



LAND  
MANAGEMENT  
SERVICES



A D A S



AGRICULTURAL DEVELOPMENT AND ADVISORY SERVICE

MANOR FARM  
LONGSTANTON  
CAMBRIDGESHIRE

## AGRICULTURAL LAND CLASSIFICATION

### MANOR FARM, LONGSTANTON, CAMBRIDGESHIRE

#### 1.0 BACKGROUND

1.1 Land on this 10 hectare site was inspected on the 14th November 1990 for Neil Ward Associates. Nine auger borings were made on a structured 100 metre grid, supplemented by eight further auger borings to assess more detailed soil patterns. This data was supplemented by information from two soil profile pits. At the time of survey the land was under permanent pasture and was being grazed by cattle.

1.2 On the published provisional 1:63,360 scale Agricultural Land Classification map, sheet number 135 (MAFF, 1961), the site is located within an area of grade 3. The current survey was undertaken to provide more detailed site specific information of land quality.

#### 2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

##### Relief, Microrelief and Drainage

2.1 The site occupies fairly level ground at an altitude of approximately 10 metres above ordnance datum.

2.2 To the north east of The Manor a small area of land falls over gentle gradients to the Rampton Road. This area is believed to have been subject to early extraction of sand and gravel. These workings have resulted in an uneven hummocky surface and a variable depth of soil over gravel. Neither gradient nor microrelief constitute over riding limitations to land use within this area.

2.3 Over much of the remainder of the site early rig and furrow systems are evident, but do not constitute a limitation to agricultural land use.

The occurrence of small excavated pits (particularly alongside Long Lane) could cause a local restriction to some agricultural operations.

- 2.4 In some locations dykes and ponds have been infilled and levelled. The quality of the restoration achieved in these is variable. Where whole bricks or other building debris occur near the surface. They would need to be removed before ploughing and cultivation operations could satisfactorily take place.
- 2.5 The site is understood to be undrained (pers. comm. with the tenant). However the soils occurring on site are well structured, moderately permeable, and despite the lack of a recent piped underdrainage system are currently assessed as wetness class II.

#### Climate

- 2.6 Site specific climatic data has been obtained by interpolating from information contained within the 5 km grid agroclimatic dataset produced by the Meteorological Office. (Met Office, 1989). This shows average annual rainfall to be 544 mm, which is low by national standards. Field capacity days at 88 are also low. The accumulated temperature is assessed as 1455 degrees Celsius. This parameter measures the cumulative build up of warmth available for crop growth and together with average annual rainfall totals influences the development of soil moisture deficits (SMD). Soil moisture deficits of 118 mm and 113 mm were recorded for wheat and potatoes respectively.

SMD: represents the balance between rainfall and potential evapo-transpiration. For ALC purposes the soil moisture deficits developing under a winter wheat and maincrop potato crop are considered. These reference crops have been selected because they are widely grown and in terms of their susceptibility to drought are representative of a wide range of crops.

## Geology and Soils

- 2.7 The geology of this area is mapped on the 1:50,000 scale drift edition geology map sheet number 187. (Geol Surv, 1975). This shows the site to comprise of third and fourth terrace river gravels overlying Ampthill and Kimmeridge Clays, with a small area of Kimmeridge Clay exposed in the south west corner of the site.
- 2.8 This description is in accordance with the more detailed 1:25,000 scale Mineral Assessment Report, number 53. (Inst Geol Sci, 1980)
- 2.9 Detailed field survey observations generally support these descriptions but indicate that the gravel deposits are generally thin and are overlain by moderately deep deposits of fine loamy material.
- 2.10 Towards the south and east of the site soils have developed directly from the underlying Clays. Profiles are typically stone free and comprise heavy clay loam topsoils over clay subsoils which become increasingly calcareous with depth. These soils are well structured, moderately permeable and are assessed as wetness class II.
- 2.11 Over the remaining parts of the site slightly lighter soil types occur: Profiles in these areas typically comprise medium clay loam topsoils over medium/heavy clay loam subsoils. Subsoils may extend to one metre or overlie seams of flinty and calcareous gravels, before passing into clay at depth. These soils are mainly non calcareous in upper horizons becoming calcareous with depth. They are predominantly assessed as wetness class II.
- 2.12 In the disturbed ground northeast of The Manor soils of the second type occur in random pattern with sandier soils over gravel at shallow depth.
- 2.13 Reddish root mottles were observed within the topsoil at many locations on site. These are a common phenomena on land under permanent pasture and are not representative of a significant drainage problem.

### 3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The majority of the site has been graded subgrade 3a, with a smaller area of subgrade 3b occurring to the northeast of the Manor. A breakdown of the ALC grades in hectares and percentage terms is provided overleaf.

ALC	Hectares	Percentage
3a	8.2	85.4
3b	1.4	14.6
Total	9.6	100.0

#### Subgrade 3a

3.2 This occurs over the majority of the site. It includes the heavier soil types described in paragraph 2.10, together with the lighter loamier soils over gravel and clay (see paragraph 2.11). Many of the profiles inspected in this area are grade 2 in quality. However it was considered that the occurrence of small pits and infilled ponds within this area constitutes a limitation to agricultural use, and an overall grade of subgrade 3a has been applied.

#### 3.3 Subgrade 3b

This is mapped in the area of disturbed land to the northeast of The Manor (see paragraph 2.2). Soils in this area are variable, ranging from grade 2 to subgrade 3b over short distances. In this instance soil variability was considered sufficiently severe over short distances to constitute an over riding pattern limitation and the whole area has been graded subgrade 3b. This area also includes a poorly infilled ditch and pond which in their existing condition may impose a local cultivation constraint.

Sources of Reference

GEOLOGICAL SURVEY OF ENGLAND & WALES, 1975. 1:50,000 Scale Drift Edition  
Geology map, sheet number 187, (Huntingdon)

INSTITUTE OF GEOLOGICAL SCIENCES, 1980. Mineral Assessment Report number  
53. (Cottenham).

MINISTRY OF AGRICULTURE FISHERIES AND FOOD, 1961  
1:63,360 scale provisional ALC map sheet number 136.

MINISTRY OF AGRICULTURE FISHERIES AND FOOD, 1988  
Agricultural Land Classification of England and Wales. (Revised guidelines  
and criteria for grading the quality of agricultural land)

METEOROLOGICAL OFFICE, 1989. Climate data extracted from the published  
agricultural climatic dataset.