

AGRICULTURAL LAND CLASSIFICATION

FIELD HOUSE FARM

RUMBY HILL, HOWDEN-LE-WEAR

CO. DURHAM

PROPOSED OPENCAST COAL SITE

ADAS
Leeds Statutory Centre

June 1992
File Ref: 2FCS 5932
Project No: 38/92

ALFDHSFM.DUR

CONTENTS

1. INTRODUCTION AND SITE CHARACTERISTICS
2. AGRICULTURAL LAND CLASSIFICATION GRADES

MAP(S)

1. AGRICULTURAL LAND CLASSIFICATION
2. TOPSOIL RESOURCES
3. SUBSOIL RESOURCES

AGRICULTURAL LAND CLASSIFICATION REPORT

1.0 INTRODUCTION AND SITE CHARACTERISTICS

1.1 Location

National Grid Reference:-

NZ 167335

Location Details:-

Approximately 500 m due east of
Howden Le Wear.

Site Size:-

Approx 26 ha

1.2 Survey Methods

Date Surveyed:-

19th June 1992.

Boring Density and Spacing Basis:-

One boring per hectare at 100 m
intervals pre-determined by the
National Grid.

Sampling Method:-

By hand auger to a depth of 1 m.

Number of Borings:-

24

Number of Soil Pits (used for):-

1, used for soil structure
description.

All land quality assessments were made 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)".

1.3	Land Use:-	Mainly permanent and ley grassland.
1.4	Climate and Relief	
	Average Annual Rainfall (AAR):-	740 mm
	Accumulated Temperature above 0°C (January-June):-	11,206 day °C
	Field Capacity Days:-	195 days
	Altitude average:-	150 m a.o.d.
	maximum:-	170 m a.o.d.
	minimum:-	120 m a.o.d.
	Climatic limitation (based on interaction of rainfall and temperature values):-	Grade 2
	Relief:-	Moderate to steep south easterly facing slope.
	Slopes (°):-	01° - 16°
	Gradient Limitations:-	Yes.
	Limiting gradient(s):-	8° and 12°
	Grade(s)/subgrade(s):-	3b and 4
	Occurrence on site:-	33% of total borings, middle of site in the southern half.

1.5 Geology and Soil

Solid Strata:- Carboniferous sandstones and shales.

Depth of solid rock from surface:- Greater than 1.0 m.

Drift types:- Glacial Till.

Thickness of drift
and distribution:- Greater than 1.0 m over whole site,
apart from disturbed areas where
depth varies from 0 - 60 cm.

Soil Types and Distribution:- Mostly medium to heavy clay loams.

Soil Textures (topsoils and subsoils):- Medium clay loam topsoil over heavy
clay loam subsoil. A mixture of
lighter textures do occur over other
parts of the site, ranging from
medium silty clay loams to medium
sandy loams. Clay subsoils occur at
the foot of the slope.

Soil Series/Associations:-

On 1/25000 map:-

Brickfield.

Identified on site:-

Brickfield, Dunkeswick.

Soil Limitations and type:-

Mainly wetness, possibly droughtiness
on very shallow areas.

1.6 Drainage

Soil type and Wetness Class:-

Mainly Wetness Class IV.

Drainage Limitations:-

Slowly permeable subsoils, especially
in disturbed areas.

2.0 AGRICULTURAL LAND CLASSIFICATION GRADES

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

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total</u> <u>Area</u>
1	-	
2	-	
3a	-	
3b	19.93	75.8
4	3.28	12.5
5	2.06	7.8
Non Agricultural	-	
Agricultural Buildings	-	
Urban	1.02	3.9
Other	-	
	<hr/>	<hr/>
Total	26.29	100
	<hr/>	<hr/>

Subgrade 3b

Distribution on site:-

Majority of site apart from disturbed and restored areas.

Soil Type(s) and Texture(s):-

Medium clay loams over mottled heavy clay loams to greater than 1 m. depth. Medium clay loam over mottled clay on eastern side at foot of slope.

Depth to Slowly Permeable Layers:-

Variable depth, 5 - 50 cm.

Wetness and Drainage Class:-

Generally wetness Class IV (poorly drained).

Stone Percentage and Type:-

Can be quite high 20 - 30% on restored land where coal or shale exists. Elsewhere 5-10% of medium soft sand stone or shale in glacial till.

Grade Limiting Factors:-

Mostly wetness.

Other Limiting Factor(s):-

Gradient, if greater than 7° and less than 12°.

Grade 4

Distribution on site:-

Central part of site E to W plus south eastern corner at top of slope.

Soil Type(s) and Texture(s):-

Medium clay loam over heavy clay loam to 70 cm, or sandy clay loam to 20 cm, or medium silty clay loam over heavy silty clay loam over silty clay to more than 1.0 m.

Depth to Slowly Permeable Layers:-

5 - 60 cm.

Wetness and Drainage Class:-

Wetness Class IV (disturbed compacted land).

Stone Percentage and Type:-

Varies between 5 - 30% of medium soft sandstones and shales.

Grade Limiting Factors:-

Severe wetness caused by compaction. Also gradient, where greater than 11°.

Limiting Factor(s):-

Grade 5

Distribution on site:-

Two small areas; one in the north western corner and one in the middle of the site in a mid-slope position.

Soil Type(s) and Texture(s):-

Medium clay loam or heavy silty clay loam to 20 cm over restored overburden.

Depth to Slowly Permeable Layers:-

Very slowly permeable restored overburden at 20 cm. depth.

Wetness and Drainage Class:-

Wetness Class V.

Stone Percentage and Type:-

20 - 80% overburden, mainly carboniferous shales.

Grade Limiting Factors:-

Severe winter wetness, summer droughtiness and lack of topsoil in most areas.

Urban

Type of land use included:-

Old mineral spoil heaps.

3.0 STATE OF PHYSICAL CHARACTERISTICS (SOIL PROPERTIES AND RESOURCES)

3.1 Soil Properties:-

2 dominant soil types occur on this site.

Soil Type 1:- Medium to heavy textured boulder clay soil.

Occurrence:- Over the majority of the site.

Textures:- Generally medium clay loam (can be medium silty clay loam or medium sandy loam) over heavy clay loam or clay.

Stone content:- Slightly stony 5-10% sandstones and shales.

Horizon thickness:- Topsoil median thickness 25 cm, subsoil mean thickness 75 cm.

Profile pit features:- Moderately developed medium and coarse prismatic structure, extremely hard soil strength, moderately sticky and plastic.

Soil Type 2:- Medium topsoil over restored overburden.

Occurrence:- Central and north western parts of site.

Textures:- Medium clay loam, sandy clay loam or medium sandy loam over overburden.

Stone content:-

Very slightly stony in topsoil, very stony i.e. greater than 50% shales and sandstones in the overburden.

Horizon thickness:-

Topsoil median thickness 20cm.

3.2 Soil Resources

Topsoils

Unit T1

Texture/stone content:-

Medium to light clay loams, sandy loams or silty clay loam; very slightly stony.

Structure:-

Well developed coarse sub-angular blocky structure.

Occurrence:-

Throughout the site.

Thickness:-

Median thickness 25 cm.

Subsoils

Unit S1

Texture/stone content:-

Heavy clay loams or clay, slightly stony.

Structure:-

Moderately developed medium and coarse prismatic.

Occurrence:-

Majority of silt apart from central and north western area.

Thickness:-

Mean thickness 75 cm.

4. SOIL PROFILE DESCRIPTIONS

Field House Farm, Rumby Hill, Howden le Wear.

Pit 1:- Near auger boring 3. Medium over heavy boulder clay soil.

Land Use:- Permanent pasture.

Moisture Deficits:- 80 mm (wheat), 62 mm (potatoes).

Wetness Class:- IV Slope:- 03°

Horizon	Depth(cm)	Description
1	0 - 20	Dark grey (10YR 4/1) medium clay loam, with few fine distinct dark yellowish brown mottles (10YR 4/6); well developed coarse, sub-angular blocky structure; very hard ped strength and a medium packing density; dry, but moderately plastic and moderately sticky when wet, very slightly stony, approx. 3% small and medium sandstones and hard stones; abundant fine fibrous roots and a gradual smooth boundary.
2	20 - 100	Grey (10YR 5/1) heavy clay loam, with common, medium strong brown mottles (7.5YR 5/8); moderately developed medium and coarse prismatic structure; extremely hard ped strength and a high packing density, Dry to 70 cm. then slightly moist; moderately sticky and moderately plastic when wet. Slightly stony, approx. 5% medium and sub-angular sandstones and hard stones, very slightly porous and common fine fibrous roots.