LAND AT STRATTON FARM, BIGGLESWADE, MID BEDFORDSHIRE LOCAL PLAN REVIEW

Agricultural Land Classification
ALC Map and Report

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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 20.5 ha of land at Stratton Farm, Biggleswade, Bedfordshire. The survey was carried out during May 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 Mid Bedfordshire 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 land use on the site was under winter wheat to the north. The areas mapped as 'Other' include immature mixed woodland along the southern boundary and half way along the eastern edge of the 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)	% surveyed area	% site area
2	7.5	48.4	36.6
3a	8.0	51.6	39.0
Other land	5.0	N/A	24.4
Total surveyed area	15.5	100	75.6
Total site area	20.5	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 18 borings and 1 soil pit was described.

8. Approximately half of the land to the east and a small area in the west has been graded 2 *(very good quality agricultural land). Subgrade 3a land (good quality agricultural* land)occupies half of the land in the centre from the north to the south west of the site. There is an equal slight wetness and droughtiness limitation on grade two land to the east of the site where a calcareous upgrade has been imposed and a slight droughtiness limitation dominating in the west where lower subsoils are moderately stony. Land graded 3a shows moderately well to imperfectly drained soils with a moderate wetness and workability limitation with no calcareous upgrade.

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	TL210 428
Altitude	m, AOD	40
Accumulated Temperature	day°C (Jan-June)	1435
Average Annual Rainfall	mm	550
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 there is no overall climatic limitation on this land

Site

14. The site is bounded in the south and half way along the eastern boundary by immature mixed woodland. There is also surrounding fields of winter cereal and a cereal depot to the north of the site. The land is predominantly level throughout with some gentle slopes to the west with altitude remaining constant across the site at approximately 40m AOD. Neither gradient nor altitude impose any agricultural limitation on the land.

Geology and soils

15. The 1: 50 000 solid and drift geology map (sheet 204, Biggleswade) maps the whole site as boulder clay.

16. The 1: 63360 Soil Survey map of England and Wales (sheet 147, Bedford and Luton) shows the site as the Hanslope Association of slowly permeable calcareous clayey soils with *some slowly permeable non calcareous clayey soils developed in chalky drift.*
The 1: 250 000 Soil Survey of England Wales (Soils of Eastern England) maps the site as the Cannamore Association of deep calcareous and non calcareous fine loamy and clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some slowly permeable seasonally waterlogged fine loamy over clayey and clayey soils.

17. Two soil types are evident on the site which differ in lower subsoil stone content. There is also two soil variants of the less stony soil type of calcareous and non calcareous soils.

Soil type I covers the majority of the site and typically comprises very slightly stony (3-5%) calcareous and non calcareous heavy clay loam and medium clay loam topsoils to 25cm depth over slightly stony (8-10%) calcareous and non calcareous clays to typically 55cm. The lower subsoil below this depth was typically impenetrable or comprised slightly stony (10-15%) and occasionally moderately stony (20%) calcareous clays to approximately 70cm depth.

Soil variant I covering approximately a third of the site to the east, typically shows calcareous horizons throughout the profile which are moderately well drained, wetness class II.

Soil variant II covers the centre of the site from the north to the south west. The soils are typically non calcareous in the upper horizons with moderately drained profiles. Occasional calcareous soils in this variant show profiles which are imperfectly drained, wetness class III.

Soil type II occurs in a small area to the west of the site and typically comprises very slightly stony (1-3%) calcareous and non calcareous heavy clay loam or medium clay topsoil to 25 cm, over very slightly stony calcareous and non calcareous clay to 40-45 cm depth. The subsoil comprises a moderately stony (25%+) calcareous horizon of 'Hoggin' or chalk and flints embedded in a sandy clay loam matrix to approximately 80cm depth, which is moderately well to well drained and wetness class II/I.

AGRICULTURAL LAND CLASSIFICATION

18. 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.

19. 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.

Grade 2

19. Land graded 2 (very good quality agricultural land) occupies approximately half of the site to the east and a small area in the west and corresponds to soil type II and the calcareous soil variant of soil type I as described in paragraph 17. The land in the east is limited to grade 2 by an equal slight drought and wetness and workability limitation in the east of the site. The combination of a moderately well drained profile (wetness class II) and a heavy clay loam / medium clay topsoil would have restricted the land to grade 3a, but a calcareous upgrade improves the quality and ease of cultivation to grade 2. The main restriction to the small area of grade 2 in the west of the site is a slight droughtiness limitation due to the moderately stony lower subsoil which results in a moderately freely draining to freely draining soil (wetness class II/I) with reduced soil available water.

Grade 3a

20. Land graded 3a occurs in the centre of the site from the north to the south west and relates to the non calcareous variant of soil type I as described in paragraph 17. Typically these soils show moderately well drained profiles (wetness class II) but with no calcareous upgrade. Occasional soils that did qualify for the upgrade showed imperfectly drained profiles (wetness class III). The main limitation to land is therefore a slight or moderate wetness and workability limitation and the application or not of a calcareous upgrade.

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SOURCES OF REFERENCE

British Geological Survey (1974) *Sheet No. 204, Biggleswade.*
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 (1968) *Sheet147, Bedford and Luton.*
SSEW: Harpenden.
Soil Survey of England and Wales (1983) *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.