BEDFORD BOROUGH COUNCIL.
LAND NORTH OF CHURCH ROAD,
WILLINGTON, BEDFORDSHIRE.
SITE A

Agricultural Land Classification
ALC map and report.

June 1999

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Eastern Region
FRCA Cambridge

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AGRICULTURAL LAND CLASSIFICATION REPORT

BEDFORD BOROUGH COUNCIL, LAND NORTH OF CHURCH ROAD, WILLINGTON, BEDFORDSHIRE. SITE A.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 2.3 ha of land located north of Church Road, Willington in Bedfordshire. The survey was carried out in June 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 site comprised abandoned agricultural land which was in part taken over by scrub. Sporadically throughout the site areas of rushes where noted and in the wettest part (east) there was a small area of reed bed. 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	1.8	78
4	0.5	22
Total surveyed area	2.3	100

7. The fieldwork was conducted at an average density of 4 auger borings per hectare. A total of 9 auger borings was described.

8. Most of the site has been assessed as subgrade 3b (moderate quality agricultural land) and is restricted to this subgrade by a significant wetness and workability limitation associated with the high ground water levels and the disturbed nature of the profiles. In parts this land is

equally limited by a droughtiness constraint and based on anecdotal evidence, may also be precluded from a higher grade by flood risk. A small area in the east has been assessed as grade 4 (poor quality agricultural land) due to a severe wetness and workability constraint. This area has a very high water table and is likely to remain wet for most of the year. Evidence on the ground suggests that in this area the land remains flooded for long periods during the winter. Flood risk is therefore likely to impose an equal limitation.

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 111 501
Altitude	m, AOD	20
Accumulated Temperature	day°C (Jan-June)	1458
Average Annual Rainfall	mm	568
Field Capacity Days	days	97
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 northern side of Willington. It is virtually level, occupying an altitude of approximately 23 m AOD. Gradient and altitude do not therefore impose any limitation to the agricultural land quality on site.

15. The whole site is disturbed, having previously been quarried for sand and gravel a long time ago, then poorly restored to agriculture.

Geology and soils

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

17. 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.

18. The Soil Survey of England and Wales have mapped the area on two occasions. The most detailed mapping of the site is at a scale of 1:63 360 (SSEW, 1968). This map depicts the site as the Biggleswade Association, which is briefly described as a gleyed brown earth.

19. 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 in the south and the Thames Association on the north. These associations are briefly described as follows:
Efford: Well drained fine loamy soils often over gravel, associated with similar permeable soils variably affected by groundwater.
Thames: Stoneless mainly calcareous clayey soils affected by groundwater. Flat land. Risk of flooding.

20. During the current survey a single soil types was identified. Topsoils comprise slightly (occasionally moderately) stony, typically calcareous, medium sandy loams to 20/30 cm depth. Stones are mostly flints, but in places fragments of coal, brick and cement where also found. Upper subsoils typically comprise slightly (occasionally moderately) stony, variably calcareous medium sandy loam (occasionally medium or coarse sand) extending typically to 50/70 cm. Lower subsoils typically comprise variably calcareous, moderately to very stony medium sandy loam (occasionally medium or coarse sand) to depth. Subsoils typically became wet or saturated from moderate depth (occasionally from shallow depth).

AGRICULTURAL LAND CLASSIFICATION

21. 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.

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

Subgrade 3b

23. Land graded 3b corresponds to the soils described in paragraph 20 where subsoils become wet or saturated from moderate depth. These profiles have been assessed as poorly drained (Wetness Class IV) and this factor, combined with the poor restoration quality, imposes a significant wetness and workability constraint. Occasionally, where subsoils become sandy and very stony the land is equally limited by a droughtiness imperfection.

Based on anecdotal evidence, regular winter flooding may also impose an equally limiting flood risk limitation to this area of land.

Grade 4

24. The grade 4 land on site corresponds to the soils described in paragraph 20 where subsoils are typically saturated from immediately below the topsoil. Based on this degree of wetness at the dryest time of the year, it is considered likely that this land remains wet throughout the year. Profiles have therefore been assessed as very poorly drained (Wetness Class V). This wetness class imposes a severe wetness and workability constraint to the land and thus precludes it from a higher grade. From observations on the ground, it appears that this area also floods for significant periods during the winter. Flood risk is therefore likely to impose an equally limiting constraint to the land quality.

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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 of England and Wales, (1968), *Sheet 147, Soils of Bedford and Luton.*
SSEW: 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.