STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION ASHTREE LANE, BARLOW, GATESHEAD PROPOSED OPENCAST COAL SITE FEBRUARY 1993

ADAS

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SUMMARY

A Statement of Physical Characteristics and Agricultural Land Classification survey of 37.8ha of land at Ashtree Lane, Barlow was carried out in February 1993.

At the time of the survey all of this was in agricultural use and all falls within Subgrade 3b. Soils are on the whole medium to heavy textured and poorly drained (Wetness Class IV) and limited to Subgrade 3b by wetness and workability problems. A small area in the south east contains pockets of light to medium textured well drained soils (Wetness Class I) along with patches of stone. These pockets are not widespread enough, however, to separate as an area of higher grade land.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED OPEN CAST COAL SITE AT ASHTREE LANE, BARLOW, GATESHEAD.

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site lies 10km west of Gateshead and 3km south west of Blaydon around National Grid Reference NZ 158606. It covers a total of 37.8ha. Survey work was carried out in February 1993 when soils were examined by hand auger borings at intervals predetermined by the National Grid. Overall boring density was 1 per two ha. Additional borings were made where necessary to define, grade boundaries. Two soil inspection pigs were dug to allow detailed descriptions of soil structure to be made. Land quality was assessed using the methods described in "Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land". (MAFF 1988)

1.2 Land Use and Relief

At the time of the survey the site was under a mixture of arable and permanent pasture. Site altitude varies from 155m AOD to 175m AOD. The land is level to moderately sloping (0-4°).

1.3 Climate

Grid Reference	:	NZ 158606
Altitude (m)	:	165
Accumulated Temperature above 0°C (January-June)	:	1177 day °C
Average Annual Rainfall (mm)	:	707
Climatic Grade	:	3a
Field Capacity Days	:	180
Moisture Deficit (mm) Wheat	:	79
Moisture Deficit (mm) Potatoes	:	60

1.4 Geology, Soils and Drainage

The site is underlain by Carboniferous Coal Measures over which, over most of the site, there is a covering of boulder clay. Soils on the boulder clay are generally medium and heavy textured and consist typically of medium clay loam topsoils over slowly permeable heavy clay loam or clay subsoils. In the south east corner, however, where the drift cover is thin, variable light and medium textured soils are formed over a mixture of boulder clay and weathering sandstone bedrock. The heavier boulder clay soils over the site as a whole are generally poorly drained (Wetness Class IV). Those in the south east formed over sandstone are well drained (Wetness Class I).

1.5 Soil Properties

2 main soil types occur on this site, descriptions of which are given below. Topsoil and subsoil resources are also shown on the accompanying maps along with soil thickness and volume information.

(a) Soil Type 1:- Medium/heavy textured soils (Unit T1/S1)
(Full Profile Description, Table 1)

This soil formed on till occurs over most of the site. It is characterised by slightly stony medium over heavy textures and poorly drained slowly permeable subsoil horizons.

(b) Soil Type 2:- medium over light/medium textured soils (Unit T1/S2)
(Full Profile Description, Table 2)

This soil formed on Till and sandstone occurs in the south east of the site. It is characterised by subsoils varying from sandy loam to heavy clay loam, sometimes with fragmented sandstone or sandstone bedrock at depth.

1.6 Soils Resources

(i) Topsoils

Unit T1 occurs over the whole site. It is medium textured and typically consists of medium clay loam or sandy clay loam which is stoneless or very slightly stony (containing 0-2% small angular to subangular hard rocks). This topsoil has a moderately well developed coarse granular structure and a median thickness of 30cm.

(ii) Subsoils

Unit S1. This unit occurs over most of the site. It is medium to heavy textured and consists of sandy clay loam heavy clay loam or clay. It is slightly stony (containing 0-8% medium soft sandstones and coal and has a moderately well developed coarse prismatic structure. Mean thickness is 70cm.

Unit S2 occurs in the south eastern part of the site. It is light to medium textured and consists of sandy clay loam, sandy loam or loamy sand with occasional areas of heavy clay loam and hard rock. Soils within this area are complex and variable. Mean depth is 70cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Medium/Heavy textured soil, T1/S1

Profile pit 1 (near auger boring 12)

Slope:- 2°
Land Use:- Arable
Weather: Cold and overcast

Depth cm	Horizon Description
0.30	Very dark greyish brown (10YR3/2) medium clay loam; no mottles, very slightly stony (approximately 1% small sub angular hard stones); moist; moderately well developed coarse granular structure; friable; moderately porous; many fine and medium roots; slightly sticky; slightly plastic; non-calcareous; clear smooth boundary.
30-100	Grey (10YR5/1) heavy silty clay loam; many clear distinct yellowish brown (10YR5/8) mottles; very slightly stony (approximately 2% small to medium rounded medium soft sandstones and coal); moist; moderately developed coarse prismatic structure; very firm soil strength; slightly porous; common fine and fibrous roots; slightly sticky; moderately plastic; non calcareous.

SOIL PROFILE DESCRIPTIONS

Table 2 Light/Medium textured soil T1/S2

Profile Pit 2 (near auger boring 24)

Slope: 0°
Land use: Arable
Weather: Cold and overcast

Depth cm	Horizon Description
0–35	Very dark greyish brown (10YR3/2) medium clay loam; no mottles; stoneless; moist; moderately well developed coarse granular structure; friable soil strength; moderately porous; many fine and medium roots; slightly sticky; slightly plastic; non calcareous clear smooth boundary.
35–60	Brownish yellow (10YR6/8) medium sandy loam; no mottles; stoneless; moist; moderately developed medium angular blocky structure; friable; moderately porous; many fine and medium fibrous roots; slightly sticky; slightly plastic; non calcareous; clear smooth boundary.
60–100	Light grey (10YR7/2) medium sandy loam; common distinct yellowish brown (10YR5/8) mottles; stoneless; moist; friable; moderately porous; few fine roots; slightly sticky; non plastic; non calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:-

Grade/Subgrade	Hectares	Percentage of Total Area
1		
2		
3a		
3b	37.8	100
4		
5		
(Sub total)	(37.8)	(100)
Urban		
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)		
TOTAL	37.8	100

3.1 Subgrade 3b

Subgrade 3b land covers the whole site. Soils consist of stoneless to very slightly stony medium clay loam and sandy clay loam topsoils overlying stoneless to slightly stony gleyed slowly permeable heavy clay loam and silty clay subsoils. Profiles are generally poorly drained (Wetness Class IV) and slowly permeable at or above 40cm. A small area in the south east contains some lighter textured well drained (Wetness Class I) sandy loam subsoils mixed with heavy textured slowly permeable subsoils along with areas of loamy medium sand and bedrock. Although some better quality land occurs within this area the land is quite variable and is therefore left within Subgrade 3b.

MAPS