AGRICULTURAL LAND CLASSIFICATION

LAND AT EAST BURNHAM, SLOUGH, BUCKS

1. INTRODUCTION

1.1 Land on this 53 ha site was inspected between 17 and 19 Janaury 1989 in connection with proposals to work the land for sand and gravel.

1.2 43 auger borings were made over the site together with a number of soil inspection pits. At the time of survey the majority of the land was under grass with winter cereals in OS 5967 and OS 6978. An area bounded by Allerds Lane to the north and Crow Piece Lane to the west was not surveyed. The majority of this latter area currently has the benefit of planning permission for the working of sand and gravel and soil movements have occurred. A further area (OS 1339) at the extreme south east corner of the site was not surveyed since it is understood that the soils have also been wholly or partially stripped.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

2.1 Climate

The site lies in an area of relatively low rainfall by national standards with a site adjusted value of 688 mm (Mmet. office, 1989). The warmth of this part of Buckinghamshire is reflected in the accumulated temperature 1456 day degrees (Met. Office 1989). The site is expected to have around 143 field capacity days, a measure of the climatic wetness. Moisture defecits of 109 mm and 103 mm for wheat and potatoes respectively are anticipated (Met. Office 1989). The site is unlikely to be particularly exposed but a risk of frost may occur within the valley lying east of Huntswood Farm. Climatic factors per se place no limitation on the agricultural land quality of the site.

2.2 Relief

The majority of the site lies at altitudes close to 50 m MOD. The site is part of a gently undulating gravel plateau. A valley has cut through this plateau to the east of Huntswood Farm and in addition a small upper subsiduary valley to this forms a gentle depression within the block of land north of Allerds Lane associated with Leys Farm. Minimum altitudes on the site are about 40 m A.O.D within the valley immediately south of Hunts Wood and rise to around 55 m A.O.D along Crow Piece Lane at the northern extremity of the site. Maximum gradients measured on the site were 5^{o} within the valley east of Hunts Wood. However the majority of the area has gradients of 1^{o}-3^{o}. Relief and gradient are therefore not factors directly influencing land quality on the site.

2.3 Geology and soils

The published geology maps for the site (Geol Surv. Eng. and Wales 1948; I.G.S, 1978) indicate that the site overlies Boyn Hill River gravels overlying Reading Beds. The Boyn Hill Terrace comprises a complex series of gravels and sands deposited by the Thames and its tribuaries in former times. Detailed survey of the site confirms that the majority of the area comprises gravel deposits. However, within the valley east of Hunts Wood the Reading Beds (clays and sands) are believed to be exposed. At one location within this valley the base of the clay became increasingly chalky suggesting that the basal deposit of Upper Chalk was not far beneath.

2.4 Soils on the site can be conveniently split into three groups. Firstly are shallow stony fine sandy silt loams, sandy silt loam or medium clay loam topsoils overlying a stony subsoil of similar texture which typically passes into gravel below about 40-50 cm. At some locations coarser sandy textures replace the gravel. Secondly are clay loam (occasionally fine sandy silt loam) topsoils overlying clay or heavy clay loam subsoils. These are believed to be associated with the Reading beds formation and drainage status is variable depending upon location. This is partly related to a seepage zone or spring line which occurs sporadically at the junction between the Reading Beds and the

overlying and more permeable terrace gravels. Such areas of wetness are apparent in the valley east of Hunts Wood where the solid geology is exposed. The third group of soils comprises more mixed types intermediate between the shallow stony soils and the clays. These are mainly found east of Crow Piece Lane and are typically medium clay loams or medium silty clay loams overlying similar textured or slightly coarser sandy clay loam upper subsoils before passing into sandy clay, silty clay or clay lower subsoils which may be gravelly. At some sampling locations inpenetrable gravel was encountered at 70-90 cm. Drainage and stone content of these soils was variable.

2.5 A small area of land within OS 6978 has previously been worked for sand and gravel and has been restored to existing levels.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The ALC grading of the site is based on soil factors or interactions between soil and climate, namely wetness or droughtiness. A breakdown of the area and extent of the grades is indicated below:

	ha	% of agricultural area surveyed
Grade 2	1.55	4
3a	10.07	27
3b	23.15	63
4	2.18	6
Not surveyed	12.4	
Woodland	3.15	
Non Agricultural	0.15	
Total	52.65	

Grade 2

3.2 Land of this quality is confined to the valley lying to the southeast of Hunts Wood. The associated soils are believed to be developed on the Reading Beds formation and comprise heavy clay loam or medium clay loam topsoils overlying clay or heavy clay loam subsoils. They fall within

wetness classes I or II and are limited by minor workability and/or wetness constraints.

Sub-Grade 3a

3.3 Subgrade 3a land is mapped immediately west of Crow Piece Lane and within a shallow valley feature extending to the east of the lane. The associated soils are variable in nature, but mainly comprise slightly stony (up to 10-15%) sandy silt loams or medium clay loams overlying similar or increasingly sandy subsoils. Lower subsoil horizons may either be of clay, sand and gravel or hoggin. The soils resting over sand and gravel and hoggin are typically wetness class I with drought-risk and stone content forming the main agricultural limitations. However, where slowly permeable clayey subsoil horizons occur soils are wetness class II or III and consequently a wetness/workability limitation may also apply. A small area of restored land is also mapped within this unit (see para 2.5).

Sub-Grade 3b

3.4 Land of this quality occurs extensively on the site and is associated with shallow stony (15-35% by volume) soils having fine sandy silt loam, sandy silt loam or medium clay loam topsoils which overlie increasingly stony subsoils of similar texture. Gravel (or occasionally sand) is typically encountered within 40-50 cm. These soils are free draining (wetness class I) but limited by a high stone content and risk of drought.

Grade 4

3.5 Grade 4 land is confined to an area of spring/seepage in the valley east of Hunts Wood. Soils typically comprise fine sandy silt loam or medium clay loam topsoils overlying gleyed and slowly permeable clays subsoils. At one location impenetrable gravel was encountered beneath the topsoil. This area is believed to occur at the junction between the permeable terrace gravels and the underlying less permeable clays of the Reading Beds, and where a perched water table issues at the surface. Satisfactory underdrainage of this area is unlikely to be achieved by normal management operations since it would necessitate the construction

of a new ditch system to provide adequate outfalls. This is unlikely to be economic given the relatively small area of land involved and the difficulty of spot-draining springs and wet flushes. Consequently this area is likely to remain within wetness class V in the long term and be appropriately placed in grade 4 due to the wetness limitation, and the difficulty of satisfactory improvement at economic cost.

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Sources of Reference

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