STATEMENT OF PHYSICAL CHARACTERISTICS

AND

AGRICULTURAL LAND CLASSIFICATION

Woodhead Farm, Hoyland
Barnsley
Proposed Open Cast
Coal Site

February 1991
2FCS 5238
Project 2/91

lds.al3.woodh.occ

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1. Statement of Physical Characteristics

1.1 Introduction

This 24 hectare site is located 2½ km north east of junction 36 on the M1 around national grid reference SE373019.

The site was surveyed in January 1991 when soils were examined by hand auger borings, to a depth of 1 metre at a density of 1 boring per hectare at points pre-determined by the National Grid. Detailed soil descriptions to provide information on soil structure and to provide samples for analysis were carried out at inspection pits located at representative points on the site. All land quality assessments were made using the methods described in the "Revised Guidelines and Criteria for Grading the Quality of Agricultural Land" (MAFF, 1988).

1.2 Land Use

Most of the site is in arable use with some subsidiary areas of grassland.

1.3 Climate

Average annual rainfall (AAR) is approximately 718 mm and the accumulated temperature above 0°C (January to June) is 1271 day°C. The field capacity period is about 160 days a year. The temperature and rainfall values impose an overall climatic limitation of Grade 2 on the site. The moisture deficits of 90 mm for wheat and 75 mm for potatoes result in droughtiness limitations on the coarse textured soils which are widespread on the site.

1.4 Relief

The site is gently undulating with no gradients in excess of 5°. Mean altitude is about 140 m above ordnance datum.

1.5 Geology

The majority of the site is underlain by Carboniferous sandstone over which there is a thin layer of sandy drift. The lower lying areas in the south west and north east contain heavy soils formed on Coal measure clays.

1.6 Drainage

Soils are generally freely draining (Wetness Class I) with the exception of the lower lying areas of heavy clay which are poorly drained and fall within Wetness Class IV.

1.7 Soil Properties

Two soil types occur on the site.

a) Heavy clay loam over clay derived from Coal Measure Shales.

Soils of this type occur on the lower slopes in both the northern and southern most corners of the site. Topsoils consist of relatively stone free heavy clay loam over a heavily mottled gleyed slowly permeable clay or silty clay subsoils with a coarse prismatic structure.

b) Sandy loam over Coal Measure Sandstones

This soil covers the majority of the site. Topsoils consist of weakly structured slightly stony sandy loam over similar or lighter subsoils which pass into sandstone at depth. Stone content of the subsoil is variable, but usually higher than in the topsoil.

1.8 Soil Resources

The topsoil and subsoil resources on the site are shown on the accompanying map along with soil depth and volume information.

a) Topsoils

Unit T1

This unit consists of medium or heavy material which is generally unmottled and only very slightly stony. Mean thickness is 25 cm and structure is moderately developed angular blocky.

Unit T2

Unit T2 consists of light material which is unmottled and slightly stony. Mean thickness is 30 cm and structure is weakly developed sub angular blocky.

b) Subsoils

Unit S1

This subsoil unit is formed of heavily mottled and gleyed slowly permeable clay. Structure is moderately developed prismatic

Unit S2, S2a

These consist of light weakly structured material with a variable stone control. Thickness depends on to depth to bedrock. Unit S2a occurs where rock occurs at a depth of less than 1 m.

2. Agricultural Land Classification

The ALC grades occurring on this site are as follows:

Grade	Hectares	Percentage of Total Area
2	15.9	63.4%
3a	3.6	14.3%
3b	5.2	20.7%
Urban	0.4	1.6%
Total	25.1	100%

2.1 Grade 2

Land of this grade is widespread in the higher central parts of the site. Soils consist of slightly stony sandy loam topsoils over similar or lighter well drained (Wetness Class I) subsoils. Weathering sandstone bedrock occurs in places at depths of 90-100 cm. Soils of this type are restricted to grade 2 by slight droughtiness and the overall climatic limitation.

2.2 Subgrade 3a

Soil textures are similar to those in the Grade 2 land, but pass into sandstone bedrock at shallow depth, usually at about 80 cm from the surface. This increases the drought risk and this area is limited to subgrade 3a for this reason.

2.3 Subgrade 3b

Three areas fall within this subgrade. Those in the north east and south west contain slowly permeable poorly drained (Wetness Class IV) heavy clay loam and clay soils limited to subgrade 3b by wetness and workability problems.

The third area near Springfield Cottages consists of stony sandy loams and loamy sands which pass into fragmented sandstone bedrock at about 60 cm from the surface. These soils hold little water and are restricted to subgrade 3b by droughtiness limitations.

2.4 Urban

The access road to Wood Head Farm falls within this category.

Resource Planning Group
Leeds Regional Office
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3. Soil Profile Descriptions

3.1 Table 1 Heavy clay loam over clay soil (Pit 1)

Woodhead Farm

Crop: cereals
Slope: 2°S
Weather: Frosty, clear

Depth cm	
0-30	Very dark greyish brown (10YR 3/2) unmottled heavy clay loam; very slightly stony with medium soft sandstones; moist; weakly developed medium angular blocky soil structure; moderately weak soil strength; slightly sticky; moderately plastic; common fine fibrous roots; non calcareous; gradual smooth boundary.
30-100	Light grey (10YR 7/2) clay; many medium prominent ochreous (10YR 6/8) mottles; very slightly stony; moist; moderately developed coarse prismatic structure; moderately firm soil strength; very sticky; very plastic; common fine fibrous roots; non calcareous.