STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION TRANWELL FARM, MORPETH, NORTHUMBERLAND PROPOSED OPEN CAST COAL SITE EXTENSION APRIL 1993

ADAS
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SUMMARY

A statement of physical characteristics and Agricultural Land Classification survey of 20.1 ha of land at Tranwell Farm, Morpeth was carried out in April 1993.

All of this is in agricultural use of which 4.9 ha falls within Subgrade 3A. Soils within this subgrade are imperfectly drained (Wetness Class III) and consist typically of medium clay loam or sandy clay loam topsoils overlying similar textured upper subsoils and gleyed, slowly permeable heavy clay loam lower subsoils. Soil wetness is the main limitation on ALC grade.

The remainder of the site (15.2 ha) falls in Subgrade 3b. Profiles are poorly drained (Wetness Class IV) and typically consist of medium clay loam topsoils overlying heavy clay loam subsoils which are slowly permeable. Soil wetness is more restricting than on the Subgrade 3a land and is the main factor limiting this land to Subgrade 3b.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED OPEN CAST COAL SITE EXTENSION AT TRANWELL FARM, MORPETH, NORTHUMBERLAND

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1. Location and Survey Methods

The site lies approximately three kilometres south-west of Morpeth town centre, around National Grid Reference NZ 190832. Survey work was carried out in April 1993 when soils were examined by hand auger borings at 100 m intervals predetermined by the National Grid. One soil profile pit was dug to verify subsoil structure and depth and to allow sampling for laboratory analysis. Land quality was assessed using methods described in 'Agricultural Land Classification of England and Wales' (MAFF 1988).

1.2 Land Use and Relief

The sites covers 20.1 ha, all of which is in agricultural use. At the time of survey, it was under cereals. The site occupies a valley side above the Catch Burn. Altitude ranges from 80 m TO 97 m O.D. and the land is level to moderately sloping (0 - 7°).

1.3 Climate

Grid Reference	:	NZ190832
Altitude (m)	:	90
Accumulated Temperature above O°C (January - June)	:	1252 day °C
Average Annual Rainfall (mm)	:	752
Climatic Grade	:	2
Field Capacity Days	:	191
Moisture Deficit (mm) Wheat	:	82
Moisture Deficit (mm) Potatoes	:	66

1.4 Geology, Soils and Drainage

The site is underlain by Coal Measures which, over most of the area, are covered by boulder clay (till). A small part of the eastern half of the site, adjacent to the stream, however, is covered by alluvial sand. Soil profiles are imperfectly or poorly drained (Wetness Classes III and IV), except for the very small area near the stream where subsoils are light textured. Soils formed on the boulder clay consist of light or medium textured topsoils (medium clay loam or medium sandy loam) overlying medium to heavy textured subsoils (predominantly heavy clay loam with less extensive medium clay loam, sandy clay loam and occasionally medium sandy loam).

111 Soil Properties

One main soil type occurs 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:- Light or medium over heavy textured soils.
(Full Profile Description, Table 1) (Unit T1/S1)

This soil formed on boulder clay occurs over virtually all of the site. It is characterised by deep imperfectly or poorly drained profiles which are very slightly stony, and contain slowly permeable subsoil horizons.

A small area adjacent to the stream in the eastern half of the site has light to very light textured subsoils below 30 cm. However, this area is too small to justify treating as a separate map unit.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs over the whole site. It is medium to light textured, consisting mostly of medium clay loam, with smaller areas of medium sandy loam in the south east. It is very slightly stony (containing approximately 4% small and very small sub-angular sandstones and hard stones) and has a moderately developed medium to coarse angular blocky structure. Median unit thickness is 25 cm.

(ii) Subsoils

Unit S1 covers the entire site. It is medium to heavy textured, (predominantly heavy clay loam, less frequently sandy clay loam, medium clay loam or occasionally medium sandy loam). Structure is weakly developed coarse angular to medium prismatic. Mean unit thickness is 95 cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Light or medium over heavy textured soil, T1/S1

Profile Pit 1 (Between auger borings 1 and 2).

Slope: 30
Land Use:- Cereals.
Weather:- Dull and cool with showers.

Depth cm	Horizon Description
0 - 25	Dark greyish brown (10YR 412) medium clay loam; no mottles; very slightly stony (approximately 4% small and medium angular and subangular sandstones and hardstones); moist, moderately developed medium to coarse angular blocky structure; firm; very slightly porous; few fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; abrupt smooth boundary.
25 - 45	Light grey (10YR 611) heavy clay loam; many clear reddish yellow(7.5Y12 618) mottles; very slightly stony (approximately 2% small and medium angular and subangular sandstones and hardstones); moist; weak coarse angular and medium prismatic structure; firm to very firm; very slightly porous (< 0.5% pores > 0.5 mm); few fine and very fine fibrous roots; moderately plastic; moderately sticky; non-calcareous; smooth clear boundary;
45 - 120	Dark grey (N51) heavy clay loam; common distinct strong brown (7.5YR 4/6) mottles; very slightly stony (approximately 2% small, and medium subrounded sandstones and shales); moist; weakly developed medium prismatic structure; extremely firm; very slightly porous (< 0.5% pores > 0.5 mm); few fine fibrous roots; very plastic; moderately sticky; 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	4.9	24.4
3b	15.2	75.6
4		
5		
(Subtotal)	(20.1)	(100)
Urban		
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Subtotal)		
TOTAL	20.1	100

3.1 Subgrade 3a

Subgrade 3a land occurs in the centre of the site. Profiles are imperfectly drained (Wetness Class III) and typically consist of medium clay loam or medium sandy loam topsoils overlying similar textured gleyed upper subsoils and gleyed heavy clay loam lower subsoills which are slowly permeable below 55 cm. Topsoils and subsoils are very slightly stony, containing 3 - 5% small to medium angular and subangular sandstones and hardstones. Soil wetness limits this land to Subgrade 3a.

3.2 Subgrade 3b

Land in this subgrade covers the majority of the site. Profiles are generally poorly drained (falling within Wetness Class IV) and consist of medium clay loam topsoils overlying gleyed heavy clay loam or sandy clay loam subsoils which are slowly permeable within 50 cm of the surface. Both horizons are very slightly stony (approximately 2 - 4% small and medium subangular hardstones and sandstones). Soil wetness is more limiting than on the adjoining Subgrade 3a land and is the main factor restricting this land to Subgrade 3b.

MAPS