AGRICULTURAL LAND CLASSIFICATION

WINCH HILL FARM, OFF DARLEY ROAD, DARLEY HALL, HERTFORDSHIRE

1. INTRODUCTION

1.1 An Agricultural Land Classification (ALC) survey of the 72.2 ha site was undertaken on behalf of MAFF in May 1995, using guidelines contained in MAFF publication : Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (MAFF, 1988).

1.2 The survey was undertaken using a hand held dutch auger and soils were sampled at 100 m grid intersections to 120 cm depth or an impenetrable layer if closer to the surface. Subsoil conditions were assessed from three inspection pits and stone contents by riddling techniques.

1.3 On the provisional 1:63 360 scale ALC map Sheet 147, the site has been mapped as grade 3. The map is of a reconnaissance nature designed specifically for use in strategic planning. The current survey was undertaken to provide more detailed site specific information on ALC grades.

1.4 At the time of the survey the land was under beans at various stages of growth.

2.0 *PHYSICAL FACTORS AFFECTING LAND QUALITY*

Climate

2.1 Climate data for the site was interpolated from data published in the Agricultural Climatic Dataset (Meteorological Office, 1989). This indicates that for an average site altitude of 130 m AOD the average annual rainfall is 667 mm (26.3"), while the accumulated temperature (ATO) is 1344 days °C.

The field capacity days are 134, and moisture deficits for wheat and potatoes are 104 mm and 95 mm respectively. These climatic characteristics do not impose any climatic limitation to the ALC grading of the land.

Altitude and Relief

2.2 The site comprises a series of dry valleys running east/west, with areas of moderately steep slopes (7.5°-9°) and gently sloping interfluves. The altitude of the site ranges from a maximum altitude of 142 m AOD in the north and the centre of the site, to 120 m AOD in the valley bottoms. Where moderately steep slopes occur, on the valley sides, the land is limited to subgrade 3b.

Soils and Geology

2.3 The only geology map for the area is the 1:253 440 scale map of solid geology (Geol. Surv., 1909) which shows the area to comprise Clay with Flints over Cretaceous Chalk, with Chalk exposed to the west.

2.4 The soils have been mapped on two occasions at two different scales. The older, 1:63 360 scale map shows the site to comprise the Batcombe Association (*1). The smaller scale (1:250 000) map shows the central and northern parts of the site to comprise the Hornbeam 2 Association (*2), with the Batcombe Association (*1) occurring to the south.

(*1) Batcombe Association: Fine silty over clayey and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained clayey soils over chalk. Variably flinty.

(*2) Hornbeam 2 Association: Deep fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained fine loamy and fine silty over clayey and clayey soils. Some soils very flinty.

The current detailed field survey identified three main soil types.

2.5 The first soil type occurred mainly to the northern and western boundaries, to the east and west of the farm and in the central valley area.. Profiles typically comprise calcareous slightly stony silty clay loam topsoils over moderately stony calcareous clay subsoils or occasionally slightly stony soft weathered chalk. The soils are well drained with no evidence of gleying and have been assessed as wetness class I. Impenetrability was occasionally encountered at 50/70 cms depth due to a thick band of large flints which impeded the auger.

2.6 The second soil type occurred mainly in the eastern/central part of the site. Profiles typically comprise calcareous, moderately stony heavy clay loam topsoils over calcareous, moderately stony clay upper subsoils which merge into slightly stony clay lower subsoils. Gleying occurred at 30/40 cm and the soils were assessed as wetness class III.

2.7 The third soil type occurred in part of the north and in the south. Profiles typically comprise calcareous moderately stony silty clay loam topsoils over moderately stony calcareous clay subsoils or occasionally slightly stony soft weathered chalk. The soils are well drained and have been assessed at wetness class I. Impenetrability was frequently encountered at 50/70 cms depth due to a thick band of large flints.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The breakdown of Agricultural Land Classification (ALC) grades in hectares and percentage terms in shown in the table overleaf.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
3a	25.7	35.6
3b	41.3	57.2
Non Agricultural	0.6	0.8
Woodland	1.7	2.4
Agricultural Buildings	2.0	2.8
Urban	0.9	1.2
TOTAL	72.2	100.0

The definitions of ALC grades are shown in Appendix 1.

Subgrade 3a

3.2 Land graded subgrade 3a has been mapped along the northern and western boundaries, to the east and west of Winch Hill Farm, in the valley bottom and on the gentler slopes of the interfluve to the north of the farm. The land with slightly stony (10-15% flints) topsoils described in paragraph 2.5 are limited to subgrade 3a by the presence of common topsoil flints. These cause wear and tear on machinery and limit to a certain extent the nutrient supply to crops and ability for seeds to germinate. Consequently the land is excluded from a higher grade.

Subgrade 3b

3.3 Over half of the site has been mapped as subgrade 3b and encompasses all three soil types. In places the land is restricted to subgrade 3b due to the presence of moderately steep slopes which measure in excess of 7°. Elsewhere where the land is less steep the topsoil stone is in excess of 15% which causes a significant limitation on the flexibility of the land for arable cropping. The presence of stones hinders seed germination, nutrient supply and may cause considerable damage to cultivation machinery. Consequently the land is precluded from a higher grade.

Non Agricultural

3.4 There are three small areas of land near to the farm buildings which appear to be abandoned or derelict.

Woodland

3.5 This comprises three small areas of woodland:- a coniferous plantation on the eastern boundary, another on the western boundary and a broadleaf woodland area on the central north western boundary.

Agricultural Buildings

3.6 The farm buildings occupy both sides of the road. A few are in use, with the remainder, including houses, being derelict.

Urban

3.7 The area mapped as urban consists of a minor road which traverses the western/central part of the site in a north south direction.

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Resource Planning Team
ADAS Cambridge

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES, 1907. Sheet 16, Drift Edition. Scale 1:253 440.

MAFF 1969. Agricultural Land Classification map sheet 147. Provisional. Scale 1:63 360.

MAFF 1988. Agricultural Land Classification of England and Wales. Revised Guidelines and Criteria for Grading the Quality of Agricultural Land. MAFF, London.

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SOIL SURVEY OF ENGLAND AND WALES, 1965. Soils of Bedford and Luton Sheet 147. Scale 1:63 360.

SOIL SURVEY OF ENGLAND AND WALES, 1983. Sheet 4, Eastern England Scale 1:250 000.