Cambs 78/89

AGRICULTURAL LAND CLASSIFICATION

COURTEENHALL, NORTHAMPTONSHIRE

1.0 INTRODUCTION

1.1 Land on this 153 hectare site was inspected during January 1990, in connection with a proposed office development, country park and extension to minerals working. A total of 123 soil inspections were made on site at 100m intervals supplemented by information from 4 soil profile pits. At the time of survey the land was in an arable rotation, typical crops including oilseed rape, wheat and barley.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Relief

2.1 The site is located in an open V shaped valley feature which carries a tributary to the River Nene. The highest ground at 100 metres AOD occurs in a watershed location in the far southeast corner of the site. The lowest ground at 71 metres AOD occurs in the flood plain to the north of the site. The site has an overall northeasterly aspect although moderate falls (up to 4°) also occur from the valley slopes towards the tributary stream. This stream flows diagonally (SW-NE) across the southern half of the site and effectively forms the eastern and northern boundary in the north.

Climate

2.2 Site specific climate data has been extrapolated from the 5 km grid dataset compiled by the Meteorological Office (Met Office, 1989). This shows average annual rainfall to be 635 mm (25.4") which is low by national standards. Soils are likely to be at field capacity for a relatively short period of 127 days.

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2.3 The accumulated temperature for this data is approximately 1389° celsius. This parameter indicates the cumulative build up of warmth available for crop growth and has an influence on the development of soil moisture deficits. These are 107 mm and 99 mm for wheat and potatoes respectively.

Geology and Soils

2.4 The geology of this area is mapped on the 1:63,360 scale geology map sheet number 202. This shows the drift geology of the site to comprise of river alluvium in the valley bottom, with glacial sands and gravels to the north of Courteenhall and glacial boulder clay drift to the south.

2.5 Detailed field survey observations broadly support this description, but identify smaller areas of predominantly clayey soils in the vicinity of the 75m contour in the north of the site. Three main soil types have been identified on site:

2.6 Within the floodplain of the tributary stream soils have developed in deep deposits of alluvium and typically comprise of clay or occasionally clay loam overlying clay at shallow depth. Profiles are typically mottled below the topsoil and are assessed as wetness class III.

2.7 On the sloping land north of Courteenhall soils have mainly developed from deposits of sand and gravel (although some mixing with adjacent clayey soils has occurred locally). In general terms soils comprise of medium loamy (sandy clay loam/clay loam) textures to 40-50 cm, overlying clay, which may in turn overlie hoggin at depth. Occasionally medium loamy textures extend to depth. These soils are mainly assessed as wetness class II.

2.8 On the sloping ground south of Courteenhall soils have principally developed from boulder clay drift which is now decalcified in upper horizons. Soils in these areas typically comprise of medium or heavy clay loam topsoils overlying clay or clay loam subsoils which may extend to depth or overlie chalky boulder clay below depths of 45 cm. Soils in these areas are mainly assessed as wetness class II, although

areas of soils with wetness class III status were noted south of the plantation at SP764550 and in a smaller area east of Collingtree Lodge (SP756549).

2.9 A small area of calcareous clayey soils was noted in the vicinity of Miller's plantation (SP 757540) in the south west of the site.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The site is mainly graded 3a and 3b with smaller areas of grade 2, and non agricultural land. A breakdown of ALC grades in hectares and percentage terms is provided below:

ALC	Hectares	Percentage
2	17.3	11.3
3a	54.6	35.7
3b	44.7	29.3
Urban	7.3	4.8
Non Agric	15.8	10.3
Mineral working	13.1	8.6
Total	152.8	100.0

Grade 2

This is mapped in two main situations:

3.2 In the north of the site it occurs in areas of moderately deep medium loamy soils, derived from sand and gravel (see paragraph 2.7). Land of this type is limited by minor winter wetness and summer droughtiness imperfections.

3.3 To the south of Courteenhall grade 2 land is mapped in areas of slightly lighter textured, better drained (wetness class II) soils, derived from the underlying boulder clay drift (see paragraph 2.8). Generally profiles comprise of medium clay loam topsoils overlying clay loam upper subsoils, which overlie clay and chalky boulder clay drift below 45-55 cm depth. Land in these areas is limited by min or winter wetness imperfections.

Grade 3a

3.4 This occurs extensively where soils have developed from boulder clay drift. In general terms soils comprise of heavy clay loam topsoils overlying clay upper subsoils below 30 cm. Although wetness class is principally assessed as II, the slightly heavier topsoil texture in these areas result in the land being subject to slightly more severe workability imperfections than land graded 2.

Grade 3b

3.5 This is mapped extensively in areas of alluvial soils along the valley bottom (see paragraph 2.6) and in areas of heavy soils on the mid to upper slopes where drainage status is mainly assessed as wetness class III (see paragraph 2.8). Land in this grade is limited by moderate wetness and workability imperfections, and require more careful management.

3.6 Although land in the floodplain was believed to be subject to occasional flooding, this was not considered to be an overriding limitation to land quality in this area.

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