

LAND CLASSIFICATION NOTES FOR LAND AT FIVE BRIDGES, HEREFORDSHIRE

INTRODUCTION

This 9 hectare site lies 12 miles east of Hereford just beyond the River Frome flood plain and adjoining the A4103 road. The site is gently undulating with the lowest point on the southern boundary adjoining the A4103 road at 72 metres and the highest point is at 95 metres in the north-west corner. Although some of the slopes approach 7° the gradient is nowhere a limiting factor to the agricultural use of the land.

The area receives an average annual rainfall of 696mm of which slightly more than half falls during the winter months and has an accumulated temperature above 0°C (January to June) of 1428 indicating that the site is climatically Grade 1. The interaction of summer temperatures and summer rainfall produce crop adjusted moisture deficits of 104mm for wheat and 95mm for potatoes.

The soils are all derived from red Devonian Marl which has weathered to produce red, silty stoneless soils which overlie the weathering parent material at depths of between 60 and 70cm, though in a few isolated places the Marl is nearer the surface.

The site was visited on 15 November 1990 when 10 auger borings were made on a 100 x 100 metre grid using a 120cm Dutch soil auger. Several soil pits were excavated to study the subsoil structure in more detail. At the time of survey, the 2 fields which formed the application area were planted with winter barley.

AGRICULTURAL LAND CLASSIFICATION

Grade 1 Land - occupies 1.8 hectares and accounts for 20% of the site. This land occupies a triangular shaped wedge along the southern site boundary adjoining the A4103. The land is level or very gently south facing at the foot of the low ridge which runs east-west through this field. The soils are the lightest found on site and have a silt loam/medium silty clay loam textured topsoil with a silt loam upper subsoil which in boring 10 and pit 2 extends to at least 70cm. The lower subsoil is compact medium silty clay loam or more rarely silt loam which is the weathering parent material.

Despite the heavy textures of the lower subsoil these soils are generally well structured and permeable to considerable depths. There is limited evidence of gleying at depths below 50cm and most of the soils are wetness Class 1. Soil wetness is a minor limitation but these readily worked, highly productive soils are capable of producing a very wide range of agricultural and horticultural crops.

Grade 2 Land - occupies 6.8 hectares and accounts for 75.6% of the site. This is the most widespread grade of land found on site and the soils are relatively uniform. Topsoil texture is typically medium silty clay loam as is the upper subsoil which continues to 40-60cm depth in most cases, at which juncture the slowly weathering Devonian Marl is encountered which is of medium or heavy silty clay loam

texture. The soils are moderately well structured, despite the firm medium and heavy silty clay loam Marl often encroaching within 70cm, and the soils are fairly porous. The soils are mostly wetness Class II which allied to the moderately ^{heavy} topsoil texture. will produce some minor limitations on the workability and trafficability of the land, particularly in wet autumns. The very high silt content of these soils leads to some surface capping and slaking.

Due to the variable depth of the parent material below the surface, there may be small pockets of other grades of land within the area shown as Grade 2 but these are too small to map at this scale.

Some of the soils mapped as Grade 2 are on moderately steep slopes of $5-6\frac{1}{2}^{\circ}$. This is good quality agricultural land capable of growing a wide range of agricultural and horticultural crops.

Grade 3b land - occupies 0.4 hectares and accounts for 4.4% of the site. This small area of land occurs on top of the low ridge in the southern field where the underlying Devonian Marl is much nearer the surface than elsewhere. At boring 4 the Marl is encountered at approximately 25cm and is slowly permeable giving rise to a soil which is wetness Class IV. The topsoil is also much heavier than elsewhere on site which further restricts the flexibility of the land.

This is moderate quality agricultural land capable of producing moderate yields of a relatively narrow range of crops. The main limitations to the use of the land are the proximity of the Marl to the surface and the heavy topsoil texture which restricts the opportunities for working the land in autumn and spring without causing structural damage to the soil.

SOIL PIT PROFILE DESCRIPTIONS FOR FIVE BRIDGES

PIT 1

0-28cm 5YR 4/4 medium silty clay loam. No stones or mottles observed. Few fine roots.

28-40cm 5YR 4/6 medium silty clay loam. Moderately developed coarse angular blocky structures readily breaking down to well developed medium and coarse angular blocky structures. More than 0.5% biopores. Very firm consistence. Some very well developed worm channels throughout this layer.

40-80cm plus 2.5YR 4/6 heavy silty clay loam, well developed coarse prismatic structures readily breaking down to medium prismatic and medium angular blocky structures. More than 0.5% biopores throughout the upper layers of this horizon with less than 0.5% biopores below 70cm.

No gleying observed, SPL at 70cm. Parent material with common tee green marl fragments below 40cm. Wetness Class II. Grade 2.

PIT 2

0-30cm 5YR 4/4 fine sandy silt loam. Ploughed in stubble layer at 25cm. Few fine roots.

30-52cm 5YR 4/5 fine sandy silt loam. Ped face and matrix colours the same. More than 2% manganese concretions throughout. Weakly developed coarse and medium prismatic structures readily breaking down to medium angular blocky structures. Firm consistence. Porosity greater than 0.5% with several large macro pores of 2-3mm diameter.

52-68cm 5YR 4/5 fine sandy loam. 5YR 6/3 (gleyed) ped face colours. Weakly developed coarse and medium prismatic structures readily breaking down to medium angular blocky structures. Firm consistence. More than 0.5% biopores.

68-120cm 5YR 4/4 medium silty clay loam. More than 2% manganese concretions with pale (5YR 6/3) ped faces. Well developed medium angular blocky structure. Very firm consistence. Less than 0.5% biopores.

Roots becoming increasingly rare below 68cm. Profile gleyed below 52cm with SPL at 68cm. Wetness Class II. Grade 1.