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## COTSWOLD DISTRICT LOCAL PLAN: MICKLETON

## AGRICULTURAL LAND CLASSIFICATION

## Report of survey

## 1. INTRODUCTION

Fifteen hectares of land around Granbrook House, Mickleton, were graded under the Agricultural Land Classification (ALC) System in September 1992. The survey was carried out for MAFF as part of its statutory input to the draft consultation on the Cotswold District Local Plan.

The fieldwork was carried out by ADAS's Resource Planning Team (Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at the scale shown but any enlargement would be misleading. This survey supercedes the previous survey of this area at 1" being at a more detailed level and carried out under the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1989). A total of 13 borings and 2 soil pits were examined.

The ALC provides 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 the appendix.

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

Table 1 Distribution of ALC grades: Mickleton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
1	1.2	8.0	9.3
2	0.6	4.0	4.7
3A	2.6	17.4	20.1
3B	8.5	57.0	65.9
Urban	<u>2.0</u>	<u>13.6</u>	<u>100%</u> (12.9ha)
TOTAL	14.9	100%	

## 2. 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.

To assess any overall climatic limitation, estimates of important climatic variables were obtained for the site by interpolation from the 5km grid Met Office/Maff Database (Met Office/MAFF/SSLRC 1989). The parameters used for assessing climate 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 2 reveal that there is no climatic limitation across the survey area. The grade throughout is Grade 1.

No local climatic factors such as exposure were noted in the survey area. Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. This data is used in assessing the soil wetness and droughtiness limitations referred to in Section 5.

Table 2 Climatic Interpolations: Mickleton

Grid Reference	SP 167 444
Height (m)	70
Accumulated Temperature ( $^{\circ}$ days)	1425
Average Annual Rainfall (mm)	670
Overall Climatic Grade	1
Field Capacity (Days)	146
Moisture Deficit, Wheat (mm)	106
Potatoes (mm)	98

## 3. RELIEF

The survey area at Mickleton is predominantly flat, with a shallow dip to the west of 10 m from 70 m.

## 4. GEOLOGY AND SOILS

The majority of the survey area is underlain by Fan gravel with a small area of Lower Lias in the east, as shown on BGS Sheet 200.

The majority of soils in this survey area are medium to heavy clay loams which become increasingly heavy with depth. A few of the heavy topsoils, however, become sandier and lighter with depth resulting in medium sandy loams. Though these lighter profiles represent the higher ALC grades they are not all free draining and some show slowly permeable layers (SPLs) at depth.

## 5. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area are detailed in Section 1 and are shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

### Grade 1

In the south west corner of the survey area topsoils of medium clay loam are underlain by subsoils of sandy clay loam and medium sandy loams. A soil pit was dug in this area and confirmed that these soils show no evidence of wetness and can be placed in Wetness Class I. Neither do the soils, which are stone free, impose droughtiness limitations in the local climatic situation. The combination of the light topsoils and relatively low FCD value permits these soils to be Grade 1.

### Grade 2

The soils in a small area of land to the north of the survey area are heavier but display no wetness, droughtiness nor climatic limitations. However, the heavy clay loam topsoil produces a workability limitation which means these soils are downgraded to Grade 2.

### Subgrade 3A

This area has been downgraded to Subgrade 3A on the basis of a wetness limitation. The soils here are variable but the combination of topsoil textures and extent of the evidence of impeded drainage results in the area being graded no higher than Subgrade 3A. The lighter topsoils, medium clay loams, show poor drainage and are assigned to Wetness Class III. The remaining soils have heavier topsoils but at depth drainage is better and qualify for Wetness Class II. The climatic situation means that both types of soil must be Subgrade 3A.

### Subgrade 3B

Over half of the survey area has been classified as Subgrade 3B. These soils generally show greater evidence of poor drainage than those described under 3A. The topsoil texture of soils in these areas are clay and heavy clay loam. The clay subsoils are gleyed and become slowly permeable layers (SPL) with depth. All these soils are gleyed within 40 cm but the depth at which the clay becomes an SPL is variable. The soils are therefore placed into Wetness Classes III and IV accordingly. For the topsoil textures and FCD values all the soils are limited to Subgrade 3B.

## APPENDIX

### DESCRIPTION OF THE GRADES AND SUB-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 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 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.

## 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 parkland, 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.