Cambs 28/90

AGRICULTURAL LAND CLASSIFICATION

LAND AT PARK FARM, STANGROUND, PETERBOROUGH

1.0 INTRODUCTION

1.1 An area of 29 ha was surveyed in June 1988 and subsequently re-inspected in July 1990 using the revised guidelines and criteria for grading the quality of agricultural land. The site is the subject of a residential planning application and at the time of survey was under arable cropping.

1.2 The site is located on the eastern side of Stanground, extending north and east to the River Nene and bounded to the south by the A605 road.

1.3 On the published one inch to one mile Agricultural Land Classification map sheet no 134 (MAFF 1969), the land is all shown as Grade 3. The findings of this survey show the majority of the site to be Grade 3 with a smaller area of Grade 2 present.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Relief

2.1 The site has an easterly aspect with the lowest lying land adjacent to Horsey Bridge.

2.2 The altitude rises from approximately 4m AOD adjacent to Horsey Bridge to approximately 11m AOD at the boundary with Stanground. Slopes are generally in the order of 1-2° with a steeper area of some 7.5° in the north west corner of the site.

Climate

2.3 Climatic information for the site has been interpolated from the 5 km grid dataset produced by the Meteorological Office (Met Office, 1989). The average annual rainfall for the site is 570 mm which is low by national standards. The number of days at which the site is likely to be at field capacity is moderately low at 100.

Geology and Soils

2.4 The published 1:50,000 British Geological Survey, Solid and Drift edition, sheet 158 (Peterborough), shows the site to have four main geological deposits. The majority of the site is underlain by Oxford Clay which is exposed in small areas in the central part of the site.

2.5 On the low lying ground to the north and east the Oxford Clay is overlain by alluvium. On the higher, level ground to the west of the site it is overlain by glacial lake deposits which in the south west corner of the site are in turn overlain by a small area of glacial sand and gravel.

2.6 Soils identified during fieldwork closely mirror the mapped geology described above. On the low lying land to the north and east, profiles typically comprise of deep non calcareous clay textures and are assessed as wetness class III.

2.7 On the mid slope areas, where soils have developed from Oxford clay, profiles are typically non or very slightly calcareous on upper horizons and have clay loam or clay topsoils over deep clay subsoils and are assessed as wetness class III. A calcareous variant of this soil type was noted in a small area south south west of Park farm.

2.8 On the higher ground to the west of the site where soils have developed from glacial lake deposits and sand and gravel, profiles are typically non calcareous and comprise medium clay loam topsoils over clay loam or sandy clay loam subsoils which may become heavier with depth. Surface stone within this area is variable ranging from slightly stony in the north to moderately stony west of Park Farm and very stony towards the south west corner (assessments based on total stone content). It should be noted that only a relatively small proportion of stones (consistently between 5 and 10% of total soil volume) proved to be of 2 cm diameter or larger. On surface stoniness grounds therefore, this land remains eligible for grade 2. Invariably stone content increased slightly down the profile. Drainage was assessed as predominantly wetness class II.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The site is predominantly graded 3b, with smaller areas of 2 and 3a. A breakdown of ALC grades in hectares and percentage terms is provided below. In accordance with the guidelines outlined in the Revised guidelines and criteria for grading agricultural land (MAFF, 1988) the site has been assessed as if irrigated, since an adequate and assured source of water was available at the time of survey.

AGRICULTURAL LAND CLASSIFICATION	Ha	%
2	6.5	22.3
3a	2.9	10.0
3b	18.4	63.2
Urban	0.9	3.1
Agric Building	0.4	1.4
	29.1	100.0

3.2 Grade 2

This occurs to the west of the site in areas of slightly or moderately stony clay loam soils (see paragraph 2.8). Stonier soil variants towards the west and south of this mapping unit are eligible for this grade because of the availability of irrigation. The land is excluded from grade 1 by stoniness and wetness imperfections.

3.3 Grade 3a

This occurs in two main situations:

3.4 In the extreme south west of the site it is mapped in areas of very stony (see paragraph 2.8) clay loam and sandy clay loam soils, where the presence of irrigation has partly alleviated a more severe droughtiness constraint.

3.5 To the south, south west of Park Farm 3a land also occurs in an area of calcareous clayey soils more fully described in paragraph 2.7. This land is predominantly limited by wetness and workability constraints.

3.6 Subgrade 3b

This is mapped over the majority of the central, eastern and northern parts of the site in areas of non calcareous clayey soils (see paragraph 2.7). Soils of this type are slowly permeable, and are likely to be slower to recover from the type of soil structural damage arising from poorly timed cultivations, than land graded 3a. The land is consequently limited by more severe wetness and workability constraints. A small area of land in the extreme north west corner is also limited by gradient.

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Resource Planning Group
Cambridge RO

References

British Geological Survey (1984) 1:50,000 scale. Solid and Drift Edition, Peterborough, Sheet 158..

MAFF (1969) 1:63,360 scale, Agricultural Land Classification Map Sheet No. 134.

MAFF (1988) Agricultural Land Classification of England and Wales.

Meteorological Office (1989) Climatological data for Agricultural Land Classification.

AGRICULTURAL LAND CLASSIFICATION

LAND SOUTH OF STANGROUND, PETERBOROUGH, CAMBRIDGEHSHIRE

1.0 INTRODUCTION

1.1 This 154 ha site was initially examined in June 1988 and subsequently re-inspected in July 1990 using the revised guidelines for grading agricultural land. The site is the subject of a planning application for a residential development and at the time of survey was under arable cropping and grass.

1.2 The site is located to the southern side of Stanground, extending to the settlement of Farcet in the South and bounded by the River Nene (old course) on its eastern boundary.

1.3 On the published one inch to one mile Agricultural Land Classification map sheet no 134 (MAFF 1969), the land is all shown as Grade 3. The findings of this survey show the majority of the site to be Grade 3 with a smaller area of Grade 2 present.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

RELIEF

2.1 The site lies at the edge of the Fens and comprises both low lying flatland to the south and east and gently sloping upland to the north and west. The land falls in a general east to south easterly direction towards the River Nene (old course) with the highest land on the western boundary adjacent to the Peterborough Road. The altitude ranges from 15m in the west to approximately 3m adjacent to the river. Nowhere on the site is slope a limiting factor.

CLIMATE

2.2 The climate information for the site has been interpolated from the 5km grid dataset produced by the Meteorological Office (Met Office, 1989). The average annual rainfall for the site is 572 mm which is low by national standards. The number of days at which the site is likely to be at field capacity is moderately low at 102.

Geology and Soils

2.3 No detailed geology map exists for the site, however the published British Geological Survey of England and Wales, 1984, sheet 158 (Peterborough) shows the area immediately to the north of the site. Extrapolation from this map suggests that the site is overlain by Oxford Clay. Field survey suggests this is exposed in small areas on mid slopes. On the raised ground to the west of the site the Oxford Clay is overlain by glacial boulder clay drift. South of Stanground the Clay is believed to be overlain by glacial lake deposits whilst on the valley floor, it is masked by spreads of alluvium containing peaty lenses.

2.4 The soils on the site largely mirror the geological deposits. On the low lying land is the clayey riverine alluvium inter-mixed with Fen edge peats. The soils are non calcareous and have a dark grey brown stoneless clay topsoil overlying a grey brown stoneless clay subsoil. A black semi fibrous loamy peat is found between depths of 30-70 cm. The peat tends to be absent towards the boundary with the upland soils, where the soils are often calcareous and have a clay texture throughout. The soils are assessed as predominantly wetness class III.

2.5 At the western end of the site the soils are developed on the chalky boulder clay drift. These soils have a grey brown very slightly calcareous clay or clay loam topsoil overlying a grey brown very slightly calcareous subsoil which becomes increasingly chalky with depth. These soils are predominantly assessed as wetness class II.

Other smaller areas of calcareous wetness class III soils also occur.

2.6 On the sloping land immediately to the south of Stanground are fine loamy soils developed in drift overlying Oxford clay. They have a slightly calcareous or occasionally non calcareous medium or heavy clay loam topsoil over a similar textured upper subsoil. In some cases the underlying Oxford Clay is encountered within 1 m depth, which is an olive grey colour. The soils are slightly stony (small flints) and are assessed as wetness class II and less frequently wetness class I.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The site has been graded in accordance with the revised guidelines and criteria for grading the quality of agricultural land (MAFF 1988). A breakdown of the different grades in hectares and % terms is given below.

Grade	Hectares	%
2	33.9	22.1
3a	56.4	36.7
3b	59.9	39.0
Urban	2.3	1.5
Non agricultural	1.1	0.7
TOTAL	153.6	100.0

Grade 2

3.2 An area of land classified as Grade 2 occurs to the south of Stanground where fine loamy drift overlies Oxford Clay at depth (see paragraph 2.6). Soils of this type are free or relatively free

draining, easily worked and hold ample reserves of plant available water. The land is flexible and capable of producing high yields from a relatively wide range of crops. Minor wetness and droughtiness limitations exclude this land from Grade 1.

Grade 3a

3.3 Land graded 3a occurs in two main situations. To the west of the site it occurs where soils have developed from chalky boulder clay till (see paragraph 2.5). These soils have a non calcareous or slightly calcareous clay loam or clay topsoils and are assessed as predominantly wetness class II. To the south of Havelock Farm land graded 3a occurs where soils developed from Oxford Clay and are transitional between grades 2 and 3b. These soils comprise clay topsoils, are calcareous throughout the profile and are assessed as wetness class III.

Grade 3b

3.4 This mainly occurs in the poorly drained soils on the flat low lying land adjacent to the river. The soils typically comprise non calcareous clay loam and clay topsoils and are assessed as wetness class III. Ground water levels on the flat lying land adjacent to the River Nene are likely to be moderately high for a significant part of the year. However, this does not appear to impose a particularly severe wetness/workability constraint since at the time of survey the area was in continuous arable cropping. A smaller area of 3b occurs on the poorly drained soils on the Oxford Clays. These soils are also typically non-calcareous clay loam and clay topsoils and are assessed as wetness class III.

REFERENCES

British Geological Survey (1984) 1:50,000 scale. Solid and Drift Edition, Peterborough, sheet 158.

MAFF (1969) 1:63,360 scale, Agricultural Land Classification Map Sheet No. 134.

MAFF (1988) Agricultural Land Classification of England and Wales.

Meteorological Office (1989) climatological data for Agricultural Land Classification.

Appendix 1

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 will affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. When more demanding crops and 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 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 most 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.