

**AGRICULTURAL LAND CLASSIFICATION REPORT FOR LAND AT HOLLY TREE FARM,  
MIDDLEWICH**

**1. Introduction**

Following a request for more detailed information, a site of approximately 50 ha was surveyed in April 1988 and updated in April 1991. Information was collected at 150 points using a 5 cm Dutch auger, to give a density of one boring per 0.33 ha. The results were mapped at a scale of 1:10000.

**2. Climatic limitations**

The land lies at about 165 m and has an Accumulated Temperature (January to June) of 1407 °C and an average annual rainfall of 761 mm. Climate does not impose a limitation to the agricultural use of the land.

The rain falls fairly evenly throughout the year with rainfall peaks in August and November. The mean date of the last frost is late April.

**3. Site limitations**

The land lies to the east of Middlewich due west and adjacent to Junction 18 on the M6. It is divided into 2 blocks by the A54, Middlewich Road. To the north of the road the land is almost level and lies at an altitude of about 50 m (164'). Immediately south of the road, the land is almost level but at the southern end of the site, slopes gently towards the River Croco, to lie at an altitude of about 40 m (131') in the valley. Gradient does not limit the classification of any of this land.

**4. Geology and soil limitations**

The area is underlain by Keuper Marl. In the north these deposits are covered by very slightly stony fluvio glacial

deposits on which deep sandy soils have formed. A perched watertable occurs above the clay in some areas but this could be controlled by drainage and the soils fall into Wetness Class I. In the south Boulder Clay overlies the Keuper Marl and in these areas the soils are medium and heavy textured and show signs of impeded drainage, with distinct rusty and grey mottling in many profiles at depths below 23 cm. On the valley floor, poorly drained stoneless clay soils have developed on alluvium; these soils are gleyed and slowly permeable within 40 cm of the surface and fall into Wetness Class IV.

## 5. Interactive limitations

The physical limitations which result from interactions between climate, site and soil are soil wetness, droughtiness and erosion. Soil wetness expresses the extent to which excess water imposes restrictions on crop growth and cultivations, whilst droughtiness indicates the degree to which a shortage of soil water influences the range of crops which may be grown and the level of yield which may be achieved.

The soil wetness assessment takes account of the climatic regime, expressed as median field capacity days, which in this area is 178, the soil water regime, expressed as wetness class and the texture of the top 25 cm of soil. The relationship between these 3 factors determines the workability of the soil.

Soil droughtiness is the major limiting factor in the classification of this land. The susceptibility to drought is determined by the difference between the amount of water the soils can hold (available water capacity (AWC)) and the median moisture deficit (MD) which has developed by the end of the critical part of the growing season. The moisture balance (MB), that is the difference between these 2 figures, indicates the susceptibility to drought of soils in a given area. In this area, the median MD for wheat is 92 and for potatoes is 80.

## 6. Land use

The area supports winter cereals and grass leys with smaller areas of potatoes, vegetables and permanent pasture.

## 7. Agricultural Land Classification

The land is of a high quality mapped predominantly as Grades 2 and 3a.

7.1 Grade 2 accounts for 32.3 ha and 63.4% of the area. It is mapped to include 30-40 cm of black brown sandy loam which overlies pale orange yellow loamy sand. Sand occurs in most profiles below 60 cm. The underlying Keuper Marl generally was not encountered within auger depth. The soils are free-draining.

This land has only minor limitations to its agricultural use and is capable of supporting a wide range of crops. In dry years, yields may be slightly depressed due to the low water holding capacity of the subsoils. Moisture balances are in the range +5 to -20 for wheat and -10 to -30 for potatoes.

### 7.2 Grade 3

7.2.1 Sub-grade 3a. This sub-grade accounts for 9.4 ha and 18.6% of the site. It is mapped to include sandy loam or loamy sand soils which overlie loamy sand. Sand occurs within 50 cm of the surface in many profiles. These soils are lighter textured and more prone to drought than those placed in Grade 2.

In the south, black brown sandy loams or sandy clay loams overlie loamy sand and sand, with clay loam or clay in the lower subsoil. Distinct gleying occurs in the profile at depths below 30 cm and become stronger with depth. The clay forms a slowly permeable layer and the

soils fall into Wetness Class III and so could not be graded higher. They are capable of growing a wide range of crops.

7.2.2 Sub-grade 3b. This sub-grade accounts for 6.9 ha and 13.6% of the area. It is mapped on the slopes in the south where sandy clay loam and clay loam overlies red brown clay within 50 cm of the surface. The soils are gleyed and slowly permeable at depths below 23 cm. These soils may be difficult to work in wet years but are capable of producing good yields of cereals and grass.

7.3 Grade 4. It is mapped in the south over the valley bottom to account for 1.3 ha and 2.5% of the area. It includes very slightly undulating ground. Typically clay loam overlies dull brown clay loam or clay. The soils are gleyed and slowly permeable.

7.4 Non agricultural

This classification accounts for 0.4 ha and 0.7% of the area. It is mapped over an area of scrub in the north.

7.5 Farm buildings

This classification accounts for 0.6 ha and 1.2% of the area and is mapped to include the farm buildings at Holly Tree Farm.

## 8. Summary

The area is of a high quality with 82% mapped as Grades 2 and 3a. The high quality land is associated with fluvio glacial deposits, whilst average or below average quality land occurs on the Boulder clay and alluvium in the south.

Summary of ALC Grades

Grade	Area	%
2	32.3	63.4
3a	9.4	18.6
3b	6.9	13.6
4	1.3	2.5
Non ag	0.4	0.7
Farm buildings	0.6	1.2
Total	50.9	100

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