Cambs 56/90

AGRICULTURAL LAND CLASSIFICATION

BARROWBY LOW ROAD EXTENSION, LINCOLNSHIRE

1. BACKGROUND

1.1 The site, an area of 28.4 hectares, forms part of the South Kesteven Local Plan south of the village of Barrowby, Lincolnshire. MAFF surveyed the site in November 1990 to assess the agricultural land quality.

1.2 On the published small scale Agricultural Land Classification map sheet 113 (Provisional, Scale 1:63360 (MAFF, 1974)), the area is shown mainly as grade 2 with an area of grade 1 to the west and smaller pockets of grade 3 to the north and south east.

1.3 The western part of the site has been surveyed in detail more recently, in 1980 and 1982, in connection with earlier planning applications. The abandoned allotment gardens area was mapped as mainly grade 1 with a small area of grade 2 adjacent to the eastern edge. The area lying south of the housing has been graded mainly 1 with a small area of grade 2 outcropping at the eastern extent of this area.

1.4 The whole of the site was resurveyed in 1990 to acquire the necessary information to grade the area using the 1988 Revised ALC System. This current survey confirms the grades identified to the west in the previous surveys (1980 & 1982).

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 (of 87 m AOD) the annual average rainfall is 624 mm (24.6"). This data also

indicates that field capacity days are 131 and moisture deficits are 104 mm for wheat and 94 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 land falls gently eastwards from Westry Corner (90 m AOD) to the A1 road (84 m AOD). The land lies fairly level between the Low Road and the A1 slip road (to the north) dipping slightly to traverse the drain east of Reedings Close. A valley feature with slopes ranging from 5-7° extends westwards from the A1 road in the south east corner of the site. 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 127 (Geological Survey of England and Wales 1972) shows the survey area to comprise mainly Middle Lias Clay with a smaller deposit of Marlstone Rock (ferruginous oolitic limestone, ironstone and calcareous sandstone) to the west.

2.4 The Soil Survey of England and Wales have mapped the soils in the Barrowby area at a reconnaissance scale of 1:250,000. This map entitled "The Soils of Eastern England", shows the occurrence of mainly the Denchworth Association (*1) with a smaller deposit of the Banbury Association to the west. During the current survey a detailed inspection of the soils was carried out.

(*1) Denchworth Association: Slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils. Some fine loamy over clayey soils with only slight seasonal waterlogging and some slowly permeable calcareous clayey soils.

(*2) Banbury Association: Well drained brashy fine and coarse loamy ferruginous soils over ironstone. Some deep fine loamy over clay soils with slowly permeable subsoils and slight seasonal waterlogging.

Two main soil types occur over the site.

2.4.1 The western third of the site typically comprises very slightly stony medium clay loam or sandy clay loam topsoils over very slightly stony (sandy) clay loam or sandy clay loam subsoils which often become slightly stony at depth 75/80 cm^{+}. Stones generally comprise small and very small ironstone fragments.

Slight variants of this soil type occur:

2.4.1 a) A stonier variant outcrops to the east of the abandoned allotment gardens area. Topsoil stone content typically exceeds 5% ironstone fragments and profiles overlie ferruginous gravelly material at depth, namely 95/100 cm^{+}

2.4.1 b) To the south of the site adjacent to the A1 road these soils overlie finer lower subsoils (namely heavy clay loams) at depth 60 cm^{+}.

2.4.2 Over the remainder of the site soils are better bodied and typically comprise medium or heavy clay loam topsoils over gleyed clayey subsoils. Profiles are non calcareous throughout.

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	9.1	32
2	10.6	37
3a	4.5	16
3b	4.2	15
TOTAL	28.4	100

3.3 Grade 1

To the west, the site has been graded 1. The land is associated with the soils described in paragraph 2.4.1. Profiles are freely draining and hold high reserves of available water. This land has only very minor limitations so it is capable of sustaining a very wide range of agricultural and horticultural crops. Yields are high and less variable than on land of lower quality.

3.4 Grade 2

Two main situations occur

3.4.1 The majority of the grade 2 land is associated with the soils described in paragraph 2.4.1b). Soil profile pit observations indicate that the subsoils are slowly permeable at depth 60 cm^{+} (ie wetness class II). Topsoil textures are light; typically comprising medium clay loams or sandy clay loams. As a result these two factors combine to impose a slight limitation on the agricultural potential of this land. Thus the land is restricted to grade 2. (Very good quality agricultural land).

3.4.2 Adjacent to the housing, where the stonier soil variant outcrops, (described in paragraph 2.4.1a)) this land has also been graded 2. Topsoil stone content exceeds 5%; as a result these stones slightly impede root development and cultivation operations. The level of crop yield will be generally high but may be lower or more variable than grade 1.

3.5 Subgrade 3a

Land graded 3a lies in association with the lighter variant of the soils described in paragraph 2.4.2. Topsoils are typically medium clay loams and profiles are slowly permeable in the subsoil namely 35 cm^{+} (ie wetness class III). This land is consequently limited by moderate wetness and workability imperfections which derive from the reduced subsoil permeability combined with the fine loamy topsoil textures. These factors restrict the land to subgrade 3a. (good quality agricultural land).

3.6 Subgrade 3b

The remainder of the site, namely to the north and in the valley feature to the south east, has been mapped as subgrade 3b. The soils comprise the heavier soil variant described in paragraph 2.4.2. The subsoils are slowly permeable (wetness class III) and the topsoils are non calcareous and relatively heavy (eg heavy clay loams). These factors combine to impose a significant limitation on the agricultural potential of this land. Thus the land is excluded from subgrade 3a.

FEBRUARY 1991

Resource Planning Group
Cambridge RO

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.

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 yields 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 GREAT BRITAIN 1972 Solid and Drift edition Geology Sheet No 127 1:50,000.

MAFF 1974. Agricultural Land Classification Map Sheet 113 (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. 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.