



**NORTH-WEST LEICESTERSHIRE  
LOCAL PLAN;  
EMPLOYMENT DEVELOPMENT  
NORTH OF KEGWORTH  
(Site No 6790)  
Agricultural Land Classification  
June 1996**

**Resource Planning Team  
Huntingdon Statutory Group  
ADAS Cambridge**

**ADAS job number 30/96  
MAFF EL number 22/01004B  
LUPU Commission number C02225**

# AGRICULTURAL LAND CLASSIFICATION

## NORTH-WEST LEICESTERSHIRE LOCAL PLAN EMPLOYMENT DEVELOPMENT NORTH OF KEGWORTH (Site No 6790)

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 32.7 ha just to the north of Kegworth. The site is bordered to the north by the A453 road, to the east by Long Lane and to the south and west by agricultural land.
2. The survey was commissioned by the Land Use Planning Unit (LUPU) of the Ministry of Agriculture, Fisheries and Food (MAFF) in connection with the North West Leicestershire Local Plan (representation 6790). The site was surveyed and mapped in detail in May 1996 by the Resource Planning Team (RPT) of the ADAS Huntingdon Statutory Group, Cambridge. The present report now supersedes previous ALC surveys at the site, notably the provisional 1:63 360 scale ALC map (MAFF, 1971) which showed all the site to be Grade 3.
3. At the time of the survey the majority of the site was growing cereals and rape, with the fields around Long Lane and Willow Farms retained in permanent pasture and used for grazing horses. Other non-agricultural land within the site includes the buildings and access associated with Long Lane Farm, Willow Farm and Dowells Barn.
4. The land has been classified in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

### SUMMARY

5. The land classification was established by a total of 31 soil auger borings (i.e. approximately 1 per hectare) to a depth of 120 cm or to impenetrable stony layers. Subsoil conditions were assessed from three inspection pits and the stone contents of the more stony soils were established by sieving at representative sites. The location of the pits and the auger borings is shown on the accompanying Sample Point Map.
6. The results of the ALC survey are summarised in Table 1 and the distribution of the grades and subgrades is shown on the accompanying ALC map. The map is accurate at the scale of 1:10 000 but any enlargement would be misleading.

**Table 1: Areas of grades and other land**

<b>Grade/Other land</b>	<b>Area (hectares)</b>	<b>% surveyed</b>
2	10.7	33
3b	20.6	63
Other land	1.4	4
Total agricultural land	31.3	96
Total survey area	32.7	100

7. Most of the site is moderate quality agricultural land (Subgrade 3b). This land has a moderately severe wetness limitation, being associated with fine loamy over clay or sandy clay soils that are slowly permeable directly beneath the topsoil and have been assessed as Wetness Class IV (see Appendix II). An area of very good quality agricultural land (Grade 2) has been mapped in the centre of the site, where the soils are deep loamy but suffer from a minor droughtiness limitation on account of their stony subsoils reducing the soil available moisture.

## **FACTORS INFLUENCING ALC GRADE**

### **Climate**

8. Climate criteria are considered first when classifying land because severe climatic limitations will restrict land to low grades irrespective of favourable site or soil conditions. The overall climate itself may affect grading, or grading may be affected through climatic factors interacting with soil properties to influence soil wetness and droughtiness.

9. The main parameters used in the assessment of the overall climate limitation for ALC purposes are average annual rainfall as a measure of wetness and accumulated temperature as a measure of the relative warmth of an area. Estimates of these variables were obtained from the published 5 km grid datasets using the standard interpolation methods (Met. Office, 1989). The results of this analysis are given in Table 2 and show that the combination of rainfall and temperature at the site present no limitation for agricultural use.

Table 2: Climatic and altitude data

Parameter	Value
Grid reference	SK 484 280
Altitude (m, AOD)	32
Accumulated Temperature (day °C, Jan.–June)	1424
Average Annual Rainfall (mm)	612
Field Capacity Days	132
Moisture Deficit, Wheat (mm)	111
Moisture Deficit, Potatoes (mm)	103
Overall Climatic Grade	1

### Site

10. The site comprises an almost flat river terrace at 31-32 m AOD. Gradients across the site nowhere exceed 2° and are therefore do not limit the quality of the agricultural land.

### Geology and soils

11. The published 1:50 000 scale geology map (Geol. Survey, 1976) shows all the site to be underlain by Pleistocene and Recent Alluvium.

12. There is no detailed published soils information for the site. The relevant reconnaissance soil map and legend (Soil Survey, 1983) shows the occurrence of deep, well-drained coarse loamy and sandy soils of the Wick 1 association over virtually the whole site. In the extreme west soils of the Wharfe association, described as deep, stoneless, permeable, fine loamy soils with a risk of flooding are shown.

13. The detailed survey carried out on the site has identified three distinct soil types. To the west and north-west of Long Lane Farm and in the west, south and south-east of the site occur very slightly stony and non-calcareous, gleyed, clay soils. A brown, heavy clay loam topsoil to 30 cm overlies a strongly mottled brown, grey and greyish brown clay with manganese concretions and coarse blocky structures. The soil is slowly permeable from directly underneath the topsoil. The clay may continue to below 120 cm or, at depths below 65 cm, pass into more sandy, gravelly and manganiferous material. The soil has been assessed as Wetness Class IV.

14. In the centre of the site, to the south of Dowell's Barn and Willow Farm, occur very slightly stony and non-calcareous, gleyed, sandy clay soils. The soils are essentially similar to those described above except that profiles contain more sand. A dark greyish brown sandy clay loam topsoil to 30 cm overlies a slowly permeable dark greyish brown and brown sandy clay with prismatic structures and common mottles and manganese concretions. At depths below 50/60 cm the subsoil becomes more sandy and gravelly. The soil has been assessed as Wetness Class IV.

15. In the centre of the site in a band from northwards of Long Lane Farm to Willow Farm and Dowell's Barn occur slightly to moderately stony fine loamy soils. A dark or very dark greyish brown, very slightly stony, sandy clay loam or medium clay loam topsoil to 30 cm overlies a brown or dark greyish brown upper subsoil with similar textures but containing 10-20%+ small and medium-size pebbles and flints. The lower subsoil is an equally or more stony sandy clay with ochreous mottling and manganese concretions. Below about 90 cm the subsoil may become more sandy. The soil has been assessed as Wetness Class I.

## AGRICULTURAL LAND CLASSIFICATION

### Grades, Subgrades

16. The Agricultural Land Classification of the land is shown on the attached ALC Map and the areas of each grade and subgrade have been given in Table 1. Within any grade or subgrade small areas of land of better or poorer quality may occur but cannot be delineated separately at the scale of survey.

#### *Grade 2*

17. An area of Grade 2 land has been mapped coincident with the distribution of the stony, loamy soils described in paragraph 15. These soils are permeable and although the mottling and concretions indicate a fluctuating groundwater table wetness is not considered to limit the workability of the land. The main limitation of these soils is minor droughtiness. Moisture balance calculations indicate that in this relatively low rainfall area the profiles will be slightly droughty for the shallower rooting crops such as potatoes, restricting the land to Grade 2.

#### *Subgrade 3b*

18. The larger part of the site has been mapped as Subgrade 3b. Both the clay and sandy clay soils (paragraphs 13, 14) are slowly permeable directly beneath the topsoil, indicating that they are likely to be intractable for significant periods during the wetter parts of the year. Cultivations and harvesting, therefore, will need to be carefully controlled to prevent structural damage to the soils, thereby affecting the range of crops that can be successfully grown.

Resource Planning Team  
Huntingdon Statutory Group  
ADAS Cambridge

## SOURCES OF REFERENCE

GEOLOGICAL SURVEY OF GREAT BRITAIN (1976) *Sheet 141, Loughborough, Solid and Drift edition, 1:50 000 scale.*

MAFF (1971) *Agricultural Land Classification Map, Sheet 121, 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.* MAFF: London.

METEOROLOGICAL OFFICE (1989) *Climatological Data for Agricultural Land Classification.* Met. Office: Bracknell.

SOIL SURVEY OF ENGLAND AND WALES (1983) *Soils of England and Wales, Sheet 3, Midland and Western England, 1:250 000 scale map and legend.* Soil Survey of England and Wales: Harpenden.

## APPENDIX I

### DESCRIPTIONS 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 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 or horticultural crops can usually be grown but on some land of this 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 land.

#### **Grade 3: Good to Moderate Quality Land**

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When 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 the level of yields. It is mainly suited to grass with occasional arable crops (e.g. 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.



**APPENDIX II**  
**SOIL WETNESS CLASSIFICATION**

**Definitions of Soil Wetness Classes**

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years <sup>2</sup> .
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 only wet within 40 cm depth for 30 days in most years.
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 present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	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 or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

**Assessment of Wetness Class**

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

<sup>1</sup> The number of days is not necessarily a continuous period.

<sup>2</sup> 'In most years' is defined as more than 10 out of 20 years.