FOR DIVISIONAL USE ONLY

AGRICULTURAL LAND CLASSIFICATION

LAND AT RACKHEATH (SITE 4)

1. BACKGROUND

1.1 In conjunction with the Norwich Local Plan, Agricultural Land Classification (ALC) information was requested for 8.2 ha of land at Rackheath (Site 4). The land was surveyed in October 1989.

1.2 The published 1:63 360 ALC map, sheet 126 (Provisional), (MAFF 1972) shows the survey area to be grade 3. These maps however, are inappropriate for detailed, site-specific appraisals as they are essentially reconnaissance in nature. The current survey was undertaken to provide detailed ALC information for the area.

1.3 The site comprises only one enclosure and the land was under arable use (winter cereals) at the time of survey.

1.4 A total of 10 soil inspections were made on a 100m grid basis giving an intensity of inspection of approximately 1 per ha. Soils were sampled to a depth of 120 cms using a hand held Dutch soil auger, and data obtained were supplemented by observations from a soil profile pit.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Rackheath lies in an area of relatively low rainfall by national standards, with an estimated average annual rainfall for the site of 644mm (Met Office, 1989). This is relatively evenly distributed throughout the year with a slight spring minimum in the months of February to May (MAFF, 1984). This dryer period aids spring

cultivations but may also lead to drought stress on light textured soil variants typical of those occurring in the Rackheath area.

2.2 Rackheath has an estimated growing season of 248 days extending from late March to late November (MAFF 1984). Meteorological Office data interpolated for the site indicates that soils are likely to be at field capacity for a period of 125 days, and soil moisture deficits are estimated as 116 mm for wheat and 111 mm for potatoes.

2.3 The site is neither particularly exposed nor frost prone.

2.4 Climate itself is not limiting to agricultural land quality. However, the interaction of climate with soil texture in this relatively dry area results in the soil variants at this site being susceptible to drought.

Altitude and Relief

2.5 The site is level to very gently sloping and lies at an altitude of approximately 30m, falling very slightly to the south east (less than 1°).

2.6 Altitude and gradient place no limitation on agricultural land quality.

3. GEOLOGY AND SOILS

3.1 The published 1:250 000 solid geology map "East Anglia", sheet 52°N - 00°W (British Geological Survey , 1985) shows the survey area to be underlain by Upper Chalk (Cretaceous).

3.2 The site lies immediately to the east of the 1:50 000 series, solid and drift edition geology map (sheet 161), (Geological Survey of GB, 1975). This maps the drift geology of the adjoining area as glacial sands and gravels (Pleistocene and Recent). The current survey

confirmed the continuation of these deposits which are overlain by aeolian drift.

3.3 The 1:250 000 soils map "Soils in Eastern England" maps the presence of the Wick 2 Association* over the site.

3.4 The current survey confirmed the presence of deep, well-drained, coarse loamy soils and two soil variants were identified.

3.4.1 In the southern half of the site, typical profiles comprise very slightly stony sandy silt loam topsoils overlying sandy loam upper subsoils which extend to an average depth of 70 cms. These either directly overlie sand, or loamy sand becoming sand at depth.

3.4.2 Soils in the north of the site show only slight variation from those in the south, and typically comprise very slightly stony sandy silt loam topsoils over similarly textured upper subsoils. A narrow band of sandy loam may or may not be present before moderately stony sandy loam or sandy clay loam is encountered at approximately 65 cms. This proved to be impenetrable to the hand auger, but soil profile pit observations indicate that this horizon overlies loamy sand and sand at depth.

3.5 The drainage status of both soil variants occurring on this site is assessed as wetness class I and this does not impose a limitation to agricultural land quality.

3.6 The coarse loamy textures and stony horizons of the soils described in paragraphs 3.4.1 and 3.4.2 result in a low available water capacity for both soil types. This coupled with the low annual average rainfall of the Rackheath area, results in the soils being slightly susceptible to drought. This factor constitutes the chief limitation to agricultural use.

* Wick 2 Association: Deep well-drained coarse loamy soils, often stoneless. Some similar soils with slowly permeable subsoils and slight seasonal waterlogging.

4. AGRICULTURAL LAND CLASSIFICATION

4.1 The site has been graded using the Revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). Under this system, land is graded according to the degree to which physical or chemical characteristics impose long-term limitations on agricultural use.

4.2 Definitions of the Agricultural Land Classification grades are included in Appendix 1.

4.3 The table below shows the breakdown of ALC grades for the land at Rackheath (Site 4).

	ha	%
Grade 2	7.7	93.9
Non-agricultural	0.5	6.1
Total	8.2	100

5. GRADE 2

5.1 Grade 2 land is associated with the soils described in paragraphs 3.4.1 and 3.4.2 and was identified over the entire site. Land of this quality is excluded from grade 1 by minor drought constraints. Although these do not affect the flexibility of cropping, they are likely to result in slightly reduced yields in most seasons.

6. NON-AGRICULTURAL

6.1 A small area of non-agricultural land has been identified and comprises a small pond and surrounding scrub.

November 1989

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 or 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 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 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 crop.

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

MAFF, 1972 : Agricultural Land Classification Map No 126, Scale 1: 63 360.

METEOROLOGICAL OFFICE, 1989: Climatological Data for Agricultural Classification.

MAFF, 1984 : The Agricultural Climate of England and Wales, Reference Book 435, HMSO, London.

GEOLOGICAL SURVEY OF ENGLAND AND WALES, 1975 : Solid and Drift Edition Geology Map No 161 "Norwich" Scale 1: 50 000.

SOIL SURVEY OF ENGLAND AND WALES, 1984 : Soils of Eastern England - Sheet No 4, Scale 1:250 000.

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