

**LEICESTERSHIRE WASTE
LOCAL PLAN, HILL FARM,
COTESBACH, LEICS.**

**Agricultural Land Classification
and Statement of Site Physical
Characteristics**

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AGRICULTURAL LAND CLASSIFICATION REPORT AND STATEMENT OF SITE PHYSICAL CHARACTERISTICS

LEICESTERSHIRE WASTE LOCAL PLAN, HILL FARM, COTESBACH, LEICS.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 22.7 ha of land at Hill Farm, Cotesbach, Leicestershire. The site has been the subject of mineral extraction in the past and has subsequently been restored to agricultural usage. The survey was carried out during November 1998.
2. The survey was carried out by the Farming and Rural Conservation Agency (FRCA) for the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with the Leicestershire Waste Local Plan. This survey supersedes previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. 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 predominantly grass with the exception of a field in the north east of the site which was sown to cereals. The areas mapped as 'Other Land' consisted of the house and gardens of Hill Farm and areas of tree planting in the north and south of the site and alongside Hill Farm.

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)	% surveyed area	% site area
3b	20.7	100	91
Other land	2.0	N/A	9
Total surveyed area	20.7	100	91
Total site area	22.7	-	100

7. The fieldwork was conducted at an average density of one boring per hectare. A total of twenty one borings and two soil pits was described.

8. All the agricultural land within the site was mapped as subgrade 3b (moderate quality agricultural land). The limiting factor for almost all the subgrade 3b quality land was found to be wetness and workability. A small area in the north of the site was restricted to Subgrade 3b quality by gradients of 8°.

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 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SP 530 815
Altitude	m, AOD	120
Accumulated Temperature	day°C (Jan-June)	1343
Average Annual Rainfall	mm	680
Field Capacity Days	days	157
Moisture Deficit, Wheat	mm	97
Moisture Deficit, Potatoes	mm	85
Overall climatic grade	N/A	Grade 1

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 there is no overall climatic limitation to land quality.

Site

14. The site is generally level or gently sloping with moderate to strong slopes in the north of the site and around the buildings mapped as Road Barn in the south of the site. The land rises slightly to the north to a maximum altitude of approximately 125 mAOD. There is a small area in the north of the site in which slopes of 8° were measured which is therefore limited by gradient to subgrade 3b. However, for the majority of the site there are no relief or gradient limitations to the quality of the agricultural land.

Geology and soils

15. The published 1:63 360 scale geology map of the area (GBS, 1969) shows the whole site to be underlain by Jurassic Lias Clays and cement stones. These are covered over the majority of the site by boulder clay and by glacial sand and gravel in the south, west and a narrow band through the middle of the site from north to south.

16. The 1:250 000 reconnaissance scale soil survey map for the area (SSEW, 1983) shows the majority of the site as soils of the Beccles 3 Association with a small area in the west mapped as the Wick 1 Association. The Beccles 3 Association is briefly described as slowly permeable seasonally waterlogged fine loamy over clayey soils and similar soils with only slight seasonal waterlogging. This association also includes some calcareous clayey soils especially on steeper slopes. The Wick 1 Association is described as deep well drained coarse loamy and sandy soils, locally over gravel with some similar soils affected by groundwater. However, the site has been the subject of mineral extraction and subsequent restoration, hence the soils are unlikely to correspond to the historical soil maps.

17. During the current, more detailed survey, a single soil type has been identified over the whole site and is described below.

Soil Type I

18. This soil type covers the whole of the site and was found to be relatively uniform but did contain a mix of textures at occasional sample points. The soil profiles consist predominantly of a very slightly stony heavy clay loam or clay textured or occasionally medium clay loam textured topsoil overlying a slowly permeable clay or occasionally heavy clay loam textured upper subsoil. A lower subsoil consisting of very slightly stony clay textured material was also usually present. This lower subsoil was found occasionally to contain chalk fragments and could be very calcareous and could overlie a sandy textured material which usually quickly became impenetrable.

AGRICULTURAL LAND CLASSIFICATION

19. 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.

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

Subgrade 3b

21. All agricultural land within the site is of Subgrade 3b quality and is associated with the relatively poorly drained Soil Type I (paragraph 18). This soil type is assessed as Wetness Class IV with a medium clay loam, heavy clay loam or clay textured topsoil and hence under

the prevailing climate for the site these factors result in a significant wetness and workability limitation restricting such land to Subgrade 3b.

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SOURCES OF REFERENCE

British Geological Survey (1969) *Sheet No. 169, Coventry. Solid and Drift Edition*
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, Midland and Western England.*
SSEW: 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

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

Soil Type I

Topsoil

Texture	:	Clay/ heavy clay loam or occasionally medium clay loam
Colour	:	10YR4/2, 4/3, dark greyish brown, brown
Stones	:	Very slightly stony (typically 3%)
Roots	:	Many fine and very fine
Calcium carbonate	:	Non calcareous
Boundary	:	Abrupt, smooth
Depth	:	30 cm

Upper Subsoil

Texture	:	Clay occasionally heavy clay loam
Colour	:	10YR5/2, 5/3, greyish brown, brown
Mottles	:	Common to many distinct ochreous
Stones	:	Very slightly stony (typically 3%)
Structure	:	Weakly - moderately developed coarse angular blocky
Consistence	:	Firm
Structural condition	:	Poor
Pores	:	<0.5% biopores
Roots	:	Common fine and very fine
Calcium carbonate	:	Non calcareous
Boundary	:	Abrupt, smooth
Depth	:	68 cm

Lower Subsoil

Texture	:	Clay
Colour	:	2.5Y5/3, 5/1, light olive brown, grey 10YR5/3, 5/2, 5/1, brown, greyish brown, grey
Mottles	:	Common to many distinct ochreous
Stones	:	Very slightly stony (typically 2%)
Structure	:	Massive
Consistence	:	Firm - very firm
Structural condition	:	Poor
Pores	:	<0.5% biopores
Roots	:	Few fine and very fine
Calcium carbonate	:	Usually non calcareous, occasionally calcareous (5 - 10%)
Depth	:	100 cm

Occasionally sandy textured material present within or below the lower subsoil.

Wetness Class IV