	HCL	7.5YR 3/4	10%		30-60	C	7.5YR 4/4	5%	FB	Moderate	60-120	C	7.5YR 5/3	5%	FO	Moderate	60	I	3a	3a		
B	15	0-35	HCL	7.5YR 3/4	10%		35-50	HCL	7.5YR 4/4	10%	FB	Moderate	50-120	C	7.5YR 4/4	20%	FO	Moderate		I	3a	3a		
C	15	0-35	MCL	7.5YR 3/4	10%		35-80	C	7.5YR 3/4	10%		Moderate	80	IMP						I	2	2		
D	16	0-35	MCL	7.5YR 3/4	10%		35-80	C	7.5YR 4/4	10%		Moderate	80	IMP						I	2	2		
E	17	0-35	MCL	7.5YR 3/4	10%		35-70	C	7.5YR 4/4	10%		Moderate	70	IMP						I	2	2		
F	18	0-40	MCL	7.5YR 3/4	10%		40-110	SCL	7.5YR 4/4	5%		Moderate	110	IMP						I	2	2		
G	19	0-35	HCL	7.5YR 3/4	10%		35-120	SC	7.5YR 4/4	5%		Moderate								I	3a	3a		
H	20	0-35	MCL	7.5YR 3/4	10%		35-60	SCL	7.5YR 4/4	10%		Moderate	60	IMP						I	2	2		
I	15	Too Wet to access																						
	29.94																							

**Appendix 4b – Trial Pit Descriptions – Alleston Farm**

Sample Point No. 10	
Horizon 1	0-30cm - Dark brown (7.5YR 3/4) heavy clay loam (HCL) topsoil with 10% stones (0-6cm) and a weak medium sub angular blocky structure.
Horizon 2	30-120cm – Brown (7.5YR 4/4) clay subsoil with 5% stones (2-6cm) with common ochreous and grey mottles and a medium angular blocky structure.
Horizon 3	Not present
Pictures	
Horizon 1 	Horizon 2  Horizon 2 continued: 
Slowly permeable layer	Not Present
Gleying	Not present
Wetness Class	I
Wetness limitation	3b
MB Wheat	44.41
MB potatoes	35.19
Droughtiness Limitation	1

Sample Point No. 30		
Horizon 1	0-35cm - Dark brown (7.5Y 3/4) medium clay loam (MCL) topsoil with 10% stones (0-6cm) and a weak fine sub angular blocky structure.	
Horizon 2	30-120cm – Dark yellowish brown (10YR 5/4) coarse sandy loam subsoil with 5% stones (2-6cm) with few black mottles and a medium angular blocky structure.	
Horizon 3	Not present	
Pictures		
Horizon 1	Horizon 2	Horizon 2 continued:
		
Slowly permeable layer	Not Present	
Gleying	Not present	
Wetness Class	I	
Wetness limitation	3a	
MB Wheat	63.31	
MB potatoes	35.19	
Droughtiness Limitation	1	

Sample Point No. 58					
Horizon 1	0-30cm - Dark brown (7.5Y 3/4) medium clay loam (MCL) topsoil with 10% stones (2-6cm) and a weak medium sub angular blocky structure.				
Horizon 2	30-50cm – Reddish brown (5YR 4/4) clay / heavy clay loam (C/HCL) stoneless subsoil with common ochreous and grey mottles and a coarse subangular blocky structure.				
Horizon 3	Impenetrable to further hand augering at 50cm				
Pictures					
Horizon 1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">Horizon 2</td> <td style="width: 66%; text-align: center;">Horizon 3</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> </table>	Horizon 2	Horizon 3		
Horizon 2	Horizon 3				
					
Horizon 1					
Slowly permeable layer	Not Present				
Gleying	Not present				
Wetness Class	I				
Wetness limitation	3a				
MB Wheat	44.41				
MB potatoes	35.19				
Droughtiness Limitation	1				



**ANALYTICAL REPORT**

<b>Report Number</b>	<b>67420-23</b>	<b>W250</b>	<b>AMET PROPERTY</b>
<b>Date Received</b>	<b>14-APR-2023</b>		<b>HENWICK BARN</b>
<b>Date Reported</b>	<b>27-APR-2023</b>		<b>BULWICK</b>
<b>Project</b>	<b>SOIL</b>		<b>CORBY</b>
<b>Reference</b>	<b>AMET PROPERTY</b>		<b>NORTHANTS</b>
<b>Order Number</b>			<b>NN17 3DU</b>

Laboratory Reference		SOIL624350	SOIL624351	SOIL624352	SOIL624353	SOIL624354	SOIL624355			
Sample Reference		ALLES 10 TS	ALLES 10 SS1	ALLES 58 TS	ALLES 58 SS1	ALLES 86 TS	ALLES 86 SS1			
Determinand	Unit	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Coarse Sand 2.00-0.63mm	% w/w	8	6	7	2	14	34			
Medium Sand 0.63-0.212mm	% w/w	6	5	9	4	12	10			
Fine Sand 0.212-0.063mm	% w/w	14	10	16	17	7	7			
Silt 0.063-0.002mm	% w/w	41	39	43	42	39	33			
Clay <0.002mm	% w/w	31	40	25	35	28	16			
Textural Class **		HCL	C	MCL	C/HCL	HCL	cSL			

**Notes**

Analysis Notes      The sample submitted was of adequate size to complete all analysis requested.  
 The results as reported relate only to the item(s) submitted for testing.  
 The results are presented on a dry matter basis unless otherwise stipulated.

Document Control      **This test report shall not be reproduced, except in full, without the written approval of the laboratory.**

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\*\* Please see the attached document for the definition of textural classes.

## ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

<b>Class</b>	<b>Code</b>
Sand	S
Loamy sand	LS
Sandy loam	SL
Sandy Silt loam	SZL
Silt loam	ZL
Sandy clay loam	SCL
Clay loam	CL
Silt clay loam	ZCL
Clay	C
Silty clay	ZC
Sandy clay	SC

For the *sand*, *loamy sand*, *sandy loam* and *sandy silt loam* classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

vf	Very Fine (more than 2/3's of sand less than 0.106 mm)
f	Fine (more than 2/3's of sand less than 0.212 mm)
c	Coarse (more than 1/3 of sand greater than 0.6 mm)
m	Medium (less than 2/3's fine sand and less than 1/3 coarse sand).

The subdivisions of *clay loam* and *silty clay loam* classes according to clay content are indicated as follows:

M	medium (less than 27% clay)
H	heavy (27-35% clay)

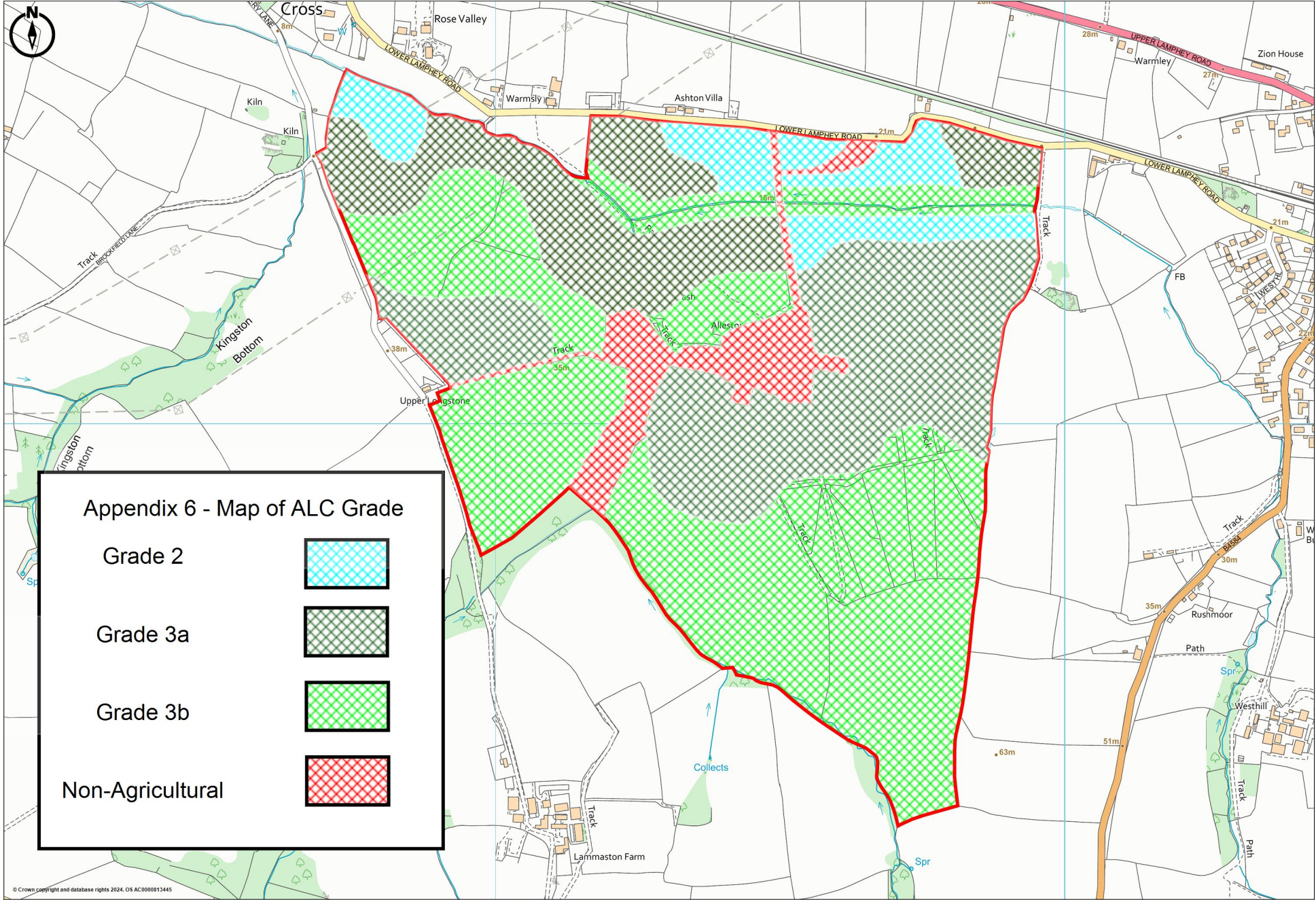
Organic soils i.e. those with an organic matter greater than 10% will be preceded with a letter O.

Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.

## APPENDIX 5 - DESCRIPTION OF ALC GRADES

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





**Appendix 6 - Map of ALC Grade**

Grade 2	
Grade 3a	
Grade 3b	
Non-Agricultural	

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