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Cambs 16/89

AGRICULTURAL LAND CLASSIFICATION
LOWESTOFT AND NORTH WAVENEY LOCAL PLAN

1.0 INTRODUCTION

1.1 A survey was carried out on 16th May 1989 over two sites to the south west of Lowestoft in connection with the Lowestoft and North Waveney Local Plan Review. Site H is located to the south of Carlton Colville on Bloodmoor Hill, whilst site I is further to the south adjacent to Grange Farm.

1.2 A total of 23 inspections were made on area H using a dutch auger to a depth of 1.2m. On site I 14 inspections were made and in addition a soil pit was dug to examine subsoil conditions.

1.3 At the time of survey, the northern half of area H was supporting a winter barley crop and the southern half was under peas. On area I the land was supporting sugar beet, winter wheat and a small grass paddock.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climatic information for the site has been interpolated from the 5km grid data set provided by the Meteorological Office (Met Office, 1989). The average annual rainfall for the site is 604mm making this one of the drier parts of the country. The number of days at which the site is likely to be at field capacity is also relatively low at 112.

2.2 The accumulated temperature for this area is approximately 1420 degrees celsius and the soil moisture deficits for wheat and potatoes are 123 and 121 respectively.

2.3 There is therefore no overall climatic limitation to agricultural use on this land.

Relief

2.4 Site H is located on a broad ridge known as Bloodmoor Hill. The

northern half of the site falls gently to the north whilst the southern half is on the crest of the ridge. The altitude ranges from approximately 12m AOD on the ridge falling to approximately 7m adjacent to the built up area.

2.5 Site I is relatively level with local gentle undulations. The height of this area is approximately 15m AOD, and the fields are bounded by ditches.

Geology and Soils

2.6 Site H is located on the fluvioglacial sands and gravels of the area and supports two distinct soil types. The first on the northern slopes of the site has a loamy medium sand topsoil overlying a similar textured upper subsoil before passing into a stoneless medium sand. Occasionally there is no loamy sand upper subsoil, with the topsoil resting immediately over the medium sand.

2.7 On the crest of the ridge heavier textured soils were encountered. In some profiles chalky boulder clay was encountered, whilst in others, clayey horizons overlay coarser textures at depth. These soils generally had a sandy clay loam topsoil overlying a sandy clay loam or sandy clay upper subsoil which showed signs of ochreous mottling. Beneath this the textures generally became coarser, medium sandy loam or loamy medium sand although toward the east chalky boulder clay was found. The soil profiles were typically wetness class I or II.

2.8 Site I is located on the boulder clays and the soils reflected this geology. The topsoils were typically sandy clay loam with a few small and medium flints. The upper subsoil was generally a distinctly mottled sandy clay loam or heavy clay loam which was not considered to be slowly permeable, having a coarse subangular blocky structure. Beneath this, the lower subsoil had a clay texture, was prominently mottled and had a coarse angular blocky structure. In many cases chalk fragments were found at depth. At the north west corner of the site, the soils were slightly better drained with a slightly lighter textured in the upper subsoil.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The two sites have been graded using the criteria contained in the Agricultural Land Classification of England and Wales (MAFF 1988). A breakdown of the grades and areas of both sites is given below:

	Site H		Site I	
	ha	%	ha	%
Subgrade 3a	9.6	37.8	13.3	96.4
Subgrade 3b	15.8	62.2		
Urban			0.5	3.6
Total	25.4	100	13.8	100

Site H

3.2 The major limitation associated with this site is droughtiness. The light textured soils found on the northern slopes have been classified as subgrade 3b, whilst the heavier textured soils on the crest of the ridge have been graded subgrade 3a.

3.3 The severity of the droughtiness limitation was therefore assessed using the revised guidelines and criteria for grading agricultural land (MAFF 1988). Crop adjusted available water capacity (AP)* values were calculated for each sample profile using maincrop potatoes and winter wheat as reference crops, characteristic of a broad range of arable and horticultural crops. These AP values were then offset against the crop adjusted soil moisture deficit values described in para 2.2 to obtain moisture balance figures for wheat and potatoes. These moisture balance figures indicate the relative degree of the droughtiness limitation and relate directly to ALC grade, and hence the land has been graded as 3a and 3b.

* Ap is a measure of the quantity of water held in the soil profile which can be taken up by a specified crop. The water storage capacity of soil is influenced by texture, structure, organic matter content and stone content. Where rooting is impeded for chemical or physical land reasons, this is also taken into account.

Site I

3.4 The major limitation associated with this area is a wetness/workability limitation, although the north west corner of the site is limited by droughtiness (as above) and to a lesser extent wetness/workability during the wetter periods of the year.

3.5 The majority of the site has soils which have been assigned to wetness class III using the guidelines and criteria for grading agricultural land (MAFF 1988). This indicates that these soils will be wet within 70cm depth for a 3 to 6 month period and wet within 40cm for some 1 to 3 months. This wetness allied with the sandy clay loam topsoil will result in workability limitations and hence restrict the range of cropping. Consequently the land has been classified as subgrade 3a.

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References

MAFF (1988) Agricultural land Classification in England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

Meteorological Office (1989) Climatological data for Agricultural Land Classification.