



**NORTH-WEST LEICESTERSHIRE
LOCAL PLAN;
LAND AT MONEY HILL,
ASHBY-DE-LA-ZOUCH,
(Site No 6197)
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 LAND AT MONEY HILL, ASHBY-DE-LA-ZOUCH (Site no 6197)

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 31.9 hectares at Money Hill, on the eastern edge of Ashby-de-la-Zouch. 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 6197).
2. Most of the site was mapped in detail as part of a larger ALC survey carried out in February 1994 (ADAS, 1994). This survey was verified in June 1996 by additional soil pits and additional survey work in the west, to provide total cover. The work was carried out by the Resource Planning Team (RPT) of the ADAS Huntingdon Statutory Group, Cambridge. The present report synthesises the results of these two surveys and now supersedes all the previous ALC surveys at the site. Prior to 1994, the published 1:63 360 scale provisional ALC map (MAFF, 1971) showed the north and east of the site to be Grade 3 and the south and west to be Grade 4.
3. At the time of survey in 1996 the eastern part of the site was cultivated with cereals. The field to the south-east of Lawn Barn was set-aside and the remainder of the site was permanent grassland. Other, non-agricultural land which was not surveyed consists of the buildings and access of Moneyhill Farm, a small area of woodland at Lawn Barn and an area to the north west of Moneyhill Farm which is used a car park and derelict land.
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 of the site was established by a total of 30 soil auger borings (i.e. about 1 per hectare) to a depth of 120 cm or to impenetrable stony layers. Subsoil conditions were assessed from 4 inspection pits within the 1994 survey area, 3 of which lie within the present site. 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 its scale of 1:10 000 but any enlargement would be misleading.
7. About half the site is of very good (Grade 2) and good (Subgrade 3a) agricultural quality. These gradings are due primarily to minor or moderate droughtiness or wetness

limitations (see Appendix II) associated with the occurrence of both coarse-textured or stony soils and slowly permeable clayey soils. The remainder of the site is of moderate (Subgrade 3b) agricultural quality because of the presence of slowly permeable clay soils at shallow depth resulting in a moderately severe wetness limitation. Small areas of other land are mapped as described in paragraph 3.

Table 1: Areas of grades and other land

Grade/Other land	Area (hectares)	% surveyed
2	3.1	10
3a	17.1	53
3b	10.1	32
Other land	1.7	5
Total agricultural land	30.3	95
Total survey area	32.0	100

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 a minor limitation for agricultural use such that the land cannot be classified higher than Grade 2 on most of the site. Land below approximately 135 m AOD in the west of the site does not suffer from any climatic limitation.

Table 2: Climatic and altitude data

Parameter	Value	
Grid reference	SK 365 178	SK 355 177
Altitude (m, AOD)	143	133
Accumulated Temperature (day °C, Jan.–June)	1305	1316
Average Annual Rainfall (mm)	686	680
Field Capacity Days	155	154
Moisture Deficit, Wheat (mm)	95	97
Moisture Deficit, Potatoes (mm)	82	85
Overall Climatic Grade	2	1

Site

10. The site lies on an undulating plateau. The highest ground is approximately 160 m AOD in the north and the land falls generally to the south and west, to a minimum height of approximately 129 m AOD in the west of the site. All gradients are less than 7° and therefore do not impose any limitation on the quality of the agricultural land.

Geology and soils

11. The published 1:50 000 scale geology map (Geol. Survey, 1976) shows the northern and central parts of the site to be underlain by Triassic Keuper Sandstone with bands of marl. Elsewhere, the site is underlain by Carboniferous Shale with bands of sandstone and marl. In the north-west corner of the site the Keuper Sandstone is overlain by Pleistocene Boulder Clay.

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 two soil associations, namely Hodnet and Bardsey. The first occurs in the east of the site and is briefly described as reddish loamy soils with slowly permeable subsoils. The Bardsey association occurs in the western part of the site and consists of slowly permeable loamy over clayey soils overlying rock.

13. The detailed survey carried out on the site identified four distinct soil types. The first, which occurs in the south-east of the site and around Moneyhill Farm, comprises a dark greyish brown heavy (rarely medium) clay loam topsoil which overlies a strongly mottled grey, pale brown or brown, slowly permeable clay to depth. Locally, upper subsoils are heavy clay loam and occasional bands of red clay and / or coal or shale are found in the profile. The soils are non-calcareous and have been assessed as Wetness Class IV or occasionally, if the slowly permeable clay is encountered below 42 cm, Wetness Class III.

14. The second soil type is found in the centre-north of the site and is derived from Keuper Marl deposits. Profiles typically comprise a brown medium clay loam topsoil to 30/35 cm overlying a reddish brown medium or heavy clay loam upper subsoil. This in turn overlies a

dark reddish brown clay at depths between 45 / 70 cm. This clay has prismatic structures and, despite the presence of occasional large earthworm channels, is considered to be slowly permeable. Weathering sandstone is occasionally encountered deep in the profile. The soils have been assessed as Wetness Class II or III, depending upon the depth at which the clay is encountered.

15. The third soil type occurs in the south and west of the site and is thought to be derived from water-sorted boulder clay deposits which are extremely variable over short distances. Soil profiles typically comprise a dark or very dark greyish brown medium clay loam topsoil over subsoils which may vary from deep medium clay loam to sandy clay loam, to slowly permeable clay. In many profiles sandy lenses were found and occasionally pockets of shale / coal were encountered. The majority of these soils have gleyed subsoils and have been assessed as Wetness Class III, although better and poorer drained variants occur locally.

16. The fourth soil type occurs in a small area to the north of Lawn Barn and corresponds to outcrops of sandstone within the Keuper Marl. Profiles comprise medium clay loam or sandy loam topsoils over loamy medium sand / medium sandy loam upper subsoils, over medium sand or loamy medium sand. Profiles are frequently stony and weathering sandstone may be present in the subsoil. Some profiles may overlie sandy clay loam, sandy clay or slowly permeable reddish clay below 70 cm. The soils have been assessed as Wetness Class I or II.

AGRICULTURAL LAND CLASSIFICATION

Grades, Subgrades

17. The Agricultural Land Classification of the site 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. At this site the majority of the land can not be classified higher than Grade 2 because of a minor climatic restriction.

Grade 2

18. The northern part of the site has been mapped as Grade 2, corresponding with both the clayey and the better bodied sandy soil types developed on the Keuper Marl deposits. The better drained (i.e. Wetness Class II) soils developed on red clay loams and clays (paragraph 14) are placed in this grade due to a minor wetness and workability limitation. In the case of the sandy soils described in paragraph 16, the less droughty variants which overlie sandy clay loam or sandy clay at depth have been included within this grade due to a minor droughtiness impediment.

Subgrade 3a

19. Land mapped as Subgrade 3a because of a moderate wetness / workability limitation comprises, in the north-east, those red clayey soils (paragraph 14) where the slowly permeable subsoil is close to the surface and, in the south and centre, the variable soils developed in the water-sorted boulder clay deposits (paragraph 15). Both these soils are generally assessed as Wetness Class III, so with the medium clay loam topsoils and slowly permeable subsoils care

and timeliness with cultivations are required to avoid damage to soil structures. Both better (Grade 2) and more poorly drained (Subgrade 3b) variants occur locally but cannot be delineated separately at the scale of survey.

20. Also mapped as Subgrade 3a is the land having the more droughty variants of the sandy soils described in paragraph 16. These soils have light textured and stony subsoil horizons giving rise to moderately low available water capacities and consequently a moderate summer droughtiness limitation.

Subgrade 3b

21. Land classified as Subgrade 3b occurs in the south-east and west of the site and corresponds to the poorly drained, clayey soils described in paragraph 13. These soils have a heavy clay loam topsoil overlying a slowly permeable clay subsoil and the land consequently suffers from a moderately severe winter wetness and workability limitation. Considerable care and timeliness with cultivations are required to avoid damage to soil structures, and this restricts the range of crops that can be successfully grown.

Resource Planning Team
Huntingdon Statutory Group
ADAS Cambridge

SOURCES OF REFERENCE

ADAS (1994) *Agricultural Land Classification; North West Leicestershire Local Plan, Money Hill & Hugglescote*. 8/94, Resource Planning Team, ADAS Cambridge.

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 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.