Cambs 40/90

AGRICULTURAL LAND CLASSIFICATION

RINGS END, GUYHIRN, CAMBRIDGESHIRE

1. BACKGROUND

1.1 The site, an area of 107.5 hectares, is the subject of an application for a horse racing course, with associated amenities at Rings End, Guyhirn, Cambridgeshire. MAFF surveyed the site in August 1990 to assess the agricultural land quality.

1.2 On the published Agricultural Land Classification map sheet No 123 (provisional, scale 1:63360 (MAFF 1963)) the survey area is shown as grade 1. The current survey was undertaken to provide a more detailed ALC of the area.

1.3 A total of 116 soil inspections were made on site supplemented by observations from 3 soil profile pits.

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 the site's annual average rainfall is 540 mm (21.2").

This also indicates that field capacity days are 92 and moisture deficits are 122 mm for wheat and 118 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 comprises a fairly level plateau which lies at an altitude of 0m AOD. Traversing this plateau, particularly within the western half of the site, are low ridges called rodhams. These mark the position of former creeks and give the land a marked microrelief. Gradient and altitude do not constitute limitations to the ALC grade.

Geology

2.3 The published 1:50,000 scale drift edition Geology map No. 158 shows the survey area to comprise older marine alluvium (Barroway Drove Beds).

Soils

2.4 The Soil Survey of England and Wales have mapped the "Soils of Eastern England" at a reconnaissance scale of 1:250,000, this map shows the occurrence of the Downholland 1 Association* on this marine plateau. During the current survey a more detailed inspection of the soils indicated the occurrence of three main soil types.

*Downholland 1 Association: Deep stoneless humose clayey soils, calcareous in places. Some peat soils and deep humose calcareous silty soils. Flat land. Groundwater usually controlled by ditches and pumps.

2.4.1 The majority of the survey area, particularly the eastern half comprises humose marine clay profiles. These soils typically consist of organic clay topsoils over porous marine clay subsoils which may contain peaty loam bands at depth. The porosity of the subsoil is high due to the presence of a dense network of reed channels. Furthermore, these subsoils may be calcareous but depth to and extent of these calcareous horizons varies with location. Topsoil organic matter content ranges from 10-13% and profile pH measurements range from 5.5 to 7.

2.4.2 Along the western edge of the site interspersed with the rodhams lighter marine alluvium profiles predominate. Soils typically comprise organic medium or heavy clay loam topsoils over porous marine clay subsoils. Topsoil organic matter contents range from 8 to 18.5 % and profile pH measurements range from 6 to 7.

2.4.3 In association with the rodhams which run northeastwards from Waldersey Farm and southeastwards from the Old Ferryboat Public House light marine silt soils predominate. These soils typically comprise organic medium or heavy clay loam topsoils over strongly calcareous fine sandy loam or silt loam subsoils which may merge into marine clay at depth 65/70 cm+.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification (ALC) grades are included in Appendix 1.

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

Agricultural Land Classification

Grade	ha	%
1	32.9	30.6
2	74.2	69.0
Non Agricultural/ Urban/Agricultural Buildings	0.4	0.4
TOTAL	107.5	100

3.3 Grade 1

Land graded 1 is associated with the soils described in paragraphs 2.4.2 and 2.4.3.

Soil profile pit observations indicate that these soils are porous due to the presence of a dense network of course interlinking reed channels. The presence of these channels aids the movement of water through the profile; as a result these profiles have a wetness class of I. These soils have good moisture retention characteristics so crops suffer very little from drought stress during the drier months. Consequently this land has only very minor limitations to agricultural use. Thus this land has been graded 1 (excellent quality agricultural land).

3.4 Grade 2

The majority of the survey area has been graded 2. This land is associated with the heavy marine alluvium soils described in paragraph 2.4.1. Although soils are freely draining (wetness Class I) they are limited by slight workability imperfections which derive from their reduced organic matter content and high clay content, within the topsoil. Soils of this type require well timed cultivations if structural damage is to be avoided. However, they remain capable of producing good yields of a somewhat narrower range of crops. Thus the land is restricted to grade 2 (very good quality land).

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 limitions which effect 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.

References

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1984

Solid and drift edition Geology sheet 158 (Peterborough) 1:50,000

MAFF, 1963. Agricultural Land Classification Map

No 123 Scale 1:63360

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

METEOROLOGICAL OFFICE 1989. Climate data extracted from the published agricultural climatic dataset.

SOIL SURVEY OF ENGLAND AND WALES, 1983. Soils of Eastern England - Sheet No 4, Scale 1:250000.