MAFF Ministry of Agriculture Fisheries and Food

STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION
HAZEL LANE QUARRY, HAMPOLE
PROPOSED QUARRY EXTENSION
MARCH 1993

ADAS
Leeds Statutory Centre

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SUMMARY

A Statement of Physical Characteristics and Agricultural Land Classification survey of 16ha of land at Hazel Lane, Hampole was carried out in March 1993.

At the time of survey 9.2ha of this was in agricultural use of which 5.0ha falls within Subgrade 3a. These soils are well drained (Wetness Class I) and consist of sandy clay loam topsoils and sandy clay loam to medium sandy loam subsoils over very stony soft limestone. Soil droughtiness limits this land to Subgrade 3a.

3.4ha falls within Subgrade 3b. These soils are well drained (Wetness Class I) and consist of sandy clay loam topsoils over either, loamy medium sand subsoils or, thin extremely stony sandy clay loam subsoils passing to soft weathering limestone. Severe droughtiness limits this land to Subgrade 3b.

0.8ha falls within Grade 4. These soils are well drained (Wetness Class I) and consist of stony sandy clay loam topsoils over limestone rubble. This land is restricted to Grade 4 by severe droughtiness which is more limiting than on the Subgrade 3b land.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED LIMESTONE QUARRY EXTENSION AT HAZEL LANE, HAMPOLE.

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site lies 3km north-west of Adwick le Street immediately north east of the A638 around National Grid Reference SE 500110. Survey work was carried out in March 1993 when soils were examined by hand auger borings at intervals predetermined by the National Grid. Overall boring density was approximately one per hectare with extra borings made, where necessary, to refine grade boundaries. Two soil inspection pits were dug to allow detailed descriptions of soil structure to be made. Land quality was assessed using the methods described in "Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land" (MAFF 1988).

1.2 Land Use and Relief

At the time of survey 57% of the site was in agricultural production, most of which was in arable use. The remainder of the site consists of quarry workings. Site altitude varies from 30 to 60m AOD. Most of the agricultural land on the site is level to gently sloping. There is one area of strongly sloping (8-11°) land in the southern part of the site.

1.3 Climate

Grid Reference	: SE 500110
Altitude (m)	: 50
Accumulated Temperature above 0°C (January-June)	: 1367 day°C
Average Annual Rainfall (mm)	: 625
Climatic Grade	: 1
Field Capacity Days	: 130
Moisture Deficit (mm) Wheat	: 104
Moisture Deficit (mm) Potatoes	: 93

1.4 Geology, Soils and Drainage

The site is underlain by the Lower Magnesian Limestone. Drift cover is very thin and weathering limestone bedrock occurs close to the surface in many parts of the site. Soils are generally medium to light textured (typically sandy clay loam to loamy medium sand). All are well drained (Wetness Class I) and pass into weathering soft or fragmented limestone bedrock at varying depths from the surface.

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 light textured soils (Unit T1/S1)
(Full Profile Description, Table 1)

This soil formed over Lower Magnesian Limestone covers most of the site. It is characterised by sandy clay loam or medium sandy loam topsoils over similar well drained subsoils of variable depth. These pass into a layer of soft limestone followed by fragmented limestone bedrock.

(b) Soil Type 2:- Medium textured restored soils (Unit T2)

This soil occurs in a small restored part of the quarry in the centre of the site. It is characterised by a slightly stony medium textured topsoil overlying limestone rubble.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs over all of the agricultural land. It is medium to light textured and typically consists of slightly stony (5-6%) sandy clay loam or medium sandy loam. It has a moderately developed coarse subangular blocky structure and a median thickness of 30cm.

Unit T2 occurs only in the restored area in the centre of the site. It is medium to light textured and slightly stony (6-10% small and medium angular limestones) and has a moderately developed coarse subangular to angular blocky structure. Median unit thickness is 25cm.

(ii) Subsoils

Unit S1 occurs over the agricultural parts of the site. It is light to medium textured and consists of loamy medium sand, medium sandy loam or sandy clay loam. It is stoneless to very slightly stony, containing 0-5% small and medium angular hard stones. It has a moderately developed coarse subangular blocky structure and a mean thickness of 35cm.

Restored Area:- There are no usable subsoil resources within this area. The restored topsoil overlies limestone rubble.

2. SOIL PROFILE DESCRIPTION

Table 1 Medium to light textured soil, T1/S1

Profile Pit 1 (Near auger boring 8)

Slope:- 0°
Land Use:- Cereals
Weather:- Dry

Depth cm	Horizon Description
0-35	Dark brown (75YR3/2) sandy clay loam; no mottles; very slightly stony (approximately 2% medium and coarse angular hard limestones); moist; moderately developed coarse subangular blocky structure, firm soil strength; slightly porous; many fine and medium fibrous roots; slightly sticky; slightly plastic; non calcareous; abrupt smooth boundary.
35-70	Dark brown/Brown (75YR4/4) sandy clay loam; no mottles; stoneless; moist; moderately developed coarse subangular blocky structure; firm soil strength; moderately porous; common fine and medium fibrous roots; slightly sticky; slightly plastic; non calcareous; abrupt wavy boundary.
70+	Soft limestone containing approximately 50% medium to very large, angular hard rocks.

3. AGRICULTURAL LAND CLASSIFICATION

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

Grade/Subgrade	Hectares	Percentage of Total Area
1		
2		
3a	5.0	31.1
3b	3.4	21.2
4	0.8	4.9
5		
(Subtotal)	(9.2)	(57.2)
Urban	6.9	42.8
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(6.9)	(42.8)
TOTAL	16.1	100

3.1 Subgrade 3a

Subgrade 3a land occurs in the northern part of the site. Profiles are well drained (Wetness Class I) and generally consist of sandy clay loam topsoils over sandy clay loam to loamy medium sand subsoils below which lies soft weathering limestone followed by harder fragmented bedrock. Both topsoil and subsoil are stoneless to very slightly stony. This land is limited to Subgrade 3a by soil droughtiness.

3.2 Subgrade 3b

Subgrade 3b land is found in the north-east and south. Profiles are well drained (Wetness Class I) and consist of slightly stony sandy clay loam or medium sandy loam topsoils over subsoils of either thin very stony sandy clay loam or deeper slightly stony loamy medium sand below which lies weathering bedrock. This land is limited to Subgrade 3b by droughtiness and in places, in the south, by gradients of 8-10°.

3.3 Grade 4

A small area of Grade 4 land occurs in the centre of the quarry. This area is restored and soils consist of slightly stony sandy clay loam topsoils over extremely stony limestone rubble. Profiles are well drained (Wetness Class I) but limited to Grade 4 by extreme droughtiness.

3.4 Urban

This consists of the quarry workings.

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MAPS