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Cotswold District Local Plan: Evenlode Rd Moreton - in - Marsh

AGRICULTURAL LAND CLASSIFICATION REPORT OF SURVEY

Resource Planning Team
Taunton Statutory Unit

May 1994

ADAS

COTSWOLD DISTRICT LOCAL PLAN: Evenlode Road, MORETON-IN-MARSH

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

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COTSWOLD DISTRICT LOCAL PLAN: EVENLODE ROAD, MORETON- IN-MARSH

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

1. SUMMARY

Six hectares of land at Evenlode Road, Moreton-in-Marsh were surveyed using the Agricultural Land Classification Survey (ALC) System in May 1994. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Cotswold District Local Plan.

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

Distribution of ALC grades : Evenlode Road, Moreton-in-Marsh

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	3.7	60.0	71.1
3b	1.5	23.7	28.3
Urban	1.0	16.3	100%
TOTAL	6.2	100%	(5.2ha)

Two types of soil were found at the site. Those closest to the stream were poorly drained with clay subsoils, whilst the higher land was better drained but light and stony. These soils experience a droughtiness limitation.

2. INTRODUCTION

Six hectares of land at Evenlode Road, Moreton-in-Marsh were surveyed using the Agricultural Land Classification Survey (ALC) System in May 1994. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Cotswold District Local Plan.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000 (approximately one auger boring per hectare). The information is correct at this scale but any enlargement would be misleading. A total of 4 auger borings and one soil profile pit were examined.

The published provisional one inch to the mile ALC map of this area (MAFF 1972) shows the land close to the stream as Grade 4 and the higher land as Grade 2. The scale of this map is considered inadequate for the current purposes. 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 the 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 conditions are accumulated temperature, (a measure of the relative warmth of a locality) and average annual rainfall, (a measure of overall wetness). The values for the site mean 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 later sections. A description of the Wetness Classes used in quantifying the degree of wetness can be found in Appendix 3.

No local climatic limitations were noted in the survey area.

Table 1 Climatic Interpolations: Evenlode Road, Moreton-in-Marsh

Grid Reference	SP 212 321
Altitude (m)	125
Accumulated Temperature (day deg)	1366
Average Annual Rainfall (mm)	727
Overall Climatic Grade	1
Field Capacity Days	167
Moisture Deficit, Wheat (mm)	95
Moisture Deficit, Potatoes (mm)	83

4. RELIEF AND LANDCOVER

The site is relatively flat, although the fields beside the stream are at a slightly lower level than the other fields. The site is at an average height of 125m AOD.

At the time of survey the fields around the small holding and by the stream were in permanent grass whilst the other field was being used for allotments.

5. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale solid and drift geology map, sheet 217 (Geological Survey of England and Wales 1981). The higher land is mapped as having as drift deposit of glacial sand and gravel. The area beside the stream is mapped as alluvium. There is a small area of Lower Lias undifferentiated clays mapped in the south between the other geology.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000. The site is mapped as two different soils. The land beside the stream is mapped as the Fladbury 1 Association which are described as stoneless clayey soils which are variably affected by groundwater. The higher land is mapped as the Wick 1 Association. These soils are described as well drained coarse loamy and sandy soils which are locally over gravel.

The soils found during the recent survey are typical of the mapped soil series. The soils showed evidence of poor drainage on the lower land which is caused by slowly permeable layers high in the profile. The higher land has lighter stony soil which are better drained but droughty.

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: Evenlode Road

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	3.7	60.0	71.1
3b	1.5	23.7	28.3
Urban	1.0	16.3	100%
TOTAL	6.2	100%	(5.2ha)

Grade 2

The higher land has been mapped as Grade 2. These soils are generally medium sandy loams over loamy medium sands at depth. The soils are Wetness Class I. The stone content of these soils was measured in a soil profile pit. The majority of the stones are smaller than 2cm in size. The stone contents measured by sieving and displacement in water were found to be 12% in the topsoil and 11% and 16% in the subsoil horizons. The soils experience a slight droughtiness limitation restricting the land to Grade 2.

Subgrade 3b

The area beside the stream is poorly drained. There are slowly permeable clays close to the surface which restrict drainage. The soils here are Wetness Class IV.

Other land

The buildings associated with the small holding and houses are marked as urban.

APPENDIX 1

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1981) Solid and Drift edition. Sheet 217, Moreton-in-Marsh, 1:50,000 scale

MAFF (1972) Agricultural Land Classification Map sheet 144 Provisional 1:63,360 scale

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 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	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Evenlode Road Moreton-in-Marsh	Pit 1	0°	Allotments	Av Rainfall: 727 mm ATO: 1366 day °C FC Days: 167 Climatic Grade: 1 Exposure Grade: 1	Drift Glacial Sand & Gravel
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
72/94	25/5/94	SP 212 320	GMS		GMS 411-413

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	25	MSL	10YR32	1% >2cm HR 11% >2mm HR Total 12% HR Sieve/displ	none	none	-			Good	MF+VF	-	Abrupt smooth
2	70	MSL	10YR44	2% >2cm 9% >2mm 11% HR sieve/displ	none	none	WCSAB	Friable	Good	Good	MF+VF	-	Gradual smooth
3	120	LMS	10YR46	16% HR sieve/displ	none	none	WCSAB	V. Friable	Moderate	Good	CVF	-	

Profile Gleyed From: not gleyed

Depth to Slowly Permeable Horizon: no SPL

Wetness Class: I

Wetness Grade: 1

Available Water Wheat: 120 mm

Potatoes: 106 mm

Moisture Deficit Wheat: 95 mm

Potatoes: 83 mm

Moisture Balance Wheat: 25 mm

Potatoes: 23 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Droughtiness

Remarks:

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