



# **AGRICULTURAL LAND CLASSIFICATION BANBURY**

CLIENT: GREYSTOKE  
PROJECT: BANBURY  
DATE: 18<sup>TH</sup> MARCH 2024 – ISSUE 1  
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 66.9Ha, of agricultural land at Banbury.
- 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 on the majority of the site, gradient on the bank to the east and microrelief on the ridge and furrow areas.
- 1.3 The land is graded as follows:

Grade 3a:	19.8 Ha
Grade 3b:	44.4 Ha
Non-agricultural:	2.7 Ha

## 2. INTRODUCTION

- 2.1 Amet Property Ltd have been instructed by Greystoke to produce an Agricultural Land Classification (ALC) report on a 66.9-hectare site on land east of junction 11 of the M40 near Banbury.
- 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 2 assistant surveyors on the 8<sup>th</sup> of March 2024 during which the conditions were overcast and dry with soils at all horizons, sometimes over wet.
- 2.4 During the inspection 2 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 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 66.9Ha of grassland. The land is bounded to the west by the A361 and the south by the A422.
- 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.
- 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.

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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

- 2.8 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 largely Charmouth Mudstone formation – mudstone. Except from the eastern fields which have the bedrock geology of Dyrham Formation – siltstone and mudstone, interbedded.
- 3.2 The soils on the site are identified as largely being 711f WICKHAM 2 Association – slowly permeable seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils. Except from the eastern fields which are 572h OXPASTURE Association, fine loamy over clayey and clayey soils with slowly permeable subsoils and slight seasonal waterlogging.
- 3.3 The 1:250,000 series Agricultural Land Classification maps show the land to be Grade 93 – good to moderate. These plans are of strictly limited value, using an out-of-date methodology at a very small scale (low detail) level of survey. Further information on the limits of their use can be found in TIN049.
- 3.4 The post 1988 Agricultural Land Classification Map ran by Defra has not yet surveyed the site. However, the map shows that land to the northwest of the site, near Clacton-on-Sea has been graded as 2, 3a and 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	447690,242216
Altitude (ALT)	107
Average Annual Rainfall (AAR)	691
Accumulated Temperature - Jan to June (ATO)	1376
Duration of Field Capacity (FCD)	159
Moisture Deficit Wheat	102
Moisture Deficit Potatoes	92

- 4.3 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.
- 4.4 The AAR and ATO provide no climatic limitation to grade.
- 4.5 The site is shown to be in flood zone 1 – areas with a less than 1 in 1000 annual chance of flooding. There was no evidence of flooding seen during the site visit and it is considered that will not result in a limitation to land grade.

## 5. STONINESS

5.1 The site is stoneless with stoniness providing no limit to land grade.

## 6. GRADIENT AND MICRORELIEF

6.1 There is a strip running north south between sample point 5 and 65 which is a steep bank ranging from 8 to 10 degrees limiting land grade in this area to grade 3b. To the northwest are areas that were once ridge and furrow where the microrelief would still prevent many mechanical operations limiting the use to grazing and the grade to 3b.

## 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 consistently a dark greyish brown (10YR 4/2) or very dark greyish brown (10YR 3/2) medium clay loam, medium silty clay loam or occasionally heavy clay loam. The upper subsoil is a gleyed, moderately structured clay or heavy clay loam over a lower subsoil of a poorly structured gleyed slowly permeable clay.

## 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 Where there is a gleyed horizon at less than 40cm and a slowly permeable horizon starting at deeper than 42cm the assessment gives wetness class III. Table 6, 151-175 FCD, wetness class III and medium clay loam or medium silty clay loam gives a limitation of grade 3a.
- 8.3 Where there is a gleyed horizon at less than 40cm and a slowly permeable horizon starting at less than 42cm the assessment gives wetness class IV. Table 6, 151-175 FCD, wetness class IV and medium clay loam, heavy clay loam or medium silty clay loam gives a limitation of grade 3b.

## 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:

$$MD \text{ (Wheat)} = 102$$

$$MD \text{ (Potatoes)} = 92$$

- 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 can be found at **appendix 4**.
- 9.5 Droughtiness is not a limiting factor 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 both wetness, gradient and microrelief.
- 10.4 The breakdown of land by classification is:
- |                   |         |
|-------------------|---------|
| Grade 3a:         | 19.8 Ha |
| Grade 3b:         | 44.4 Ha |
| Non-agricultural: | 2.7 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.

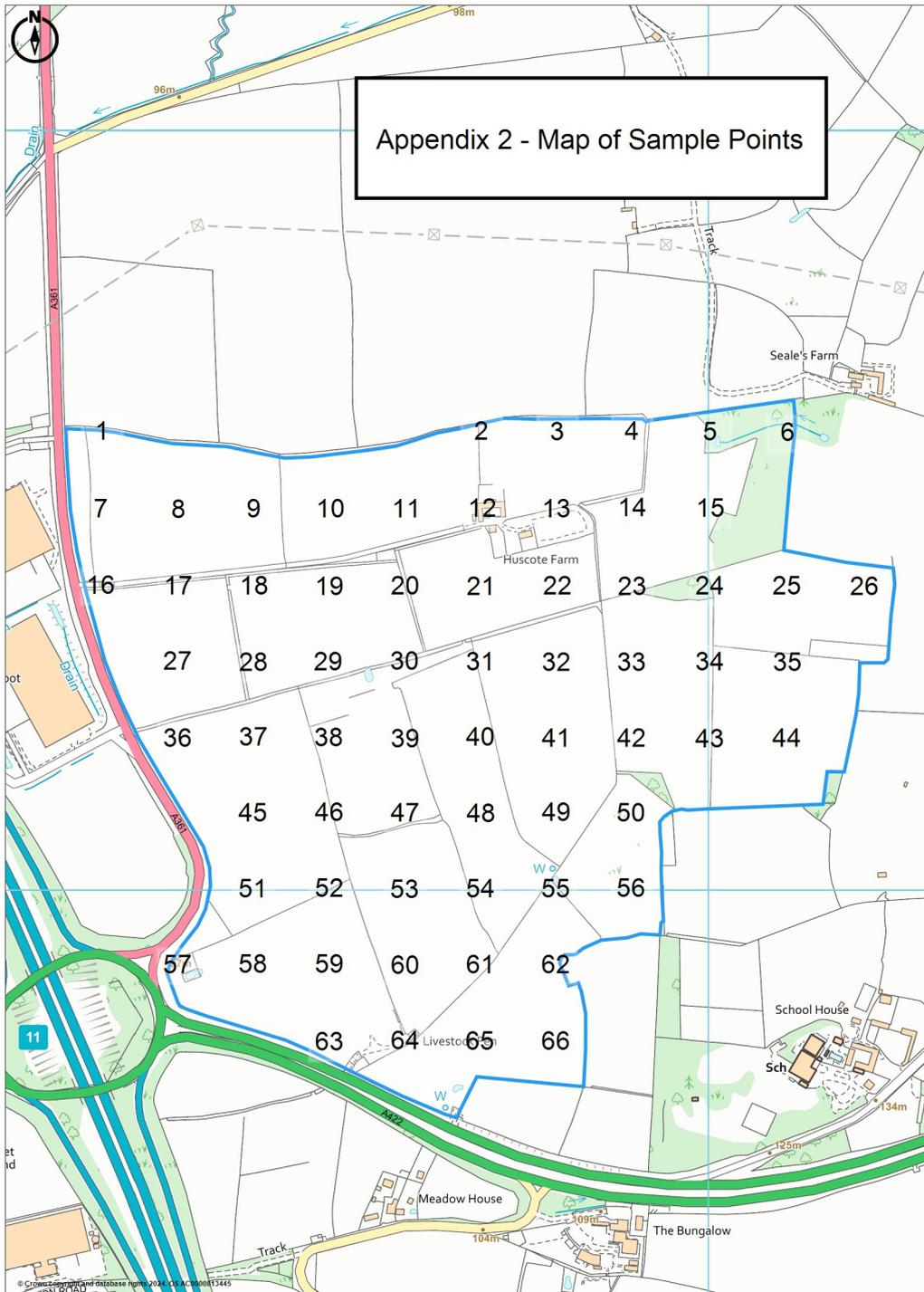
While I am not a member of the BSSS I meet the minimum competencies set out by the BSSS in Document 1 *Foundation skills in field soil investigation, description and interpretation* and Document 2 *Agricultural Land Classification (England and Wales)*

### **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 3 – Climatic Data

Site Details: Banbury

Grid reference (centre of site): 447690,242216

Altitude: Mean 106.7 AOD

Climatic data from surrounding locations:

Grid Reference	ALT	AAR	LR_AAR	ASR	ATO	ATS	MDW	MDP	FCD
4450 2400	118	694	0.2	330	1365	2313	102	92	157
4450 2450	132	693	0.2	335	1347	2293	100	89	159
4500 2400	111	690	0.1	340	1372	2323	101	91	157
4500 2450	123	695	0.1	345	1356	2305	98	87	163

Altitude Adjusted

GRID REFERENCE	AAR	ATO	FCD	MDW	MDP	PROXIMITY ADJUSTMENT
4450 2400	691.74	1377.88	156.67	103.32	93.75	25.48%
4450 2450	687.94	1375.84	158.27	102.95	92.92	20.65%
4500 2400	689.57	1376.90	156.94	101.47	91.63	30.21%
4500 2450	693.37	1374.58	162.76	99.79	89.38	23.65%

Appendix 4a - Sample Point Assessment

Sample No	Altitude	Topsoil			Stoniness	Mottles	Upper Subsoil			Stoniness	Mottles	Structure	Lower Subsoil			Stoniness	Mottles	Structure	Wetness Assessment			Grade		Comments
		Depth	Texture	Colour			Depth	Texture	Colour				Depth	Texture	Colour				Depth to SPL	Gley	Wetness Class	Wetness	Wetness	
1	102	0-25	MCL	10YR 4/2			25-50	HCL	10YR 5/3		FOB	Moderate	50-120	C	2.5Y 4/2		CO	Poor	50	25	III	3a	Ridge and Furrow - 3b	
2	109	0-30	MCL	10YR 4/2			30-120	C	2.5Y 5/2			CAB							30	30	IV	3b		
3	109	0-25	MCL	10YR 4/2			25-120	C	2.5Y 5/2		CO	Poor							25	25	IV	3b		
4	110	0-25	MCL	10YR 4/2			25-65	C	2.5Y 6/4		CO	Moderate	65-120	C	2.5Y 5/2		CO	Poor	65	25	III	3a		
5	112	Non-agricultural																						
6	117	Non-agricultural																						
7	98	0-25	MCL	10YR 4/2			25-60	HCL	10YR 4/2		FO	Moderate	60	HCL	2.5Y 5/2		CO	Poor	60	25	III	3a	Ridge and Furrow - 3b	
8	105	0-25	MCL	10YR 4/2			25-65	C	2.5Y 6/4		CO	Poor	65-120	C	2.5Y 5/2		CO	Poor	25	25	IV	3b	Ridge and Furrow - 3b	
9	107	0-35	MCL	10YR 4/2			35-80	C	2.5Y 6/4	5%	MO	Poor	80-120	C	2.5Y 5/1		CO	Poor	35	35	IV	3b	Ridge and Furrow - 3b	
10	108	0-20	MCL	10YR 4/2			20-120	C	2.5Y 5/2		CO	Poor							20	20	IV	3b	Ridge and Furrow - 3b	
11	109	0-35	MCL	10YR 4/2			35-80	C	2.5Y 6/4	5%	MO	Poor	80-120	C	2.5Y 5/1		CO	Poor	35	35	IV	3b	Ridge and Furrow - 3b	
12	112	Non-agricultural																						
13	98	Non-agricultural																						
14	100	0-25	MCL	10YR 4/2			25-65	C	2.5Y 6/4		CO	Moderate	65-120	C	2.5Y 5/2		CO	Poor	65	25	III	3a		
15	103	0-25	HCL	10YR 4/2			25-120	C	2.5Y 5/2		CO	Poor							25	25	IV	3b	Slope 3b	
16	103	0-30	MCL	10YR 4/2			30-65	HCL	10YR 5/3		FO	CSAB	65-120	C	2.5Y 5/2		MO	Massive	65	25	III	3a	Ridge and Furrow - 3b	
17	103	0-20	MCL	10YR 4/2			20-50	HCL	2.5Y 5/3		FO	Moderate	50-120	C	2.5Y 5/2		CO	Poor	50	20	III	3a		
18	104	0-20	MCL	10YR 4/2			20-50	HCL	2.5Y 5/3		FO	Moderate	50-120	C	2.5Y 6/2		CO	Poor	50	20	III	3a	Ridge and Furrow - 3b	
19	105	0-20	MCL	10YR 4/2			20-45	HCL	2.5Y 5/3		FO	Moderate	45-120	C	2.5Y 6/2		CO	Poor	45	20	III	3a	Ridge and Furrow - 3b	
20	106	0-20	MCL	10YR 4/2			20-50	HCL	2.5Y 5/3		FO	Moderate	50-120	C	2.5Y 6/2		CO	Poor	50	20	III	3a	Ridge and Furrow - 3b	
21	109	0-20	MCL	10YR 4/2			20-50	HCL	2.5Y 5/3		FO	Moderate	50-120	C	2.5Y 5/2		CO	Poor	50	20	III	3a		
22	99	0-20	MCL	10YR 4/2			20-60	HCL	10YR 5/3		CO	Moderate	60-120	C	2.5Y 6/2		COB	Poor	60	20	III	3a		
23	102	0-25	HCL	10YR 4/2			25-120	C	2.5Y 5/2		CO	Poor							25	25	IV	3b		
24	102	Non-agricultural																						
25	103	0-10	MZCL	10YR 3/2			10-65	HCL	2.5Y 5/3		FO	F/MSAB	65-120	C	2.5Y 6/4		CO	WCSAB	65	10	III	3a	Slope 3b	
26	104	0-20	MZCL	10YR 4/2			20-65	HCL	2.5Y 5/3		FO	Moderate	65-120	C	2.5Y 6/4		CO	Poor	65	20	III	3a		
27	106	0-20	MCL	10YR 4/2			20-45	HCL	2.5Y 5/3		FO	Moderate	45-120	C	2.5Y 5/2		CO	Poor	45	20	III	3a		
28	108	0-20	MCL	10YR 4/2			20-50	HCL	2.5Y 5/3		FO	Moderate	50-120	C	2.5Y 6/2		CO	Poor	50	20	III	3a	Ridge and Furrow - 3b	
29	110	0-20	MCL	10YR 4/2			20-45	HCL	2.5Y 5/3		FO	Moderate	45-120	C	2.5Y 6/2		CO	Poor	45	20	III	3a	Ridge and Furrow - 3b	
30	111	0-20	MCL	10YR 4/2			20-50	HCL	2.5Y 5/3		FO	Moderate	50-120	C	2.5Y 6/2		CO	Poor	50	20	III	3a	Ridge and Furrow - 3b	
31	114	0-20	MCL	10YR 3/2			20-45	HCL	10YR 4/3		CO	Moderate	45-120	C	2.5Y 6/2		COB	Poor	45	20	III	3a		
32	121	0-20	MCL	10YR 3/2			20-45	HCL	10YR 4/3		CO	Moderate	45-120	C	2.5Y 6/2		COB	Poor	45	20	III	3a		
33	100	0-25	HCL	10YR 3/2			25-120	C	2.5Y 5/3		CO	Poor							25	25	IV	3b	Slope 3b	
34	101	0-25	HCL	10YR 3/2			25-120	C	2.5Y 5/3		CO	Poor							25	25	IV	3b	Slope 3b	
35	102	0-10	MZCL	10YR 3/2			10-55	MZCL	2.5Y 5/3		COB	Moderate	55-120	C	10YR 5/2		COB	Poor	55	10	III	3a	Slope 3b	
36	104	0-25	MCL	10YR 4/2			25-50	HCL	2.5Y 5/2		CO	Moderate	50-120	C	10YR 5/2		CO	Poor	50	25	III	3a		
37	107	0-20	MCL	10YR 3/2			20-45	HCL	2.5Y 5/3		CO	Moderate	45-120	C	10YR 5/2		CO	Poor	45	20	III	3a		
38	107	0-15	MCL	10YR 4/2			15-35	HCL	2.5Y 5/3		FO	Moderate	35-120	C	2.5Y 5/3		COB	Poor	35	15	IV	3b	Ridge and Furrow - 3b	
39	109	0-15	MCL	10YR 4/2			15-35	HCL	2.5Y 5/3		FO	Moderate	35-120	C	2.5Y 5/3		COB	Poor	35	15	IV	3b	Ridge and Furrow - 3b	
40	110	0-10	MCL	10YR 3/2			10-40	HCL	2.5Y 5/3		CO	Moderate	40-120	C	10YR 5/2		CO	Poor	40	10	IV	3b		
41	114	0-20	MCL	10YR 4/2			20-50	HCL	10YR 4/3		CO	Moderate	55-120	C	2.5Y 6/2		COB	Poor	55	20	III	3a		
42	101	0-25	MCL	10YR 4/2			25-120	C	2.5Y 5/2		CO	Poor							25	25	IV	3b	Slope 3b	
43	101	0-25	HCL	10YR 3/2			25-120	C	2.5Y 5/3		CO	Poor							25	25	IV	3b	Slope 3b	
44	103	0-15	MZCL	10YR 4/2			15-40	MZCL	10YR 4/2		CO	Moderate	40-120	ZC	5Y 6/2		CO	Poor	40	15	IV	3b		
45	103	0-20	MCL	10YR 3/2			20-45	HCL	2.5Y 5/3		CO	Moderate	45-120	C	10YR 5/2		CO	Poor	45	20	III	3a		
46	106	0-20	MCL	10YR 3/2			20-45	HCL	2.5Y 5/3		CO	Moderate	45-120	C	10YR 5/2		CO	Poor	45	20	III	3a	Ridge and Furrow - 3b	
47	109	0-15	MCL	10YR 4/2			15-35	HCL	2.5Y 5/3		CO	Moderate	35-120	C	2.5Y 5/2		MOB	Poor	35	15	IV	3b	Ridge and Furrow - 3b	
48	113	0-15	MCL	10YR 4/2			15-120	C	2.5Y 5/2		MO	Poor							15	15	IV	3b		
49	116	0-20	MCL	10YR 4/2			20-50	HCL	10YR 5/3		CO	Moderate	50-120	C	2.5Y 6/2		COB	Poor	50	20	III	3a	Slope 3b	
50	126	0-25	MZCL	10YR 4/2			25-50	MZCL	10YR 5/3		FO	Moderate	50-120	C	2.5Y 5/3		COB	Poor	50	20	III	3a	Slope 3b	
51	100	0-10	MCL	10YR 3/2			10-40	HCL	2.5Y 5/3		CO	Moderate	40-120	C	10YR 5/2		CO	Poor	40	10	IV	3b		
52	101	0-10	MCL	10YR 3/2			10-45	HCL	2.5Y 5/3		FO	Moderate	45-120	C	10YR 5/1		CO	Poor	45	10	III	3a		
53	102	0-15	MCL	10YR 3/2			15-50	HCL	2.5Y 5/3		FO	Moderate	50-120	C	2.5Y 5/3		COB	Poor	50	15	III	3a		
54	104	0-15	MCL	10YR 3/2			15-40	HCL	2.5Y 5/3		FO	Moderate	40-120	C	2.5Y 5/3		COB	Poor	40	15	IV	3b		
55	107	0-20	MZCL	10YR 4/2			20-50	HCL	10YR 4/3		CO	Moderate	50-120	C	2.5Y 6/2		COB	Poor	50	20	III	3a	Slope 3b	
56	101	0-20	MZCL	10YR 4/2			20-60	MZCL	10YR 4/2		CO	Moderate	60-120	C	2.5Y 5/3		COB	Poor	60	20	III	3a	Slope 3b	
57	101	0-10	MCL	10YR 4/2			10-50	HCL	2.5Y 5/3		FO	Moderate	50-120	C	10YR 5/1		CO	Poor	50	10	III	3a		
58	104	0-10	MCL	10YR 3/2			10-45	HCL	2.5Y 5/3		FO	Moderate	45-120	C	10YR 5/1		CO	Poor	45	10	III	3a		
59	105	0-15	MCL	10YR 4/2			15-45	HCL	2.5Y 5/3		FO	Moderate	45-120	C	2.5Y 5/2		COB	Poor	45	15	III	3a		
60	108	0-15	MCL	10YR 4/2			15-35	HCL	2.5Y 5/3		FO	Moderate	35-120	C	2.5Y 5/2		COB	Poor	35	15	IV	3b		

Sample No	Altitude	Topsoil				Upper Subsoil					Lower Subsoil					Wetness Assessment			Grade limit by	Comments			
		Depth	Texture	Colour	Stoniness	Mottles	Depth	Texture	Colour	Stoniness	Mottles	Structure	Depth	Texture	Colour	Stoniness	Mottles	Structure			Depth to	Gley	Class
61	111	0-15	MCL	10YR 4/2			15-35	HCL	2.5Y 5/3		FO	Moderate	35-120	C	2.5Y 5/2		COB	Poor	35	15	IV	3b	Slope 3b
62	116	0-15	MCL	10YR 4/2			15-35	HCL	2.5Y 5/3		FO	Moderate	35-120	C	2.5Y 5/2		COB	Poor	35	15	IV	3b	Slope 3b
63	102	0-15	MCL	10YR 4/2			15-45	HCL	2.5Y 5/3		FO	Moderate	45-120	C	2.5Y 5/2		COB	Poor	45	15	III	3a	
64	105	0-15	MCL	10YR 4/2			15-45	HCL	2.5Y 5/3		FO	Moderate	45-120	C	2.5Y 5/3		COB	Poor	45	15	III	3a	Slope 3b
65	112	0-15	MCL	10YR 4/2			15-120	C	2.5Y 5/2		MO	Poor							15	15	IV	3b	Slope 3b
66	122	0-15	MCL	10YR 4/2			15-25	HCL	2.5Y 5/3		FO	Moderate	25-120	C	2.5Y 5/2		COB	Poor	25	15	IV	3b	

106.70

<b>Appendix 4b – Trial Pit Descriptions</b>
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Sample Point No. 16					
Horizon 1	0-30cm Dark greyish brown (10YR 4/2) stoneless medium clay loam.				
Horizon 2	30-65cm Brown (10YR 5/3) heavy clay loam with a coarse subangular blocky structure, and firm consistence, few ochreous mottles. Some roots and biopores evident				
Horizon 3	65-120cm Greyish brown (2.5Y 5/2) clay with a massive structure, firm consistence, and many ochreous mottles. Very few biopores or roots evident.				
Pictures					
Horizon 1	<table border="1"> <tr> <td>Horizon 2</td> <td>Horizon 3</td> </tr> <tr> <td></td> <td></td> </tr> </table>	Horizon 2	Horizon 3		
Horizon 2	Horizon 3				
					
					
Slowly permeable layer	Starts at 65cm – evidenced by firm massive structure with less than 0.5% biopores >0.5mm				
Gleying	Starts at 30cm evidenced by pale colours and ochreous mottles				
Wetness Class	III				
Wetness limitation	3a				
MB Wheat	37.65				
MB potatoes	24.60				
Droughtiness Limitation	1				

Sample Point No. 25		
Horizon 1	0-10cm Very dark greyish brown (10YR 3/2) medium silty clay loam.	
Horizon 2	10-65cm Brown (2.5Y 5/3) heavy clay loam with a fine to medium subangular blocky structure, friable consistence, and few ochreous mottles	
Horizon 3	65-120cm Light yellowish brown (2.5Y 6/4) clay with a weak coarse subangular blocky structure, firm consistence, and common ochreous mottles.	
Pictures		
Horizon 1	Horizon 2	Horizon 3
		
Slowly permeable layer	Starts at 60cm – evidenced by firm weak coarse subangular blocky structure with less than 0.5% biopores >0.5mm	
Gleying	Starts at 10cm evidenced by pale colours and ochreous mottles	
Wetness Class	III	
Wetness limitation	3a	
MB Wheat	59.65	
MB potatoes	48.10	
Droughtiness Limitation	1	

Survey Point 8 – auger core



Survey Point 26 – auger core



Survey Point 58 – auger core



Erosion near survey point 26



Standing water and poaching near survey point 38



## 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.

