

STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION
METHLEY QUARRY, MICKLETOWN
PROPOSED SAND AND GRAVEL QUARRY EXTENSION
SEPTEMBER 1993

ADAS
Leeds Statutory Centre

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SUMMARY

A Statement of Physical Characteristics and Agricultural Land Classification survey of 45.8ha of land at Methley was carried out in August 1993.

At the time of survey 25.4ha of this was in agricultural use, 22.4ha of which falls within Grade 2. Soils are deep and consist of medium to light textured topsoils over light subsoils. Profiles are well drained (Wetness Class 1) and the land is limited to Grade 2 by slight soil droughtiness.

Subgrade 3a land covers 0.5ha. Soils within this subgrade consist of well drained medium sandy loam topsoils over loamy medium sand and medium sand subsoils. They are limited to Subgrade 3a by droughtiness.

2.5ha of land falls within Subgrade 3b. Profiles consist of well drained loamy medium sand and medium sand topsoils over similar subsoils which pass into gravel at depth. Profiles of this type are limited to Subgrade 3b by topsoil texture and severe droughtiness.

The remainder of the site consists largely of the present quarry workings.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED FURTHER EXTENSION AT METHLEY QUARRY

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site lies approximately 1km north west of Castleford around National Grid Reference SE 415270. It covers a total area of 45.8ha. Survey work has been carried out in a number of stages: in November 1986, June 1988, May 1989 and in August 1993. This survey represents a compilation and revision of the above surveys along with additional information obtained in September 1993. In all surveys soils were examined at 100m intervals at points predetermined by the National Grid. 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 majority of the agricultural land was in arable use. The remainder consists of Non-Agricultural land (derelict Grange Farm and scrub land) and existing quarry workings.

1.3 Climate

Grid Reference	: SE 415270
Altitude (m)	: 10
Accumulated Temperature above 0°C (January - June)	: 1400 day°C
Average Annual Rainfall (mm)	: 620
Climatic Grade	: 1
Field Capacity Days	: 137
Moisture Deficit (mm) Wheat	: 108
Moisture Deficit (mm) Potatoes	: 99

1.4 Geology, Soils and Drainage

The site is underlain by Coal Measures over which there is a thick cover of river terrace sand and gravel deposits.

Soils are mainly well drained (Wetness Class I) consisting of medium to coarse sandy loam or sandy clay loam topsoils over similar or lighter, stoneless to slightly stony subsoils. Most profiles are similar to the Wick Series as mapped by the Soil Survey and Land Research Centre. A small area of heavier soils occurs in the south east corner where medium sandy loam topsoils overlie sandy clay loam upper subsoils and clay lower subsoils. These soils are moderately well drained (Wetness Class II).

1.5 Soil Properties

Two soil types occur on this site, descriptions of which are given below. Topsoil and subsoil resources for the application area are also shown on the accompanying maps along with soil thickness and volume information.

- a. Soil Type 1: Light/medium over light and very light textured soils (Units T1/U1/S1)
(Full Profile Description, Table 1)

This soil formed on river terrace sand deposits covers most of the site. (A small area in the south east of the site is formed on alluvium).

- b. Soil Type 2: Light/medium over medium and heavy textured soils (Unit T1/U1/S2)

This soil is formed on alluvium and is restricted to the south eastern corner of the site.

1.6 Soil Resources

- i. Topsoils

Unit T1 covers the whole site. This soil is medium to light textured and typically consists of medium sandy loam or sandy clay loam which is stoneless or only very slightly stony (0-2% small and medium angular sandstones). It has a moderately developed coarse subangular blocky structure and a median thickness of 30cm.

ii Subsoils

(a) Upper subsoils

Unit U1 occurs over most of the site. It is light textured and consists usually of stoneless medium sandy loam or loamy medium sand. It has a weakly developed very coarse platy to massive structure and a mean thickness of 40cm.

Unit U2 occurs in the south eastern corner of the site. It is medium textured and consists mainly of sandy clay loam with a coarse subangular blocky structure. It has a mean thickness of 40cm.

(b) Lower Subsoils

Unit S1 covers the majority of the site. It is very light textured and typically consists of medium or coarse sand. It is stoneless to very slightly stony (0-4% small and medium angular sandstones). Structure is single grain and loose and mean thickness is 50cm.

Unit S2 is restricted to the south eastern corner of the site. It is heavy textured (clay) and has a weakly developed coarse prismatic structure. Mean thickness is 50cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Light/medium over light and very light textured soil, T1/U1/S1

Profile Pit 1 (Near auger boring 2)

Slope:- 0°
Land Use:- Oil Seed Rape.
Weather:- Fine after heavy rain

Depth cm	Horizon	Description
0 - 40		Black (10YR 2/1) sandy clay loam; no mottles; very slightly stony (approximately 2% small angular medium soft sandstones and coal); moist; moderately developed coarse subangular blocky structure; weak soil strength; very porous; many fine and medium fibrous roots; slightly sticky; slightly plastic; non calcareous; sharp smooth boundary.
40 - 80		Dark yellowish brown (10YR 4/4) coarse sandy loam; no mottles; stoneless; dry; weakly developed very coarse platy to massive structure; firm soil strength; very porous; common fine fibrous roots; slightly sticky; non plastic; non calcareous; gradual to diffuse smooth boundary.
80 - 120		Light yellowish brown (10YR 6/4) medium sand; no mottles; stoneless; dry; structureless, loose; extremely porous; common fine fibrous roots; non sticky; non plastic; non calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2	22.4	48.9
3a	0.5	1.1
3b	2.5	5.5
4		
5		
(Sub total)	(25.4)	(55.5)
Urban	16.6	36.2
Non Agricultural	3.2	7.0
Woodland - Farm		
- Commercial		
Agricultural Buildings	0.6	1.3
Open Water		
Land not surveyed		
(Sub total)	(20.4)	(44.5)
 TOTAL	 45.8	 100

3.1 Grade 2

The majority of agricultural land on the site falls within Grade 2. Apart from a small area in the south east, profiles are well drained (Wetness Class I) and consist typically of medium or coarse sandy loam or sandy clay loam topsoils over medium or coarse sandy loam or loamy medium sand upper subsoils and medium sand lower subsoils. Available water assessments indicate that slight summer droughtiness is a limitation and the area is placed within Grade 2 for this reason.

A small area in the south eastern corner consists of moderately well drained (Wetness Class II) medium sandy loam topsoils over ungleyed permeable medium sandy loam and sandy clay loam upper subsoils which in turn pass into gleyed slowly permeable clay subsoils. Droughtiness is also the main limitation in this area.

3.2 Subgrade 3a

A small area of Subgrade 3a land occurs to the north of Willow Grove Farm. Soils are well drained (Wetness Class I) and consist of sandy loam topsoils over loamy medium sand and medium sand subsoils. This land is restricted to Subgrade 3a by soil droughtiness, which is somewhat more limiting than on the adjoining Grade 2 land.

3.3 Subgrade 3b

A small area at the western end of the site falls within Subgrade 3b. Profiles here consist of well drained (Wetness Class I) loamy medium sand or medium sand topsoils containing between 5 and 10% hard gravel over, to a depth of 45cm, medium sand subsoils with a 10% stone content. Gravel occurs below this depth. This land is limited to Subgrade 3b by severe droughtiness.

3.4 Non-Agricultural

This consists of the now derelict Grange Farm and land to the east of this.

3.5 Urban

This category includes the existing quarry workings

3.6 Agricultural Buildings

This consists of the buildings at Willow Grove Farm.

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MAPS