

**AGRICULTURAL LAND CLASSIFICATION**

**SEMI-DETAILED SURVEY**

**EGG FARM**

**KINGS LANGLEY**

**HERTFORDSHIRE**

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### SEMI-DETAILED SURVEY

#### EGG FARM, KINGS LANGLEY, HERTFORDSHIRE

#### 1. BACKGROUND

- 1.1 The site, an area of 180.1 hectares, is the subject of an application for a golf course with associated amenities at Egg Farm, Kings Langley, Hertfordshire. ADAS undertook a semi-detailed survey of the site in May 1992 to assess the agricultural land quality.
- 1.2 On the published Agricultural Land Classification (ALC) Map Sheet 160 (Provisional, scale 1:63,360 MAFF 1970) the survey area is shown as grade 3 with two areas of land primarily in non agricultural use towards the centre of the site.
- 1.3 A previous survey undertaken in 1981 by ADAS covered the proposed route of the M25. This showed the route of the then proposed M25 to comprise grade 3c to the west and grade 3b land to the east.
- 1.4 In 1992 soil inspections were carried out using a hand held Dutch soil auger. Three soil inspection pits were dug to assess subsoil conditions and to supplement soil auger boring information. In addition, throughout the site riddle samples were taken to assess topsoil stone content.

#### 2. PHYSICAL FACTORS AFFECTING LAND QUALITY

##### Climate

- 2.1 Climate data for the site was obtained from the published agricultural climatic dataset (Met Office, 1989). This indicates that the site's average annual rainfall is 699 mm (27.5"). This also indicates that field capacity days are 149 and moisture deficits for wheat and potatoes are 102 mm and 92 mm respectively. The accumulated temperature for the area is approximately 1382 degrees Celsius. These

climatic characteristics do not impose any climatic limitation on the ALC grade of the survey site.

### Altitude and Relief

- 2.2 The site area surveyed rises in altitude from 75 m AOD in the west to 130 m AOD in the east. On the higher land to the east gentle undulations develop into dry valleys which deepen and widen towards the west. In several areas slopes exceed 7° and limit the land to subgrade 3b. These are mainly north facing slopes northeast of Numbers Farm and immediately north of the M25 farm access bridge\*.

### Geology

- 2.3 The published 1:63,360 scale drift edition Geology Map No 238 (Geological Survey 1962) shows the survey area to comprise Cretaceous Upper Chalk over the majority of the site with smaller areas of Recent and Pleistocene glacial gravel deposits adjacent to the southern and northern boundaries of the site.

### Soils

- 2.4 The published 1:63,360 scale soil map 239 (Soil Survey of England and Wales, 1961) shows the occurrence of 5 soil types closely associated with the relief described in paragraph 2.2. The area comprises mainly the Berkhamstead(\*1) and Winchester series(\*2) with small areas of Coombe(\*3), Chanty(\*4) and Cowcroft(\*5). During the current survey a more detailed inspection of the site grouped the soils into 4 main soil types.

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\* A slope of 12° was recorded imposing a limitation which restricts the land to grade 4, however this covered too small an area to map separately.

- (\*1) Berkhamstead: pebbly loams or sandy loams which pass into stiff clays.  
(\*2) Winchester: pebbly clay loams or loams over plastic, flinty clay subsoils.  
(\*3) Coombe: chalky and/or flinty silt loams/clay loams over flinty clays over chalk.  
(\*4) Chanty: flinty silt loam or loams over flinty clays over gravel.  
(\*5) Cowcroft: pebbly loam or clay loam over plastic clay.

- 2.4.1 The majority of the site, typically comprises soils with moderately stony medium clay loam topsoils. Total topsoil stone is in the range 25% to 30%, and topsoil stone larger than 2 cm commonly exceeds 20%. Subsoils consist of moderately stony medium or heavy clay loams, or occasionally clays. Subsoil stone typically ranges from 20% to 25% flints which are often medium in size.
- 2.4.2 In the vicinity of Numbers Farm and in smaller areas to the east of the site (north of the M25 motorway) less stony soils outcrop. Topsoils are slightly to moderately stony medium clay loam or sandy clay loams. Total topsoil stone is in the range 15% to 20% flints of which stones larger than 2 cm are typically 13% to 14% by volume. Subsoils commonly consist of clay and are moderately stony (20% to 30% flints which are typically medium in size).
- 2.4.3 In association with the dry, shallow valley features to the west, and an area between Sheppey Lane and the M25 to the east, chalky soils outcrop. Topsoils are typically slightly stony medium clay loams. Total topsoil stone is commonly 15% flints, while topsoil stone larger than 2 cm is typically in the range of 10% to 12%. Subsoils consist of a matrix of clay loam or clay with weathered chalk fragments, the latter increases in proportion with depth (up to 50%).
- 2.4.4 Adjacent to Bedmond Road are small areas of soils with less stony subsoils. Topsoils are typically slightly stony (10-15%) or occasionally moderately stony medium clay loams. Topsoil stone larger than 2 cm is commonly in the range 5% to 12%. Subsoils consist of gleyed clays to depth which are only very slightly or slightly stony.

### 3. AGRICULTURAL LAND CLASSIFICATION

- 3.1 The definitions of the Agricultural Land Classification (ALC) subgrades are included in Appendix 1.

3.2 The majority of the site comprises grade 3b land, with smaller areas of 3a. The table below shows the breakdown of ALC grades for the survey area.

AGRICULTURAL LAND CLASSIFICATION

| Grade                  | ha           | %          |
|------------------------|--------------|------------|
| 3a                     | 39.9         | 22         |
| 3b                     | 106.3        | 59         |
| Agricultural buildings | 3.3          | 2          |
| Non agricultural       | 13.3         | 7.5        |
| Urban                  | <u>17.3</u>  | <u>9.5</u> |
| TOTAL                  | <u>180.1</u> | <u>100</u> |

Subgrade 3a

3.3 Land graded 3a is associated with the soils described in paragraphs 2.4.2, 2.4.3 and 2.4.4 above.

3.3.1 The majority of the 3a land comprises slightly to moderately stony topsoils which have typically 13/14% stones greater than 2 cms in size. The presence of these surface stones have a moderate limiting effect on the establishment of crop seedlings, availability of soil nutrients and the wear and tear to farm machinery. Consequently topsoil stone limitations\* exclude the land from a higher grade.

3.3.2 In the vicinity of Bedmond Road, profile wetness alone may restrict the land to subgrade 3a (para 2.4.4). Profiles are typically slowly permeable below 40 cms depth, this combines with the non calcareous, medium clay loam topsoils to restrict the land to subgrade 3a (good quality agricultural land).

Subgrade 3b

3.4 The majority of the site has been graded 3b.

\* Occasionally land may be moderately droughty too, particularly in association with the chalk deposits.

- 3.4.1 Most of the land is associated with the stony soils described in paragraph 2.4.1. High topsoil stone contents have a significant limiting effect upon the wear and tear on farm machinery and the ability of crops to establish successfully. Consequently significant topsoil stone imperfections restrict the land to subgrade 3b.
- 3.4.2 Smaller areas (north and south of Numbers Farm) of steeply sloping land have also been graded 3b because slopes exceed 7°. Steep gradients have a limiting effect on the efficient use of farm machinery and exclude the land from a higher grade.
- 3.4.3 Occasionally small pockets of land with a wetness class of IV are restricted to subgrade 3b by significant wetness and workability limitations.

#### Agricultural Buildings

- 3.5 Numbers Farm and Ovaltine Egg Farm were classified Agricultural Buildings.

#### Non Agricultural

- 3.6 Woodland occurring over the site was classified as land primarily in non agricultural use.

#### Urban

- 3.7 The M25 motorway, a small area of land on the west boundary and houses to the east were classified as urban.

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## REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES, 1962. Drift edition Geology Sheet 238 (Aylesbury) 1:63,360 scale.

MAFF, 1970. Agricultural Land Classification Map No 160 Provisional. 1:63,360 scale.

MAFF, 1988. Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for grading the Quality of Agricultural Land) Alnwick.

METEOROLOGICAL OFFICE, 1989. Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office.

SOIL SURVEY OF ENGLAND AND WALES, 1961. Sheet 238 (Aylesbury) 1:63,360 scale.

APPENDIX 1

DESCRIPTION OF ALC SUBGRADES 3a AND 3b

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.



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**Map 1: Agricultural Land Classification**