PHYSICAL CHARACTERISTICS REPORT INCORPORATING

AGRICULTURAL LAND CLASSIFICATION

LAND AT STOWE FARM, WEST DEEPING, LINCS

1. BACKGROUND

1.1 The site, an area of 15.2 ha, is the subject of an application, by Redlands Aggregates Ltd; for the extraction of sand and gravel near West Deeping in South Lincolnshire. MAFF surveyed the site in October 1989 to assess the agricultural land quality and soil physical characteristics. A total of 20 borings were made over the site. In addition a profile pit was dug to provide additional soil information.

1.2 On the published Agricultural Land Classification map sheet No 123 (Provisional, Scale 1:63360 (MAFF, 1969)), the area is shown as grade 2.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was obtained from a recently published agricultural climatic dataset (Met Office 1989). This indicates that the annual average rainfall for the site is 579 mm (22.8"). This data also indicates that field capacity days are 109 and

moisture deficits are 119 mm for wheat and 114 mm for potatoes. These climate characteristics are not a limitation to the ALC grade.

Altitude and Relief

2.2 The land lies fairly level across the site at an average altitude of 10 m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

Geology and Soils

2.3 The published 1:50,000 scale solid and drift edition geology map (sheet 157) shows the survey areas to comprise Recent and Pleistocene Fen edge and Terrace Gravel deposits which overlie a bedrock of Oxford Clay (Jurassic).

2.4 The Soil Survey of England and Wales have mapped the soils in the West Deeping area at a reconnaissance scale of 1:250,000. This map entitled "The soils of Eastern England", shows the occurrence of the Badsey 2 Association (*1). During this survey a more detailed inspection of the soils was carried out which confirmed that one soil type occurs over the site.

(*1) Badsey 2 Association

Well drained calcareous fine loamy soils over limestone gravel. Some similar soils affected by groundwater.

2.4.1 SOIL TYPE 1 (refer Appendix 1)

The soils typically comprise very slightly stony, calcareous medium (or occasionally heavy) clay loam topsoils and upper subsoils over sandstone and flint gravel within a coarse loamy sand matrix. All profiles are well drained (wetness class I).

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification grades are included in Appendix 2.

3.2 The table below shows the ALC grades for the survey area.

Agricultural Land Classification

Grade	ha	%
3a	15.2	100

3.3 Subgrade 3a

The survey site has been mapped as subgrade 3a. The soils are typically moderately droughty (*) and well drained (wetness class I). The presence of gravel at an average depth of 50 cm has a moderately limiting effect on the available moisture capacity of the soil. As a result droughtiness in the major limitation to ALC grade.

(*) At a few locations more droughty or less droughty variants of the soil type occur, however they cover too small an area to delineate separately.

APPENDIX 1

DESCRIPTION OF PHYSICAL CHARACTERISTICS

SOIL TYPE 1

TOPSOIL	texture	:	medium clay loam
	stone	:	very slightly stony (less than 5%) medium angular flints
	$CaCO_3$	:	calcareous
	colour	:	10 yr 5/3 (brown)
	depth	:	30 cm
	boundary	:	abrupt, smooth
	roots	:	many fine and very fine roots
SUBSOIL	texture	:	medium clay loam (occasionally heavy clay loam)
	stone	:	very slightly stony
	$CaCo_3$	:	calcareous
	colour	:	10 yr 5/4 (yellowish brown)
	depth	:	45/55 cm (occasionally shallower or deeper)
	structure	:	moderately developed medium angular blocky
	consistence	:	friable
	porosity	:	moderately porous, common fine pores and fissures
	boundary	:	clear wavy boundary

roots	:	common fine roots
gravelly material	:	structureless coarse loamy sand (30%) plus flint and sandstone gravel (70%)

Appendix 2

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and time of cultivation, harvesting or the level of yield. Where ore demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgade 3a - good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b - moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Non agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: golf courses, private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

References

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1975. Drift edition geology map No 157 Scale 1:50,000.

INSTITUTE OF GEOLOGICAL SCIENCES 1981. Sand and gravel resources of the country between Stamford and Peterborough. Mineral Assessment Report 80, HMSO, London.

MAFF, 1969 Agricultural Land Classification Map Sheet 123, 1:63360.

MAFF, 1988 Land Classification of England and Wales. (Revised guidelines and criteria for grading the quality of agricultural land)

METEOROLOGICAL OFFICE 1989 Climatic Data extracted from the published agricultural climatic dataset.

SOIL SURVEY OF ENGLAND AND WALES 1983. 'The soils of Eastern England' Sheet 4 1:250,000 scale.