AGRICULTURAL LAND CLASSIFICATION

GRANGE PARK, COURTEENHALL, NORTHAMPTONSHIRE

1.0 BACKGROUND

1.1 The site, an area of 81.0 hectares, forms part of the South Northamptonshire Local Plan. A detailed survey was carried out in February 1994, by the ADAS Resource Planning Team in order to assess the agricultural land quality. Assessment was made following the guidelines in MAFF publication, "Revised Guidelines and Criteria for Grading the Quality of Agricultural Land".

1.2 Information was collected from auger borings, spaced at 100 m intervals, to a depth of 100 cm or an impenetrable layer if closer to the surface. Subsoil structure was assessed from four inspection pits.

1.3 At the time of the survey all the fields were cultivated and autumn sown cereals were emergent.

1.4 On the provisional 1:63,360 scale ALC maps, Sheets No 133 and No 146 the site has been mapped as grade 3 with a small area of grade 2 in the extreme north. This map is of a provisional nature, therefore the survey was undertaken to provide more detailed information on land quality within the survey area.

1.5 A detailed survey of land to the west of the present site was carried out in January 1990 and to the north in January 1993.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was extrapolated from data contained in the published agricultural climatic dataset (Met. Office 1989). This indicated that for an average site altitude of 90 m AOD the annual average rainfall is 637 mm (25.1"), the field capacity days are 135 and moisture deficits for wheat and potatoes are 106 mm and 97 mm respectively. These climatic characteristics do not impose any limitation on the ALC grade for the site.

Altitude and Relief

2.2 From the high point of 103 m AOD in the extreme south of the site, a broad ridge slopes gently in a northerly direction to cover approximately one third of the site. The land falls away to a low of 80 m AOD to form a valley, containing a stream which exits the site on the northern boundary. From the west of the site the land slopes in an easterly direction into the valley bottom and then rises again to meet the Wootton Road which constitutes the eastern boundary. All slopes measured less than 7° and therefore do not impose any restrictions.

Geology and Soils

2.3 The published 1:63,360 solid and drift edition geology map Sheet No 202 (Geological Survey of Great Britain 1969) shows a somewhat complex geological pattern. The northern part of the site comprises Recent and Pleistocene, Fluvio-Glacial Gravel. The western and south-western parts are overlain with Boulder Clay. In the south and southeast a broad band of Jurassic, Upper Estaurine Series Limestone and Blisworth Limestone occurs, meeting on the eastern side with Jurassic Upper Lias Clay.

2.4 The Soil Survey of England and Wales have mapped the soils in the Northampton area at a reconnaissance scale of 1:250,000 (Soil Survey, Sheet 4, 1983). The majority of the site is mapped as Hanslope Association (*1), with Moreton Association (*2) occurring in the southeast part of the site and Oxpasture Association (*3) occurring in the extreme northern part of the site.

(*1) Hanslope Association - Slowly permeable calcareous clayey soils developed in Chalky Boulder Clay. Some slowly permeable non-calcareous clayey soils. Slight risk of water erosion.

(*2) Moreton Association - Well drained calcareous clayey and fine loamy soils over limestone, in places shallow and brashy. Some deeper calcareous soils in colluvium.

(*3) Oxpasture Association - Fine loamy over clayey and clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some slowly permeable seasonally waterlogged clayey soils.

The current more detailed survey identified five main soil types which broadly reflect the geological pattern as described above.

2.5 In the extreme north central part of the site soils typically comprise deep moderately well drained (wetness class II) soils. A typical profile comprises medium clay loam topsoils over a heavy clay loam upper subsoil over sandy clay loam/sandy clay with clay at depth. Soils are non calcareous throughout, very slightly stony, becoming slightly stony with depth.

2.6 The second soil type occurs on the underlying limestone referred to in paragraph 2.4 above. These soils occur in two locations on the site, firstly a small area on the higher land at the east of the site alongside Wootten Road and secondly in a broad band to the south and south east of the site. The soils typically comprise medium or heavy clay loam topsoils over heavy clay loam subsoils which in turn overlie limestone bedrock at varying depths. The soils are moderately well to well drained giving rise to wetness class I and II. Topsoils are generally calcareous and stoniness tends to increase with depth. A small area on the eastern edge of the site immediately to the north of Glebe Cottage has moderately/very stony topsoils containing medium and large tabular limestone fragments.

2.7 The third soil type occurs in a small area around Alamein Wood in the southwest corner of the site. Soils typically comprise well drained (wetness class I) medium/ heavy clay loam topsoils over deep heavy clay loam upper subsoil overlying clay. The soils are non calcareous, slightly stony (8-10%) becoming moderately stony with depth, ironstone being the main component with some quartzite.

2.8 The fourth soil type occurs on the valley slopes in the east central part of the site and two areas on the western boundary. Soils typically comprise non calcareous medium/heavy clay loam topsoils with heavy clay loam upper subsoils, overlying slowly permeable clay at 45/70 cms. Gleying occurs between 35 cm and 60 cm giving rise to wetness class II and III.

2.9 The fifth type developed in the Upper Lias Clays occurs on the tops and upper slopes of the ridges on the western and eastern sides of the site and also on the higher ground at the southern end of the site except where there is underlying limestone. Soils typically comprise heavy clay loam/clay topsoils overlying strongly gleyed slowly permeable clay subsoils (wetness class III and IV). The soils are generally non calcareous and only very slightly stony throughout.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The distribution of Agricultural Land Classification (ALC) grades is shown below.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	22.4	27.7
3a	29.4	36.3
3b	28.2	34.8
Non Agricultural	1.0	1.2
TOTAL	81.0	100.0

The definitions of the ALC grades are shown in Appendix 1.

Grade 2

3.2 Land of this grade occurs in the extreme north central part of the site, a broad sweep in the south and southeast, an area in the east adjacent to the Wootton Road and near Alamein Wood in the southwest corresponding with the moderately well drained (wetness class II) fine loamy over clayey soils described in paragraph 2.5, the moderately well/well drained (wetness class I and II) fine loamy soils over limestone bedrock described in paragraph 2.6 and the fine loamy over clayey soils (wetness class I) described in paragraph 2.7. These soils have medium or occasionally heavy clay loam topsoils, with a slight wetness limitation and are therefore subject to a minor workability restriction limiting them to this grade.

Subgrade 3a

3.3 Grade 3a land has been mapped on the valley slopes and in two areas on the western boundary corresponding with the soils described in paragraph 2.8. These soils are moderately well/imperfectly drained (wetness class II and III), dependent on the degree of gleying and depth to the slowly permeable layer, and comprise fine loamy over slowly permeable clay soils. The major limitation associated with these soils is a wetness and workability restriction which limits them to subgrade 3a.

Subgrade 3b

3.4 Subgrade 3b occupies the remainder of the site and comprises imperfectly/poorly drained (wetness class III and IV) clayey and fine loamy over clayey soils described in paragraph 2.9. These soils have non calcareous heavy clay loam or clay topsoils and therefore are subject to a moderately severe wetness and workability restriction, limiting them to this grade.

The area of north of Glebe Cottage has been downgraded to subgrade 3b due to stone abundance as described in paragraph 2.6.

Non-Agricultural Use

3.6 An area of land not in agricultural use consists of a strip of woodland running from the southern boundary in a northerly direction.

March 1994

Resource Planning Team
ADAS Cambridge

REFERENCES

GEOLOGICAL SURVEY OF GREAT BRITAIN 1969. Solid and Drift Edition, Sheet 202 Towcester. Scale 1:63,360.

MAFF, 1970. Agricultural Land Classification Maps, Sheet 133 and Sheet 146. Provisional. Scale 1:63,360.

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

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

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