HINCKLEY AND BOSWORTH
LOCAL PLAN
North of Breach Lane, Earl Shilton
102/1/80
Agricultural Land Classification
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Resource Planning Team
Eastern Statutory Centre
ADAS Cambridge

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AGRICULTURAL LAND CLASSIFICATION REPORT

HINCKLEY AND BOSWORTH LOCAL PLAN
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INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 11.2 ha of land situated north of Breach Lane, opposite The Breach Farm at Earl Shilton in Leicestershire. The survey was carried out during December 1996.

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 arable, the whole site being covered by a cereal stubble.

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*
2	9.1	81
3a	1.3	12
3b	0.8	7
Total surveyed area	11.2	100

7. The fieldwork was conducted at an average density of 1 auger boring per hectare. A total of 10 auger borings and 2 soil pits were described.

8. The land at the site has been graded predominantly grade 2 (very good quality agricultural land) due to topsoil stoniness and droughtiness imperfections. Small areas of land are graded 3a (good quality agricultural land) and 3b (moderate quality agricultural land) in the northeast corner of the site 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	SP 467 972
Altitude	m, AOD	100
Accumulated Temperature	day°C (Jan-June)	1360
Average Annual Rainfall	mm	652
Field Capacity Days	days	150
Moisture Deficit, Wheat	mm	99
Moisture Deficit, Potatoes	mm	89

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 site occupies an area of virtually flat land which lies at an altitude of 107 m AOD. Towards the edges of the site in the north, east and southeast, land falls gently by 1 or 3 m. 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 as comprising glacial boulder clay deposits in the north and east of the site. The remainder of just under half of the area, located in the southwest of the site, is mapped as comprising glacial sand and gravel 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 northern two thirds of the site is mapped as Wick 1 Association soils which are briefly described as deep well drained coarse loamy and sandy soils, locally over gravel. Some similar soils affected by groundwater. The southern third 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.

17. The present survey of the site identified two soil types.

18. The first soil type occurs over the majority of the site and typically comprises slightly stony medium sandy loam topsoils which overlie slightly or moderately stony medium sandy loam or occasionally sandy clay loam upper subsoils which may become loamy medium sand at depth. Below this, lower subsoils typically become slightly stony, heavier textured sandy clay loam or clay which may impede profile drainage. The soils were typically non-calcareous throughout.

19. The second soil type is confined to a small area in the northeast corner of the site. Profiles typically consist of non-calcareous sandy clay loam or medium sandy loam topsoils over slowly permeable clay or sandy clay subsoils which may be calcareous. These soils were typically slightly or very slightly stony 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.

Grade 2

22. The majority of the land at the site is graded 2 and is associated with the coarse loamy over clayey soil described in paragraph 18. Typically topsoils have between 6% and 10% stones greater than 2 cm in diameter which act as a slight impediment to cultivation, harvesting and crop growth and therefore this excludes the land from a higher grade. In addition, these soils are generally free draining (wetness class I). The presence of light textures and stones combine to reduce the water reserves available for plant growth within the soils. Moisture balance calculations indicate that profiles typically suffer from minor droughtiness limitations and this restricts the land to grade 2. In some instances profiles have slowly permeable horizons at depth and are assessed as wetness class III, this factor combines

with the medium sandy loam topsoil textures to restrict the land to grade 2 due to minor wetness and workability limitations.

Subgrade 3a

23. Land graded 3a occurs in a small area in the east of the site in conjunction with the lighter textured topsoil variants of the soils described in paragraph 19. These soils suffer from significant seasonal waterlogging and are assessed as wetness class IV. This factor combines with the medium sandy loam topsoil textures to restrict the timing of arable cultivations. Therefore moderate wetness and workability imperfections preclude this land from a higher grade.

Subgrade 3b

24. A thin band of land in the northeast of the site has been graded 3b and is associated with the soils described in paragraph 19 which have sandy clay loam topsoils. These soils are also poorly drained and have been assessed as wetness class IV. These factors combine to restrict the land to subgrade 3b due to significant wetness and workability constraints.

Ruth Tarrant
Resource Planning Team
Eastern Statutory Centre
ADAS Cambridge

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.