WILLESLEY WOODSIDE,
NR. ASHBY-DE-LA-ZOUCH,
LEICESTERSHIRE

Agricultural Land Classification
and Soil Physical Characteristics Report

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Eastern Region
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AGRICULTURAL LAND CLASSIFICATION & SOIL PHYSICAL CHARACTERISTICS REPORT

WILLESLEY WOODSIDE, NR. ASHBY-DE-LA-ZOUCH, LEICESTERSHIRE.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 16.5 ha of land at Willesley Woodside, Nr. Ashby-de-la-Zouch, Leicestershire. The survey was carried out during September 1997.

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 an application to extract opencast coal. 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 stubble after cereal harvest. The areas mapped as 'Other land' include a double hedged footpath running through the centre of the site and three small areas of woodland adjacent to the northern most field.

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
3a	4.9	32.5	29.7
3b	10.2	67.5	61.8
Other land	1.4	N/A	8.5
Total surveyed area	15.1	100	-
Total site area	16.5	-	100

7. The fieldwork was conducted at an average density of one boring per hectare. A total of 16 borings and 2 soil pits was described.

8. The northern field has been graded 3a (good quality agricultural land) with the southern field graded almost entirely 3b (moderate quality agricultural land). The main limitations to land quality over the whole site is wetness and workability.

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	SK 338143	SK 340138
Altitude	m, AOD	90	122
Accumulated Temperature	day°C (Jan-June)	1367	1331
Average Annual Rainfall	mm	645	666
Field Capacity Days	days	147	150
Moisture Deficit, Wheat	mm	103	98
Moisture Deficit, Potatoes	mm	93	87
Overall climatic grade	N/A	Grade 1	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 (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 the area is relatively dry and warm. Thus there is no climatic limitation and the climatic grade is 1.

Site

14. The site lies almost immediately to the north of the A42, about 1½km north of Measham. The site occupies the western slopes of a ridge with the highest land at the eastern most point of 125m AOD. The land slopes typically in a northwest direction to a low point of about 85m AOD near South Lodge in the north of the site. Slopes are typically in the range of 3 to 5° but in very localised places slopes are estimated to be 8°. However these steeper slopes only occur over very short distances and do not have an impact on the agricultural management of the land.

Geology and soils

15. The 1:50 000 scale solid and drift edition (Geological Survey of Great Britain, sheet no.155, 1982) shows the whole site to be mapped as Carboniferous Coal Measures.

16. There is no detailed soils map of the area but the 1:250 000 reconnaissance scale map (Soil Survey of England and Wales, Sheet 3, 1983) shows the whole site to be mapped as the Bardsey Association. These soils are briefly described as slowly permeable seasonally waterlogged loamy over clayey and fine silty soils over soft rock. Some well drained coarse loamy soils over harder rock. During the detailed survey two soil types were identified.

Soil type I

17. The first soil type is mapped in the northern field and typically comprises very slightly stony, non calcareous medium clay loam topsoils. Upper subsoils are very slightly stony and are more variable and range in texture from medium or heavy clay loam to sandy clay loam. These overlie heavier textured lower subsoils typically of sandy clay or clay. Upper subsoils are typically mottled and lower subsoils are mottled and slowly permeable.

Soil type II

18. The second soil type is mapped over the southern field Topsoils typically comprise heavy clay loam (occasionally medium clay loam or clay) which are very slightly or slightly stony. Upper subsoils typically comprise very slightly stony clay or heavy clay loam (often a mix) which is very variable in colour and often quite dry and friable. Lower subsoils comprise very slightly stony clay which occasionally has some coal present. There is some evidence that profiles particularly in the southern part of the field may have been disturbed in the past. Upper subsoils are typically slowly permeable.

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 and the details of the soils data are presented in Appendix II.

Subgrade 3a

21. Land graded 3a (good quality agricultural land) is mapped in conjunction with the soils described in paragraph 17. Profiles typically have slowly permeable lower subsoils and there is evidence of water hold-up in the upper subsoils. These profiles have been assessed as Wetness Class III (occasionally Wetness Class II) and this factor in combination with the medium clay loam topsoils limit this land to subgrade 3a due to moderate wetness and workability constraints.

22. Although individual profiles of grade 2 were occasionally noted within this mapping unit, they occurred too randomly or inextensively to permit separate delineation at the scale shown.

Subgrade 3b

23. Land of this quality is associated with soil type II which is described in paragraph 18. These soils are typically slowly permeable either in the upper or lower subsoil and have been assessed as either Wetness Class III or IV. This factor combines with the fine loamy or clayey topsoils to significantly reduce the flexibility of the land due to the reduction in the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock. Thus land is restricted to subgrade 3b (moderate quality agricultural land) due to a significant wetness and workability limitation.

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SOURCES OF REFERENCE

British Geological Survey (1982) *Sheet No. 155 (solid and drift edition), 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

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 (4.9ha)

Topsoil	Texture	:medium clay loam
	Colour	:10YR4/3
	Stone	:very slightly stony
	Roots	:common fine and very fine
	Boundary form	:sharp, smooth
	Depth:	:typically 30cm
Upper Subsoil	Texture	:medium/heavy clay loam or sandy clay loam
	Colour	:typically 10YR5/4, 10YR6/3 and 5/3
	Stone	:very slightly stony
	Structure	:weakly developed coarse subangular blocky
	Consistence	:firm, or friable where sandy clay loam
	Porosity	:>0.5%
	Roots	:common fine and very fine
	Concretions	:10% iron nodules
	Boundary form	:clear, smooth
	Depth	:55/70cm
Lower Subsoil	Texture	:sandy clay or clay
	Colour	:variable 2.5Y6/1 & 7/2, 10YR6/3 & 6/4 and 7.5YR5/4 & 5/3
	Stone	:typically stoneless, occasionally weathered sandstone or coal (c5%)
	Structure	:weakly developed coarse prismatic
	Consistence	:firm
	Porosity	:<0.5%
	Roots	:few fine and very fine
	Concretions	:none
	Depth	:120cm
	Comments	:typically assessed as Wetness Class III (occasionally II) :some profiles affected by groundwater :profiles are typically non calcareous or very slightly calcareous.

SOIL TYPE II (10.2ha)

Topsoil	Texture	:heavy clay loam, (occasionally medium clay loam or clay)
	Colour	:10YR4/3 & 4/2
	Stone	:typically very slightly stony (occasionally slightly stony)
	Roots	:many fine and very fine
	Boundary form	:abrupt, smooth
	Depth:	:25/30cm
Upper Subsoil	Texture	:heavy clay loam and/or clay (often a mix)
	Colour	:very variable, ranging from 10YR5/2 & 5/3, 2.5Y 6/3, 6/6 & 6/1, 7.5YR4/1 & 5/1
	Stone	:typically very slightly stony
	Structure	:weakly developed coarse subangular blocky
	Consistence	:firm
	Porosity	:<0.5%
	Roots	:common fine and very fine
	Concretions	:none
	Boundary form	:abrupt, wavy
	Depth	:50/60cm
Lower Subsoil	Texture	:clay
	Colour	:blue/grey clay, 2.5Y5/1 & 5/2
	Stone	:stoneless
	Structure	:massive (very adherent)
	Consistence	:semi plastic
	Porosity	:<0.5%
	Roots	:common fine and very fine
	Concretions	:none
	Depth	:120cm
	Comments	:assessed as Wetness Class III or IV :some profiles appear to have been disturbed :occasionally soft coal found at depth c50% :profiles typically non calcareous or very slightly calcareous