

**HINCKLEY AND BOSWORTH  
LOCAL PLAN  
South of Stamford Street, Ratby  
1750/1/2  
Agricultural Land Classification  
February 1997**

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# AGRICULTURAL LAND CLASSIFICATION REPORT

## HINCKLEY AND BOSWORTH LOCAL PLAN

South of Stamford Street, Ratby - 1750/1/2

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 7.8 ha of land south of Stamford Street at Ratby in Leicestershire. The survey was carried out during February 1997.
2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) Land Use Planning Unit, Cambridge in connection with Hinckley and Bosworth Local Plan. This survey supersedes previous ALC surveys on this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Statutory Centre in ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey the agricultural land at the site had been recently ploughed (previously parts of the site were old ridge and furrow pasture). A recreation ground at the east and a road in the south of the site have been mapped as other land.

### SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10 000 it is accurate at this scale but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

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

Grade/Other land	Area (hectares)	% Total site area
3a	2.9	37
3b	3.3	42
Other land	1.6	21
Total surveyed area	7.8	100

7. The fieldwork was conducted at an average density of 1 boring per hectare, with additional auger borings added to determine soil boundaries. A total of 11 borings and 2 soil pits were described.

8. The agricultural land at the site has been graded 3a (good quality agricultural land) and 3b (moderate quality agricultural land) in relation to varying wetness and workability limitations.

## **FACTORS INFLUENCING ALC GRADE**

### **Climate**

9. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

10. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5 km grid datasets using the standard interpolation procedures (Met. Office, 1989).

**Table 2: Climatic and altitude data**

Factor	Units	Values
Grid reference	N/A	SK 509 061
Altitude	m, AOD	100
Accumulated Temperature	day°C (Jan-June)	1355
Average Annual Rainfall	mm	691
Field Capacity Days	days	157
Moisture Deficit, Wheat	mm	104
Moisture Deficit, Potatoes	mm	94

11. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

12. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

13. The combination of rainfall and temperature at this site mean that it is relatively warm and dry. These climatic characteristics are such that in themselves they impose no limitation to land quality and therefore the climate grade for this site is 1.

### **Site**

14. The site occupies gently undulating land which slopes downwards in a southerly direction and ranges in altitude from 107 m AOD in the north to the 97 m AOD in the southwest of the site. At the western end of the site there is a dry valley running in a southerly direction. Therefore neither gradient nor altitude impose limitations to land quality.

## **Geology and soils**

15. The published 1:50 000 scale geology map, sheet 155, Coalville (Geological Survey of Great Britain, 1982) shows the site to be underlain by Mercia Mudstone with sandstone, which outcrops in the east and west. The centre of the site is mapped as glacial boulder clay deposits.

16. On the 1:250 000 scale published soils map, sheet 3, Soils of Midland and Western England (Soil Survey of England and Wales, 1983) the western half of the site mapped as comprising soils of the Whimple 3 Association. These soils are briefly described as reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar clayey soils on brows. Slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils on lower slopes. Soils of the Salop Association are depicted in the east of the site and these are briefly described as slowly permeable seasonally waterlogged reddish fine loamy over clayey, fine loamy and clayey soils associated with fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.

17. The present survey of the site identified three main soil types.

18. In the valley feature in the southwest of the site profiles typically comprise medium clay loam or occasionally fine sandy silt loam topsoils over heavy clay loam or fine sandy silt loam upper subsoils. Lower subsoils are typically sandy clay loam. These soils have evidence of seasonal waterlogging and are gleyed throughout the subsoils. Profiles are typically very slightly stony and non-calcareous throughout.

19. The second soil type occurs in the east of the site. Topsoils typically comprise medium clay loams or sandy clay loams (or very occasionally medium sandy silt loams), overlying clay loam or fine sandy silt loam upper subsoils. These typically overlie slowly permeable clays at depth. These soils are typically very slightly stony and non-calcareous throughout.

20. The remainder of the site, in the north and centre, comprises the third soil type. These soils typically consist of medium clay loam or occasionally medium sandy loam topsoils which directly overlie slowly permeable clay subsoils. These soils are typically very slightly stony and non-calcareous throughout.

## **Agricultural Land Classification**

21. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

22. The location of the auger borings and pits is shown on the attached sample location map.

### *Subgrade 3a*

23. Land graded 3a occurs in two locations at the site. In the southwest this land corresponds with the deep loamy soils which suffer from seasonal waterlogging described in paragraph 18. In the east of the site land graded 3a is associated with the soils described in paragraph 19, which have a slowly permeable layer at depth. Both of these soils have been

assessed as wetness class III (or very occasionally II)(for definition of wetness classes see Appendix II) and this factor combines with the topsoil textures to restrict the timing of cultivations. Therefore, moderate wetness and workability limitations precluded this land from a higher grade.

*Subgrade 3b*

24. Just over half of the agricultural land at the site, in the north and centre, has been graded 3b and this is associated with the soils described in paragraph 20. These soils have impeded drainage directly below the topsoil and are assessed as wetness class IV. This factor combines with the topsoil textures to restrict land to subgrade 3b due to significant wetness and workability constraints.

25. Although individual profiles of better and/or poorer grades were occasionally noted within the above mapping units, they occurred too randomly or inextensively to permit separate delineation at the scale shown.

Ruth Tarrant  
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## **SOURCES OF REFERENCE**

Geological Survey of Great Britain (England and Wales) (1982) *Sheet 155, Coalville*.  
BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land*. MAFF: London.

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

Soil Survey of England and Wales (1983) *Sheet 3, Soils of Midland and Western England*.  
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Midland and Western England*.  
SSEW: Harpenden

## APPENDIX I

### 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 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 that 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 (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 severe limitations that restricts 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.

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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.

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#### 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).

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<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.