STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION BARNSDALE BAR QUARRY, WESTERN EXTENSION NORTH YORKSHIRE JANUARY 1996

ADAS
Leeds Statutory Group

Job No:- 6/96
MAFF Ref:- EL 10903
Commission No:- N2334

SUMMARY

A detailed Agricultural Land Classification (ALC) and Statement of Physical Characteristics survey of 8 ha of land at Barnsdale Bar was carried out in relation to the Barnsdale Bar Quarry, western extension in January 1996. At the time of the survey all of the site was in agricultural use.

0.6 ha falls into Grade 2. The soils are well drained and consist of very slightly stony medium clay loam topsoils, over similar subsoils. These soils overlie hard limestone bedrock at approximately 80 cm depth and this land is limited to Grade 2 by slight soil droughtiness restrictions.

5.5 ha falls into Subgrade 3a. These soils consist of well drained very slightly stony medium clay loam topsoils over similar subsoils. These soils overlie hard limestone bedrock at between 50 cm and 70 cm depth, and this land is limited to Subgrade 3a by moderate soil droughtiness restrictions. The remaining 1.9 ha falls into Subgrade 3b. These soils consist of slightly stony medium clay loam topsoils, over moderately stony medium clay loam subsoils. Hard limestone bedrock occurs at approximately 40 cm depth and this land is limited to Subgrade 3b by severe soil droughtiness restrictions.

In terms of soil resources, one topsoil unit (T1) occurs, with a median depth of 30 cm and a moderately developed coarse subangular blocky structure, which is very slightly stony. One main subsoil unit (S1) occurs which is subdivided into S1A and S1B. Unit S1A is a moderately stony medium clay loam, with a moderately developed medium subangular blocky structure and a mean depth of 10 cm. Unit S1B is a very slightly stony medium clay loam with a moderately developed medium angular blocky to coarse subangular blocky structure, and a mean depth of 37 cm.

CONTENTS

MAPS

STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED BARNSDALE BAR QUARRY, WESTERN EXTENSION, NORTH YORKSHIRE

1. INTRODUCTION AND SITE CHARACTERISTICS

1.1 Location and Survey Methods

The site lies 3 km east of Upton, directly east of the A1(T) and covers 8.0 ha. It is centred around National Grid Reference SE 509145. The far east of the site had been subject to a detailed survey in April 1992 ("Barnsdale Bar, Kirk Smeaton", Ref. 29/92).Survey work of remaining areas was carried out in January 1995 when the soils were examined by hand auger borings at 100 m intervals predetermined by the National Grid. In addition, two soil pits were dug to allow full profile descriptions to be made. 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 the survey the land was under a mixture of cereals and oil seed rape. All of the land was in agricultural use.

Site altitude varies from 50 m AOD in the centre and north of the site, to 55 m AOD in the south of the site, and the land is level to moderately sloping (0° - 7°).

1.3 Climate

Grid Reference	: SE509145
Altitude (m)	: 52
Accumulated Temperature above 0°C (January - June)	: 1363 day °C
Average Annual Rainfall (mm)	: 594
Climatic Grade	: 1
Field Capacity Days	: 125
Moisture Deficit (mm) Wheat	: 104
Moisture Deficit (mm) Potatoes	: 95

1.4 Geology, Soils and Drainage

The site is underlain by Lower Magnesian Limestone, with no drift deposits. The soils on the site are well drained, falling into Wetness Class I. The topsoils consist of medium clay loam and overlie medium clay loam and occasionally heavy clay loam subsoils. These in turn overlie hard limestone bedrock at varying depth. Topsoils are very slightly stony (1 - 2% medium and large hard limestones), while the subsoils vary from very slightly stony to moderately stony, with between 1% and 30% small, medium and large hard limestones.

1.5 Soil Properties

One main soil type occurs on this site, a description of which is 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 over Medium/Heavy textured soils (Unit T1/S1)
(Full Profile Descriptions, Tables 1 and 2)

This soil, formed on Lower Magnesian Limestone, occurs over the whole of the site. It is characterised by medium textured topsoils overlying medium and heavy textured subsoils, with limestone bedrock beginning at between 40 cm and 80 cm depth.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs over the whole site. It is medium textured, consisting of medium clay loam, and is generally very slightly stony to slightly stony, with between 1% and 7% small, medium and large hard limestones. Unit T1 has a moderately developed coarse subangular blocky structure and a median unit depth of 30 cm.

(ii) There is one main subsoil type on this site, which has been subdivided into unit S1A, which is moderately stony, and Unit S1B, which is very slightly stony. Unit S1A occurs over a small area to the south and east of the site, with Unit S1B occurring over the remainder of the site. Both of these units are medium to heavy textured, consisting of medium clay loam and occasionally heavy clay loam, and both have moderately developed medium to coarse subangular blocky structures. The main differences between Units S1A and S1B are stone content and depth. Unit S1A is moderately stony, containing between 25% and 30% small, medium and large hard limestones, while Unit S1B is very slightly stony, containing 1% - 2% small and medium hard limestones.

Unit S1A has a mean depth of 10 cm and Unit S1B has a mean depth of 37 cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Medium textured soil, T1/S1A

Profile Pit 1 (Near auger boring 8)

Slope - 0°

Land Use:- Oil Seed Rape

Weather:- Cold and Misty.

Depth cm	**Horizon Description**
0 - 30	Dark yellowish brown (10YR3/4) medium clay loam; no mottles; slightly stony (around 8% medium and large hard limestones, 5% > 2 cm); moist; moderately developed coarse subangular blocky structure; firm; moderately porous; common fine fibrous roots; slightly sticky; slightly plastic; non-calcareous; smooth wavy boundary.
30 - 40	Dark yellowish brown (10YR4/4) medium clay loam; no mottles; moderately stony (25% - 30% small, medium and large hard limestones); moist; moderately developed medium subangular blocky structure; friable; moderately porous; common fine fibrous roots; slightly sticky; slightly plastic; non-calcareous.
40 +	Hard limestone bedrock.

Table 2 Medium textured soil, T1/S1B

Profile Pit 2 (Near auger boring 3)

Slope - 6° East

Land Use:- Oil Seed Rape

Weather:- Cold and Misty.

Depth cm	Horizon Description
0 - 30	Dark yellowish brown (10YR3/4) medium clay loam; no mottles; very slightly stony (1% total small and medium hard limestones); moist; moderately developed coarse subangular blocky structure; firm; moderately porous; common fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; smooth abrupt boundary.
30 - 62	Strong brown (75YR4/6) medium clay loam; no mottles; very slightly stony (1% total small hard limestones); slightly moist; moderately developed medium angular blocky to coarse subangular blocky structure; friable; moderately porous; few fine fibrous roots; slightly sticky; slightly plastic; non-calcareous; smooth abrupt boundary.
62 - 70	Yellowish brown (10YR5/4) medium clay loam; no mottles; very stony (around 50 - 60% medium and large hard limestones); slightly moist; friable; no roots evident; slightly sticky; slightly plastic; non-calcareous.
70 +	Hard limestone bedrock.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

Grade/Subgrade	Hectares	% of Total Area
1		
2	0.6	7.5
3a	5.5	68.7
3b	1.9	23.8
4		
5		
(Sub total)	(8.0)	(100)
Other land	———	———
TOTAL	8.0	100
	———	———

3.1 Grade 2

A small area of Grade 2 land occurs in a separate strip to the north of the site. Soils consist of very slightly stony medium clay loam topsoils over similar well drained (Wetness Class I) subsoils. These in turn overlie hard limestone bedrock at around 80 cm depth. This land is restricted to Grade 2 by slight soil droughtiness.

3.2 Subgrade 3a

The majority of the agricultural land falls into this Subgrade. Soil consists of very slightly stony medium clay loam topsoils, over very slightly stony medium clay loam and occasional heavy clay loam subsoils. These in turn overlie hard limestone bedrock at between 50 cm and 70 cm depth. These soils are well drained, falling into Wetness Class I. This land is restricted to Subgrade 3a by moderate soil droughtiness restrictions.

3.3 Subgrade 3b

A small area of Subgrade 3b land occurs to the south and east of the site. Soils consist of slightly stony medium clay loam topsoils, overlying moderately stony (25% - 35% hard limestones) medium clay loam subsoils. These in turn overlie hard limestone bedrock at around 40 cm depth. These soils are well drained, falling into Wetness Class I. This land is restricted to Subgrade 3b by severe soil droughtiness restrictions.

RPT File: 2 FCS 11216
Leeds Statutory Group

MAPS