White Hills, Northants

AGRICULTURAL LAND CLASSIFICATION

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DAVENTRY DISTRICT LOCAL PLAN
LAND AT WHITEHILLS, NORTHAMPTON

1.0 INTRODUCTION

1.1 An Agricultural Land Classification (ALC) survey was carried out over approximately 49.4 ha of land at Whitehills, Northampton in connection with the Daventry Local Plan. The site is located between the A50 and A508 roads on the northern boundary of the Whitehills district of Northampton. The northern boundary of the site comprises a minor road joining the two roads referred to above.

1.2 The western part of the site is owned by Northampton County Council and the majority of this area is farmed by Mr Smith of Westview Farm with the small field at the north-west farmed by Mr Garett of Rectory Farm. Westview Farm has a mixed cropping regime comprising potatoes, onions, soft fruit, cane fruit, asparagus and brassicas together with cereals and oilseed rape. The whole of this 27 ha holding has irrigation potential provided from a borehole with two butyl lined storage tanks. Mr Smith indicates that he has an 870,000 gallon licence of right which has proved sufficient for his requirements since 1959.

1.3 The small field at the north-west together with the field at the northeast of the site which are farmed by Mr Garett do not have irrigation potential and at the time of survey were supporting cereal stubble and linseed respectively.

1.4 The small field at the southeast of the site was under rough grass at the time of survey with no evidence of recent cropping.

1.5 A total of 43 observations were made using a spade and dutch auger to a depth of 1.2 m unless prevented by impenetrable stone. In addition two soil pits were dug to help assess the subsoil conditions in greater detail.

1.6 The whole area has been mapped on the 1:63,360 scale ALC map (MAFF, 1974) as Grade 3.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climatic information for the site has been interpolated from the 5 km grid dataset produced by the Meteorological Office (Met Office, 1989). The average annual rainfall for the site is 617 mm and the number of days that the soils are likely to be at field capacity is 128.

2.2 The accumulated temperature for the area is approximately 1380 degrees Celsius. This parameter indicates the cumulative build up of warmth available for crop growth and in conjunction with rainfall has an influence on the development of soil moisture deficits and susceptibility to drought. The moisture deficits for wheat and potatoes on this site are 108 and 98 respectively.

2.3 There is no overall climatic limitation to the agricultural use of the land, although soils with low available water capacities will be susceptible to drought.

Relief

2.4 The site generally slopes from east to west, with the altitude ranging from 114 m AOD in the east to approximately 70 m in the west. Slopes are relatively gentle over the site and nowhere exceed 5^{o}. Relief does not therefore impose any limitation on ALC grading.

Geology and Soils

2.5 The geology of the site has been mapped by the Geological Survey (Geol Surv, 1980) and is shown to comprise Jurassic deposits. The western end of the site is underlain by the Upper Lias which is mainly mudstones with thin limestone and shales at the base. The whole central portion of the site, which forms the majority of the site, is shown as Northampton Sands, which consist of ferruginous sandstones and sandy limestones. At the eastern end of the site the Lower Estuarine series has been mapped, with Upper Estuarine series just to the east of the site. These comprise a complex of sands and sandstones in the case of the former and limestones clays and marls in the case of the latter.

2.6 The soils of the site have been mapped on the 1:250,000 scale soil map by the Soil Survey of England and Wales (Soil Surv, 1984) as the Banbury Association. These are shown to comprise fine and coarse loamy ferruginous soils over ironstone. The map also shows a narrow band of the Denchworth Association at the extreme western edge of the site.

2.7 The soils found during the current survey correlated well with the above although no evidence of the Denchworth soils was found at the western end of the site.

2.8 Three distinct soil types were mapped with the majority of the site correlating well with the Banbury series. These soils have a brown medium sandy loam topsoil over a strong brown medium sandy loam, medium clay loam or sandy clay loam subsoil, which in some profiles became sandy at depth. Stone contents in the soils varied considerably with some profiles having very stony subsoils (sandstone and limestone), whilst other profiles were stonefree. Topsoil stone contents were generally in the range 5-10% small subangular limestones and sandstones although some areas were notably stonier.

2.9 The two other soil types were found at the eastern end of the site with the extreme southeast corner of the site comprising slowly permeable clayey soils, whilst to the north and west sandy soils were mapped.

2.10 The slowly permeable clayey soils have a dark grey brown clay topsoil which was slightly mottled and very wet overlying a light greyish brown strongly mottled clay subsoil. The soils were stonefree throughout, with the subsoil being considerably drier than the topsoil indicating the slowly permeable nature of the subsoil.

2.11 The small area of sandy soils found at the eastern end of the site have a brown medium sandy loam or loamy medium sand topsoil overlying a loamy medium sand subsoil becoming sandier with depth. The stone content of these soils tends to be variable across the area.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The site has been classified using the guidelines contained in the Agricultural Land Classification of England and Wales (MAFF 1988). A breakdown of the grades found is given below:

Grade	Area	%
2	24.7	50
3a	18.5	37
3b	5.8	12
Agricultural buildings	0.4	1
Total	49.4	100

Grade 2

3.2 Half of the site has been mapped as Grade 2 and comprises the soils which correlate with the Banbury series. These soils have a moderately high available water capacity where the stone contents are relatively low. However, where subsoil stone contents restrict the amount of available water to the crops thereby limiting the soil to Grade 3a potential, then irrigation facilities available, which have proved sufficient for the current cropping regime, allow the land to be upgraded to Grade 2.

3.3 The small field at the north west of the site which does not have irrigation potential however has deep coarse loamy soils with a generally low stone content. These soils therefore qualify for Grade 2 without the need for irrigation.

Grade 3a

3.4 The area of land mapped as Grade 3a at the western end of the site comprises shallow coarse loamy soils over sandstone/limestone. These soils have a moderately severe droughtiness limitation and the moisture balance calculated indicates that they are of Grade 3b potential, but with the irrigation facilities available they have been upgraded to Grade 3a.

3.5 The area of Grade 3a mapped at the east of the site comprises both the variably stony coarse loamy soils and the deep stonefree sandier soils. This area has no irrigation potential and the calculation of the moisture balance figures indicate that these soils are moderately droughty and therefore restricted to Grade 3a potential.

Grade 3b

3.6 Three areas of Grade 3b have been mapped. At the south-eastern corner of the site the slowly permeable clayey soils were mapped which have a moderately severe wetness limitation. At the time of survey the topsoils were waterlogged and very soft, indicating the slowly permeable nature of the subsoil. This wetness limitation will therefore limit the time period when these soils can be worked without causing severe structural damage and limit the cropping potential of this land.

3.7 The largest area of Grade 3b mapped represents both shallow stony soils and very sandy soils without irrigation potential. These soils are very droughty and this was evident in the state of the linseed crop which was thin in this area.

3.8 A small area of Grade 3b has been mapped to the south of Westview Farm. This area is on the shallow brashy soils, which although is irrigated has been limited due to the stone content in the topsoil. Topsoil stone contents in this area were measured as 25% in the 2-6 cm size range thereby limiting the area to Grade 3b at best.

Agricultural buildings

3.9 A small area of agricultural buildings has been delineated at Westview Farm, which comprises house, farm buildings and a farm shop.

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AGRICULTURAL LAND CLASSIFICATION MAP

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