

**HINCKLEY AND BOSWORTH
LOCAL PLAN
Botcheston Road/Desford Lane,
Newtown Unthank - 354/17/1
Agricultural Land Classification
February 1997**

**Resource Planning Team
Eastern Statutory Centre
ADAS Cambridge**

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AGRICULTURAL LAND CLASSIFICATION REPORT

HINCKLEY AND BOSWORTH LOCAL PLAN Botcheston Road/Desford Lane, Newtown Unthank - 354/17/1

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 18.7 ha of land either side of Botcheston Road and north of Desford Lane at Newtown Unthank 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 land use on the site was almost exclusively agricultural, supporting crops of cereals and oilseed rape. A small tarmaced area in the southern centre the site has 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	10.2	54
3b	8.4	45
Other land	0.1	1
Total surveyed area	18.7	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 20 borings and 3 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, although some 3a land is also limited by moderate droughtiness imperfections.

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 490 045
Altitude	m, AOD	90
Accumulated Temperature	day°C (Jan-June)	1368
Average Annual Rainfall	mm	687
Field Capacity Days	days	157
Moisture Deficit, Wheat	mm	106
Moisture Deficit, Potatoes	mm	97

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 (ATO, 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 land at the site slopes gently southwards from 99 m AOD in the northwest to 85 m AOD in the southeast. 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 whole of the site is underlain by Mercia Mudstone which outcrops in the northeast of the site. Elsewhere, the west of the site is shown as comprising glacial boulder clay deposits, while adjacent to the Desford Lane river terrace deposits are mapped.

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) a small area in the northeast of the site is mapped as Whimple 3 Association soils which 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. The remainder of the site is shown as comprising soils of the Brockhurst 1 Association. These soils are briefly described as slowly permeable seasonally waterlogged reddish fine loamy over clayey soils. Some similar soils with slowly permeable subsoils and slight seasonal waterlogging.

17. The current detailed survey of the site identified two main soil types.

18. In the south, east and west of the site profiles typically comprise sandy clay loam, medium clay loam (or occasionally fine sandy silt loam) topsoils over sandy clay loam, medium sandy loam or medium clay loam upper subsoils. Lower subsoils are typically slowly permeable clays or sandy clay loams, or loamy medium sands or sandy clay loams with evidence of seasonal waterlogging as a result of groundwater within the profiles. These soils are typically very slightly or slightly stony and non-calcareous throughout. Occasionally, lower subsoils are moderately stony.

19. The second soil type occurs in the north and centre of the site. These soils typically comprise medium clay loam or medium silty clay loam topsoils over slowly permeable clays. Occasionally heavy or sandy clay loam upper subsoils are present. These soils are typically very slightly or slightly stony and non-calcareous throughout.

Agricultural Land Classification

20. 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.

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

Subgrade 3a

22. The majority of the land at the site has been graded 3a and this corresponds with the soils described in paragraph 18. These soils are assessed as wetness class III (for definition of wetness classes see Appendix II) due to the presence of either slowly permeable lower subsoils or waterlogging due to groundwater in the profiles. This factor combines with the topsoil textures resulting in moderate wetness and workability imperfections which to limit the land to subgrade 3a.

23. In addition, where profiles are particularly light textured and moderately stony, moisture balance calculations indicate that profiles also suffer from moderate droughtiness imperfections, which are a function of climate and the soil water holding capacity, and this also excludes the land from a higher grade.

Subgrade 3b

24. Land graded 3b occurs in the north and centre of the site and is associated with the soils described in paragraph 19. These soils are poorly drained having and have been 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.

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.

Wetness Class	Duration of waterlogging ¹
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. ²
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).

¹ The number of days is not necessarily a continuous period.

² 'In most years' is defined as more than 10 out of 20 years.