

AGRICULTURAL LAND CLASSIFICATION
LAND AT GRANGE ROAD, MARCH, CAMBRIDGESHIRE

1.0 INTRODUCTION

1.1 An Agricultural Land Classification survey was carried out over approximately 53.1 ha of land at Grange Road, March on which it is proposed to provide an extension to March Golf Course together with an associated area of housing. The survey was carried out in detail (approximately one inspection per hectare) over the 19.8 ha proposed for residential development, whilst the remainder, to be used as golf course, was surveyed at a reconnaissance level.

1.2 The site is located to the south of Floods Ferry Road, bounded for the most part by Grange Road to the east, although a small area to the east of Grange Road has been included within the proposed residential development area.

1.3 A total of 22 inspections were made using a spade and dutch auger, to a depth of 1.2m. On the lower lying land four topsoil samples were taken for analysis to determine the organic matter levels within the topsoil.

1.4 At the time of survey two of the fields were under sugar beet, another under permanent grass with the remaining five under cereal stubble.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climatic information for the site has been interpolated from the 5 km grid data set provided by the Meteorological Office (Met Office, 1989). The average annual rainfall for the site is 551 mm making this one of the driest parts of the country. The number of days at which the site is likely to be at field capacity is also low at 94.

2.2 The accumulated temperature for this area is approximately 1453 degrees celsius and the moisture deficits for wheat and potatoes are 120 and 116 mm respectively.

- 2.3 There is no overall climatic limitation to the agricultural use of this land, although soils with low available water capacities will be highly susceptible to drought.

Relief

- 2.4 The site comprises two distinct geomorphological areas, the low lying fen land to the west and the "highlands" to the east. These two areas are distinguished by a sharp break in slope with the altitude of the fen area being approximately 1m AOD and the remainder at approximately 4m AOD. The low lying fen land has some minor undulations (rodhams) crossing the area. Slopes are gentle throughout the area and as such relief does not comprise any limitation to the agricultural use of the land.

Geology and Soils

- 2.5 No large scale geology map exists for this area although the map just to the north shows the area to be Marine Alluvium with some silt filled creeks. The area has been mapped by the Soil Survey on their 1:250,000 map (Soil Survey, 1984) as Downholland 1 Association on the low lying land to the west, and Peacock and Ashley Associations on the higher land to the east.
- 2.6 Two soil types were distinguished during the current survey with soils that correlated with the Downholland series found on the low lying land and soils similar to the Ashley series found on the highland.
- 2.7 A typical soil profile on the low lying fen land has an organic silty clay topsoil, 35-40 cm deep overlying a strongly mottled silty clay subsoil. A soil pit described on land lying immediately to the west showed that the subsoil structure was coarse angular blocky becoming prismatic with depth but that the pedes were very porous having many macropores the result of former reed vegetation.
- 2.8 In some profiles there was evidence of gypsum crystals and yellow streaks of jarosite. Measurement of the pH in these areas revealed that they were moderately acid pH 5 although this did not appear to prevent the downward movement of roots.

- 2.9 Organic matter levels were measured at four locations on the field to the south of Floods Ferry Road to represent the range of organic matter in this field. The values ranged from 8.5% to 10.5% with one value of 21%. The lower values represent the borderline between mineral and organic mineral soils with the value of 21% being at the upper end of organic mineral soils.
- 2.10 On the "highlands" a typical soil profile has a non calcareous heavy clay loam topsoil with few small flints overlying a heavy clay loam upper subsoil which has distinct ochreous mottling. Below approximately 50 cm depth the soil becomes a calcareous clay with few small chalk fragments and distinct grey and olive mottling. In some profiles the soil has a slightly stony sandy clay loam topsoil.
- 2.11 At the southern end of the site to the north west of Grange Farm is a gravel ridge, where the soils have a stony sand loam texture.

3.0 AGRICULTURAL LAND CLASSIFICATION

- 3.1 The site has been classified using the guidelines contained in the Agricultural Land Classification of England and Wales (MAFF 1988) and has been graded as Grades 2 and 3a. A breakdown of the individual grades is given below for (I) the detailed survey of the 19.8 ha area zoned for residential development, and (II) the reconnaissance survey of the remaining part of the site. It should be stressed that the latter figures are only preliminary indications of likely land quality within the application area.

(I) Residential Development (detailed survey)

Grade	Area ha	%
2	10.4	52.5
3a	8.8	44.4
non agricultural	0.6	3.1
Total	19.8	100.0

(II) Remainder of site (reconnaissance survey)

Grade	Area ha	%
2	23.4	70.3
3a	9.9	29.7
non agricultural	-	-
Total	33.3	100.0

Grade 2

3.2 Droughtiness and wetness/workability are the major limitations on this site. Soil moisture balance figures indicate that the soils of the Downholland series are Grade 2 on account of a slight droughtiness limitation. (In some small areas where the organic clay topsoil exceeds 40 cm in depth the land is graded 1, but this does not occur extensively).

3.3 The Downholland series soils have been assessed as wetness class I despite the presence of gleying, as they have no slowly permeable layer due to the porosity in the subsoil.

Grade 3a

3.4 The soils on the "highlands" has been classified as Grade 3a. These soils have a heavy clay loam topsoil which is generally non calcareous, over a gleyed subsoil and have been assessed as wetness class II. They have therefore both a wetness and workability limitation which may restrict the timing of cultivations and limit the range of crops grown.

Non agricultural

3.5 Two small areas of non agricultural land have been identified, one is a private house and the other is a dilapidated barn and associated area of scrub.

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REFERENCES

- MAFF (1988) Agricultural Land Classification in England Wales.
Revised guidelines and criteria for grading the quality of
agricultural land.
- METEOROLOGICAL OFFICE (1989) Climatological data for Agricultural Land
Classification.
- SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and their use in Eastern
England.