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AGRICULTURAL LAND CLASSIFICATION

LAND AT HATCH FARM, WINNERSH, BERKS

October 1992

ADAS Ref: 0206/56/92
MAFF Ref:

Resource Planning Team
ADAS Statutory Group
Reading

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1. SUMMARY

1.1 Land on this 59.53 ha site was inspected on behalf of MAFF on 1 and 2 September 1992 in connection with proposals for a superstore, housing and related development. An Agricultural Land Classification (ALC) survey was undertaken in accordance with the guidelines and criteria contained in the MAFF publication "Agricultural Land Classification in England and Wales" (MAFF, 1988). These guidelines provide a framework for classifying land according to the degree to which its physical or chemical characteristics impose long term limitations on agricultural use.

1.2 53 auger boring samples were examined on a grid basis, with further information obtained from 3 soil inspection pits. At the time of survey the site was mainly cereal stubble or linseed with smaller areas of grass, much of which was overgrown.

1.3 The results of the survey are presented on the accompanying coloured plan at a scale of 1:10,000. This plan is only accurate at the scale shown as any enlargement would be misleading. The extent of the ALC grades mapped on the site is as follows:

Grade	Ha	% Agricultural Area
3a	16.08	30
3b	37.26	70
Total Agricultural Area	53.34	100
Non-Agricultural	4.80	
Urban	1.39	
Total Area	59.53	

1.4 The land, which is predominantly graded 3b with some 3a is mainly limited by a combination of wetness and droughtiness. Soil textures are typically medium loamy over clayey frequently passing to gravel with depth. Some profiles have coarse textured subsoils and pass to gravel at shallow depth; these are mainly limited by droughtiness. Most profiles show signs of a wetness limitation either due to slowly permeable horizons or fluctuating groundwater.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was obtained by interpolation from a 5 km grid dataset (Met. Office, 1989). The results for two representative locations in the survey area are as follows:

Climate Interpolation

Grid Reference	SU770710	SU774703
Altitude (m)	40	50
Accumulated Temperature (day°C)	1477	1466
Average Annual Rainfall (mm)	658	661
Field Capacity Days	138	138
Moisture Deficit - wheat (mm)	116	115
- potatoes (mm)	111	110

2.2 The above data indicates that there is no climatic limitation per se affecting land quality on this site. However, the interaction between soil and climatic factors (soil wetness and droughtiness) are important factors in the grading of this site.

Relief

2.3 The highest land on the site occurs adjoining the M4 motorway to the south of the site where altitudes are around 50 m A.O.D. The land falls gently north - northwestwards to altitudes just below 40 m A.O.D. in the vicinity of Lower Earley Way. Nowhere on the site do gradients limit agricultural land quality.

2.4 Information obtained from the National Rivers Authority (Thames Region) (Personal Communication, 1992) suggests that some of the land has been subject to past flooding, but data of a more recent nature is not available to estimate return periods. Local knowledge suggests that the land has not flooded to any significant extent in recent years.

Geology and Soils

2.5 The published geological map sheet (No 268, Reading) for the site shows London Clay, valley gravels and alluvium mapped over the area. A semi-detailed soil map covering the Reading District (SSEW, 1968) shows the Hurst and Wickham Soil Series mapped on the site. The Hurst Series comprises loamy drift over river terrace gravels whilst the Wickham Series comprises loamy drift over Eocene Clay. Both are non-calcareous gley soils.

2.6 Detailed inspection of the site broadly confirms similar soil types to those described by the Soil Survey (1968). Soils commonly comprise sandy clay loam or medium clay loam topsoils overlying sandy clay loam upper subsoils which become coarser below about 60 cm and ultimately pass into gravel. Shallower coarser textured varients also occur with sandy loam topsoils which pass into similar textured but stony subsoils resting over gravel at relatively shallow depth. Heavier textured soil varients also occur. These have medium or heavy clay loam topsoils with heavy clay loam or clay subsoils passing into gravel at variable depth. With the exception of the shallow coarser textured soil varients these soils have slowly permeable subsoils and are usually assessed as wetness class III or IV with wetness limitations being the main limitation to agricultural use. The coarser textured and shallow soil varients have droughtiness limitations caused by moderate to low soil available water capacity. Such soils often show evidence of groundwater in the form of gleying.

2.7 A number of soils are either developed over London Clay or do not contain gravel within 120 cm. These typically comprise sandy clay loam or medium clay loam topsoils overlying similar or finer textured upper subsoils passing to clay within 45-90 cm. Due to slowly permeable subsoils these are assessed as wetness class III to IV (occasionally wetness class II).

3. AGRICULTURAL LAND CLASSIFICATION

3.1 A breakdown of the area and extent of the grades is given in paragraph 1.3. The majority (70%) of the site is graded 3b with a smaller area (30%) graded 3a.

Grade 3a

3.2 Towards the north of the site the land graded 3a is similar to the bulk of land graded 3b except that topsoils are coarser (medium or fine sandy loam). These are wetness IV but due to improved workability they are eligible for this grade.

3.3 The southern block of grade 3a comprises either deep sandy clay loams over clay or sandy clay at depth, or sandy clay loams over medium sandy loam subsoils which may pass to gravel or finer textured horizons with depth. Drainage status is improved with soils assessed as wetness classes I to III. Minor to moderate droughtiness and wetness limitations form the main limitation to agricultural use. Some individual profiles were graded 2 within this mapping unit but the extent of this higher quality land was too sporadic to be delineated separately.

Grade 3b

3.4 Land of this quality occurs extensively on the site and represents either deeper soils with shallow slowly permeable horizons or shallower soils over gravel or coarse textured stony horizons. These two soil varients occur sporadically over the area.

3.5 Those soils limited by wetness typically comprise non-calcareous topsoils of sandy clay loam, or medium or heavy clay loam overlying gleyed and slowly permeable heavy clay loam, sandy clay loam or clay subsoils. Gravel may be encountered from about 60-100 cm+, and occasionally wetness occurs in combination with droughtiness. These soils are typically wetness class IV but where heavy clay loam topsoils occur those soils falling into wetness class III are also included due to the reduction in workability.

3.6 Where shallow over gravel or stony coarse textured horizons and limited to 3b by drought, soils typically comprise slightly stony medium or heavy clay loams or sandy clay loams (occasionally medium sandy loam) overlying variable subsoil textures some of which may be moderately to very stony. Gravel or sand and gravel occurs from

about 40-50 cm. Gleying within these profiles also indicates that they are affected by groundwater. Droughtiness, however, forms the main limitation in terms of agricultural land quality.

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SOURCES OF REFERENCE

GEOLOGICAL SURVEY OF ENGLAND AND WALES. Geological Map Sheet No 268 (Reading) 1:63360 scale.

MAFF (1988) Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

METEOROLOGICAL OFFICE (1989) Climatological Datasets for Agricultural Land Classification.

SOIL SURVEY OF ENGLAND AND WALES (1968) Soils of the Reading District. 1:63360 scale map and accompanying memoir.