4105/022/92

ADAS

FOOD, FARMING, LAND & LEISURE

AGRICULTURAL LAND CLASSIFICATION
HOUNDEAN FARM, LEWES, E.SUSSEX

RECONNAISSANCE SURVEY

AGRICULTURAL LAND CLASSIFICATION - RECONNAISSANCE

HOUNDEAN FARM, LEWES, EAST SUSSEX

1. BACKGROUND

1.1 The 105 hectare site lies to the west of Lewes along the A277, Brighton Road. The site is bounded to the north, north east and west by a disused racecourse and associated woodland, to the east, south and south west by field boundaries and to the south east by woodland.

1.2 The area was surveyed on 18th March 1992. Numerous slope measurements were made together with 15 auger samples being taken in areas where slopes were less than 7°. In addition 2 soil pits were dug to enable more detailed soil description. Also aerial photographs were used to assist in the final site evaluation.

Land Use

1.3 At the time of the survey, the parts of the site that were in agricultural use were under winter cereals. Large areas of the site were either scrub or woodland.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Relief

2.1 The altitude of the site varies between 30m AOD and 140m AOD, the higher land being towards the north of the surveyed area.

The site comprises a dry periglacial drainage channel. Much of the land either side of the centre is steeply sloping (>7°) such that gradient is a limitation in terms of agricultural land quality in parts of this site.

Climate

2.2 Estimates of climatic variables were obtained by interpolation from a 5km grid database (Met. Office 1989) for representative locations in the survey area, a selection of which are shown below:-

Climatic Interpolation

Grid Reference	TQ396099	TQ387108	TQ385119
Altitude (m AOD)	30	90	140
Accumulated Temperature Days (°days Jan-June)	1501	1432	1375
Average Annual Rainfall (mm)	865	909	943
Moisture Deficit (wheat - mm)	108	99	91
Moisture Deficit (potatoes - mm)	102	90	81
Field Capacity Days	181	188	193

2.3 Climatic factors per se place no limitation on agricultural land quality in this area, but they can affect the interaction of soil factors with the climate, namely wetness and droughtiness.

Geology and Soils

2.4 The British Geological Survey (B.G.S.) sheets 318 and 319, Brighton and Worthing (1984, 1:50000 series) and Lewes (1979, 1:50000 series) respectively, show much of the area to be underlain by Cretaceous Upper and Middle Chalk, the central valley area being the exception. This is underlain by Quaternary Bourne deposits or Head, described as a brown flinty silt loam by B.G.S. (1984).

2.5 The Soil Survey of England and Wales (SSEW), Sheet 6 (1:250000, 1983) Soils of South East England, shows the site to comprise soils of the Andover 1 Association described in SSEW Bulletin 15 (1984) "a variably flinty and chalky brown rendzina over chalk, varying to a fine silty typical brown calcareous earth where

chalky drift occurs on footslopes and valley floors and an extremely calcareous loamy grey rendzina where steep slopes are cultivated".

2.6 Field examination indicates that there are two soil types at this site. The most common throughout the site comprises a medium silty clay loam topsoil around 25 cm depth with a varying stone content from 5% to 25% v/v flints, many of which are between 2 and 6 cm. This overlies a similarly textured subsoil with a high stone or chalk content, ie. flints near the top becoming more chalky with depth, over solid chalk impenetrable (to soil auger) between 30 and 60 cm.

2.7 The less extensive soil type comprises a heavy silty clay loam topsoil with a variable flint content, up to 18% v/v, overlying a medium to heavy silty clay loam subsoil, often stony, up to 35% v/v (20% >6 cm), but more commonly around 10% flints and 10% chalk. This horizon either becomes heavier with depth, extending to 120 cm, or more chalky until wholly chalk between 75 and 80 cm.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The ALC grading of this site is determined by slope gradients, topsoil stone content and interactions between climate and soil factors, namely wetness and droughtiness. ALC grades of 3a, 3b and 4 were noted and a breakdown of these in terms of area is given below.

Grade	Area (ha)	% of Total Agricultural Land
3a	18.0	23.2
3b	51.8	66.7
4	7.9	10.1
Total site Area = 105 ha		100.0

Non Agricultural Area = 27.3 ha (of which woodland = 16.4 ha and scrub = 10.9 ha)

3.2 Appendix 1 gives a generalised description of the grades and subgrades identified in this study.

Grade 3a

3.3 Land in this grade occupies 18 ha (23.2%) of the site, occurring in 4 areas. The profiles sampled consist of a slightly to moderately stony (up to 17% flints, 12% 2>cm) highly calcareous heavy silty clay loam topsoil overlying either similarly textured or lighter medium silty clay loam stoneless to moderately stony highly calcareous upper subsoil. This either overlies chalk between 40 and 80 cm, or a very slightly stony heavy silty clay loam penetrable to 120 cm. Soils in this grade are limited by a variety of factors. The most common is the heavy nature of the topsoil. Although profiles are well drained (Wetness Class I) this places land in grade 3a due to the high number of Field Capacity Days (181-193) at this site. Other limitations include droughtiness where chalk is encountered at shallow depth and stones in the topsoil (10-15% >2cm).

Grade 3b

3.4 Land of this grade occupies 51.8 ha (66.7%) of the site. Extensive areas are graded as such because of slope, being between 7° and 11°, particularly on the western and northern valley slopes. Where gradients are less than 7°, profiles typically include slightly to moderately stony (5-25% v/v, max 25% >2 cm) medium or heavy silty clay loam topsoil either directly over pure chalk, or a narrow subsoil layer (c. 5 cm) of a similar texture to the topsoil with a high chalk content passing to pure impenetrable chalk. Profiles of this nature are limited to this grade by droughtiness and/or high topsoil flint content.

Grade 4

3.5 Land of this quality makes up the final 7.9 ha (10.1%) of the agricultural area of the site. The area consigned to this grade has a slope in excess of 11° and occurs in 4 isolated parts of the site.

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