Cambs 8/89

AGRICULTURAL LAND CLASSIFICATION

LAND NORTH AND EAST OF RAMSEY, CAMBRIDGESHIRE

1. BACKGROUND

1.1 The site, an area of 114.5 hectares, is the subject of an application for residential development near Ramsey, Cambridgeshire. MAFF surveyed the site in February 1989 to assess the agricultural land quality.

1.2 On the published Agricultural Land Classification map sheet number 134 (provisional, scale 1:63360 (MAFF, 1969)), the area is shown as mainly grade 2 with smaller areas of grade 1 in the northern part of the site and grade 3 adjacent to Bury village.

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 typical altitude range of 3-6 m the annual average rainfall ranges from 570 mm (22.4") to 571 mm (22.5"). This data also indicates that field capacity days are 95 and moisture deficits are 124 mm for wheat and 120 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 To the north of Ramsey the land lies fairly level at approximately 3 m AOD. Between the cemetery and Meadow Lane the land falls gently from 6-3 m AOD whilst adjacent to Bury village the land rises from 3 m to 10 m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

Geology and Soils

2.3 The published ¼" to 1 mile scale drift edition geology map sheet 16 (Geological Survey of England and Wales 1931) shows the survey area to comprise alluvium and peat (north west of the disused windmill and south of Hollow Lane); boulder clay (running south east from Wood Lane); Oxford Clay and Kellaway Beds (due east of Ramsey) and a narrow strip of valley gravel adjacent to the cemetery.

2.4 The Soil Survey of England and Wales have mapped the soils in the Ramsey area at a reconnaissance scale of 1:250,000. This map, entitled "The Soils of Eastern England", shows the occurrence of three associations within the survey area:- mainly the Evesham 3 Association (*1) running south from Wood Lane, with smaller areas of Adventurers' 1 Association (*2) and Midelney Association (*3) north west of Wood Lane and south of Hollow Lane respectively. During this survey a more detailed inspection of the soils was carried out.

Five main soil types occur over the site.

2.4.1 To the north of Ramsey organic soils predominate. They typically comprise organic clay topsoils over organic or non-organic clay loams which generally overlie gleyed clays at depth. Often sand lenses are present in the lower horizons and occasionally clays may become calcareous at depths of 85/90 cm or more. The lower horizons are porous as a result of the presence of common or many reed channels. Laboratory pH values were found to lie between 6.2 and 8.

2.4.2 On Bury Fen, to the south of Ramsey deeper organic soil variants occur. These soils typically comprise organic clay topsoils over

(*1) Evesham 3 Association Slowly permeable calcareous clayey and fine loamy over clayey soils. Some slowly permeable and seasonally waterlogged non-calcareous clayey soils.

(*2) Adventurers' 1 Association Deep peat soils. Flat land, groundwater levels often controlled by ditches and pumps, some undrained areas. Risk of wind erosion.

(*3) Midelney Association Stoneless clay soils mostly overlying peat. Soils variably affected by ground water which is, in places, controlled by ditches and pumps. Flat land, risk of flooding locally.

peaty loam or organic clay loams which may overlie clay at depth (65-120 cm+). As for the soil types described above in paragraph 2.4.1 where the clay lower subsoil occurs the presence of many reed channels makes the clay permeable. Laboratory pH values lie between 5.8 and 7.4.

2.4.3 Adjacent to the disused windmill, cemetery, Wood Lane, Hollow Lane, dismantled railway and Bury village clayey soils predominate. The soils typically comprise non-calcareous heavy clay loam or clay topsoils over non-calcareous (often gleyed) heavy clay loam or clay subsoils which overlie gleyed clays at depth. The lower clay horizons may be calcareous where calcium carbonate nodules are present.

2.4.4 North of Wood Lane and Hollow Lane slightly or moderately droughty coarser textured soils (than those described above) predominate. The soils typically comprise heavy clay loam or medium clay loam topsoils over heavy clay loam or sandy clay loam subsoils which invariably merge into sandy clay loam, sandy loam or gleyed calcareous clay subsoils at depth. Where the lower subsoil textures are coarse stone content ranges from 5-30%.

2.4.5 On land lying on the western margins of Bury Fen soils similar to those described in paragraph 2.4.2 above occur. These soils however, typically comprise non-organic clay topsoils over organic clay subsoils which overlie organic heavy clay loams at depth.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The definition 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	%
1	33.8	29.5
2	13.3	12
3a	31.9	28
3b	23.4	20
Urban	2.6	2
Non-Agricultural	6.6	6
Agricultural buildings	2.9	2.5

3.3 Grade 1

To the north of Ramsey and on Bury Fen land has been graded 1. The land is associated with the two soil types described in paragraphs 2.4.1 and 2.4.2. The soils have good moisture retention characteristics and are well drained (wetness class I). Where gleying occurs in the subsoil clay the presence of common or many reed channels aids the drainage of water through the soil profile. This land has only very minor limitations to the agricultural use of it and as a result has been graded 1.

3.4 Grade 2

In the vicinity of the Abbey School and Wood Lane land has been graded 2. The land is associated with the slightly droughty profiles described in paragraph 2.4.4 above.

Typically the soils are well drained (wetness class I), although occasionally where topsoils are medium clay loams and subsoils overlie calcareous gleyed clays at depth the soils are moderately well drained (wetness class II). In the former example droughtiness is the chief limitation whilst in the latter example droughtiness and drainage constitute the major limitations to the ALC grade.

3.5 Subgrade 3a

3.5.1 Approximately 28% of the survey area has been graded 3a. This land is associated with the three soil types described above in paragraphs 2.4.3, 2.4.4 and 2.4.5.

3.5.2 Adjacent to the disused windmill, Wood Lane, the dismantled railway and Bury village the moderately droughty clayey soils, described in paragraph 2.4.3, occur. Soil profile pit observations indicate that these soils have slowly permeable horizons present at depth in the subsoil (40/50 cm+, ie wetness class II). The combination of moderate reserves of water, heavy topsoil textures and impeded drainage at depth restricts this land to subgrade 3a.

3.5.3 Running north from Hollow Lane moderately droughty* variants of the soil described in paragraph 2.4.4 occur. The coarse soil textures have a moderate limiting effect on the available water capacity of these soil profiles. As a result, the moderate droughtiness limitation excludes this land from grade 2.

3.5.4 On land lying on the western margins of Bury Fen the soils described in paragraph 2.4.5 occur. These soils hold good reserves of water and are freely draining (wetness class I). However the heavy topsoil textures imposes a moderate limitation on the agricultural potential of this land, therefore the land is restricted to subgrade 3a.

3.6 Subgrade 3b

Approximately 20% of the survey area has been graded 3b. The land is associated with the clayey soils described in paragraph 2.4.3 above. The subsoils are slowly permeable (wetness class III) and the topsoil textures heavy (eg clay). These two factors combine to impose a significant limitation on the agricultural potential of this land. Thus the land is restricted to subgrade 3b.

3.7 Non Agricultural

Recreational areas, rough grassland, woodland and allotments have been mapped as non-agricultural.

3.8 Urban

Residential and industrial buildings have been mapped as urban.

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* At a few locations less droughty variants of this soil type occur, however they cover too small an area to delineate separately.

References

GEOLOGICAL SURVEY OF ENGLAND AND WALES, 1931 Drift Edition Geology map sheet 16; scale ¼ "to 1 mile.

MAFF, 1969 Agricultural Land Classification Map Number 134, scale 1:63,360.

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

METEOROLOGICAL OFFICE 1989 Climatic Data extracted from the published agricultural climatic dataset.

SOIL SURVEY OF ENGLAND AND WALES 1983 'The Soils of Eastern England' Sheet 4, 1:250,000 scale.