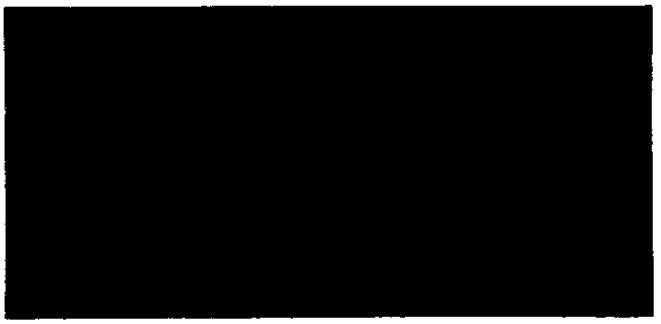

MAFF Ministry of Agriculture Fisheries and Food

NORTH-WEST LEICESTERSHIRE LOCAL PLAN; *LAND AT MONEY HILL,* ASHBY-DE-LA-ZOUCH, Site No: 6198

Agricultural Land Classification
June 1996

Resource Planning Team
Huntingdon Statutory Group
ADAS Cambridge

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AGRICULTURAL LAND CLASSIFICATION

NORTH-WEST LEICESTERSHIRE LOCAL PLAN
LAND AT MONEY HILL, ASHBY-DE-LA-ZOUCH (Site No 6198)

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 14.7 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 6198).

2. Virtually the whole site was mapped in detail as part of a larger ALC survey carried out in February 1994 (ADAS, 1994). This survey was verified by additional soil pits, and the very small (1.0 ha) part of the site not covered by the 1994 report was examined, by the Resource Planning Team (RPT) of the ADAS Huntingdon Statutory Group, Cambridge, in June 1996. The present report is based very largely on the 1994 survey, augmented and up-dated as appropriate, and now supersedes all previous work at the site. Prior to 1994, the published 1:63 360 scale provisional ALC map (MAFF, 1971) showed the site to be nearly all Grade 4 but with a small area of Grade 3 land in the north.

3. All of the site is in agricultural use and at the time of survey in 1996 was a mixture of cereals, set-aside and permanent grass.

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 16 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 four inspection pits within the 1994 survey area but outside the present site. The location of the pits and 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.

Table 1: Areas of grades and other land

Grade/Other land	Area (hectares)	% surveyed
3a	9.3	63
3b	5.4	37
Total agricultural land	14.7	100
Total survey area	14.7	100

7. The southern part of the site is of good (Subgrade 3a) agricultural quality and the northern part is of moderate (Subgrade 3b) quality. These gradings are a result of wetness and workability constraints. The combination of topsoil texture and depth to slowly permeable subsoil determine the degree of limitation.

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.

Table 2: Climatic and altitude data

Parameter	Value
Grid reference	SK 366 177
Altitude (m, AOD)	137
Accumulated Temperature (day °C, Jan.–June)	1311
Average Annual Rainfall (mm)	683
Field Capacity Days	155
Moisture Deficit, Wheat (mm)	96
Moisture Deficit, Potatoes (mm)	83
Overall Climatic Grade	2

Site

10. The highest ground is 145 m AOD in the north-east and the land falls generally to the south and west, to a minimum height of 133 m AOD in the south 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 whole site to be underlain by Carboniferous Shale with bands of sandstone and marl.

12. There is no detailed published soils information for the site. The relevant reconnaissance soil map and legend (Soil Survey, 1983) shows all the site to be covered by the Bardsey association. This is briefly described as slowly permeable loamy over clayey soils overlying rock.

13. The detailed survey carried out on the site identified two soil types. The first, which occurs in the north of the site, 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 covers the lower lying land in the south of the site and is thought to be derived from water-sorted boulder clay deposits which are extremely variable over short distances. The soil is in many respects similar to the first type described above, in terms of colouring and mottling. Topsoils, however are typically medium clay loam texture and upper subsoils are medium or heavy clay loam, silty clay loam or clay. Slowly permeable clay, occasionally with pockets of shale / coal or sandy lenses, usually occurs at depths below about 50 cm. The soils have been assessed as Wetness Class III, although better and poorer drained variants occur locally.

AGRICULTURAL LAND CLASSIFICATION

Grades, Subgrades

15. The Agricultural Land Classification of the land is shown on the attached ALC Map and the areas of each subgrade have been given in Table 1. Within any subgrade small areas of land of better or poorer quality may occur but cannot be delineated separately at the scale of survey.

Subgrade 3a

16. The southern part of the site has been mapped as Subgrade 3a on account of a moderate wetness and workability limitation. The land comprises the variable soils described in paragraph 14. These soils are generally assessed as Wetness Class III, thus 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 can occur in close proximity but cannot be delineated separately at the scale of survey.

Subgrade 3b

17. Land classified as Subgrade 3b occurs in the north 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.