

## AGRICULTURAL LAND CLASSIFICATION NOTES FOR POOL FARM AND MANOR FARM, ESSINGTON, STAFFORDSHIRE

### Introduction

This 21.3 hectare site lies astride Bognop Road one kilometre to the west of Essington Village and about 2 kilometres north of the West Midland urban boundary. The site lies in open countryside but will be joined to an existing sand and gravel quarry some 300 metres to the west. The land north of Bognop Road is gently undulating rising from a low point of 165 metres along the northern boundary to 180 metres at the roadside. South of the road the land falls very gently southwards to 170 metres. Nowhere is gradient a limiting factor to the agricultural use of the land.

The area receives an average annual rainfall of about 730 mm and has a mean accumulated temperature above 0°C (January to June) of 1285, indicating that there is a very slight climatic limitation restricting the maximum grade of land to Grade 2. The rainfall is relatively evenly distributed with a slightly drier period from February to June. The growing season lasts about 240 days from late March to late November and the mean date of the last frost is early May.

The soils are derived from Triassic Bunter Pebble Beds which are variable in stone content. To the south and east the site adjoins the Enville Beds of the Upper Coal Measures which produces less stony, heavier textured soils. The soils are relatively uniform having sandy loam topsoils with similar or sandier subsoils. In a few locations, near the edges of the site, heavy clay subsoils exist and locally throughout the site the soils, especially in the subsoil, can be moderately stony. The soils are relatively well drained with only isolated pockets of soil wetness and gleying which is due to the presence of clay subsoils which in some borings are below 100 cm. The main limitations to the agricultural use of the land are:-

- (1) Droughtiness caused by sandy soils allied to moderately stony subsoils and
- (2) Topsoil stone content.

At the time of survey (January and February 1990) the land south of the road was under winter cereals and that north of the road was partly ploughed and partly fallow.

The site was visited on several occasions in late January and early February 1990 when a soil survey was undertaken using a 110 cm Dutch soil auger. Observations were made on a 100 x 100 m grid with augering to at least 100 cm unless prevented by stony or very waterlogged soils. Some supplementary borings were taken and several small soil pits excavated to more accurately measure the stone content by sieving. In addition 3 soil pits were excavated to obtain a fuller description of the subsoil structure.

### Agricultural Land Classification

**Grade 2 land** occupies 9.3 hectares and accounts for 43.7% of the site. Most of the Grade 2 land occurs north of Bognop Lane where the sandy soils are slightly stony (approximately 5% stones lies within 2 cm), and typically have a sandy loam topsoil with loamy sand or sandy loam subsoils. Towards the eastern and western edges of the site, clay is found below 60-80 cm and this induces gleying in the profile. Where clay is absent there are few or no signs of soil wetness and the soils are generally Wetness Class I. Some of the soils near Pool Farm are of Grade 1 quality but because of the more limiting climate the land cannot be graded higher than 2.

The small area of Grade 2 land south of Bognop Road has soils of similar texture and limitation having a slightly stony sandy loam topsoil overlying variable subsoils with loamy sand and sand textures predominating.

**Grade 3a** occupies 7.8 hectares and accounts for 36.6% of the site. The land occurs as 2 separate blocks, one to the north and a larger area to the south of the road. The soils are similar in texture to those graded 2 having sandy loam topsoils and predominantly loamy sand or sandy loam or more rarely clay subsoils. The main difference is the higher stone content of the subgrade 3a land which makes the soils more drought prone. In places, particularly south of the road, the topsoil stone content exceeds 10% (eg borings 9, 19 and 24) produces a stoniness limitation.

**Grade 3b land** occupies 3.6 hectares and accounts for 16.9% of the site. This area of land lies south of Bognop Road and typically has sandy loam topsoils with sandy loam or loamy sand subsoils which pass into gravel below about 80 cm in some places. These soils are characterised by their higher stone contents in both topsoil and subsoil. The main limitations of this land are:-

- (1) Moderately stony topsoils with more than 15% stones larger than 2 cm, and
- (2) Droughtiness resulting from moderately stony and sandy subsoils which reduces the water holding capacity of these soils.

**Non Agricultural Land** occupies 0.6 hectares and accounts for 2.8% of the site. This small area of land occupies the westernmost portion of the link road into the existing quarry and corresponds to the existing sand and gravel quarry.

## DESCRIPTION OF SOILS FOUND AT POOL FARM AND MANOR FARM, ESSINGTON

### Introduction

The soils are all derived from the Bunter Pebble Beds and are relatively uniform in texture and colour. There are some variations in subsoil texture especially near the edges of the site where heavy clay or in more isolated occurrences rock is encountered within 100 cm of the surface.

Two soil units are identified on the site and are described below.

**Soil Unit I** covers 18.8-hectares and accounts for 88.3% of the site. Soils are relatively uniform, the main variation being subsoil stone content and subsoil textures. The soils typically have a sandy loam topsoil with sandy loam upper subsoil passing into loamy sand or sand lower subsoils. In places (borings 12, 17 and 25) gravel was encountered within 100 cm and elsewhere the subsoil was waterlogged below 70 cm. The soils are most stony south of the Bognop Road especially in the vicinity of borings 17, 20 and 21. Soil pits 2 and 3 provide a reasonably typical profile description for this soil unit.

### Soil Pit 2

0-33 cm 5YR3/3 sandy loam. No mottling or gleying observed, rare roots, ploughed in cereal stubble at 25 cm. 3% stones larger than 2 cm, 5% total stones.

33-66 cm 5YR3/4 sandy loam/loamy sand. No mottles or gleying observed. Occasional fibrous roots. Moderately well developed medium with some coarse subangular blocky structures with a few angular blocky peds. More than 0.5% biopores. Friable consistence.

66-110 cm+ 5YR4/6 loamy sand. Weakly developed coarse subangular blocky structure. More than 0.5% fine pores, less than 0.5% biopores. Very friable consistence. Common fibrous roots throughout. Total stone content between 75 and 90 cm sieved at 17%. Total stones sieved from 90-105 cm as 25%, mainly medium rounded quartzite pebbles.

### Pit 3

0-33 cm 5YR3/2 sandy loam. Common roots throughout. Estimated 7% total stones.

33-75 cm 5YR5/3 and 7/3 sandy loam/loamy sand. Weakly developed coarse subangular blocky structure breaking down to crumb. More than 0.5% biopores. Friable consistence. Occasional fibrous roots. Very mixed subsoil layer with incorporated topsoil material and thin irregular red clay lenses. ?Disturbed.

75-100 cm 10YR5/6 sandy loam/loamy sand. Very wet soil with watertable at 78 cm. Soil difficult to texture and impossible to access soil structure.

**Soil Unit II** covers 2.5 hectares and accounts for 11.7% of the site. This soil unit occurs on the eastern and western periphery of the site where the typically sandy upper layers are underlain by clay within 100 cm and in places within 60 cm of the surface. The unit is not very extensive and soil pit 1 provides a typical profile description.

## Pit 1

0-33 cm 5YR3/3 sandy loam. Common fibrous roots. Ploughed in cereal stubble at 25 cm. Estimated stone content at 10%. No mottles or gleying observed. Very uneven lower boundary varying from 28-35 cm.

33-45 cm 5YR3/4 sandy loam. Moderately well developed coarse subangular blocky structure. More than 0.5% biopores. No mottles or gleying observed. Friable consistence. Uneven lower boundary varying from 42-52 cm.

45-60 cm 10YR6/5 sandy clay loam/sandy loam. Soil gleyed. Moderately well developed coarse subangular blocky structure. More than 0.5% biopores. Occasional fibrous roots. Firm consistence. Estimated 20% stones. Varying lower boundary from 52-65 cm.

60-110 cm 5YR4/6 clay. Well developed prismatic structure breaking down to medium and coarse angular blocky structures. More than 2% fine pores but less than 0.5% biopores. Numerous mottles and gley colours throughout. Very firm consistence. Occasional worm channels and roots along larger pores. Estimated 20% stones. Occasional sandy lenses below 70 cm.