

SOIL PHYSICAL CHARACTERISTICS

LAND AT WINKING HILL ASH DEPOSIT SITE, RATCLIFFE ON SOAR POWER STATION, NOTTINGHAMSHIRE

1. BACKGROUND

- 1.1. The site, an area of 35.4 hectares, is the subject of a revised planning application by PowerGen Plc for the continuation of ash disposal. ADAS Resource Planning Team carried out a detailed soil survey to assess the soil physical characteristics. Soil inspections using a Dutch soil auger were made (total 30 borings) and this was supplemented by one soil inspection pit to assess subsoil conditions.
- 1.2. The site area is located ½ km east of the River Soar and rises gently from 35 m AOD in the north and east to a maximum height of 43 m AOD on the western boundary. The extreme eastern end of the site includes an area where the topsoil has been removed (1.2 ha) and the subsoils trafficked very badly (1.7 ha); these have been omitted from the field survey. The site also contains two areas of woodland totalling 0.9 ha.

2. SOIL PHYSICAL CHARACTERISTICS

Geology

- 2.1. The published 1:50000 scale solid and drift edition geology map sheet 141 Loughborough (Geological Survey of Great Britain, 1976) shows the majority of the site to be covered by Recent and Pleistocene alluvium. Towards the western end of the site a narrow outcrop of Triassic Keuper Red Marl is shown and on the western boundary a small outcrop of Jurassic Rhaetic Beds.

Soils

- 2.2. The reconnaissance 1:250000 scale soil map "Soils of Eastern England" (Soil Survey, 1983) shows the occurrence of two soil associations on the site. The

Fladbury 2 Association (*1) covers the majority of the site, with the Worcester Association (*2) covering a small area at the western end of the survey area. The current more detailed inspection of the soils confirm the presence of a clayey soil type.

- 2.3 See Appendix 1. The soil profiles typically consist of heavy clay loam or clay topsoils over clay or silty clay subsoils. The soils are very slightly stony in the topsoil and stoneless throughout the subsoil. Generally profiles are non calcareous, but occasionally subsoils have calcareous lenses and at the western fringe of the site the soils contain sand lenses.

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- (*1) Fladbury 2 Association - Stoneless clayey soils variably affected by groundwater, some with similar fine loamy soils, flat land with risk of flooding.
- (*2) Worcester Association - Slowly permeable non-calcareous and calcareous reddish clayey soils over mudstone, shallow on steeper slopes. Associated with similar non-calcareous fine loamy over clayey soils.

APPENDIX 1

DESCRIPTION OF PHYSICAL CHARACTERISTICS

LAND AT WINKING HILL ASH DISPOSAL SITE, RATCLIFFE ON SOAR POWER STATION, NOTTINGHAMSHIRE

Area: (31.6 hectares)

Topsoil	Texture	:	heavy clay loam (with occasional sand lenses) or clay, occasionally silty clay.
	CaCO ₃	:	non calcareous
	Colour	:	dark brown/brown (7.5 YR 4/2 + 10 YR 4/3) occasionally reddish brown (5 YR 4/2 + 4/3).
	Stone	:	very slightly stony occasionally >5%
	Boundary	:	abrupt and smooth
	Roots	:	many fine and very fine
	Depth	:	range 25/35 cm, typically 30 cm
Subsoil	Texture	:	clay, occasionally silty clay
	CaCO ₃	:	Generally non calcareous, but some lenses within profile are very calcareous.
	Colour	:	predominantly reddish brown (5 YR 5/3 + 5/3) with occasional grey (5 YR 5/1), reddish grey (5 YR 5/2) and yellowish red (5 YR 5/6). Within profiles lenses of light grey (2.5 Y 7/2).
	Stone	:	stoneless
	Structure	:	well developed medium and coarse prismatic, breaking into coarse angular blocky.
	Roots	:	many fine and very fine
	Depth	:	120 cm