

AGRICULTURAL LAND CLASSIFICATION OF LAND AT VALLEY PARK,

CHANDLER'S FORD, HAMPSHIRE

Background

The site covers approximately 79.99ha and lies west of Chandler's Ford in Hampshire. The site is bounded along its northern edge by Tredgoulds Copse, Sky's Wood and Knight Wood. The site is bounded to the east by a new B road, to the south by Castle Lane and to the west by Great Covert.

The site was surveyed using a Dutch auger with samples being taken at approximately 100m intervals.

Land use

At time of survey (December 1988), all the survey area was under grass except for one field of forage crop adjacent to Knightwood Farm.

Physical Factors Affecting Land Quality

Relief

The site varies in altitude from 25 to 51m A O D. Gradient was not a significant factor in relation to agricultural land quality at this site.

Climate

The average annual rainfall for this area varies from 815mm at 25m A O D to 821mm at 51m A O D. Soils are at field capacity for on average 172 to 175 days/annum (at 25 and 51m A O D respectively). The median accumulated temperature above 0 degrees C for January to June varies from 1526 degree days at 25m A O D to 1495 degree days at 51m A O D. Moisture deficits adjusted for wheat range from 109mm to 106mm/annum and for potatoes, between 103 and 99mm/annum (at 25 and 51m A O D respectively). Climate was not a significant factor in relation to agricultural land quality at this site.

Geology and Soils

British Geological Survey Sheet 315 - Southampton (1973) shows the majority of the site to be underlain by Eocene Bracklesham Beds - sands and clays, but with a strip of alluvium running from east to west through the lower lying land on Knightwood Farm. At the very north of the site a small area of land adjacent to Flexford Road is shown to be underlain by Plateau gravel.

The Soil Survey of Great Britain "Soils of South East England" Sheet 6 (1983), shows the site to be composed of two broad soil types Wickham 3 Association - slowly permeable, seasonally waterlogged fine to coarse loamy over clayey soils, and Shirrell Heath 2 Association - well drained sandy and coarse loamy soils at the west of the site

Field examination of the soils found them to fall into three broad groups Group 1 comprises profiles with medium or heavy clay loam textured topsoils, often with ochreous root mottles, over clay loam or clay subsoil horizons gleyed to a greater or lesser extent All profiles pass into slowly permeable clay with depth Some sand is present within many of these profiles and occasional horizons are slightly stony This group occupies the majority of the site area

Group 2 occurs in small pockets towards the western extremes of the site, composed of fine sandy silt loam topsoils over medium clay loam or fine sandy clay loam subsoils, being gleyed from between 35 and 70cm, commonly grading into gleyed and slowly permeable clays or sandy clays

Group 3 occurs on the lowest parts of the site around drainage ditches The largest area extends from east to west across the bottom land of Knightwood Farm with a smaller patch on Zionshill Farm Profiles typically consist of organic silt loams and clay loams or peaty textured topsoils with root mottles passing into gleyed mineral horizons (silt loam and clay loam textures) before reaching a slowly permeable clay textured horizon Some profiles are very wet and may have problems with ochre development and low pH Occasionally horizons are stony or gravelly

Agricultural Land Classification

Appendix 1 gives a short description of the grades used in this survey

Areas Of Grades

Total area of site	79 99ha	100 0%	total agricultural area
Grade 2	8 15ha	10 2%	
Grade 3a	2 05ha	2 6%	
Grade 3b	62 96ha	78 7%	
Grade 4	6 83ha	8 5%	
Total area of agricultural land			79 99ha

Grade 2

Areas of this grade rise up either side of the drainage ditch which runs through Zionshill Farm. Profiles are composed of medium loamy topsoils over medium clay loam subsoils. The depth to gleyed horizons varies considerably between profiles but they commonly pass into slowly permeable clay within 75cm although some remain lighter to depth. They are variably sandy with lenses of sand in some clay horizons. The combination of field capacity days, depth to gleying and the slowly permeable layer, and topsoil texture have placed such profiles into Grade 2. Wetness is the major limiting factor here with profiles falling into either wetness class I, II, or III.

Grade 3a

Occupies 2 05ha at the western side of the site where profiles are composed of fine sandy loam topsoils over fine sandy loam and fine sandy clay loam subsoils. These pass into slowly permeable clay within 55cm. These soils are allocated to wetness class III/IV so that in combination with field capacity days for the area they fall into Grade 3a due to wetness/workability restrictions.

Grade 3b

This grade occupies the largest area of the site - 62 96ha (78 7% of total agricultural area surveyed). Profiles are of three types although the major limitation is wetness for all three. Clay loam textured topsoils, often with ochreous root mottles, over medium to heavy clay loams gleyed within 40cm passing into slowly permeable clay within 50cm, medium clay loam topsoils over slowly permeable clay within 30cm, organic clay loam and silt loam topsoils over gleyed subsoils of similar textures passing into slowly permeable clay or heavy clay loam within 50cm. Few profiles have some stones in deeper horizons and many contain substantial amounts of sand and silt. Profiles fall into wetness class IV due to a combination of relatively heavy topsoils and slowly permeable subsoils, making these difficult to cultivate and prone to poaching by stock.

Grade 4

Occupies only the lowest lying areas of the site, adjacent to drainage ditches running through the site. Profiles are typically organic clay loam or silt loam, or peaty in the topsoil passing into clay/silty clay or heavy silty clay loam within 45cm. Drainage improvement of these soils may prove problematic due to lack of falls and the difficulty of improving watercourses outside the site boundary (ie within the adjoining housing development). In addition pH measurements indicate that some of these soils have low pH's and the tendency for ochre formation. Ochre formation can result in drainage blockages and a reduction in drainage efficiency. Consequently such land is likely to prove difficult to effectively drain and falls into wetness class IV or worse.

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APPENDIX 1

DESCRIPTION OF THE GRADES AND SUBGRADES

Grade 1 – excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 – very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 – good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a – good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b – moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass, or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 – poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable. In moist climates yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 – very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.