

AGRICULTURAL LAND CLASSIFICATION

LAND AT MANOR FARM, BROUGHTON, BUCKS

1.0 BACKGROUND

1.1 The site, an area of 55.1 hectares, is an objection site to the Milton Keynes Local Plan. ADAS Resource Planning Team surveyed the site in August 1992 at an auger boring density of approximately 1 boring per hectare. These borings were supplemented by 2 soil inspection pits in order to assess subsoil conditions.

1.2 On the one inch to one mile Agricultural Land Classification Map sheet No 146 (MAFF, 1972) the site is mapped as grade 2 in the northern half and grade 3 in the southern half. Since this map is of a reconnaissance nature designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed information on land quality for the site.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was interpolated from data contained in the published agricultural climatic dataset (Met Office, 1989). This indicates for the site's modal altitude of 65 m AOD the average annual rainfall is 620 mm (24.4 inches). This data also indicates that field capacity days are 125 and moisture deficits for wheat and potatoes are 111 mm and 104 mm respectively. These climate characteristics do not impose any limitation on the ALC grade for this site.

Altitude and Relief

2.2 The site slopes very gently from a maximum altitude of 67 m AOD in the north eastern corner to a minimum altitude of 61 m AOD in the south western corner bordering a small stream. Altitude and relief do not constitute a limitation to ALC grade.

Geology

- 2.3 The published 1:25,000 solid and drift edition geology map SP83 shows the survey area to mainly comprise second terrace drift on the upper slopes with first terrace drift, alluvium and head occurring on the mid and lower slopes bordering the stream along the southern boundary.

Soils

- 2.4 The published reconnaissance 1:250,000 scale soil map, (Soil Survey of England and Wales, 1983) shows the occurrence of three soil associations. The majority of the site comprises Bishampton 2 Association (1*) with smaller areas of the Fladbury 1 (2*) and the Denchworth Associations (3*) occurring on the lower slopes bordering the stream. During the current ADAS survey a detailed inspection of the soils identified three soil types.

- 2.4.1 The first soil type occurs on the low lying land towards the south of the site. Profiles typically comprise non calcareous heavy clay loam topsoils over slowly permeable clayey subsoils. These soils are poorly drained and have been assessed as wetness class III.

- 2.4.2 The second soil type occurs in the central part of the site (especially towards the eastern edge). The topsoils are lighter textured than those described in para 2.4.1 with profiles typically comprising medium clay loam or sandy clay loam topsoils over slowly permeable clay loam or clay subsoils. As in the first soil type these soils have a wetness class of III.

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- (1*) Bishampton 2 Association Deep fine loamy and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging associated with similar slowly permeable seasonally waterlogged soils.
- (2*) Fladbury 1 Association Stoneless clayey soils, in places calcareous, variably affected by groundwater. Flat land.
- (3*) Denchworth Association Slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils. Some fine loamy over clayey soils with only slight seasonal waterlogging and some slowly permeable calcareous clayey soils.

2.4.3 The third soil type occurs in the north of the site, in the vicinity of Manor Farm itself. These soils are better drained than those described above and profiles typically comprise very slightly stony clay loam or sandy loam topsoils over clay loam upper subsoils. Heavier or lighter textures may be encountered at depth and some profiles may have slowly permeable lower subsoils. These soils have been assessed as wetness class I or occasionally II, depending on the presence of a slowly permeable layer. Occasional profiles contained up to 50% stones at depth in the subsoil.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification (ALC) subgrades and grades are included in the Revised Guidelines and Criteria for the grading of agricultural land (MAFF, 1988).

3.2 The table below shows the breakdown of the ALC grades for the survey area in hectares and % terms.

AGRICULTURAL LAND CLASSIFICATION		
Grade	ha	%
2	15.5	28
3a	22.0	40
3b	17.2	31
Non Agricultural	0.4	1
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TOTAL	<u>55.1</u>	<u>100</u>

Grade 2

3.3 The land graded 2 is located in the northern part of the site, in the vicinity of Manor Farm, and is associated with the soils described in paragraph 2.4.3. These soils have minor limitations which exclude the land from a higher grade. The profiles with stony lower subsoils are limited by a slight summer droughtiness risk, while the profiles with heavy clay loam topsoils have a slight topsoil workability limitation. Occasional less well drained profiles with a wetness class of II have a

slight wetness imperfection. In summary slight droughtiness, workability or wetness restrictions constitute the overriding limitations to the ALC grade.

Subgrade 3a

- 3.4 The subgrade 3a land has been mapped in a tract across the centre of the site and is associated with the soils described in paragraph 2.4.2. The slow subsoil permeability, combined with the non calcareous medium clay loam or sandy clay loam topsoils results in moderate wetness and workability constraints. These restrict the land to subgrade 3a.

Subgrade 3b

- 3.5 The low lying land in the south of the site has been mapped as subgrade 3b and is associated with the soils described in paragraph 2.4.1. The slow permeability of subsoils combined with the non calcareous heavy clay loam topsoils results in significant wetness and workability constraints. Thus excluding the land from a higher ALC grade.

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REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES, 1971. Solid and Drift Geology Map Sheet SP83 (and parts of SP73, 74, 84, 93 and 94). 1:25,000 scale.

MAFF, 1972. Agricultural Land Classification Map No 146, (provisional) 1:63360 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. Data extracted from the published agroclimatic dataset.

SOIL SURVEY OF ENGLAND AND WALES, 1983. Sheet 4 "Soils of Eastern England" 1:250,000 scale.