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AGRICULTURAL LAND CLASSIFICATION
LAND AT ICKLETON, CAMBRIDGESHIRE

1.0 BACKGROUND

1.1 An area of approximately 29 ha near to the village of Ickleton, Cambridgeshire alongside the M11 Motorway is the subject of a planning proposal for a Motorway Service area. The site is in two sections, one either side of the Motorway.

1.2 The provisional Agricultural Land Classification (ALC) map of the area (MAFF 1968) shows the site to be predominantly grade 2 quality with a small area along the western edge of the site mapped as grade 3. This map is of a reconnaissance nature only and the current survey was undertaken to provide land quality information specific to the site.

1.3 A detailed ALC survey of the site was undertaken by ADAS Statutory Resource Planning Team during September 1995. Information was collected from auger borings, spaced at 100 m intervals, to a depth of 120 cm wherever possible. Subsoil conditions were assessed from soil inspection pits.

1.4 At the time for the survey the western half of the site had the northernmost field recently planted to oilseed rape with the southern field covered with cereal stubble. The eastern half of the site had sugar beet in the northern and southern fields and the central field had recently been cultivated following cereals.

1.5 An irrigation water supply is available within the site but it is of insufficient quantity to raise the overall land quality.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climatic criteria are considered when classifying land as they may have an overriding limitation in terms of the agricultural use of the land. The main parameters used in the assessment of the overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature (day °C Jan-June), as a measure of the relative warmth of an area.

2.2 A detailed assessment of the prevailing climate for the site has been made by interpolation from the 5 km grid dataset produced by the Meteorological Office (Met Office, 1989). The details are given in Table 1 and these show that there is no overall climatic limitation affecting the site. Climatic factors however do interact with soil properties to influence soil wetness and droughtiness.

Table 1. Climatic Interpolation

	Western Section	Eastern Section
Grid Reference	TL 478443	TL 484441
Altitude (m)	55	45
Accumulated Temperature (day °C Jan-June)	1412	1423
Average Annual Rainfall (mm)	588	586
Moisture Deficit, Wheat (mm)	116	117
Moisture Deficit, Potatoes (mm)	110	111
Field Capacity Days	108	108
Overall Climatic Grade	1	1

Altitude and Relief

2.3 The western section of the site rises from approximately 45 m AOD close to the motorway to a maximum altitude of approximately 60 m AOD to the west. The land also falls towards the north with moderate slopes of up to 7° in the north west.

2.4 The eastern section is more gently sloping with a maximum height of approximately 53 m AOD close to the centre of the section alongside the motorway. The land falls from this high point to approximately 43 m AOD. Slopes are generally gentle with a maximum of 3°.

2.5 Slope and relief do not therefore impose any limitation on the agricultural quality of either section of the site.

Geology and Soils

2.6 The published 1:63 360 scale drift edition geology map, sheet 205 (Geol, Survey, 1952) shows the whole site as Middle Chalk.

2.7 No detailed soil map exists for the area but the reconnaissance 1:250 000 scale soil survey map (Soil Survey, 1983) shows the whole site to be mapped as the Swaffham Prior Association (*). The present detailed field survey also identified a single soil type across the site.

2.8 The soil type found across the whole site generally consisted of a very calcareous medium clay loam or occasionally medium sandy clay loam textured topsoil overlying a similar textured upper subsoil. These horizons were very slightly to slightly stony with stones consisting of small to medium sized flints and small chalk fragments. A lower subsoil of medium clay loam textured material with weathered chalk/chalk rubble was generally overlying further weathered chalk material or hard chalk. Occasionally the topsoil directly overlay the clay loam - weathered chalk or chalky rubble horizon. The soil profiles examined were all free draining and were assessed as wetness class I.

(*) Swaffham Prior Association: Well drained calcareous coarse and fine loamy soils over chalk rubble. Some similar shallow soils. Deep non-calcareous loamy soils in places.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The land has been classified using the guidelines contained in the Agricultural Land Classification of England and Wales (MAFF, 1988). A breakdown of the individual grades found within the site is shown in Table 2. The definition of the ALC grades is given in Appendix 1.

Table 2. Distribution of grades and subgrades

Grade	Area (ha)	% of site
3a	27.2	92.8
3b	2.1	7.2
TOTAL	29.3	100.0

Subgrade 3a

3.2 Subgrade 3a quality land is associated with the relatively deep soil profiles above hard chalk described in paragraph 2.8. These profiles have a moderate droughtiness limitation which restricts the quality of the land to subgrade 3a. The irrigation available within the site is insufficient to raise the quality of this land.

Subgrade 3b

3.3 Subgrade 3b land is associated with the shallow profiles above hard chalk as described in paragraph 2.8 in a small area in the north of the eastern section of the site. The shallow depth of the soil profile above the hard chalk restricts the total available water for plant growth sufficiently to limit the quality of such profiles to subgrade 3b due to drought. The irrigation available within the site is insufficient to raise the quality of this land.

September 1995

Resource Planning Team
ADAS Cambridge

REFERENCES

BRITISH GEOLOGICAL SURVEY, 1952. Sheet 205, Saffron Waldon, 1:63 360 scale.

MAFF, 1968. Agricultural Land Classification Map. Provisional. Scale 1:63 360, Sheet 148.

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

METEOROLOGICAL OFFICE, 1989. Climatological Data for Agricultural Land Classification.

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

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 include 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 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 levels of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yield 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.