AGRICULTURAL LAND CLASSIFICATION

AND STATEMENT OF PHYSICAL CHARACTERISTICS

BARNSDALE BAR, KIRK SMEATON, SOUTH YORKSHIRE

Proposed Quarry extension - Additional Area

MAFF
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ALBARNS.BAR

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AGRICULTURAL LAND CLASSIFICATION REPORT AND STATEMENT OF PHYSICAL CHARACTERISTICS ON LAND AT BARNSDALE BAR, KIRK SMEATON, SOUTH YORKSHIRE, (Proposed Quarry Extension - Additional Area)

1.0 Introduction and Site Characteristics

1.1 Location

National Grid Reference:-	SE 5112 142
Location Details:-	2½km SSW of the village of Kirk Smeaton
Site Size:-	2.7 ha

1.2 Survey Methods

Date Surveyed:-	June 1992
Boring Density and Spacing Basis:-	Four borings per hectare at points distributed across the site
Sampling Method:-	By hand auger to a max depth of 1.00 m
Number of Borings:-	11
Number of Soil Pits (used for):-	1 to assess soil physical characteristics, soil depth, and to collect samples for laboratory analysis

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)". This detailed survey supersedes the previous "1" to one mile" survey of the area.

1.3	Land Use:-	The entire site is in cereal production.
1.4	Climate and Relief	
	Average Annual Rainfall (AAR):-	598 mm
	Accumulated Temperature above 0°C (January-June):-	1359 day °C
	Field Capacity Days:-	125 days
	Moisture Deficit:	
	wheat:-	103 mm
	potatoes:-	94 mm
	Altitude average:-	55 m a.o.d.
	Climatic limitation (based on interaction of rainfall and temperature values:-	None
	Relief:-	Flat to very gently sloping
	Slopes (°):-	0-2°
	Gradient Limitations	None

1.5 Geology and Soil

Solid Strata:-	Lower Magnesian Limestone
Depth of solid rock from surface:-	Between 25cm and 60cm
Drift types:-	None, except for a thin cover loamy material derived from weathering of the underlying rock.
Soil Types and Distributions:-	Light to medium-textured soils cover the whole site.
Soil Textures (topsoils and subsoils:-	Generally sandy clay loam topsoils overlying similar subsoils, passing into weathering limestone at depth
Soil Series/Associations:-	
On 1/250000 map:-	Aberford
Identified on site:-	Aberford
Soil Limitations and type:-	Soil depth and soil droughtiness.

1.6 Drainage

Soil type and Wetness Class:-	All soils are well drained, falling in Wetness Class I.
Drainage Limitations:-	None

2.0 Agricultural Land Classification Grades

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

Grades/Subgrades	Hectares	Percentage of Agricultural Area	Percentage of Total Area
1			
2			
3a	0.83	31.4	31.4
3b	1.81	68.6	68.6
4			
4			
Non Agricultural			
Agricultural Buildings			
Urban			
Other			
Total	2.64	100	100

Subgrade 3a

Distribution on site:-	Land in this subgrade covers the far west of the site and a pocket in the south.
Soil Type(s) and Textures(s):-	Medium-textured soils typically consisting of sandy clay loam topsoils overlying sandy clay loam or medium clay loam subsoils. Limestone bedrock occurs at around 55cm depth.
Depth to Slowly Permeable Layers:-	No slowly permeable layers occur.
Wetness and Drainage Class:-	Wetness Class I (well drained).
Stone Percentage and Type:-	2-6% small and medium-sized limestones.
Grade Limiting Factors:-	Soil droughtiness.

Subgrade 3b

Distribution on site:-	In the north western corner and over most of the east of the site.
Soil TYpes(s) and Texture(s):-	Generally medium-textured soils consisting of sandy clay loam topsoils overlying similar subsoils. Limestone bedrock generally occurs at around 40cm depth.
Depth to Slowly Permeable Layers:-	Slowly permeable layers are absent.
Wetness and Drainage Class:-	Soils are well drained falling in Wetness Class I.
Stone Percentage and Type:-	2.15% small and medium sized limestones.
Grade Limiting Factors:-	Soil droughtiness and soil depth.

3.0 STATEMENT OF PHYSICAL CHARACTERISTICS (SOIL PROPERTIES AND RESOURCES)

3.1 Soil Properties

One soil type subdivided into shallow and deep phases occurs on the site. Its distribution along with soil depth and quantity information is shown on the accompanying maps.

Soil Type 1a:-

Occurrence:-	In the north-western corner and over most of the east of the site.
Textures:-	Sandy clay loam topsoil overlying similar subsoil.
Stone content:-	2-15% small to large limestones.
Horizon thicknesses:-	Topsoil 30cm, subsoil 10cm.
Profile pit features:-	Moderately developed medium to coarse angular blocky structure in the subsoil.
Other features:-	Limestone bedrock occurs at around 40cm depth.

Soil Type 1b:-

Occurrence:-	In the far west of the site and a pocket in the the south.
Textures:-	Typically sandy clay loam topsoil overlying a similarly-textured subsoil.
Stone content:-	2-6% small to large limestones.
Horizon thicknesses:-	Topsoil 30cm, subsoil 25cm.
Profile pit features:-	Medium angular blocky structure which is weakly developed in the topsoil and moderately developed in the subsoil.
Other features:-	Limestone bedrock occurs at approximately 55cm depth.

3.2 Soil Resources

Topsoils

Unit T1

Texture/stone content:-	Medium clay loam with 2-10% small and medium subangular limestones.
Structure:-	Moderately developed medium to coarse angular blocky.
Occurrence:-	Across the whole site.
Thickness:-	Median thickness 30cm.

Subsoils

Subsoils

Unit S1A

Texture/stone content:-	Medium-textured soils with 2-15% and large subangular limestones.
Structure:-	Moderately developed medium angular blocky.
Occurrence:-	In the north-western corner and over most of the east of the site.
Thickness:-	Mean thickness 10cm.

Unit S1B

Texture/stone content:-	Medium-textured soils with 2-15% medium and large subangular limestones.
Structure:-	Moderately developed medium angular blocky.
Occurrence:-	In the far west of the site and a pocket in the south.
Thickness:-	Mean thickness 25cm.

4. SOIL PROFILE DESCRIPTION

Barnsdale Bar Quarry Extension.

PIT 1, nr boring 19

Land Use: Cereals
Gradient: 1°W

DEPTH (cm)	DESCRIPTION
0 - 30	Dark yellowish brown (10 YR 3/4) sandy clay; no mottles; 3% medium subangular limestones; moist; moderately developed medium to coarse angular blocky structure; medium packing density; porous; moderately sticky and moderately plastic; many fine fibrous roots; calcareous; abrupt smooth boundary.
30 - 55	Dark yellowish brown (10 YR 4/6) medium sandy loam; no mottles; 15% small to large subangular limestones; dry; moderately developed medium angular blocky structure; medium packing density, friable; slightly porous; moderately sticky; slightly plastic; common fine fibrous roots; calcareous; clear wavy boundary.
55+	Weathered soft limestone with few fine fibrous roots.

MAPS(S)