

STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION
MIDDRIDGE DRIFT,
SHILDON, CO DURHAM
PROPOSED OPEN CAST COAL SITE
FEBRUARY 1993

ADAS
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SUMMARY

An Agricultural Land Classification and Soil Survey of approximately 33 hectares of land between Middridge and Old Eldon was carried out in February 1993. Most is in arable use.

8.3ha of this land falls within Grade 2 and consists of well drained (Wetness Class I) medium clay loam topsoils over medium clay loam to medium sandy loam subsoils. This land is restricted to Grade 2 by climatic limitations.

Subgrade 3a land covers 10.9ha. Profiles are well drained (Wetness Class I) and consist of medium clay loam topsoils and thin medium clay loam or sandy clay loam subsoils overlying bedrock. This land is limited to Subgrade 3a by droughtiness.

Subgrade 3b land covers 13.7ha. Profiles are either well drained (Wetness Class I) and consist of medium clay loam topsoils and very thin medium clay loam subsoils over bedrock, or are poorly drained (Wetness Class IV) and formed of medium clay loam topsoils over heavy clay loam subsoils. The well drained soils are limited to Subgrade 3b by soil droughtiness. The poorly drained soils are limited by wetness and workability problems.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED OPEN CAST COAL SITE AT MIDDRIDGE DRIFT, SHILDON, CO DURHAM.

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site is located 1km north east of Shildon between the villages of Old Eldon and Middridge. It is centred on Grid Reference NZ 245270 and covers a total area of 33.5ha. Survey work was carried out in February 1993 when soils were examined by hand auger borings at 100m intervals at points predetermined by the National Grid. Land quality was assessed using the methods described in "Agricultural Land Classification of England and Wales" (MAFF 1988).

1.2 Land Use and Relief

At the time of survey, 97.9% of the site was in arable use. Site altitude varies from 130 to 140m AOD and the land is gently to moderately undulating.

1.3 Climate

| | |
|---|--------------|
| Grid Reference | : NZ 245 270 |
| Altitude (m) | : 140 |
| Accumulated Temperature above 0°C (January-June) | : 1219 day°C |
| Average Annual Rainfall (mm) | : 718 |
| Climatic Grade | : 2 |
| Field Capacity Days | : 186 |
| Moisture Deficit (mm) Wheat | : 83 |
| Moisture Deficit (mm) Potatoes | : 65 |

1.4 Geology, Soils and Drainage

The site is underlain by Middle Magnesian Limestone over which there is a thin cover of till. Soils are generally medium textured though there are scattered areas of heavy and light textured subsoils. The medium and light textured subsoils are well drained (Wetness Class I); the heavy textured subsoils are slowly permeable and thus poorly drained (Wetness Class IV).

1.5 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:- Medium textured soils (Unit T1/S1)
(Full Profile Description, Table 1)

This soil formed on Till covers the whole site. It is characterised by slight stoniness, variable textures, unmottled well structured friable subsoil horizons and thicknesses over bedrock varying from only 30cm to more than 100cm.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs over the whole site. It is medium textured and consists of very slightly to slightly stony, (1-6% small and medium sized angular and rounded hard stones) medium clay loam. It has a well developed coarse granular structure and a median thickness of 30cm.

(ii) Subsoils

Unit S1 covers the whole site. It is a light to medium textured subsoil of variable thickness with occasional heavy textured areas. It is slightly stony, containing approximately 6% small and medium, angular and rounded hard stones and has a moderately developed medium angular blocky structure. Mean thickness is 40cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Medium textured soil, T1/S1
Profile Pit 1 (Near auger boring 21)

Slope:- 2°
Land Use:- Cereals
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 2% medium subangular to rounded hard stones); moist; moderately well developed medium subangular blocky structure; friable; moderately porous; many fine and medium fibrous roots; slightly sticky; slightly plastic; non calcareous; clear smooth boundary. |
| 30-100 | Dark to strong brown (10YR4/3) medium sandy clay loam; no mottles; very slightly stony (approximately 4% medium subangular to rounded hard stones); moist; moderately developed medium granular structure; friable; moderately porous; many fine and medium fibrous roots; slightly sticky; slightly plastic; non calcareous. |

3. AGRICULTURAL LAND CLASSIFICATION

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

| <u>Grade/Subgrade</u> | <u>Hectares</u> | <u>Percentage of Total Area</u> |
|------------------------|-----------------|---------------------------------|
| 1 | | |
| 2 | 8.3 | 24.7 |
| 3a | 10.9 | 32.4 |
| 3b | 13.7 | 40.8 |
| (Subtotal) | (32.9) | (97.9) |
| Urban | 0.7 | 2.1 |
| Non Agricultural | | |
| Woodland - Farm | | |
| - Commercial | | |
| Agricultural Buildings | | |
| Open Water | | |
| Land not surveyed | | |
| (Subtotal) | (0.7) | (2.1) |
| | <hr/> | <hr/> |
| TOTAL | 33.6 | 100 |
| | <hr/> | <hr/> |

3.1 Grade 2

Grade 2 land occurs over the centre and north west of the site. Profiles are well drained (Wetness Class I) and consist typically of medium clay loam topsoils over medium clay loam, sandy clay loam or occasionally medium sandy loam subsoils. This land is limited to Grade 2 by the overall climatic limitation and, in places, slight soil droughtiness.

3.2 Subgrade 3a

Subgrade 3a land is common in the eastern half of the site. Profiles are well drained (Wetness Class I) and consist of medium clay loam topsoils over medium clay loam or sandy clay loam subsoils. Profiles are only 50-70cm in thickness over the underlying limestone and droughtiness is the main factor limiting this land to Subgrade 3a.

3.3 Subgrade 3b

Subgrade 3b land occurs in various parts of the site. Most areas are well drained (Wetness Class I) although there are often small areas of poorly drained land (Wetness Class IV) within the same area. The well drained profiles consist of medium clay loam topsoils over very shallow medium clay loam subsoil (total profile depth of 30 to 40cm). Droughtiness is the main factor limiting these profiles to Subgrade 3b. The poorly drained profiles consist of medium clay loam topsoil over slowly permeable heavy clay loam subsoils. Soil wetness is the main factor limiting this land to Subgrade 3b.

3.4 Urban

This consists of an industrial estate.

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MAPS