28/90

PHYSICAL CHARACTERISTICS REPORT FOR LAND AT CROWN FARM, OAKMERE.

1. INTRODUCTION

Following the request for detailed information on the physical characteristics of soil at Crown Farm, Oakmere, members of the RPG visited the site during October 1990. An ALC survey was undertaken and soils augered to 100cms and soil pits dug to determine the physical characteristics.

Location , Altitude and Relief

The site lies to the north of Oakmere and is bordered by the A556(T) to the south-east and the golf course to the north-west. The existing sand and gravel extraction adjoins part of the site to the north-east.

Altitude varies between 70 and 80 metres and is generally undulating in the west of the site, whilst level in the east. Micro irregularities and gradient are limiting factors on part of the site.

Climate and Rainfall

The main parameters used in the assessment of the climatic limitations are Average Annual Rainfall (AAR), and Accumulated Temperature (ATO). For this site these figures are 812mm and 1375°C respectively, indicating that there are no climatic limitations on the site. The field capacity days figure for the site is 188, and the mean last frost is in late April.

Geology and Soils

The area is underlain by Lower Mudstones of the Mercia Mudstone Group. These are covered by drift deposits of Glacial Sand and Gravel. The associated soils are freely draining loamy sands overlying loamy sand or sand. The depth to sand is variable, as is the stone content of the soil profiles.

Agricultural Land Use

Much of the land is used for ley/arable farming, including cereals and potatoes. Along the south-western boundary the fields support permanent pasture.

2. AGRICULTURAL LAND CLASSIFICATION

Sub grade 3a accounts for 42.7 hectares and 80% of the site. It is widespread throughout the site. Topsoils are typically loamy sands overlying sands. Some profiles revealed sand and gravel at depth. Occasionally sandy loam topsoils occur or a greater depth of loamy sand subsoils, allowing profiles to be graded as 2, although these areas are too small to be mapped separately at this scale. Droughtiness is the main limitation to the use of this land.

Adjoining some areas of sub grade 3b land, soils have been downgraded on surface form and irregularity.

Sub grade 3b accounts for 10.1 hectares and 19% of the site. This land is characterised by slopes between 7° and 11°, where gradient is the main limitation to the agricultural use of the land.

In addition particle size analysis has revealed a sand topsoil for some profiles. There is a textural limitation on these soils which prevents a higher grading.

Non agricultural land accounts for 0.5 hectares and less than 1% of the site.

Urban land accounts for 0.2 hectares and less than 1% of the site.

Breakdown of ALC Grades

Grade	Area (ha)	% of site
3a	42.7	80
3b	10.1	19
Non Ag	0.5	< 1
Urban	0.2	< 1
	53.5	100.0

3. SOIL UNITS

A detailed survey of the site was carried out using a handheld auger. All borings were to 100cms unless prevented from achieving this depth as a result of gravel deposits. In addition three soil pits were dug to help determine the physical characteristics of the soil, from which soil units have been identified. These have been separated according to their textures, which reflect their different handling characteristics and separate storage needs. Twelve topsoil samples were taken for particle-size analysis, besides samples from the soil pits, to help confirm field estimates of soil texture.

Unit 1

This soil unit occurs in the eastern part of the site, where topsoils are typically dark brown loamy sands, overlying a strong brown loamy sand to between 50 and 60 cms, overlying yellowish red sand to 120 cms. Occasionally, the loamy sand extends to 120 cms.

These soils are typically stoneless in the topsoil, although in some areas a few small pebbles occur. Stoniness increases with depth, but does not affect cultivations.

Structurally, these soils have a weak, medium, sub-angular blocky structure, with weakly cemented blocks above the sand. The sand has a single grain structure.

Unit 2

This soil unit occurs over the majority of the site. Topsoils are typically dark brown loamy sands or sands extending to between 25 and 35 cms. These overlie yellowish red sand to 120 cms, or occasionally sand and gravel.

These soils are similar in structure to Unit 1, but stoniness increases more markedly with depth (up to 15% stones in the example pits), although the overall stoniness is variable across the site.

It should be noted that the soils throughout the site are naturally variable, and that many of the characteristics described for each soil unit may occur in the other unit.

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