

AGRICULTURAL LAND CLASSIFICATION

WHITE HOUSE FARM, KINGS LYNN, NORFOLK

1. BACKGROUND

1.1 The site, an area of 78.3 hectares, is the subject of an application for industrial development south of Kings Lynn, Norfolk. MAFF surveyed the site in February 1991 to assess the agricultural land quality.

1.2 On the published Agricultural Land Classification map sheet 124 (Provisional, Scale 1:63360, (MAFF 1972)) the majority of the site is shown as grade 2 with a smaller area to the north shown as grade 3.

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 mid range altitude (3m AOD) the average annual rainfall is 606mm (23.8"). This data also indicates that field capacity days are 116 and moisture deficits are 116mm for wheat and 111mm 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 survey area comprises a fairly level plateau which ranges in altitude from 2m to 4m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

Geology and Soils

2.3 The published 1:50,000 scale solid and drift edition geology map sheet 145 (Geological Survey of England and Wales 1978) shows the survey area to comprise mainly alluvium deposits with a central area of

'made ground'* adjacent to the river Nar.

- 2.4 The Soil Survey of England and Wales have mapped the soils in the area, most recently (1983), at a reconnaissance scale of 1:250,000. This map entitled "The Soils of Eastern England", shows the occurrence of mainly the Wisbech Association (*1) and smaller areas of the Blacktoft Association (*2) at the western edge of the site. During the current survey a more detailed inspection of the soils was carried out.

Three main soil types occur over the site.

- 2.4.1 The majority of the survey area is associated with clayey alluvial soils. They typically comprise heavy clay loam or occasionally clay topsoils over clay subsoils which may become calcareous at depth. Occasionally the clayey subsoils overlie calcareous medium silty clay loam or heavy silty clay loams at depth.
- 2.4.2 In the central part of the site, adjacent to the river Nar, lighter textured soils predominate. These soils typically comprise medium clay loam or occasionally heavy clay loam topsoils over medium clay loams (often calcareous), marine silts or occasionally heavy clay loams. Where upper subsoils are clay loams marine silts are encountered at depth. The marine silts and calcareous clay loam horizons are porous because of the presence of a dense network of coarse inter-linking biopores.

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Made Ground: includes man-made deposits of all types, ranging from rubbish tips and earth embankments (in the Kings Lynn Area) to the spoil from medieval salt workings (saltem mounds) at North and South Wootton.

(*1) Wisbech Association: Deep stoneless calcareous coarse silty soils. Groundwater usually controlled by ditches or pumps. Flat land with low ridges. Risk of wind erosion locally.

(*2) Blacktoft Association: Deep stoneless permeable calcareous coarse and fine silty soils. Flat land. Groundwater controlled by ditches and pumps.

2.4.3 Interspersed at the peripheries of the above two soil types is a transitional soil which is slightly heavier than the marine silt soils described in paragraph 2.4.2 above. The soils typically consist of medium clay loam or heavy clay loam topsoils over gleyed upper subsoils of calcareous medium clay loams or occasionally heavy clay loams. At depth profiles tend to overlie calcareous clays or clay loams. These soils are porous throughout due to the presence of a dense network of coarse inter-linking biopores.

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 breakdown of ALC grades for the survey area.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	23.5	30
3a	12.9	16.5
3b	40.4	51.5
Non Agricultural/ Urban/Agricultural Buildings	1.5	2
TOTAL	<u>78.3</u>	<u>100</u>

3.3 Grade 2

The central area of the site, adjacent to the river Nar, has been mapped as grade 2. This land lies in association with the marine silt derived soils (described in paragraph 2.4.2) and the lighter textured variant of the soils described in paragraph 2.4.3. Profile wetness class ranges from I to II depending on the depth at which gleying occurs. Profiles may be very slightly or slightly droughty depending on the presence or absence of marine silt horizons. Where profiles

overlie marine silts at great depth or not at all the land is slightly droughty. As a result this minor droughtiness imperfection restricts the land to grade 2. Elsewhere slight droughtiness and/or slight wetness restrictions alone exclude the land from a higher grade*.

3.4. Subgrade 3a

Adjacent to the railway line a small area of land graded 3a has been mapped. This land is associated with the better drained variant of the clayey soil described in paragraph 2.4.1 and the heavier textured variant of the soil described in paragraph 2.4.3. The profiles have a wetness class of II and the topsoil textures are relatively heavy (eg heavy clay loams), these factors combine to impose a moderate limitation on the agricultural potential of this land. Thus the land is restricted to subgrade 3a (good quality agricultural land).

3.5 Subgrade 3b

Over half of the site has been graded 3b and is associated with the clayey soils described in paragraph 2.4.1. The subsoils are slowly permeable (ie wetness class III) and the topsoils are non calcareous and heavy (eg heavy clay loams or clays). These factors combine to impose a significant limitation on the agricultural potential of this land. Thus the land is excluded from subgrade 3a.

3.6 Other Land

The dismantled railway, woodland; White House Farm and an electrical station have been mapped as Non Agricultural; Agricultural Buildings and Urban respectively.

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Resource Planning Group
Cambridge

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Pockets of grade 1 land occur sporadically within the grade 2 area, however they cover too small an area to delineate separately

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 more more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations will affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. When more demanding crops and 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 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 1978 Solid and Drift edition geology map sheet 145. 1:50,000 scale.

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

METEOROLOGICAL OFFICE 1989, Published climate data extracted from the ALC agroclimatic dataset, compiled by the Meteorological Office.

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

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GEOLOGICAL SURVEY OF ENGLAND AND WALES 1978 Solid and Drift edition geology map sheet 145. 1:50,000 scale.

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