BEDFORD BOROUGH COUNCIL.
LAND EAST OF WILLINGTON, BEDFORDSHIRE.
SITE E

Agricultural Land Classification
ALC map and report.

February 1999

Resource Planning Team
Eastern Region
FRCA Cambridge

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AGRICULTURAL LAND CLASSIFICATION REPORT

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INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 3.5 ha of land located to the immediate east of Willington in Bedfordshire. The survey was carried out in February 1999.

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 Bedford Borough Local Plan Review. 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 agricultural land on site comprised ploughed land and set-aside. No 'Other land' has been mapped on this site.

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)	% site area
3b	3.5	100
Total site area	3.5	100

7. The fieldwork was conducted at an average density of approximately two auger borings per hectare. A total of 6 auger borings and 1 pit was described.

8. The whole site has been graded 3b (moderate quality agricultural land) and is restricted to this subgrade by significant droughtiness constraints.

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	TL 116 500
Altitude	m, AOD	20
Accumulated Temperature	day°C (Jan-June)	1458
Average Annual Rainfall	mm	564
Field Capacity Days	days	96
Moisture Deficit, Wheat	mm	120
Moisture Deficit, Potatoes	mm	116
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 (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 during the critical growing season, therefore imposing no overall limitation to land quality. As a result the site has a climatic grade of 1.

Site

14. The site is situated on the eastern side of Willington. To the north, west and south-west it adjoins private gardens, to the east open fields and to the south-east Barford Road. The site is virtually level occupying an altitude of 23 m AOD. Gradient and altitude do not therefore impose any limitation to the agricultural land quality on site.

Geology and soils

15. No detailed geology map exists for the area. The 1:250 000 scale solid geology map, published by the Institute of Geological Sciences, (Sheet 52° N - 02° W, 1983) shows the entire site to be underlain by Oxford Clay.

16. At a scale of 1:625 000, the Quarternary map of the UK (southern sheet, 1977) depicts the drift geology of the area as river terrace deposits, mainly of sand and gravel.

17. The Soil Survey of England and Wales have mapped the area on three occasions. The most detailed mapping, which covers the southern two thirds of the site, is at a scale of 1:25 000 (SSLRC, 1987). This map depicts the area as the Ickford Series, and describes the soils as: Permeable slightly mottled often calcareous medium loams over flint and chalk gravel at 40 to 80 cm depth.

18. At the reconnaissance scale of 1:250 000 the Soil Survey of England and Wales (Sheet 4, 1983) maps the site as the Efford 1 Association which is briefly described as: Well drained fine loamy soils often over gravel, associated with similar permeable soils variably affected by groundwater.

19. During the current survey a single soil type was identified. Topsoils comprise slightly to moderately stony, non-calcareous medium sandy loams which extend to 30 cm depth. The upper subsoil typically comprises moderately to very stony medium sandy loam or sandy clay loam (occasionally heavier textured) extending to 50/70 cm. Profiles typically become impenetrable to auger at this depth. Pit information indicates that lower subsoils comprise very stony loamy medium sands. Profiles have been assessed as free draining.

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.

Subgrade 3b

22. The whole site has been graded 3b and corresponds to the soils described in paragraph 19. The combination of profile textures and high stone contents mean that these soils have a significantly limited ability to retain water for crop growth and thus suffer from a significant droughtiness constraint. They therefore cannot be graded higher than subgrade 3b.

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SOURCES OF REFERENCE

Institute of Geological Sciences, (1983), Sheet 52° N - 02° W, *East Midlands.*

Institute of Geological Sciences, (1977), *Quarternary map of the UK (southern sheet)*

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 and Land Research Centre, (1987), *Soils of Bedfordshire, TL 14 (Biggleswade).*
SSLRC: Harpenden.

Soil Survey of England and Wales (1983) Sheet 4, *Soils of Eastern England.*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their use in Eastern 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.