Cambs 107/93

AGRICULTURAL LAND CLASSIFICATION

LAND AT GODSONS HILL FARM, MARKET BOSWORTH, LEICESTERSHIRE

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1.0 BACKGROUND

1.1 The survey site is being considered as a golf course proposal. ADAS Resource Planning Team surveyed the site in September 1993 to assess the agricultural land quality at an auger boring density of approximately 1 boring per hectare. These borings were supplemented by three soil inspection pits in order to assess subsoil conditions.

1.2 At the time of the survey the site was covered by grass and woodland.

1.3 On the published Provisional 1:63,360 scale Agricultural Land Classification Map, sheet number 121 (MAFF 1971) the area is mapped as grade 3 with woodland shown as non-agricultural. 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.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was extrapolated from data in the published Agricultural Climatic Dataset (Meteorological Office 1989). This indicates that the average annual rainfall for the site is 672 mm (26.9"). This data also indicates that the field capacity days are approximately 155 with moisture deficits of 97 mm for wheat and 86 mm for potatoes. These characteristics do not impose any climatic limitation on the ALC grade of the survey site.

Altitude and Relief

2.2 The majority of the survey area comprises a gentle west facing slope with slightly steeper slopes surrounding the hill in the southeast. The site has a maximum altitude of 120 m AOD and a minimum altitude of 93 m AOD. Neither gradient nor altitude impose a limitation to ALC grade.

Geology and Soils

2.3 The published 1:50,000 scale Solid and Drift edition geology map sheet 155, Coalville, (Geological Survey of England and Wales, 1982) shows the site to comprise Mercia Mudstone which outcrops in the northeast of the site and is elsewhere covered by drift deposits. Glacial boulder clay is stratigraphically the lowest drift deposit and outcrops in two bands either side of the Mercia Mudstone. Overlying this, covering the majority of the site is Quaternary glacial lake clay. The higher ground in the southeast of the site is covered by later deposits of glacial sand and gravel. In the north of the site, adjacent to the stream alluvium has been deposited.

2.4 The Soil Survey of England and Wales have mapped this area at a reconnaissance scale of 1:250,000 and this map indicates the occurrence of three soil associations within the survey area (SSEW 1983). The most extensive association is the Salop Association (*1) which occurs in the west of the site in conjunction with the glacial lake clay deposits and alluvium. In the east, overlying the Mercia Mudstone and glacial boulder clay, Beccles 1 Association (*2) is mapped. Soils of the Beccles 3 Association (*3) are shown in the southeast corner of the site, in conjunction with the glacial sand and gravel.

2.5 The current more detailed field survey also identified three main soil types, however these observations indicate that coarser textured soils occur on the steeper slopes of the hill in the southeast of the site.

2.6 The lightest textured coarser soils are found in the southeast of the site in association with the glacial sand and gravel deposits. Typically these soils comprise

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(*1) Salop Association - slowly permeable seasonally waterlogged reddish fine loamy over clayey, fine loamy and clayey soils associated with fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.

(*2) Beccles 1 Association - slowly permeable seasonally waterlogged fine loamy over clayey soils, associated with similar clayey soils.

(*3) Beccles 3 Association - slowly permeable seasonally waterlogged fine loamy over clayey soils and similar soils with only slight seasonal waterlogging. Some calcareous clayey soils especially on steeper slopes.

medium sandy loam textures overlying loamy medium sand subsoils which become medium sand with depth. In some profiles loamy medium sand may be encountered again below 90 cm. Stone content is typically very slight (5%), throughout the profile although it may increase slightly (up to 10%) below the topsoil. These soils are well drained (wetness class I) but are limited by droughtiness.

2.7 To the east of the woodland in the centre of the site, soils typically consist of medium clay loam topsoils over medium clay loam or sandy clay loam subsoils which become heavy clay loam and eventually slowly permeable clay at depths of between 50/70 cm. Wetness class is assessed as III.

2.8 The majority of the site has heavier textured soils corresponding to those of the Salop Association. Typically these soils comprise clay loam topsoils over clay subsoils which are slowly permeable directly below the topsoil and are therefore assessed as wetness class IV.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The distribution of Agricultural Land Classification (ALC) grades is shown in the table below. The definitions of the ALC grades are included in Appendix 1.

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Grade	Ha	%
2	3.6	5.7
3a	3.7	5.9
3b	52.3	83.0
Non-Agricultural	3.4	5.4
TOTAL	63.0	100.00

Grade 2

3.2 This occurs in the southeast of the site corresponding to the sandy textured profiles described in paragraph 2.6. These light textured profiles impose a minor limitation on the water reserves available for crop growth and as a result this land is excluded from grade 1.

Subgrade 3a

3.3 This occurs in two areas. Firstly on the hill top in the southeast of the site, it is associated with the lightest textured and stonier variant of the soils described in paragraph 2.6. Profile stone content in combination with the light textures result in droughtiness imperfections restricting the land to subgrade 3a.

3.4 Secondly, in the east of the site land graded 3a is associated with the soils described in paragraph 2.7. These soils have medium clay loam topsoils and show evidence of wetness in the lower subsoil (wetness class III). This factor, in combination with topsoil texture restricts the land to subgrade 3a on wetness and workability grounds.

Subgrade 3b

3.5 The majority of the site has been mapped as subgrade 3b and corresponds with the poorly drained clayey soils described in paragraph 2.8. These profiles have slowly permeable horizons directly below the topsoil (wetness class IV). The heavy topsoil textures and poor drainage combine to generate a moderate wetness and workability imperfection which limits the land to subgrade 3b.

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1982. Solid and Drift Edition. Sheet 155, Coalville. Scale 1:50,000.

MAFF 1971. Agricultural Land Classification Map Sheet 121. Provisional. Scale 1:63,360.

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

METEOROLOGICAL OFFICE 1989. Published data extracted from the agroclimatic dataset, compiled by the Meteorological Office.

SOIL SURVEY OF ENGLAND AND WALES 1983. Sheet 3, Soils of Midland and Western England. Scale 1:250,000.

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 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 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.

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.