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Ministry of
Agriculture
Fisheries
and Food

STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION PEACE WOOD QUARRY, SHELLEY, WEST YORKSHIRE PROPOSED CLAY PIT EXTENSION JANUARY 1994

ADAS
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SUMMARY

A Statement of Physical Characteristics and Agricultural Land Classification survey of 7.3ha of land at Peace Wood Quarry, Shelley, was carried out in January 1994.

A total of 7.0ha of this was in agricultural use, of which 3.6ha falls in Subgrade 3a. Profiles vary between well drained and imperfectly drained, with medium clay loam or medium silty clay loam topsoils overlying medium clay loam, medium silty clay loam or heavy silty clay loam subsoils. Weathering sandstone bedrock occurs at between 35cm and 70cm depth and the land is restricted to Subgrade 3a by the overall climate of the area and, in places, by soil wetness or soil droughtiness.

The remainder of the agricultural land on the site (3.4ha) falls in Subgrade 3b. Profiles are usually imperfectly or poorly drained, with medium silty clay loam topsoils (some of which are organic) overlying medium silty clay loam, heavy silty clay loam, clay or silty clay subsoils. Slowly permeable layers generally begin at between 30cm and 50cm depth. The ALC grade of this land is limited by soil wetness and workability restrictions and, in places, by slopes of 8°.

In addition to the agricultural land there is 0.3ha of urban land (consisting of an access track) in the south of the site.

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1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site lies approximately 9Km south-east of Huddersfield town centre, on the north side of the B6116 road. It covers a total of 7.3ha and lies around Grid Reference SE 217113. Survey work was carried out in January 1994 when soils were examined by hand auger borings at a density of two per hectare. Two soil pits were dug in order to allow detailed soil profile descriptions 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 survey, all of the agricultural land on the site (7.0ha) was under ley grass. The remainder of the site consists of an access track in the south-east.

Site altitude varies from 180m AOD in the north-east to 210m AOD in the west. The land is gently sloping in the south of the site (typically 1-2°) and moderately or strongly sloping in the north (typically 4-8°), with a northerly aspect in both cases.

1.3 Climate

Grid Reference	: SE 217113
Altitude (m)	: 195
Accumulated Temperature above 0°C (January-June)	: 1207 day°C
Average Annual Rainfall (mm)	: 837
Climatic Grade	: 3a
Field Capacity Days	: 207
Moisture Deficit (mm) Wheat	: 73
Moisture Deficit (mm) Potatoes	: 54

1.4 Geology, Soils and Drainage

The site is underlain by Carboniferous Coal Measures consisting of interbedded sandstones and shales. Weathering sandstone outcrops to within one metre of the soil surface in a band running through the centre of the site in a north-westerly/south-easterly direction. With the exception of localised head deposits, there is no drift cover on the site.

The soils overlying sandstone are well drained to imperfectly drained (falling in Wetness Classes I to III) with medium-textured topsoils and medium to heavy-textured subsoils overlying weathering sandstone bedrock at between 35cm and 70cm depth. The soils over the remainder of the site are generally imperfectly to poorly drained (falling in Wetness Classes III or IV) with medium-textured topsoils overlying medium to heavy-textured subsoils.

1.5 Soil Properties

The two soil resource units separated on this site are both medium to heavy textured soils, with depth to bedrock being the principal difference between the two. Descriptions of each are given below and topsoil and subsoil resources are shown on the accompanying maps along with soil thickness and volume information.

a. Variant 1:- Medium to heavy textured soils overlying weathering sandstone. (Unit T1/S1A, full profile description Table 1)

This soil, formed over weathering sandstone, occurs in a band running through the site from north-west to south-east. It is characterised by the presence of weathering sandstone bedrock at between 35cm and 70cm depth.

b. Variant 2:- Deep medium to heavy textured soil (Unit T1/S1B, full profile description, Table 2)

This soil, formed in weathering shale, occurs in the east and west of the site. It is characterised by a medium-textured topsoil overlying a deep medium to heavy-textured subsoil.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs over the whole site with the exception of the small area of urban land in the south. It is medium-textured, consisting of medium silty clay loam or medium clay loam, and is organic in places. It is stoneless to very slightly stony and has a moderately to well developed medium subangular blocky structure. Median unit thickness is 30cm.

(ii) Subsoils

Unit S1A occurs in a band which runs through the site in a south-easterly/north-westerly direction. It is medium to heavy-textured, consisting of medium clay loam, medium silty clay loam or heavy silty clay loam. This unit is generally very slightly to slightly stony, containing between 2% and 6% very small to medium-sized subangular sandstones. Unit S1A has a moderately developed coarse subangular blocky structure and a mean unit thickness of 20cm.

Unit S1B occurs principally in the west and north-east of the site. It is medium to heavy textured, consisting of medium silty clay loam, heavy silty clay loam, clay or silty clay. Unit S1B is typically stoneless and has a moderately developed coarse subangular blocky to coarse prismatic structure. Mean unit thickness is 90cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1: Medium to heavy textured soil overlying weathering sandstone, T1/S1A.

Profile Pit 1 (Between auger borings 2 and 5)

Slope:- 5°N
Land Use:- Ley grassland
Weather:- Mild and windy

Depth cm	Horizon Description
0-27	Very dark grey (10YR3/1) medium silty clay loam; no mottles; very slightly stony (containing 1-2% small, medium and large subangular sandstones); moist; moderately developed medium subangular blocky structure; firm; moderately porous; many fine and very fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; clear irregular boundary.
27-53	Pale brown (10YR 6/3) heavy silty clay loam; common reddish yellow (7.5YR6/8) mottles; very slightly to slightly stony (containing 5-6% small, medium and large subangular sandstones); moist; moderately developed coarse subangular blocky structure; firm; moderately porous; common very fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; abrupt smooth boundary.
53+	Weathering medium-grained soft sandstone

2. SOIL PROFILE DESCRIPTIONS

Table 2: Deep medium to heavy textured soil, T1/S1B

Profile Pit 2 (Near auger boring 4)

Slope:- 1°N
Land Use:- Ley grassland
Weather:- Mild and windy

Depth cm	Horizon Description
0-28	Very dark grey (10YR3/1) organic medium clay loam; no mottles; very slightly stony (containing 3-4% small, medium and large subangular sandstones); moist; well developed medium subangular blocky structure; friable; moderately porous; many fine and very fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; gradual wavy boundary.
28-120	Light brownish grey (10YR 6/2) clay; common distinct reddish yellow (7.5YR6/8) mottles; stoneless; moist; weakly developed coarse prismatic structure; extremely firm; slightly porous (<0.5% pores >0.5mm); common very fine fibrous roots becoming few below about 80cm; moderately sticky; very 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	3.6	49.3
3b	3.4	46.6
4		
5		
(Sub total)	(7.0)	(95.9)
Urban	0.3	4.1
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Subtotal)	(0.3)	(4.1)
TOTAL	7.3	100

3.1 Subgrade 3a

Land in this subgrade occurs in a band running through the centre of the site from south-east to north-west. Profiles vary between well drained (Wetness Class I) and imperfectly drained (Wetness Class III), with medium clay loam or medium silty clay loam topsoils overlying medium clay loam, medium silty clay loam or heavy silty clay loam subsoils. Slowly permeable layers are usually absent (although some profiles are gleyed within 40cm depth), and weathering sandstone bedrock generally occurs at between 35cm and 70cm depth. The ALC grade of this land is limited by the overall climate of the area and, in places, by soil wetness and soil droughtiness.

3.2 Subgrade 3b

The remainder of the agricultural land on the site falls in Subgrade 3b. Profiles are generally imperfectly or poorly drained (falling in Wetness Classes III or IV), with medium silty clay loam topsoils, some of which are organic, overlying medium silty clay loam, heavy silty clay loam, clay or silty clay subsoils. Slowly permeable layers generally begin at between 30cm and 50cm depth. This land is limited to Subgrade 3b by soil wetness and workability restrictions and, in parts of the centre of the site, by slopes of 8° which restrict the use of agricultural machinery.

3.3 Urban

This category includes an access track to the original quarry, in the south of the site.

MAPS