

## AGRICULTURAL LAND CLASSIFICATION

### LAND AT MARKET DEEPING, LINCS

#### 1. BACKGROUND

- 1.1 The site, an area of 56.4 hectares, is the subject of an application for Residential, Ancillary and Office Development. MAFF surveyed the site in June 1990 to assess the agricultural land quality using the Revised ALC system (MAFF, 1988).
- 1.2 On the published Agricultural Land Classification map sheet number 123 (Provisional, scale 1:63,360 (MAFF 1969)) the majority of the area is shown as grade 2 except for a thin strip at the southern boundary which is shown as grade 3.

#### PHYSICAL FACTORS AFFECTING LAND QUALITY.

##### Climate

- 2.1 Climatic data for the site was obtained from the published agricultural climatic dataset (Met. Office 1989). This indicates that for the site's median altitude (5m AOD) the annual average rainfall is 570 mm (23.3"). This dataset also indicates that field capacity days are 102 and moisture deficits are 121 mm for wheat and 117 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 The survey site lies fairly level at an altitude of 5m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

## Geology and Soils

- 2.3 The published 1:50,000 scale drift edition geology map sheet 158 (Peterborough) shows the majority of the site to comprise first river terrace deposits with a small area of alluvium in the south east corner of the survey area.
- 2.4 The Soil Survey of England and Wales have mapped the survey site at a reconnaissance scale of 1:250,000 in 1983. This map shows the occurrence of the Badsey 2 Association (\*1). During the current survey a more detailed inspection of the soils was carried out. Three main soil types occur over the site.
- 2.5.1 The most extensively occurring soil type is freely draining (Wetness Class I) with fine loamy textures over stony material at depth. Typical profiles comprise heavy clay loam or occasionally medium clay loam topsoils over heavy clay loam subsoils which often become medium clay loam or sandy clay loams from 60/70 cms. These subsoils either, directly overlie gravelly material\* from 80 cms, or overlie a moderately stony (20% flints) medium sandy loam or sandy clay loam which may become gravelly 110 cm+. Occasionally gleyed horizons occur but they are too narrow to form a slowly permeable layer.
- 2.5.2 The second soil type is more droughty than the soil described in paragraph 2.5.1 and occurs in the vicinity of the filter bed. These soils are freely draining (Wetness Class 1) and profiles typically comprise heavy clay loam topsoils over heavy clay loam subsoils which became slightly stony sandy clay loam from 50/55 cms. These either directly overlie gravelly material\* or moderately stony (20%) medium sandy loams (from 55/70 cm) which became gravelly 80 cm+.
- 2.5.3 Finally, a less well drained soil (Wetness Class II) occurs along the southern boundary of the site. Profiles typically comprise heavy clay loam topsoils over clay or occasionally heavy clay loam

(\*1) BADSEY 2 ASSOCIATION. Well drained calcareous fine loamy soils over limestone gravel. Some similar soils affected by groundwater.

\* Gravelly material contains 50% flints and limestone fragments within a loamy medium sand matrix. This matrix often becomes medium sand at depth.

subsoils which become gleyed clays from 45/60 cm. Occasionally these soils overlie gravel at 100 cm+. Profiles are non calcareous throughout.

#### 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 A.L.C. grades for the survey area.

#### AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	30.9	54.8
3a	24.6	43.6
Urban	0.9	1.6
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TOTAL	56.4	100
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#### 3.4 Grade 2

The majority of the site has been mapped as grade 2 and is associated with the soils described in paragraph 2.5.1. The presence of stony material at depth reduces the water available for deeper rooting crops and as a result a slight droughtiness limitation prevails. The relatively heavy topsoil textures impose slight restrictions on the workability of this land. Therefore slight droughtiness and workability imperfections exclude the land from a higher grade.

3.5 Subgrade 3a

Two areas of subgrade 3a have been mapped;

- 3.5.1 In the vicinity of the filter bed, subgrade 3a land is associated with the soils described in paragraph 2.5.2. These soils overlie stony material at a moderate depth,\*\* this stoniness reduces the moisture reserves available to the crops growing on this land. As a result moderate droughtiness excludes the land from a higher grade.
- 3.5.2 The second area of subgrade 3a is associated with the soils described in paragraph 2.5.3. Soil profile pit observations indicate that these soils have slowly permeable layers from 45/60 cm (ie Wetness Class II). Soil wetness combines with the non calcareous fine loamy topsoils to impose moderate wetness and workability imperfections to the ALC grade. Thus, this land is restricted to subgrade 3a (good quality agricultural land).

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\*\* Occasionally gravelly material occurs from 45 cm leading to significantly droughty profiles which are grade 3b, but these areas are too small 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 to 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 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.

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.

## References

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1984). Solid and Drift Edition  
Geology Map No 158 Scale 1:50,000.

MAFF 1969, Agricultural Land Classification Map Number 123

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

METEOROLOGICAL OFFICE 1989. Climatic Data extracted from the Agricultural  
climatic dataset.

SOIL SURVEY OF ENGLAND AND WALES 1983. "The soils of Eastern England" sheet  
4, 1:250,000 scale.