

**PHYSICAL CHARACTERISTICS REPORT INCORPORATING
AGRICULTURAL LAND CLASSIFICATION**

LAND EAST OF COWBIT ROAD, SPALDING

1.0 INTRODUCTION

- 1.1 The site, an area of 173 hectares is the subject of an application for a borrow pit. ADAS surveyed the site in June 1993 at an auger boring density of approximately 1 boring per hectare. These borings were supplemented by 2 soil inspection pits in order to assess subsoil conditions.
- 1.2 On the published provisional 1:63,360 scale Agricultural Land Classification Map Sheet No. 123 (MAFF 1971) the entire site is shown as grade 2. The current survey was undertaken in order to provide a more detailed representation of the agricultural land quality and to provide a physical characteristic report of the soil resources.

2.0 SITE PHYSICAL CHARACTERISTICS

Climate

- 2.1 Climate data for the site was obtained from the published Agricultural Climatic Dataset (Met. Office 1989). This indicates for the sites modal altitude of 0 (zero) m AOD, the annual average rainfall is 555 mm. This data also indicates that the field capacity days are 100 and moisture deficits are 119 mm for wheat and 114 mm for potatoes. These characteristics do not impose any climatic limitation on agricultural land quality of the survey site.

Relief

- 2.2 The whole site is almost flat. Gradient, altitude and relief do not constitute any limitation to the ALC grading of the survey site.

3.0 AGRICULTURAL LAND CLASSIFICATION

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

- 3.2 The table below shows the breakdown of ALC grades in hectares and in % terms for the survey area.

AGRICULTURAL LAND CLASSIFICATION		
Grade	ha	%
Grade 1	5.6	32.4
Subgrade 3a	11.3	65.3
Non-Agricultural	<u>0.4</u>	<u>2.3</u>
TOTAL	<u>17.3</u>	<u>100.0</u>

Grade 1

- 3.3 The grade 1 land is associated with the lighter medium clay loam soils as described in Soil Type 1, Appendix II. These soils are well drained (wetness class I) and due to their lighter topsoil textures they can be readily worked over long periods. They hold good reserves of plant available water and have only very minor limitations to use.

Subgrade 3a

- 3.4 The majority of the site has been graded 3a and is associated with the deep silty clay soils as described in Soil Type 2, Appendix II. Due to the existence of a stable coarse pore network within the subsoil, soil drainage is good (wetness class I). However, the existence of heavy silty clay topsoil textures imposes a workability limitation on the land by restricting the period over which the soils can be easily worked.

4.0 SOIL PHYSICAL CHARACTERISTICS

Geology

- 4.1 No detailed geology map exists for this area. However, the published reconnaissance scale (1:233,440) drift edition geology map, sheet 12 (Geological Survey of England and Wales, 1912) shows the survey area to comprise Post Glacial and Recent Alluvium, Peat and Fen Silts.

Soils

- 4.2 No detailed soil map exists. However, the published 1:250,000 scale reconnaissance survey, Sheet 4, (Soil Survey of England and Wales, 1983) shows the entire site to comprise Wallasea 2 Association (*).

The soils observed during the ADAS survey are broadly consistent with those shown on the published soil map. Two main soil types were identified which are more fully described in Appendix II.

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(*) Wallasea 2 Association. Deep stoneless clayey soils, calcareous in places. Some deep calcareous silty soils. Flat land often with low ridges giving a complex soil pattern. Groundwater controlled by ditches and pumps.

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES ,1912. Sheet 12, 1:233,440 scale. Drift edition.

MAFF (1971). Agricultural Land Classification Map Sheet 123 Provisional 1:63,360 scale.

MAFF (1988). Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for grading the quality of land). Alnwick.

METEOROLOGICAL OFFICE (1989). Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office.

SOIL SURVEY OF ENGLAND AND WALES (1983). Sheet 4, Soils of Eastern England, 1:250,000 scale.

Appendix I

Grade 1 - excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly include top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 - very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable crops. The level of yields is generally high but may be lower or more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

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

Subgrade 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 winter range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or levels of yields. It is mainly suited to grass with occasional arable crops (eg. cereals and forage crops) the yield of which are variable. In most climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 - very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Appendix II

SOIL PHYSICAL CHARACTERISTICS, LAND EAST OF COWBIT ROAD, SPALDING

Soil Type 1; 5.6 hectares

Topsoil	Texture	:	medium clay loam, fine sandy clay loam.
	CaCO ₃	:	calcareous
	Colour	:	10YR4/3
	Stone	:	none
	Structure	:	cultivation zone - not applicable
	Boundary	:	sharp, smooth
	Roots	:	common fine and very fine
	Depth	:	30 cm
	Upper Subsoil	Texture	:
CaCO ₃		:	calcareous
Mottles		:	common distinct ochreous mottles 7.5YR4/4 and 10YR5/8 from 30 + cm.
Stone		:	none
Structure		:	weakly developed medium subangular blocky.
Consistence		:	friable
Biopores		:	>0.5% due to existence of relic reed channels.
Roots		:	common fine and very fine
Depth		:	30 cm - 60/80 cm
Lower Subsoil	Texture	:	fine and medium sand, fine sandy loam, fine sandy clay loam or clay.
	CaCO ₃	:	calcareous
	Colour	:	various, eg 10YR5/1, 10YR5/2, 10YR5/3.
	Mottles	:	common distinct ochreous mottles 10YR5/8, common grey mottles 10YR6/1.
	Structure	:	various, typically weakly developed medium and coarse, subangular and angular, blocky and prismatic.
	Consistence	:	friable
	Biopores	:	>0.5% due to existence of relic reed channel network.
	Roots	:	common fine and very fine
	Depth	:	60/80 cm - 120 cm

Soil Type 2, 11.3 hectares

Topsoil	Texture	:	silty clay
	CaCO ₃	:	non calcareous
	Colour	:	10YR4/2
	Stone	:	none
	Structure	:	cultivation zone - not applicable
	Boundary	:	clear, smooth
	Roots	:	common very fine, fine and medium.
	Depth	:	30 cm
	Subsoil	Texture	:
CaCO ₃		:	non calcareous
Colour		:	10YR4/2 and 2.5Y5/2
Mottles		:	common or many distinct ochreous mottles 7.5YR4/4 often associated with relic reed channels. Many distinct grey mottles 10YR6/1
Stone		:	none
Structure		:	moderately developed very coarse angular blocky.
Consistence		:	firm
Biopores		:	>0.5% due to existence of relic reed channel network.
Roots		:	common very fine, fine and medium.
Depth		:	120 cm