

PHYSICAL CHARACTERISTICS REPORT INCORPORATING AGRICULTURAL LAND CLASSIFICATION

LAND AT PARK FARM, ARDLEIGH, ESSEX

1.0 BACKGROUND

- 1.1 A Soil and Agricultural Land Classification Survey was carried out over 10.3 hectares of land at Park Farm, Ardleigh in Essex, in connection with a proposed sand and gravel extraction by Bucbricks Co. Ltd.
- 1.2 The land has previously been surveyed by Land Capability Consultants. In this survey the entire site was graded 2 but it would appear that the availability of irrigation water was not taken into account in their grading (see paragraph 2.2). The recent MAFF Survey indicates that the land on site is of grade 1 quality.
- 1.3 The current survey conducted by MAFF in September 1990 was at an auger boring density of one per hectare. In addition two soil inspection pits were dug to assess subsoil conditions.

2.0 AGRICULTURAL LAND CLASSIFICATION

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

- 2.1 The Table below shows the breakdown of the ALC grades for the survey area.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
1	10.3	100%
Total	<u>10.3</u>	<u>100%</u>

2.2 Irrigation

The site is regularly irrigated which significantly reduces the slight drought risk caused by the subsoil stoniness which characterises the majority of the soils on the site. The ALC grade assigned to the land takes into account the reduction in drought risk afforded by irrigation.

2.3 Grade 1

The entire site has been graded 1. These soils are freely draining and have relatively high available water capacities due to the large silt and fine sand contents present in both the topsoils and the subsoils. This minor droughtiness is alleviated by the irrigation system present on this land. Thus this land is versatile and may support a very wide range of crops.

3.0 PHYSICAL CHARACTERISTICS

Climate

3.1 Climatic data for the site was obtained from the published agricultural climatic dataset (Met. Office 1989). This indicates that for the site's altitude of 36m AOD the annual average rainfall is 586mm (23"). This dataset also indicates that field capacity days are 101 and moisture deficits are 122mm for potatoes and 125mm for wheat. These climatic characteristics do not impose any climatic limitation on the ALC grading of the survey site.

Altitude and Relief

3.2 The site is relatively level and lies at approximately 36m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

Geology and Soils

3.3 The published small scale ($\frac{1}{4}$ inch to 1 mile) drift edition geology map sheet No. 16 shows the entire site to comprise glacial loam material.

3.4 The Soil Survey of England and Wales mapped the area at a reconnaissance scale, of 1:250,000 (1983). This map shows the occurrence of the Tendring Association (*1) over the entire site.

(*1) Tendring Association Deep often stoneless coarse loamy soils, some slowly permeable seasonally waterlogged fine loamy over clayey soil. Patterned ground locally.

3.5 During the current survey a more detailed inspection of the soils was carried out which has resulted in the delineation of a single soil type over the site.

3.6 The topsoils are typically very slightly stony medium and fine sandy silt loams. They overlie similar or finer upper subsoils which are very slightly to slightly stony. The lower subsoils either remain similar to the upper subsoils or become moderately stony with up to 30% flints and ferri-manganiferous fragments.

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Resource Planning Group
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APPENDIX 1

SOIL PHYSICAL CHARACTERISTICS

Topsoil	Texture	: Fine and medium sandy silt loams.
	Stone	: Very slightly stony (< 5%), comprising mainly small and medium flints.
	Roots	: Common fine and very fine.
	CaCO ₃	: Non calcareous.
	Boundary	: Smooth and Abrupt.
	Depth	: 37/40cm.
	Upper Subsoil	Texture
Stone		: Very slightly to slightly stony. (up to 10% flints).
Roots		: Common fine and very fine.
CaCO ₃		: Non calcareous
Structure		: Moderately well developed coarse subangular blocky.
Consistence		: Very firm.
Biopores		: > 0.5% (many worm channels).
Depth		: 50/65cm.
Lower Subsoil	Texture	: Sandy silt loam, clay loam or clayey.
	Stone	: very slightly to moderately stony (maximum of 30%) mainly flints with some ferri-manganiferous fragments.
	Roots	: Few, fine and very fine.
	CaCO ₃	: Non calcareous.
	Structure	: Moderately developed medium subangular blocky. Sometimes too stony to assess.
	Consistence	: Firm to Friable.
	Biopores	: < 0.5%.
	Depth	: 120cm.

Appendix 2

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 includes 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 root crops. The level of yield 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. When 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 a wider 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 level 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.

References

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1933). Drift edition geology map sheet 16. Scale $\frac{1}{4}$ " to 1 mile.

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

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, scale 1:250,000.