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MAFF Ministry of Agriculture Fisheries and Food

AGRICULTURAL LAND CLASSIFICATION

AND SOIL PHYSICAL CHARACTERISTICS

MASONS WORKS

CLAYDON

GT. BLAKENHAM SUFFOLK

AGRICULTURAL LAND CLASSIFICATION AND SOIL PHYSICAL CHARACTERISTICS

MASONS WORKS, CLAYDON, GREAT BLAKENHAM, SUFFOLK

1. BACKGROUND

1.1 The site, an area of 23.1 hectares, is the subject of an application by Blue Circle Industries PLC for the extraction of clay. MAFF carried out a detailed soil survey in February 1992. 23 soil inspections using a Dutch soil auger were made on a 100 metre grid basis. Two soil inspection pits were also dug to assess subsoil conditions and supplement soil auger boring information.

1.2 On the published Agricultural Land Classification (ALC) Map, Sheet 150 (Provisional 1:63,360 scale, MAFF 1972) the survey area is shown as grade 2. The current survey was undertaken to provide more detailed information on land quality of the site.

2. SITE PHYSICAL CHARACTERISTICS

Altitude and Relief

2.1 The site area ranges in altitude from 60m AOD on the western boundary, sloping gently to 40m AOD to the east. There is a small valley feature on the southeast boundary which develops near Common Grove Hill. Gradient and altitude do not constitute limitations to the quality of agricultural land.

Climate

2.2 Climate data for the site was obtained from the published agroclimatic dataset produced by the Meteorological Office (Met Office, 1989). This indicates a site average annual rainfall of 581 mm (22.9 inches). Field capacity days are 104. This also indicates that the accumulated temperature for this area is approximately 1395 day degrees Celsius. Soil moisture deficits for wheat and potatoes are 123 mm and 119 mm respectively. These climatic characteristics do not impose any climatic limitation on the ALC grading of the survey area.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The majority of the site is mapped as subgrade 3a with a smaller area of grade 2 on the lower slopes to the south and southeast of the site. The table below shows the breakdown of the ALC grades in hectares and % terms for the survey area.

3.2 The definitions of the Agricultural Land Classification (ALC) grades 2 and 3a are included in Appendix 1.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	6.0	26
3a	15.7	68
Urban	1.0	4.3
Non agricultural	0.4	1.7
TOTAL	23.1	100

Grade 2

3.3 Land at the south and eastern edge of the site has been graded 2 and is associated with soil types 1 and 2 (described in paragraphs 4.3 and 4.4). Land comprising heavier soils of soil type 1 is limited by wetness constraints. Wetness class has been assessed as II and profiles are calcareous throughout. Consequently slight wetness and workability imperfections combine to restrict the land to grade 2. To the south the lighter textured soils of soil type 2 are freely draining and limited by minor droughtiness constraints. Subsequently the land is graded 2.

Subgrade 3a

3.4 The majority of the site has been graded 3a due to moderate wetness constraints and is associated with soil type 1 (described in paragraph 4.3). The soils are slowly permeable and clayey at depth in the subsoil. Consequently the wetness class has been assessed as II. The heavy topsoil textures combine with profile wetness to impose moderate restrictions on the agricultural potential of this land. Therefore land is excluded from a higher grade.

Urban

3.5 At the southern edge of the site land associated with the quarry has been mapped as urban.

Non-agricultural

3.6 A wood in the centre of the site has been mapped as non-agricultural.

4. SOIL PHYSICAL CHARACTERISTICS

Geology

4.1 The published 1:63,360 scale drift edition geology map sheet 207 Ipswich (Geological Survey of Great Britain (England and Wales), 1965), shows the entire site to consist of boulder clay (glacial) deposits underlain by Cretaceous Upper Chalk.

Soils

4.2 No detailed soil map exists for the area. However the reconnaissance scale 1:250,000 soil maps "Soils of Eastern England" (Soil Survey of England and Wales, 1983) shows the occurrence of the Hanslope Association* over the entire site. The current more detailed inspection of the site shows the occurrence of two soil types.

Soil Type 1 (refer to Appendix 2 and Soil Types Map)

4.3 This soil type covers the majority of the site and comprises decalcified clayey profiles which merge into chalky boulder clay at depth.

* Hanslope Association - slowly permeable calcareous clayey soils, some slowly permeable non calcareous clayey soils.

Soil Type 2 (refer to Appendix 2 and Soil Types Map)

4.4 The remainder of the site comprises lighter textured soils which typically consist of medium sandy loam or sandy clay loam topsoils over similar subsoils. Occasionally calcareous chalky clay occurs at depth. Profiles are permeable and non calcareous throughout unless chalky clay is encountered.

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APPENDIX 1

DESCRIPTION OF ALC GRADE 2 AND SUBGRADE 3a

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.

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.

APPENDIX 2

SOIL PHYSICAL CHARACTERISTICS

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SOIL TYPE 1 (18.7 ha)

Topsoil	Texture	:	heavy clay loam
	$CaCO_3$	:	occasionally calcareous
	Colour	:	dark yellowish brown (10YR 4/4)
	Total Stone	:	1 to 3%, typically 2% flints
	Roots	:	common fine and very fine
	Depth	:	30/35 cm
Upper subsoil	Texture	:	clay
	$CaCO_3$	:	occasionally calcareous
	Colour	:	brown (10YR 5/3) and yellowish brown (10YR 5/4 and 5/6).
	Total Stone	:	1 to 10%, typically 1 to 2% flints
	Structure	:	moderately developed coarse angular blocky, occasionally medium prismatic.
	Roots	:	common fine and very fine
	Depth	:	55/65 cm
Lower subsoil	Texture	:	clay
	$CaCO_3$	:	calcareous
	Colour	:	greyish brown (2.5Y 5/2)
	Total Stone	:	typically 10% chalk fragments
	Structure	:	weakly developed coarse subangular blocky.
	Roots	:	common fine and very fine
	Depth	:	120 cm

SOIL TYPE 2 (3.4 ha)

Topsoil	Texture	:	medium sandy loam or sandy clay loam
	Colour	:	dark yellowish brown 10YR 4/4 and brown (10YR 4.5/3).
	Total Stone	:	1% flints
	Roots	:	common fine and very fine
	Depth	:	30/35 cm
Subsoil	Texture	:	medium sandy loam or sandy clay loam. Occasionally chalky clay below 60 cm.
	$CaCO_3$	:	non calcareous
	Colour	:	yellowish brown (10YR 5/4 and 5/6) and greyish brown (2.5Y 5/2) and olive yellow (2.5Y 6/6).
	Structure	:	moderately developed coarse sub angular blocky.
	Roots	:	common fine and very fine
	Depth	:	120 cm

REFERENCES

GEOLOGICAL SURVEY OF GREAT BRITAIN (England and Wales) 1965. Drift edition Geology Sheet 207 (Ipswich), 1:63,360 scale.

MAFF, 1972. Agricultural Land Classification Map No. 150. Provisional. 1:63,360 scale.

MAFF, 1988. Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural 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. Soils of Eastern England, Sheet 4. 1:250,000 scale.

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Map 1: Agricultural Land Classification

Map 2: Soil Types