

**AGRICULTURAL LAND
CLASSIFICATION**

**A134/B1106 FORNHAM ST MARTIN (E/92/2507/P)
AND
EAST OF A134 AND NORTH OF B1106, TIMWORTH (E/92/2612/P)**

CONTENTS

- 1.0 THE MAFF AGRICULTURAL LAND CLASSIFICATION SYSTEM
- 2.0 BACKGROUND TO THE SITE
- 3.0 PHYSICAL FACTORS AFFECTING LAND QUALITY
 - 3.1 Climate
 - 3.5 Altitude and Relief
- 4.0 GEOLOGY AND SOILS
- 5.0 AGRICULTURAL LAND CLASSIFICATION
 - A134/B1106 Fornham St Martin (E/92/2507/P)**
 - 5.2 Grade 2
 - 5.3 Subgrade 3b
 - 5.4 Non Agricultural
 - East of A134 and north of B1106, Timworth (E/92/2612/P)**
 - 5.5 Subgrade 3b
- 6.0 SUMMARY

REFERENCES

ANNEX 1

1.0 THE MAFF AGRICULTURAL LAND CLASSIFICATION SYSTEM

- 1.1 The MAFF Agricultural Land Classification (ALC) system assesses land quality based on its long term physical potential. Land is assigned to an ALC grade according to the degree to which its inherent physical characteristics impose long term limitations on agricultural use.
- 1.2 The main physical factors which are taken into account in assessing ALC grade are climate, site and soil. These may act singly, or in combination to result in varying degrees of constraint on agricultural production. The ALC grade is determined by the most limiting factor present.
- 1.3 Five main grades of land are recognised ranging from grade 1 land of excellent quality to grade 5 land of very poor quality. Other issues, such as the location of farms, the standard of fixed equipment and the accessibility of land do not affect grading although they may influence land use decisions. The definitions of the five ALC grades are included in Annex 1.

2.0 BACKGROUND TO THE SITES

- 2.1 The two sites, of 4 ha and 2.2 ha were inspected in July 1994. A total of 8 auger borings were made on the sites supplemented by information from a soil inspection pit and previous data collected in 1987. At the time of the survey the land was under wheat and spring oilseed rape.
- 2.2 On the provisional 1 inch to 1 mile published ALC map sheet 136 (MAFF 1972), the area is shown as grade 3. 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.
- 2.3 A reconnaissance level survey was carried out in August 1987 which overlaps the site to the west of the A134. The present survey was carried out in more detail to accurately assess the land quality on both sites using the revised ALC guidelines (MAFF 1988).

3.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 3.1 Site specific climate data has been obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office (Met Office, 1989).
- 3.2 This shows that the Fornham St Martin area has an average annual rainfall of approximately 595 mm which is low by national standards. Soils are at field capacity for a relatively short period of about 110 days.
- 3.3. The accumulated temperature for this area is approximately 1409° days. This parameter gives an indication of the cumulative build up of warmth and in conjunction with rainfall influences the development of soil moisture deficits (SMD)* and hence susceptibility to drought. The soil moisture deficits for wheat and potatoes are calculated as 114 mm and 108 mm respectively.
- 3.4. These climatic characteristics do not impose any climatic limitations on the ALC grading of the site.

Altitude and Relief

- 3.5. The land forms a gently undulating plateau at an altitude of 40 m to the north of the B1106. Gradient and altitude do not constitute limitations to the ALC grade.

4.0 GEOLOGY AND SOILS

- 4.1. The published 1:50,000 scale solid and drift edition geology map sheet shows the survey area to comprise periglacial cover sand over glacial boulder clay. The underlying solid geology is Upper Chalk.

* SMD represents balance between rainfall and evapotranspiration which occurs during the growing season. For ALC purposes the SMD's 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.

- 4.2 The Soil Survey of England and Wales mapped the area in 1983 at a reconnaissance scale of 1:250,000. The map indicates that the soils are derived from the periglacial cover sand deposits and have been mapped as the Newport 4 Association (*1). The current detailed soil survey identified two main soil types which relate to the depth of the cover sand over the boulder clay deposits.
- 4.3. The majority of the soils comprise slightly stony, medium sandy loam topsoils over slightly stony loamy medium sand subsoils. The topsoils and upper subsoils are often calcareous due to liming activities.
- 4.4. On the western site (E/92/2507/P) small pockets of better bodied soils are encountered. Typically profiles comprise very slightly stony medium sandy loam topsoils over very slightly stony medium sandy loam or sandy clay loams. The lower subsoils tend to consist of sandy clay loams or clay loams with common chalk and (occasional flint) fragments. Stone contents in this layer are typically in the range of slight to moderate.

5.0 AGRICULTURAL LAND CLASSIFICATION (refer to ALC map)

- 5.1. The definition of the Agricultural Land Classification (ALC) grades are included in Annex 1. The sites are graded mainly 3b with small areas of 2 and non agricultural land to the west. A full description of the ALC grades mapped on site is provided in paragraphs 5.2 to 5.5.

A134/B1106 Fornham St Martin (E/92/2507/P)

Grade 2

- 5.2 Small areas to the north and south west are shown as grade 2. This land is associated with the soils described in paragraph 4.4. Wetness class has been assessed as I because there is no evidence of impeded drainage in the profile. The presence of fine and coarse loamy textures, and chalk stones at depth, have a slight limiting effect on the available water for crop growth. Consequently, slight droughtiness is the main limitation to the ALC grade.

(*1) **Newport 4**: Deep well drained sandy soils. Some very acid soils with bleached subsoil horizons especially under heath or woodland.

Subgrade 3b

- 5.3 The majority of the site has been mapped as subgrade 3b and is associated with the lighter textured, droughty soils described in paragraph 4.3. The coarse textures and slight profile stone combine to significantly limit the amount of moisture available for the crop. This droughtiness impediment constitutes the chief limitation to the ALC grade and restricts the land to subgrade 3b.

Non-Agricultural

- 5.4 The site of the old B1106 and an area of associated scrub have been mapped as non agricultural land.

East of A134 and north of B1106, Timworth (E192/2612/P)

Subgrade 3b

- 5.5 The whole of the site has been mapped as subgrade 3b and is associated with the lighter textured droughty soils described in paragraph 4.3. The coarse textures and slight profile stone combine to significantly limit the amount of moisture available for the crop. This droughtiness impediment constitutes the chief limitation to the ALC grade and restricts the land to subgrade 3b.

6.0 SUMMARY: AGRICULTURAL LAND CLASSIFICATION

Land at Fornham St Martin (refer to Agricultural Land Classification Map)

- 6.1 The sites are predominantly graded 3b with small areas of 2 and Non Agricultural land to the west. A breakdown of land quality in hectares and percentages is provided below.

AGRICULTURAL LAND CLASSIFICATION

A134/B1106 Fornham St Martin (E192/2507/P)

Grade	ha	%
2	1.2	30
3b	2.6	65
Non Agricultural	<u>0.2</u>	<u>5</u>
TOTAL	4.0	100

AGRICULTURAL LAND CLASSIFICATION

East of A134 and north of B1106, Timworth (E192/2612/P)

Grade	ha	%
3b	<u>2.2</u>	<u>100</u>
TOTAL	2.2	100

- 6.2 Details of the MAFF agricultural land classification system, the methodology used and the chief limitations to agricultural land quality are provided in sections 1.0 to 5.0 of this report.

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1982). Solid and Drift geology map sheet 189, Scale 1:50,000.

MAFF (1972). Agricultural Land Classification sheet 136, 1:63360 scale.

MAFF (1988). Agricultural Land Classification of England and Wales. Revised Guidelines and Criteria for Grading the quality of Agricultural Land. Alnwick.

METEOROLOGICAL OFFICE. Data extracted from the published agroclimatic dataset.

SOIL SURVEY OF ENGLAND AND WALES (1983). Map entitled 'Soils of Eastern England'. Sheet 4, 1:250,000 Scale.

ANNEX 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 include 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 crops. The level of yields 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. Where 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 winter 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 levels 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.