

FOR DIVISIONAL USE ONLY
AGRICULTURAL LAND CLASSIFICATION

LAND AT WESTHILL FARM, BRACKLEY, NORTHANTS.

1. BACKGROUND

1.1 The site, an area of 18.4 ha, is the subject of an application for residential development at Westhill Farm, Brackley, Northamptonshire. MAFF surveyed the site in January 1989 to assess the agricultural land quality.

1.2 On the published Agricultural Land Classification map sheet no.146 (Provisional, Scale 1:63360 (MAFF 1968)) the area is shown as grade 3. The current survey was undertaken to provide a more detailed ALC of the site.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was obtained from a recently published agricultural climatic dataset. (Met Office 1989). This indicates that for a mid range altitude of 125m (occurring near the centre of the site) the average annual rainfall is 676mm (26.6"). This data also indicates that field capacity days are 151 and moisture deficits are 99mm for wheat and 89mm for potatoes. Climate is not a limitation to the ALC grade.

Altitude and Relief

2.2 The land slopes gently* or very gently across the site ranging in altitude from 110 to 145m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

* maximum gradients of 5^0 were recorded using a Suunto hand held optical reading clinometer.

Geology and Soils

2.3 A published geology map covering the site is not available. However the Soil Survey of England and Wales Bulletin No.13 (1984) indicates that the soils west of Brackley are typically derived from Jurassic & Eocene Limestone deposits upslope and Jurassic and Cretaceous Clay deposits downslope. Their reconnaissance scale (1:250,000) map entitled "The Soils of Eastern England", shows the occurrence of two soil associations within the survey area:- the Aberford Association (*1) covering the northern half of the site (ie. upslope) and the Denchworth Association (*2) covering the southern half. During this survey a more detailed inspection of the soils was carried out.

Two main soil types occur over the site.

2.3.1 Typically at the southern and north eastern ends of the site the soils chiefly comprise heavy clay loam topsoils over clay subsoils. Profiles are very slightly stony throughout; the stones chiefly comprise medium subangular limestone fragments.

2.3.2 Interspersed with the soils described in the paragraph above (2.3.1) calcareous soils occur which overlies impenetrable limestone rock. Depth to the rock varies with location. Topsoils are typically very slightly stony and at depth subsoils tend to be moderately stony. The stones comprise small and medium subangular limestone fragments. Topsoil textures are similar to those described in paragraph 2.3.1 and subsoils typically comprise heavy clay loams or occasionally clays.

(*1) Aberford Association: Shallow, locally brashy, well drained calcareous fine loamy soils over limestone. Some deeper calcareous soils in colluvium.

(*2) Denchworth Association: Slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils. Some fine loamy over clayey with only slight seasonal waterlogging and some slowly permeable calcareous clayey soils. Landslips and associated irregular terrain locally.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions 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	%
2	1.6	9
3a	11.6	63
3b	5.2	28

3.3 Grade 2

Two small areas at the site have been mapped as grade 2.

3.3.1 The larger area, at the northern end of the site, is associated with well drained variants (wetness class 1) of the soils described in paragraph 2.3.1. At depth these soils overlie clays or clay loams which contain common lenses of weathered limestone. Topsoils are typically heavy clay loams; as a result the minor texture limitation restricts this land to grade 2.

3.3.2 The smaller area of grade 2 land is associated with less stony variants of the soils described in paragraph 2.3.2. These soils are well drained (wetness class 1) and at depth subsoils tend to be slightly stony. Where sampled, impenetrable limestone rock does not lie within 120cm of the surface. Topsoils are heavy clay loams; as a result the minor topsoil texture limitation excludes this land from grade 1.

3.4 Subgrade 3a

The majority of the site has been graded 3a.

3.4.1 Approximately half of this land comprises the moderately droughty** soils described in paragraph 2.3.2 above. The occurrence of limestone

** At a few locations, too small to delineate at this scale, less droughty variants of this soil occur.

fragments throughout the soil profile has a moderate limiting effect on the available moisture capacity of this soil. As a result droughtiness is the major limitation to the ALC grade.

3.4.2 The remainder of the 3a land lies in association with the soils described in paragraph 2.3.1. At depth these soils overlie gleyed clays which are slowly permeable, as a result the soil wetness class was assessed as II. The moderate soil wetness limitation restricts this land to subgrade 3a.

3.5 Subgrade 3b

At the southern end of the site land has been graded 3b.

3.5.1 This land lies in association with the soils described in paragraph 2.3.1. At shallow depths these soils overlie gleyed clays, as a result the soil wetness class was assessed as III or IV (depending on the depth to gleying). The significant soil wetness limitation excludes this land from subgrade 3a.

Resource Planning Group
Farm & Countryside Service
Cambridge RO

Appendix 1

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. 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 a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

References

MAFF, 1968. Agricultural Land Classification Map Sheet 146, 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. Climatic 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.

SOIL SURVEY OF ENGLAND AND WALES 1984. 'Soils and their Use in Eastern England' Bulletin No.13. Harpenden.