

## AGRICULTURAL LAND CLASSIFICATION

### LAND AT BIRCH WOOD QUARRY SHERFIELD ENGLISH HAMPSHIRE

#### Background

The site covers approximately 11.8 ha and lies at Sherfield English in Hampshire. The site is bounded to the north by the A27 to the east by woodland and pasture to the south by Birchwood Farm and to the west by a minor road.

The site was surveyed using a 110cm Dutch auger with samples being taken at approximately 100m intervals.

#### Land use

At the time of survey (February 1989) all the survey area was under grass and was grazed by sheep and horses.

#### Physical Factors Affecting Land Quality

##### Relief

The majority of the site lies at approximately 46m O.D. The land rises gently to a knoll at the northeast of the site and also to the southeast. This higher land follows the line of the London Clay deposits found on the site. The highest part of the site lies at approximately 55m 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 is approximately 841mm. The area is not likely to be frost prone or exposed. Soils are at field capacity for 183 days/annum. The median accumulated temperature above 0 degrees C for January to June is 1503 degree days. Moisture deficits adjusted for wheat and potatoes are 105 and 98mm respectively (Meteorological Office 1988).

##### Geology and Soils

British Geological Survey Sheet 315 (1987) shows the lower part of the site to be underlain by Reading Formation sands. As mentioned, London Clay forms the higher parts of the site. Soil Survey of England and Wales Sheet 6 Soils of South East England shows the site to be split into two soil associations: Fvfield 4 coarse loamy and sandy soils associated with slowly permeable fine loamy soils, and Wickham 4 slowly permeable seasonally waterlogged fine loamy/silty over clayey soils (Soil Survey of England and Wales 1983).

Detailed field examination found soils to fall into three broad groups. Group one occurs on the higher ground and over the eastern half of the site in general. It is composed of medium clay loam topsoils overlying heavy clay loam in the subsoil passing into slowly permeable clay. Group 2 occurs in the northwest corner of the site and is composed of sandy loam or sandy silt loam topsoils over loamy sand and sand with inclusions of sandy clay. Drought is the major limiting factor in these soils. Similarly in Group 3 the soils are limited by droughtiness. These soils are lighter than Group 2 being composed of loamy sand topsoils over loamy sand and sand subsoils.

Occasional profiles in groups 2 and 3 were found to be impenetrable within 70cm due to gravel and hard stones.

## Agricultural Land Classification

Appendix 1 gives a general description of the grades discussed in this report

### Grade 3a

This grade is dominant across the site occupying 9 27ha 79 4% of the total agricultural area surveyed. Profiles are of two types. The first type is chiefly limited by drought as profiles are dominantly sandy loams and loamy sands over sandy loam sand and sandy clay textures. Occasional profiles were found to be impenetrable within 70cm and all contained between 3-7% stone in the topsoil and 5-27% in the subsoil. The second type is limited by drainage status where medium clay loams lie over clay textures placing them in wetness classes II and III. The combination of the topsoil texture wetness class and the range of field capacity days for the site has resulted in their allocation to this grade.

### Grade 3b

Occupies only 13 4% of the agricultural area surveyed and is to be found in the northeast corner of the site at the summit of a knoll. The soils have medium clay loam topsoils passing into slowly permeable clay within 40cm. Profiles of this nature fall into wetness class IV and this coupled with their topsoil textures and the range of field capacity days for the site leads to their allocation to 3b.

### Grade 4

Occupies 7 2% of the area surveyed. The soils are similar to those in Grade 3b but their topsoil texture is dominantly heavy clay loam. These soils fall into a lower grade due to severe wetness limitations.

### Areas of Grades

Grade 3a	9 27ha (79 4% agricultural land surveyed)
Grade 3b	1 57ha (13 4% agricultural land surveyed)
Grade 4	0 85ha ( 7 2% agricultural land surveyed)
Total agricultural area	11 7ha
Urban	0 1ha
Total area of site	11 8ha

AGRICULTURAL LAND CLASSIFICATION OF BIRCHWOOD QUARRY SHERFIELD  
ENGLISH, HAMPSHIRE

SCHEDULE OF AUGER BORINGS

1 Very slightly sloping grassland sheep

0-25 (M)SL 10 YR 3/2 very dark grayish brown  
25-47 SL/LS 10 YR 5/4 yellowish brown c 3% stones  
47-55 (M)S 7 5 YR 4/6 strong brown c 5% stones  
55-64 LS 7 5 YR 5/6 strong brown 10 YR 6/3 pale brown  
Very slightly stony c 5%  
64-85 SC 2 5 YR 5/8 red 2 5 YR 6/8 light red 7 5 YR  
6/6 reddish yellow 7 5 YR 5/8 strong brown 7 5 YR  
6/0 gray Wet and gleyed  
85-100 S 5 YR 5/6 yellowish red 7 5 YR 5/8 2 5 Y 6/2  
light brownish gray Gleyed

Droughty

Grade 2

2 Very slightly sloping grassland sheep (stoniness pit)

0-37 (M)LS 10 YR 3/2 Measured stones 5% (2-5cm)  
2% (<2cm)  
37-45 S 10 YR 7/2 light gray 7 5 YR 7/2 pinkish gray  
Measured stones 27%  
45+ Impenetrable gravel and few large hard stones

Droughty

Grade 3b

3 Very slightly sloping grass sheep

0-35 LS/SL 10 YR 3/2 Very slightly stony c 3%  
35-65 (M)S 10 YR 4/4 and 4/6 dark yellowish brown 10 YR  
6/2 light brownish gray c 5% stones  
65-78 LS/S Black tary  
78-100 LS 10 YR 6/8 brownish yellow 10 YR 4/4 7 5 YR  
5/6

Droughty

Grade 3a

4 Very slight slope grass sheep

0-30 (H)SL 10 YR 3/2 c 3% stones  
30-40 LS 10 YR 5/3 brown 7 5 YR 6/2 pinkish gray  
c 5% stones  
40-43 LS Black tary  
43-65 SL/LS 7 5 YR 5/6 10 YR 5/8 yellowish brown 10 YR  
6/3 Common Mn concretions Gleyed  
65-80 SC 7 5 YR 5/8 7/8 6/0 Gleyed  
80-100 S Common Mn concretions Gleyed 2 5 Y6/4 light  
yellowish brown 7 5 YR 5/6

Droughty

Grade 3a

5 Very slight slope grass sheep

0-26 SZL 10 YR 3/2 c 2% stone  
26-50 SL 10 YR 5/6 yellowish brown From stoniness pit  
at boring 2 stone content c 7%  
50-70 SL 10 YR 5/6 From stoniness pit at boring 2 stone  
content c 27% Increasingly wet and stony  
70+ Impenetrable gravel and few hard stones

Droughty

Grade 3a

6 Very slight slope grass sheep

0-25 FSL/(M)CL 10 YR 4/2 dark grayish brown  
25-35 (M)CL 10 YR 5/6  
35-54 (M)CL 10 YR 4/6 dark yellowish brown 10 YR 5/8  
yellowish brown 10 YR 6/4 light yellowish brown  
Gleyed  
54-100 C 5 GY 5/1 greenish gray 7 5 YR 6/8 strong brown  
7 5 YR 7/2 pinkish gray 10 YR 6/3 pale brown  
Gleyed Slowly permeable

Wetness class III

Grade 3a

7 Very slightly sloping top of knoll grass sheep

0-27 (M)CL 10 YR 4/2  
27-38 (M)CL 10 YR 5/6 Few Mn concretions  
38-100 C 7 5 YR 6/8 7 5 YR 6/4 light yellowish brown  
7 5 YR 7/2 10 YR 6/3 5 YR 5/8 yellowish red  
Gleyed Slowly permeable

Wetness class IV

Grade 3b

8 Foot of knoll gentle slope grass sheep (pit)

0-27 (M)CL 10 YR 4/3 brown Ochreous root mottles  
2% measured stone (2-5cm)  
27-45 (H)/(M)CL 10 YR 4/3 10 YR 4/6 10 YR 6/2 light  
brownish gray 10 YR 6/8 brownish yellow  
Common fine and very fine roots  
c 1% porosity Fine to medium pores Gleyed  
45-70 FSC/C 5 GY 7/1 light greenish gray 5 Y 6/2 light  
olive gray 7 5 YR 5/8 10 YR 6/6 brownish yellow  
Gritty c 5% stone (2-5cm)  
Common fine and very fine roots  
c 1-2% porosity Fine to medium pores  
Weakly developed adherent coarse subangular blocky  
moderately weak Gleyed  
70-100 SC colours as above Very wet-impossible to assess  
structure 0 5-1% fine to medium pores Gleyed

Wetness class II

Grade 3a

9 Mid slopes of knoll grass sheep (pit)

0-5 (M)CL 10 YR 4/2 dark grayish brown Root mottles  
5-27 (M)CL 10 YR 4/3 brown 10 YR 5/6 yellowish brown  
27-35 (H)CL 10 YR 7/3 very pale brown 10 YR 5/3 brown  
10 YR 6/6 brownish yellow  
Very fine to medium pores c 0 5% porosity  
Medium subangular blocky moderately developed  
moderately firm Gleyed  
35-100 C colours as above also 7 5 YR 6/8 strong brown  
5 Y 5/2 olive gray  
Very fine pores <0 5% porosity  
Wet-filling with water below 45cm (water-table)  
Slowly permeable

Wetness class IV Grade 3b

10 Very slight slope grass horses

0-25 (M)CL 10 YR 5/4 yellowish brown Ochreous root  
mottles  
25-50 SCL 10 YR 5/6 10 YR 5/3  
50-80 SC 7 5 YR 5/6 and 5/8 10 YR 7/3 10 YR 6/4  
light yellowish brown  
80-100 LS colours as above Wet Gleyed

Wetness class I Grade 2

11 Very slight slope grass horses

0-30 (M)CL 10 YR 5/6 Ochreous root mottles  
30-63 (M)CL 10 YR 5/8 yellowish brown  
63-100 C 10 YR 6/2 light brownish gray 10 YR 5/8 7 5 YR  
5/8 Gleyed Slowly permeable

Wetness class III Grade 3a

12 Level top of gentle rise grass horses

0-10 (M)CL 10 YR 5/3 brown Ochreous root mottles  
10-40 (H)CL 10 YR 5/4 yellowish brown  
40-100 C 10 YR 6/3 pale brown 10 YR 5/3 brown 10 YR  
6/8 Increasingly 7 5 YR 5/8 and 5 Y 6/1 gray

Wetness class IV Grade 4

13 Level top of gentle rise grass horses

0-10 (M)CL 10 YR 5/3  
10-27 (H)CL 10 YR 6/2 10 YR 5/8 10 YR 5/3 Gleyed  
27-100 C 7 5 YR 5/8 & 5/6 5 Y 6/1 gray Slowly permeable

Wetness class IV Grade 4

## 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.

References

- British Geological Survey 1987 Sheet 315 Southampton
- M A F F 1988 Agricultural Land Classification of England and  
Wales Revised Guidelines and Criteria for  
grading the quality of Agricultural Land
- Meteorological Office 1971 Met Report 168  
Meteorological Survey of Central  
and Northern Hampshire
- Meteorological Office 1988 Climatic Data for Agricultural  
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- Soils Survey of England and Wales 1983 Soils of South East  
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A FFWICK  
RESOURCE PLANNING GROUP  
READING R O  
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