Cambs 7/89

AGRICULTURAL LAND CLASSIFICATION

LAND EAST OF LONG STRATTON, NORFOLK

1 BACKGROUND

1.1 The site, an area of 71.1 hectares, is the subject of an application for residential development east of Long Stratton, Norfolk. MAFF surveyed the site in December 1989 to assess the agricultural land quality.

1.2 On the published Agricultural Land Clarification map sheet No. 137 (Provisional, scale 1:63360 (MAFF,1973)), the area is shown as grade 3.

1.3 The current survey was undertaken to provide a more detailed ALC of the area. More recently, in 1986 part of the site was surveyed at a scale of 1:10,000. This survey shows part of the land between Star Lane and Hall Lane to comprise mainly subgrade 3a with a small area of grade 2.

1.4 At the time of the survey approximately two thirds of the land was in arable use, mainly winter cereals and some sugar beet. The remainder of the survey area was under grass.

2 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was obtained from the published agricultural climatic dataset. (Met Office, 1989). This indicates that for the site's median altitude (50m AOD) the annual average rainfall is 618 mm (24.3"). This also indicates that field capacity days are 119 and moisture deficits are 114 mm for wheat and 109 mm for potatoes. These climatic characteristics do not impose any climatic limitation on the ALC grading of the survey site.

Altitude and Relief

2.2 The land surveyed is gently undulating lying at a median altitude of 50m AOD. The land lies fairly level and falls gently from a maximum of 52m AOD, adjacent to Hall Lane, to 45m AOD, in the valley feature adjacent to Star Lane. Gradient and altitude to not constitute limitations to the ALC grade.

Geology

2.3 The published 1/4" to 1 mile drift edition geology sheet 16 (Geol Survey 1931) shows the survey area to comprise boulder clay drift deposits.

Soils

2.4 The Soil Survey of England and Wales have mapped the soils in the Long Stratton area on two occasions; in 1973, at 1:100,000 scale and more recently in 1983, at a reconnaissance scale of 1:250,000. These maps show the occurrence of soils derived from chalky till deposits, namely the Beccles/Ragdale Series (*1) and Beccles 1 Association (*2) respectively. During the current survey a more detailed inspection of the soils was carried out.

Four main soil types occur over the site.

2.4.1 Over the majority of the fairly level plateau land (50m AOD) soils are slightly droughty and typically comprise sandy clay loam or occasionally heavy clay loam topsoils over heavy clay loam or clay upper subsoils which often contain pockets of medium sand. Lower subsoils generally comprise gleyed clays which typically become chalky at depth. Topsoils and upper subsoils generally range from non to very slightly calcareous.

(*1) Beccles/Ragdale Series: loamy and clayey; drift over chalky till (chalk boulder clay)

(*2) Beccles 1 Association: Slowly permeable seasonally waterlogged fine loamy over clayey soils, associated with similar clayey soils.

2.4.2a) On gently sloping land in the vicinity of Edge's and Star Lanes deep fine loamy soils occur. These soils are slightly droughty and typically comprise sandy clay loam or (sandy) medium clay loam topsoils over sandy clay loams or occasionally clay loams which overlie clays at depth. Below 75/85cm^{+} these clays often contain chalk fragments.

2.4.2b) Slightly stony variants of this soil type occur in a small area running north east from the District Council Offices. These variants have slightly stony topsoils (10-15% medium and small flints) which limit the cropping potential of this area.

2.4.3 Finally a narrow tract of stony soils outcrop between Hall Farm and the A140 road. These soils typically comprise medium clay loam or occasionally sandy clay loam topsoils over heavy clay loam or clay subsoils which may overlie chalky clays at depth. Upper subsoils are generally slightly stony (10-15% medium and small flints) whilst lower subsoils are moderately stony (25% medium and small flints) until the chalky clay is reached.

3 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the agricultural land classification grades are included in Appendix 1.

3.2 The table below shows the ALC grades for the survey area.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	13.5	19
3a	42.8	60
3b	9.6	13.5
Urban	1.9	3
Non Agricultural	2.2	3
Agricultural Buildings	1.1	1.5
TOTAL	71.1	100

4 GRADE 2

4.1 Land has been graded 2 on gently sloping land in the vicinity of Edge's and Star Lanes. The land is associated with the deep fine loamy soils described in paragraph 2.4.2a). The lower clayey subsoils are slowly permeable (wetness class II) and the topsoil textures comprise fine loams. These factors combine with the minor droughtiness imperfection to impose a slight limitation on the agricultural potential of this land. Thus the land is restricted to grade 2. (Very good quality agricultural land).

5 SUBGRADE 3a

5.1 The majority of the survey area has been mapped as subgrade 3a. Three main situations occur.

5.2 Over the majority of the area on the plateau land the land graded 3a is associated with the soils described in paragraph 2.4.1 above. Soil profile pit observations indicate that these soils have slowly

permeable horizons present directly below the topsoils. (ie Wetness Class III). The topsoils are fine loamy and non calcareous (eg sandy clay loams). These factors combine to impose a moderate limitation on the agricultural potential of this land. Thus the land is excluded from a higher grade.

5.3 Running north east from the District Council Offices a small area of deep fine loamy soils (described in paragraphs 2.4.2a) and 2.4.2b)) have been graded 3a. These soils are slightly droughty and have slowly permeable horizons at depth (wetness class II). The topsoils are slightly stony and range from 10-15% flints by volume. This moderate stoniness limitation excludes the land from grade 2.

5.4 Between Hall Farm and the A140 road a narrow tract of land, comprising stony soils (paragraph 2.4.3) has been mapped as subgrade 3a. Profile pit observations indicate that the subsoils are slowly permeable (Wetness class III).

Profiles are slightly or moderately droughty depending on the extent of and density of the subsoil stone. Where profiles are slightly droughty drainage is the chief limitation whilst where profiles are moderately droughty droughtiness and drainage combine to constitute the major limitation to the ALC grade.

6 SUBGRADE 3b

6.1 Two small areas of land have been mapped as subgrade 3b. The land is associated with the heavier variants of the soils described in paragraph 2.4.1. Soil profile pit observations indicate that these soils have slowly permeable horizons directly below the topsoil (ie Wetness class III). Topsoil textures are heavy (eg heavy clay loams) and profiles are typically non calcareous in the upper horizons. These wetness and workability factors combine to impose a significant limitation on the agricultural potential of this land. Thus the land is restricted to subgrade 3b (moderate quality agricultural land).

7 NON AGRICULTURAL

Woodland and a moat have been mapped as Non Agricultural.

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Cambridge RO

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Appendix 1

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 and horticultural crops can usually be grown but on some land in the 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.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, 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.

References

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1931
Drift edition geology sheet 16 1/4" to 1 mile.

MAFF, 1973. Agricultural Land Classification Map Sheet. No 137

MAFF, 1988. Agricultural Land Classification of England and Wales
(Revised Guidelines and criteria for grading the
quality of agricultural land) - Alnwick

METEOROLOGICAL OFFICE, 1989 Climatic data extracted from the published
climatic dataset

SOIL SURVEY OF ENGLAND AND WALES 1973 'Soils of Norfolk'. Scale 1:100,000

SOIL SURVEY OF ENGLAND AND WALES 1983 'Soils of Eastern England' Sheet No 4
Scale 1:250,000