

SFCs 6121

51/93

Rookery Farm, Shellards Lane,
Alveston, Avon Job 51/93

**AGRICULTURAL LAND CLASSIFICATION
REPORT OF SURVEY**

Resource Planning Team
Taunton Statutory Unit
July 1993

AGRICULTURAL LAND CLASSIFICATION

ROOKERY FARM, ALVESTON, AVON

REPORT OF SURVEY

1. SUMMARY

The site, an area of 21.65 ha of land at Rookery Farm, Alveston, was graded using the Agricultural Land Classification (ALC) system in July 1993. The survey was carried out on behalf of MAFF as part of its statutory role in the consultation of a proposed woodland cemetery at Rookery Farm.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000. The information is correct at this scale but any enlargement would be misleading. A total of 18 auger borings and a soil profile pit were examined.

The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying map.

Distribution of ALC grades: Rookery Farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	8.5	39.3	44.3
4	10.7	49.4	55.7
Agric Bldgs	0.45	2.1	
Non Agric	2.0	9.2	
	<hr/>	<hr/>	<hr/>
TOTAL	21.65	100%	100% (19.2 ha)

The survey area is a gentle undulating area of grassland, except for one field which has been planted with trees. Soils are all clayey profiles with heavy clay loam and clay topsoils. Subsoils are slowly permeable at variable depths starting between 30 and 60 cm. The western part of the site has been assessed as Wetness Class III and graded 3b, whilst the eastern part is Wetness Class IV and graded 4, all with a wetness limitation.

2. INTRODUCTION

An area of 21.65 hectares of land at Rookery Farm, Alveston, was surveyed on behalf of MAFF, as part of its statutory role in the consultation of a proposed woodland cemetery at Rookery Farm. The survey was carried out in July 1993 by ADAS (Resource Planning Team, Taunton Statutory Unit) using the Agricultural Land Classification (ALC) system and conducted at a scale of 1:10,000 (approximately one sample point for every hectare of agricultural land). The 18 borings were supplemented by a soil inspection pit used to assess subsoil conditions. The information is correct at the scale shown but any enlargement would be misleading.

The published Provisional 1" to the mile ALC map of this area (MAFF 1973) shows all of the site to be Grade 3. The current survey supersedes any previous surveys and was undertaken to provide a more detailed representation of the agricultural land quality using the Revised Guidelines and Criteria (MAFF 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The grading takes account of the top 120 cm of the soil profile. A description of the grades used in the ALC System can be found in Appendix 2.

3. CLIMATE

The grade of the land is determined by the most limiting factor present. The overall climate is considered first because it can have an overriding influence on restricting land to lower grades despite other favourable conditions.

Climatic data for the site were interpolated from the Agricultural Climate Dataset (Meteorological Office 1989). The parameters used for assessing overall climatic limitation are accumulated temperature (a measure of the relative warmth of a locality) and average annual rainfall (a measure of overall wetness). The results shown in Table 1 indicate that there is no overall climatic limitation.

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in Section 6. No locally limiting climatic factors such as exposure were noted in the survey area.

Table 1 Climatic interpolations: Rookery Farm,
Alveston

Grid Reference	ST 650 861	ST 654 864
Height (m)	60	59
Accumulated Temperature (day deg)	1474	1475
Average Annual Rainfall (mm)	794	797
Overall Climatic Grade	1	1
Field Capacity (Days)	175	176
Moisture Deficit, Wheat (mm)	98	98
Potatoes (mm)	89	89

4. RELIEF AND LANDCOVER

The site occupies a gentle valley feature of between 59 m AOD and 69 m AOD. All but one field is grass leys, this field is newly planted woodland. Rookery Farm buildings are also included in the survey area.

5. GEOLOGY AND SOILS

The published 1:50,000 scale solid and drift geology map, sheet ~~329~~^{329⁵⁰} (Geological Survey of England and Wales 1976) shows the entire site to be underlain by Red (Keuper) Marl.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaissance scale of 1:250,000. This map shows the soils in the north-east of the site to comprise Whimble 3 Association* and the rest of the site to comprise Worcester Association**.

The recent survey indicates there is a single soil type across the whole site. Soils comprise clay and heavy clay loam topsoils over deep reddish clay subsoils which are gleyed at variable depths between 0 and 45 cm and have slowly permeable layers starting between 30 and 60 cm and extending to depth.

* Whimble 3 Association

Reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar clayey soils occur on brows. Slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils occur on lower slopes.

** Worcester Association

Slowly permeable non-calcareous and calcareous reddish clayey soils over mudstone.

6. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed in Table 3 and shown on the accompanying ALC map.

Table 2 Distribution of ALC grades: Rookery Farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	8.5	39.3	44.3
4	10.7	49.4	55.7
Agric Bldgs	0.45	2.1	
Non Agric	2.0	9.2	
	<hr/>	<hr/>	<hr/>
TOTAL	21.65	100%	100% (19.2 ha)

Subgrade 3b

~~Over~~ ^{Nearly} half the agricultural land on the site has been graded 3b. This relates to soil in the 2 north-western fields which comprise heavy clay loam topsoils and subsoils gleyed and slowly permeable below 40 cm, thus these soils are assessed as Wetness Class III, subgrade 3b. A small area of land in the south-west corner of the site has been graded 3b due to the slightly lower FC days which are experienced (see Table 1). This small change in Field Capacity Days reduces the workability limitation of clay topsoils.

Grade 4

The east and south-east parts of the site experience a severe wetness/workability limitation due to the heavy topsoil textures, slowly permeable subsoils and Field Capacity Days of 176.

Non-agricultural Land

One field of young woodland is shown as non-agricultural land.

APPENDIX 1

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1981) Solid and Drift edition. Sheet 250, Chepstow 1:50,000 scale

MAFF (1973) Agricultural Land Classification Map Sheet 155 Provisional 1:63,360 scale

MAFF (1988) Agricultural Land Classification of England and Wales (revised guidelines and criteria for grading the quality of land) Alnwick

METEOROLOGICAL OFFICE (1989) Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5 Soils of South West England 1:250,000 scale

APPENDIX 2

DESCRIPTION OF THE GRADES AND SUBGRADES

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 include 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 (eg cereals and forage crops) the yields of which are variable. In most 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.

Descriptions of other land categories used on ALC maps

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private park land, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

Open water

Includes lakes, ponds and rivers as map scale permits.

Land not surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.

Source: MAFF (1988) Agricultural Land Classification of England and Wales (Revised guidelines and criteria for grading the quality of agricultural land) Alnwick.

APPENDIX 3

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31 and 90 days in most years.

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40 cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years.

Notes: The number of days specified is not necessarily a continuous period. 'In most years,' is defined as more than 10 out of 20 years.

Source: Hodgson, J M (in preparation) Soil Survey Field Handbook (revised edition).

SITE NAME		PROFILE NO.		SLOPE AND ASPECT		LAND USE		Av Rainfall: 793 mm			PARENT MATERIAL		
Rockery Farm, Alveston		Pit 1		0°		Gley		ATO: 1462°			Keuper Marl		
JOB NO.		DATE		GRID REFERENCE		DESCRIBED BY		FC Days: 176					
51/93		28/7/93		ASP 6		N A Done and G Clarke		Climatic Grade: 1					
Horizon Number	Lowest Av Depth (cm)	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots: Abundance, Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and form
1	25	10YR43	HCL	Neg	-	-	-	-	-	Many, fine	None	None	Smooth/ clear
2	45	10YR43	HZCL	Neg	ffom	Mod CSAB breaking to FSAB	>0.5% earthworms	M	Friable	Many, fine	None	Few	Gradual/ smooth
3	120	5YR33	C	2% calcite (HR)	Common mottles 5Y51	Weak Ad Mod prismatic	<0.5% pores	Poor	V firm	Common, fine	None	Common	

Profile Gleyed From: 45 cm
Depth to Slowly Permeable Horizon: 45 cm
Wetness Class: III
Wetness Grade: 3b

Available Water Wheat: 131 mm
Potatoes: 109 mm
Moisture Deficit Wheat: 97 mm
Potatoes: 87 mm
Moisture Balance Wheat: 34 mm
Potatoes: 22 mm
Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3b
Main Limiting Factor(s): Wetness

Remarks: