

AGRICULTURAL LAND CLASSIFICATION  
OXFORDSHIRE MINERALS PLAN  
LAND SOUTH OF A40, WITNEY

RESOURCE PLANNING TEAM  
GUILDFORD STATUTORY GROUP  
ADAS READING

ADAS Ref: 3302/93/92  
MAFF Ref: EL33/00017

## AGRICULTURAL LAND CLASSIFICATION

### OXFORDSHIRE MINERALS PLAN

#### LAND SOUTH OF A.40, WITNEY

#### 1. SUMMARY

- 1.1 In October 1992, an Agricultural Land Classification (ALC) survey was carried out on approximately 56 ha of land to the south-east of Witney, Oxfordshire. ADAS was commissioned by MAFF to determine the quality of land affected by proposals to include this site in the Oxfordshire Minerals Plan.
- 1.2 The survey was undertaken at a semi-detailed level of approximately one boring per 2 hectares. A total of 43 borings and 2 soil inspection pits was described in accordance with MAFF's 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 to its agricultural use.
- 1.3 The distribution of the grades and sub-grades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement may be misleading.

Table 1 : Distribution of Grades and Sub-grades

<u>Grade</u>	<u>Area (ha)</u>	<u>% total agricultural land</u>
2	2.62	5
3a	13.10	25
3b	<u>36.53</u>	<u>70</u>
Total agricultural area	52.25	100
Non agricultural	<u>3.60</u>	
Total area of site	<u>55.85 ha</u>	

- 1.4 The site comprises very good to moderate quality agricultural land. The Grade 2 land comprises deep, well drained clayey soils which suffer from minor workability and/or droughtiness restrictions. Across much of the remainder of the site, clayey soils rest over gravel at variable depths. Where slowly permeable horizons occur at shallow depths, land has been graded 3b on the basis of soil wetness. Where there is no slowly permeable horizon, land has generally been graded 3a or 3b as a result of workability and/or droughtiness restrictions, the grading being dependent on the relative severity of the limitation.

## 2. Climate

The climatic criteria are considered first when classifying land. Climate can be over-riding in the sense that a severe limitation will restrict land to low grades irrespective of favourable soil or site conditions.

The main parameters used in the assessment of the climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of the locality.

A detailed assessment of the prevailing climate has been made by interpolation from a 5 km gridpoint dataset. The details are presented in the table below and show that there is no overall climatic limitation affecting the site. In addition, no local climatic factor is significant. The site is climatically Grade 1.

Table 2 : Climatic Interpolation

Grid Reference	SP 365081	SP 367087
Altitude (m)	76	84
Average Annual Rainfall (mm)	693	701
Accumulated Temperature (° days)	1429	1420
Field Capacity (days)	151	152
Moisture Deficit, Wheat (mm)	105	103
Moisture Deficit, Potatoes (mm)	97	95

## 3. Agricultural Land Classification

### 3.1 Grade 2

A small area of this grade has been identified in the east of the survey area and one soil pit, Pit 2, has been described in this map unit. These soils experience a workability limitation due to the presence of Heavy Clay Loam topsoils. The profiles are deep clayey soils with no evidence of profile wetness and are therefore placed in Wetness Class I (ie. the soil profile is not wet within 70 cm depth for more than 30 days in most years). The subsoil horizons exhibit moderate structural conditions, they are typically moderately developed coarse subangular blocky and friable.

### 3.2 Subgrade 3A

The two map units of this grade identify soils with more significant workability limitations than the Grade 2 profiles. The difference relates to the presence of Clay topsoil textures which restricts the number of days when the soil will be in a suitable condition for cultivation, trafficking by machinery or grazing by livestock at the prevailing field capacity level (ie. >150 days). These profiles may exhibit some evidence of wetness in particular horizons, in the form of gleying, but the structures are such as to prohibit the development of slowly permeable layers.

### 3.3 Subgrade 3B

The majority of the site has been placed in this grade and includes all of the land adjacent to the river Windrush. Pit 1 is typical of these soils which experience a severe wetness limitation. Clay topsoil textures overlie Clay subsoils which exhibit clear evidence of shallow gleying caused by the presence of shallow slowly permeably layers. These soils are placed in Wetness Class IV (ie. the soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years). As a result, these soils have a severe restriction on the number of days when they are in a suitable condition for agricultural operations.

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# APPENDIX 1

## DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

### **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 (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.

##### **Woodland**

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

##### **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.