STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION PROPOSED OCCS, WEST LODGE FARM, SHILDON CO. DURHAM JANUARY 1996

ADAS
Leeds Statutory Group

Job No:- 2/96
MAFF Ref:- EL 10895
Commission No:-N2313

2 FCS 11212

SUMMARY

A detailed Agricultural Land Classification and Statement of Physical Characteristics survey of 11.8 ha of land west of Shildon - "Proposed OCCS - West Lodge Farm, Shildon" - was carried out in January 1996. At the time of the survey, 98% of the site was under ley grass while 2% consisted of farm buildings.

8.8 ha of the agricultural land falls in Subgrade 3b. The soils are poorly drained and generally consists of medium clay loam topsoils over permeable but sometimes gleyed heavy clay loam upper subsoils and slowly permeable lower subsoils consisting of either gleyed clay or silty clay, or massive clay or silty clay mixed with overburden. In both cases soil wetness is the grade limiting factor.

Grade 4 land covers 2.8 ha. Generally the soils on this land are similar to those on the Subgrade 3b land, but heavy clay loam topsoils provide a further restriction. In the south-east there is a small area from which the topsoils have already been stripped, where clay subsoils overlie overburden at around 25 cm depth. Again soil wetness and topsoil workability limitations limit this land to Grade 4.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON LAND AT WEST LODGE FARM, SHILDON. PROPOSED OCCS

1. INTRODUCTION AND SITE CHARACTERISTICS

1.1 Location and Survey Methods

This site lies approximately 3½ km SSE of Bishop Auckland town centre, on the west side of the village of Shildon. Survey work was carried out in January 1996 when the soils were examined by hand auger borings at 100 m intervals predetermined by the National Grid, and two profile pits were dug to allow the soils to be described in greater detail. In addition, a number of supplementary borings were made in order to refine soil type boundaries. The 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 survey 98% of the site was under ley grass while 2% consisted of farm buildings.

The site altitude varies from 132 m AOD approximately in the west to 145 m AOD in the east and the land is level to gently sloping (0 - 3°) with a westerly aspect.

1.3 Climate

Grid Reference	: NZ218262
Altitude (m)	: 140
Accumulated Temperature above 0°C (January - June)	: 1220 day °C
Average Annual Rainfall (mm)	: 717
Climatic Grade	: 2
Field Capacity Days	: 190
Moisture Deficit (mm) Wheat	: 83
Moisture Deficit (mm) Potatoes	: 66

1.4 Geology, Soils and Drainage

The area is underlain by Middle Coal Measures. Most of the site is covered by deposits of glacial till although an area in the south-west and south, where previous opencast mining has occurred, has disturbed soils.

The soils on the site are generally poorly drained (Wetness Class IV). In the case of the undisturbed soils medium or heavy clay loam topsoils overlie heavy clay loam, clay or silty clay subsoils. Where the soils have been disturbed medium or heavy clay loam topsoils overlie heavy clay loam upper subsoils, and greyish overburden begins at between 25 cm and 60 cm depth.

1.5 Soil Properties

Two 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 to heavy textured soils (Unit T1/U1/L1)
(Full Profile Description, Table 1)

This soil, formed on glacial till, occurs mainly in the north and west of the site. It is characterised by medium to heavy textured topsoils overlying deep heavy-textured subsoils.

(b) Soil Type 2:- Restored soils (Unit T1/U1/L2)
(Full Profile Description, Table 2)

This soil, formed on previously opencast land, occurs in the south of the site. It is characterised by a medium to heavy-textured topsoil overlying a heavy-textured subsoil, with overburden typically beginning at around 50 cm depth.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs over most of the site. It is medium-textured (typically medium clay loam) and very slightly to slightly stony, with 4 - 7% sandstones and shales in most cases. This topsoil has a moderately developed medium angular or subangular blocky structure and a median depth of 20 cm.

Unit T2 occurs in the west of the site. In most respects it is very similar to Unit T1, but it is heavy-textured, consisting of heavy clay loam. The median depth of Unit T2 is also 20 cm.

There is a small area in the south-east of the site from which the topsoils have already been stripped, and where they now lie in small mounds. These should be fully used in any agricultural restoration.

(ii) Upper Subsoils

One upper subsoil (Unit U1) occurs over most of the site. It is heavy-textured (generally heavy clay loam) and very slightly to slightly stony, with 3 - 7% sandstones and shales. The structure of this unit varies between weakly and strongly developed coarse angular blocky. Mean unit depth is 21 cm.

(iii) Lower Subsoils

Two lower subsoils are found on the site. The first (Unit L1) consists of undisturbed heavy-textured soils consisting of clay or silty clay. This unit is very slightly stony containing 3 - 5% sandstones, and has a moderately to strongly developed coarse prismatic structure. Mean depth of Unit L1 is 89 cm.

The second lower subsoil (Unit L2) consists of heavy-textured (clay or silty clay) restored soils, which are generally mixed with overburden. They are moderately

stony, with around 20% shale and coal fragments, and have a massive structure. Mean unit depth of Unit L2 is approximately 83 cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Medium to heavy-textured undisturbed soil, T1/U1/L1

Profile Pit 1 (Near auger boring 2)

Slope:- 2° W

Land Use: Ley grass

Weather:- Mild and showery.

Depth cm	Horizon Description
0 - 25	Very dark grey (10YR3/1) medium clay loam; no mottles; very slightly stony, with around 3% total sandstones (2%>2 cm); moist; moderately developed medium angular and subangular blocky structure; firm; moderately porous; many fine and very fine fibrous roots; slightly sticky; moderately plastic; non-calcareous; abrupt smooth boundary.
25 - 31	Greyish brown (10YR5/2) heavy clay loam; common yellowish brown (10YR5/8) mottles; very slightly stony, with around 3% sandstones; moist; moderately to strongly developed coarse angular blocky structure; firm; moderately porous (>0.5% pores >0.5 mm); many fine and very fine fibrous roots; moderately sticky; very plastic; non-calcareous; clear smooth boundary.
31 - 120	Grey (10YR6/1) clay, becoming 10YR5/1 below 70 cm depth; common light yellowish brown (2.5Y6/3) and many reddish yellow (7.5YR6/8) mottles to 70 cm depth with many yellowish brown (10YR5/6) mottles below 70 cm; very slightly stony, with around 3% sandstones; moist to 70 cm, slightly moist below 70 cm; moderately to strongly developed coarse prismatic structure; extremely firm; very slightly porous (<0.5% pores >0.5 mm); common very fine fibrous roots; moderately sticky; very plastic; non-calcareous.

Table 2 Restored soil, T1/U1/L2

Profile Pit 2 (Near auger boring 8)

Slope:- 0°

Land Use: Ley grass

Weather:- Mild and showery.

Depth cm	Horizon Description
0 - 25	Dark grey (10YR4/1) medium clay loam; few strong brown (7.5YR5/6) mottles; slightly stony, with around 7% total sandstones and shales (5% >2cm); moist; moderately developed medium angular blocky structure; very firm; moderately porous; many fine and very fine fibrous roots; slightly sticky; moderately plastic; non-calcareous; gradual smooth boundary.
25 - 40	Dark grey (10YR4/1) heavy clay loam; few brownish yellow (10YR6/6) mottles; slightly stony, with around 7% sandstones and shales; moist; weakly to moderately developed coarse angular blocky structure; very firm; moderately porous, but <0.5% pores >0.5 mm; many very fine fibrous roots; slightly sticky; moderately plastic; non-calcareous; abrupt smooth boundary.
40 - 120	Grey (10YR5/1) clay; common indistinct brownish yellow (10YR6/6) mottles; moderately stony, with around 20% shale and coal fragments; moist; massive; extremely firm; very slightly porous (<0.5% pores >0.5 mm); common very fine fibrous roots; moderately sticky; very plastic; non-calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

Grade/Subgrade	Hectares	% of Total Area
1		
2		
3a		
3b	8.8	74.6
4	2.8	23.7
5		
(Sub total)	(11.6)	(98.3)
Other Land	0.2	1.7
TOTAL	11.8	100

3.1 Subgrade 3b

Most of the site falls in Subgrade 3b. The soils are poorly drained (Wetness Class IV) and consist of medium clay loam topsoils overlying permeable but sometimes gleyed heavy clay loam upper subsoils and slowly permeable lower subsoils consisting of gleyed clay or silty clay (in the case of the undisturbed soils) or massive clay or silty clay mixed with overburden (in the case of the restored soils). The lower subsoils typically begin at around 40 cm depth and soil wetness is the factor which restricts the land to Subgrade 3b.

3.2 Grade 4

Two areas of Grade 4 land occur on the site-one in the west and one in the south-east. In the west the soils are similar to those on the Subgrade 3b land but heavy clay loam topsoils make the land less workable in wet conditions. This additional limitation further restricts the land to Grade 4. In the south-east the topsoils have been removed from a small area, exposing a clay subsoil which overlies overburden at around 25 cm depth. This land will also be very difficult to work during, or soon after, rain and so it is also limited to Grade 4.

3.3 Other Land

This occurs in the north-west of the site and consists primarily of farm buildings.

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MAPS