

**PHYSICAL CHARACTERISTICS REPORT INCORPORATING AGRICULTURAL LAND CLASSIFICATION****LAND AT BOLE INGS, WESTBURTON, NOTTINGHAMSHIRE (SK805875)****1.0 INTRODUCTION**

- 1.1 The site, an area of 84.5 hectares, is the subject of an application for ash disposal. ADAS surveyed the site in June 1992 at an auger boring density of 1 boring per two hectares. These borings were supplemented by 2 soil inspection pits in order to assess subsoil conditions.
- 1.2 On the published Agricultural Land Classification Map sheet No 104 (provisional, scale 1:63,360, MAFF 1974) and the entire site is mapped as mainly grade 3 with some grade 4 in the western corner. The current survey was undertaken in order to provide a more detailed representation of the agricultural land quality as well as a physical characteristics report of the soil resource.

**2.0 SITE PHYSICAL CHARACTERISTICS****2.1 Climate**

Climate data for the site was obtained from the published agricultural climatic dataset (Met. Office 1989). This indicates that for the sites modal altitude of 4 m AOD the annual average rainfall is 585 mm (23"). This data also indicated that the field capacity days are 117 and moisture deficits are 115 mm for wheat and 109 mm for potatoes. These characteristics do not impose any climatic limitation on the ALC grading of the survey site.

**2.2 Relief**

The whole site is relatively level and lies on the River Trent floodplain. Gradient, altitude and relief do not constitute any limitation to the ALC grade of the site.

### 2.3 Flooding

The River Trent flows adjacent to the eastern edge of the site beyond an embankment. According to the NRA this major flood defence is designed to withstand a 1 in 75 year flood episode. Flooding therefore does not constitute a limitation to the ALC grades of the site.

### 3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification grades are included in 'Revised Guidelines and Criteria for the grading of agricultural land' (MAFF, 1988).

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

#### AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
3b	84.5	100
Total	<u>84.5</u>	<u>100</u>

#### Subgrade 3b

3.3 The entire site has been graded subgrade 3b and is associated with the soils described in paragraph 4.2. The combination of heavy clay loam, heavy silty clay loam or clayey topsoils, over slowly permeable clayey subsoils, result in wetness and workability being the overriding limitation to the grade of this site. Occasional individual borings of grades 2 and 3a were encountered but this did not form discrete areas and therefore have not been mapped separately at this scale.

#### 4.0 SOIL PHYSICAL CHARACTERISTICS

##### 4.1 Geology

Information taken from 1:25,000 scale Mineral Assessment Report 19 (Inst. Geol. Sci. 1976) shows the whole site is 1st Terrace sands and gravels overlain by Alluvium.

##### 4.2 Soils

The Soil Survey of England and Wales (1983) have mapped the soils in the area at a reconnaissance scale of 1:250,000, and the whole site is mapped as Fladbury 2 Association\*.

The soils observed during the ADAS survey were similar to the published maps although two soil mapping units have been identified.

##### Soil Mapping Unit 1 (refer to Appendix 1)

This unit occurs over the majority of the site and comprises heavy clay loam, heavy silty clay loam or clayey topsoils over slowly permeable clayey subsoils. These soils have been assessed as wetness class III, are stone free, and are typically slightly or very slightly calcareous.

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\* Fladbury 2 Association. Stoneless clayey soils variably affected by groundwater, some with sandy subsoils. Some similar fine loamy soils.

Soil Mapping Unit 2 (refer to Appendix 1)

The second soil type occurs over the southern tip of the site. The soils have similar heavily textured topsoils and slowly permeable clayey upper subsoils (assessed as wetness class III). Topsoils are typically non calcareous, with slightly calcareous upper subsoils. However, unlike the first soil type the lower subsoils are silty clay loams, fine sandy silt loam, or occasionally sandy loam or loamy sand from 50/70 cm. These lower subsoils are permeable due to a dense network of interlinking biopores and are typically calcareous.

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## REFERENCES

- INSTITUTE OF GEOLOGICAL SCIENCES (1976). Mineral Assessment Report No. 19. South of Gainsborough.
- MAFF (1974). Agricultural Land Classification Sheet 104, 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).
- METEOROLOGICAL OFFICE (1989). Climate data extracted from the published Agricultural Climatic Dataset.
- SOIL SURVEY OF ENGLAND AND WALES (1983). Reconnaissance Survey, Sheet No. 4. 1:250,000.

## APPENDIX 1

### SOIL PHYSICAL CHARACTERISTICS

LAND AT BOLE INGS, WEST BURTON, NOTTINGHAMSHIRE

SOIL TYPE 1 (67.8 ha)

Topsoil	Texture	:	heavy clay loam, heavy silty clay loam, clay or silty clay.
	CaCO <sub>3</sub>	:	slightly or very slightly calcareous
	Colour	:	dark brown (10 YR 3/3)
	Stone	:	negligible
	Structure	:	cultivation zone - not applicable
	Boundary	:	abrupt smooth
	Roots	:	common fine and very fine, few medium
	Depth	:	30/38 cm
Subsoil	Texture	:	silty clay or clay
	CaCO <sub>3</sub>	:	typically very slightly calcareous
	Colour	:	brown (7.5 YR 5/2) with common distinct ochreous mottles (10 YR 5/8).
	Stone	:	typically stone free
	Structure	:	weakly developed coarse subangular blocky
	Consistence	:	extremely firm
	Biopores	:	<0.5%
	Roots	:	common fine and very fine
	Depth	:	120 cm

SOIL TYPE 2 (16.7 ha)

Topsoil	Texture	:	heavy clay loam, heavy silty clay loam, clay or silty clay.
	CaCO <sub>3</sub>	:	occasionally calcareous
	Colour	:	dark brown (10 YR 3/3)
	Stone	:	negligible
	Structure	:	cultivated zone - not applicable
	Boundary	:	clear wavy
	Roots	:	common fine and very fine
	Depth	:	30/38 cm
Upper Subsoil	Texture	:	silty clay or clay
	CaCO <sub>3</sub>	:	typically very slightly calcareous
	Colour	:	dark greyish brown (10 YR 4/2) with common distinct ochreous mottles (7.5 YR 5/8).
	Stone	:	negligible
	Structure	:	weakly developed very coarse subangular blocky.
	Consistence	:	extremely firm
	Biopores	:	<0.5%
	Roots	:	few fine and very fine
	Depth	:	50/70 cm
Lower Subsoil	Texture	:	silty clay loam, fine sandy silt loam, or occasionally sandy loam or loamy sand.
	CaCO <sub>3</sub>	:	calcareous
	Colour	:	light brown (7.5 YR 6/4) becoming lighter with depth (7.5 YR 7/4), with few distinct ochreous mottles (7.5 YR 5/8).
	Stone	:	negligible
	Structure	:	moderately developed medium angular blocky
	Consistence	:	friable
	Biopores	:	1%
	Roots	:	few fine and very fine
	Depth	:	120 cm

Additional Information

Both soil types are wetness class III.