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Onger's Farm, Brookethorpe

**AGRICULTURAL LAND CLASSIFICATION
REPORT OF SURVEY**

Resource Planning Team
Taunton Statutory Unit

October 1993

ONGERS FARM, BROOKTHORPE, GLOUCESTERSHIRE

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

1. INTRODUCTION

Twenty eight hectares of land at Ongers Farm, Brookthorpe, Gloucestershire were surveyed using the Agricultural Land Classification (ALC) System in October 1993. The survey was carried out for MAFF as part of its statutory role in connection with a planning application made to Stoud District Council.

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. Details of the findings of the survey and the distribution of grades are detailed below.

Distribution of ALC grades: Ongers Farm, Brookthorpe

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	<u>28.2</u>	<u>100</u>	<u>100</u>
TOTAL	28.2	100	100

All of the site was found to be limited by wetness to Subgrade 3b. The majority of the soils had clay textures throughout.

2. INTRODUCTION

Twenty eight hectares of land at Ongers Farm, Brookthorpe, Gloucestershire were surveyed using the Agricultural Land Classification (ALC) System in October 1993. The survey was carried out for MAFF as part of its statutory role in connection with a planning application made to Stoud District Council.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at this scale but any enlargement would be misleading. A total of 28 auger sample points and one soil profile pit were examined.

The published Provisional one inch to the mile ALC map of this area (MAFF 1972) shows the site to be all Grade 3. The recent survey supersedes this map having been carried out at a more detailed level and using the Revised Guidelines and Criteria for grading the quality of agricultural land (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 120cm 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 a lower grade despite other favourable conditions.

Estimates of climatic variables were obtained for the site by interpolation from the Agricultural Climate Dataset (Meteorological Office 1989). The data are shown in Table 1.

The parameters used for assessing overall climatic limitations are accumulated temperature, (a measure of the relative warmth of a locality) and average annual rainfall, (a measure of overall wetness). 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 later sections. Descriptions of the Wetness Classes used can be found in Appendix 3.

Table 1 Climatic Limitations: Ongers Farm

Grid Reference	SO 848 134	SO 842 133
Altitude (m)	61	44
Accumulated Temperature (deg days)	1456	1476
Average Annual Rainfall (mm)	692	687
Overall Climatic Grade	1	1
Field Capacity (days)	151	151
Moisture Deficit, Wheat (mm)	105	107
Potatoes (mm)	97	100

4. RELIEF AND LANDCOVER

The site is fairly flat both to the east and the west of the motorway. The land begins to drop away in the north west of the site. There are no limiting gradients. The highest part of the site is in the east at a height of 63m AOD. The lowest part in the west is at 44m AOD.

At the time of survey all of the land was under grass except for the western part of the northern field west of the motorway.

5. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale solid and drift geology map, sheet 234 (Geological Survey of England and Wales 1972). Similarly the soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The site consists entirely of clays of the Lower Lias series.

Almost all the site has been mapped as the Evesham 2 Soil Association. These soils are described as slowly permeable calcareous clayey soils, with some slowly permeable seasonally waterlogged non-calcareous clayey and fine loamy or fine silty over clayey soils. In the southern point of the site the Badsey 2 Association has been mapped. These soils are described as well drained calcareous fine loamy soils over limestone and gravel.

The recent survey found the soils to be typical of the Evesham 2 Association, being of clay texture throughout the profile and poorly drained.

6. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed in Table 2 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 2 Distribution of ALC grades: Ongers Farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	<u>28.2</u>	<u>100</u>	<u>100</u>
TOTAL	28.2	100	100

Subgrade 3b

All of the site has been mapped as Subgrade 3b. The main limitation is wetness. The soils are heavy in texture and poorly drained. The extent to which the soils remain waterlogged is seen by the presence of grey and pale colours usually throughout the profile. These colours are accompanied by ochreous mottling and the soils have the characteristics required for gleying. This is commonly seen within 40cm of the surface. The extended period of waterlogging is caused by slowly permeable layers in the clay subsoils. The slowly permeable layers are found to start between 35-60cm in depth. The soils are Wetness Classes III and IV. The topsoil textures were found to be mainly clays as confirmed by particle size distribution analysis. The combination of topsoil texture, Wetness Class and the Field Capacity Day value for the site, limits the soils to Subgrade 3b.

APPENDIX 1

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1972) Solid and Drift edition. Sheet 234 Gloucester, 1:50,000 scale

MAFF (1972) Agricultural Land Classification Map sheet 143 Provisional 1:63,360 scale

MAFF (1988) Agricultural Land Classification of England and Wales (Revised guidelines and criteria for grading the quality of agricultural 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

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 70cm depth for more than 30 days in most years.

Wetness Class II

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

Wetness Class III

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

Wetness Class IV

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

Wetness Class V

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

Wetness Class VI

The soil profile is wet within 40cm 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 Ongers Farm		PROFILE NO. Pit 1		SLOPE AND ASPECT 0°		LAND USE Grass		Av Rainfall: 687 mm ATO: 1476 degree days FC Days: 151 Climatic Grade: 1			PARENT MATERIAL Lower Lias		
JOB NO. 99/93		DATE 28/10/93		GRID REFERENCE SO 847 134		DESCRIBED BY MM/GMS					TOPSOIL SAMPLE NO. RPT/GMS 275		
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	24	10YR53	C	0% visual	None						None		Smooth, abrupt
2	37	2.5Y63	C	2% HR visual	10YR56 feint to distinct, common	WCSAB	Good	Moderate	Firm	Very fine, many	None	Common	Smooth, abrupt
3	65	2.5Y62, 61	C	2% HR visual	10YR68, 61 many, distinct	WCSAB	Low	Poor	Very firm	Very fine, few	Yes	Common	

Profile Gleyed From: 24 cm

Depth to Slowly Permeable Horizon: 37 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 88 mm

Potatoes: 97 mm

Moisture Deficit Wheat: 107 mm

Potatoes: 100 mm

Moisture Balance Wheat: -12 mm

Potatoes: 0 mm

Droughtiness Grade: 3A (to 65 cm)

Final ALC Grade: 3B

Main Limiting Factor(s): Wetness

Remarks:

Topsoil texture confirmed by PSD analysis.