AGRICULTURAL LAND CLASSIFICATION
LAND SOUTH OF WYBERTON WEST ROAD,
BOSTON, LINCOLNSHIRE

A D A S

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1. INTRODUCTION

1.1 This report provides detailed information on agricultural land quality of this 7.0 hectare site. The site was surveyed during October 1991 at an approximate auger boring density of two per hectare.

1.2 The Agricultural Land Classification provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can operate in one or more of four principal ways: they may affect the range of crops which can be grown, the level of yield, the consistency of yield and cost of obtaining it. The classification system gives considerable weight to flexibility of cropping, whether actual or potential, but the ability of some land to produce consistently high yields of a somewhat narrower range crops is also taken into account.

1.3 The principal physical factors influencing agricultural production are climate, site and soil. The main climate factors which are taken into account are temperature and rainfall, although account is also taken of exposure, aspect and frost risk. The site factors used in the classification system are gradient, micro relief and flood risk. Soil characteristics of particular importance are texture, structure, depth and stoniness. In some situations chemical properties may also influence the long term potential of land and are taken into account.

1.4 These factors result in varying degrees of constraint on agricultural production. They can act either separately or in combination, the most important interactive limitations being soil wetness and droughtiness. The grade or subgrade of land is determined by the most limiting factor present. Five grades of land are recognised ranging from Grade 1 land of excellent quality to Grade 5 land of very poor quality. Grade 3, which constitutes about half of the agricultural land in England and Wales is divided into two subgrades designated 3a and 3b.

1.5 Details of the Agricultural Land Classification (ALC) System are contained in MAFF's Technical Report "Revised guidelines and criteria for grading the quality of agricultural land". Description of the ALC grades and subgrades are provided in Appendix 1.

2. BACKGROUND TO THE SITE

2.1 On the Ministry's published 1:63360 scale provisional ALC Map (sheet No. 114, MAFF, 1974) the site is mainly graded 1 with a smaller area of urban to the north. Since this map is of a reconnaissance nature, designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed information on land quality for the site.

2.2 The site comprises two enclosures and recent cropping includes cereals, sugar beet and brassicas.

2.3 A total of 14 soil inspections were made over the site using a hand held 120 cm Dutch Soil Auger. These inspections were supplemented by observations from one soil profile pit.

3. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

3.1 Site specific climate data has been obtained by interpolating information contained in the 5km grid dataset produced by the Meteorological Office, (Met Office, 1989).

3.2 This dataset indicates that for the site's altitude of 3 m AOD the annual average rainfall is 590 mm (23.2"). Soils are likely to be at field capacity for a period of 112 days. During this time the timeliness of cultivations is important to avoid structural damage to the fine textured soils within the survey area.

3.3 The accumulated temperature for this area is approximately 1431 degrees Celsius. This parameter indicates the cumulative build-up of warmth available for crop growth and in conjunction with rainfall has an

influence on the development of soil moisture deficits (SMD)* and susceptibility to drought; soil moisture deficits of 119 mm and 115 mm are recorded for wheat and potatoes respectively.

3.4 The site is neither particularly exposed nor frost prone.

3.5 These climatic characteristics do not constitute a limitation to the agricultural land classification grade.

Altitude and Relief

3.6 The site comprises a level low lying area at an altitude of 3 m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

Geology

3.7 The published 1:250,000 small scale drift edition Geology Map sheet 12 shows the survey area to comprise marine deposits of alluvium, peat and fen silts.

Soils

3.8 The Soil Survey reconnaissance scale map (1:250,000) entitled "The Soils of Eastern England", shows the occurrence of the Tanvats Association (*1) within the survey area. During the current survey a more detailed inspection of the soils indicates that fine textured marine alluvium derived soils predominate on site. Two main soil types occur.

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* SMD represents the balance between rainfall and potential evapotranspiration occurring during the growing season. For ALC purposes the soil moisture deficits developing under a winter wheat and maincrop potato cover are considered. These 'reference' crops have been selected because they are widely grown, and in terms of their susceptibility to drought, are representative of a wide range of crops.

(*1) Tanvats Association : deep stoneless fine and coarse silty and clayey soils with groundwater controlled by ditches and pumps. Flat land.

3.8.1 The majority of the soils typically comprise heavy silty clay loam topsoils over silty clay upper subsoils. At depth, namely 70/80 cms+, soils become lighter and variably comprise heavy silty clay loams, medium silty clay loams or fine sandy silt loams.

3.8.2. The remainder of the site, to the north and east, comprises a lighter variant of the soils described in paragraph 3.8.1. Profiles generally consist of medium silty clay loam topsoils over silty clay upper subsoils. At shallower depths than the soils described above, namely 65/75 cms+, subsoils become lighter. Textures are typically marine silts or medium silty clay loams.

4. AGRICULTURAL LAND CLASSIFICATION

4.1 The majority of the survey land is graded 3a with a smaller area of grade 2 to the north and east. A precise breakdown of the ALC grades in hectares and % terms is provided below.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	1.8	26.0
3a	4.8	68.5
Non Agricultural	0.1	1.5
Urban	0.3	4.0
TOTAL	7.0	100.0

Grade 2

4.2 A small area adjacent to the northern and eastern peripheries of the site is graded 2. Topsoils are medium silty clay loams and profile pit observations indicate that the gleyed clayey subsoils are permeable. Thus the wetness class is assessed as II. This slight drainage imperfection combines with the relatively light topsoils to impose a minor limitation to the ALC grade. Consequently the land is restricted to grade 2. (very good quality agricultural land).

Subgrade 3a

4.3 The majority of the site is graded 3a. (good quality agricultural land). These profiles are also assessed as wetness class II but the land is restricted to a lower grade because topsoils are heavier and less easily worked during the wetter seasons. Thus drainage and workability limitations combine to impose a moderate limitation on the flexibility of this land for agricultural cultivations.

Non Agricultural

4.4 A narrow strip of woodland appears as Non Agricultural.

Urban

4.5 Houses and associated land have been mapped as Urban.

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ADAS
Cambridge Regional Office

References

GEOLOGICAL SURVEY OF GREAT BRITAIN, 1971.
Drift edition geology sheet 12, 1:250,000 scale

MAFF, 1974. Agricultural Land Classification Sheet 114
Provisional. 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. Published climatic data extracted from the
agroclimatic dataset, compiled by the Meteorological Office.

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

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 or more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. When more demanding crops are 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 arable 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 3a - 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.

Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yield of which are variable. In most climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 - very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.