



STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION
OLD HALL FARM, ELVINGTON
NORTH YORKSHIRE
PROPOSED LANDFILL SITE
DECEMBER 1992.

ADAS
Leeds Statutory Group

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SUMMARY

A statement of physical characteristics and Agricultural Land Classification Survey of approximately 12ha of land at Elvington was carried out in December 1992.

All of the land was in agricultural use of which 8.4ha falls in Subgrade 3a and 3.4ha in Subgrade 3b.

The Subgrade 3a land consists of stoneless loamy fine sand topsoils overlying stoneless loamy fine sand or fine sand subsoils. Clay occurs at depth in places but profiles are typically well drained (Wetness Class I). This land has been placed in Subgrade 3a due to the risk of wind erosion on the very light textured topsoils.

The Subgrade 3b land consists of medium or heavy clay loam topsoils overlying slowly permeable clay subsoils. Profiles are poorly drained (Wetness Class IV) and the land is limited to this subgrade by soil wetness and workability restrictions.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION
REPORT ON THE PROPOSED LANDFILL SITE AT OLD HALL FARM, ELVINGTON, NORTH
YORKSHIRE

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site lies 10Km south east of York City centre and 1½Km north of the village of Elvington. It centres on Grid Reference SE 698492. Survey work was carried out in December 1992 when soils were examined by hand auger borings at the rate of two borings per hectare at intervals predetermined by the National Grid. Two soil pits were dug to allow the assessment of subsoil structure. Land quality was assessed using the methods described in "Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land" (MAFF 1988).

1.2 Land Use and Relief

At the time of survey all of the land was under winter cereals. The site lies at an altitude of 10m AOD and is virtually flat.

1.3 Climate

Grid Reference	:	SE 698492
Altitude (m)	:	10
Accumulated Temperature above 0°C (January-June)	:	1390 day°C
Average Annual Rainfall (mm)	:	620
Climatic Grade	:	1
Field Capacity Days	:	140
Moisture Deficit (mm) Wheat	:	110
Moisture Deficit (mm) Potatoes	:	102

1.4 Geology, Soils and Drainage

The site is underlain by Bunter sandstone over which lie deep deposits of post glacial lacustrine clay. Over much of the site this is, in turn, overlain by varying depths of wind blown sand.

The soils on the site closely reflect the drift geology, with poorly drained (Wetness Class IV) heavy textured soils in the centre and north east, and well drained (Wetness Class I) light and very light textured soils elsewhere.

1.5 Soil Properties

Two main soil types occur on this site, descriptions of which are given below. Topsoil and subsoil resources are also shown on the accompanying maps along with soil thickness and volume information.

- (a) Soil Type 1:- Light to very light textured soils with clay at depth
(Unit T1/U1/S1A)
(Full Profile Description, Table 1)

This soil, formed in deposits of blown sand, occurs in the north, west and east of the site. It is characterised by stoneless, deep well drained topsoils and subsoils overlying clay at depth.

- (b) Soil Type 2:- Medium to heavy textured soils (Unit T2/S1)
(Full Profile Description, Table 2)

This soil, formed on deposits of post-glacial lacustrine clay, occurs in the central southern and north eastern parts of the site. It is characteristically stoneless and poorly drained, with medium to heavy textured topsoils overlying heavy textured subsoils.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs in the north, west and east. It is light to very light textured and typically consists of stoneless loamy fine sand with a weakly developed medium and coarse angular blocky structure. Unit T1 has a median thickness of 40cm.

Unit T2 occurs in the southern, central and north eastern parts of the site. It

is medium to heavy textured (typically medium clay loam or heavy clay loam) with a weakly developed coarse subangular blocky structure. This soil unit is stoneless and has a median thickness of 35cm.

(ii) Subsoils

(a) Upper subsoils

Unit U1 occurs in the north, west and east. It is very light textured and consists of loamy fine sand or fine sand which is stoneless and has a very weakly developed medium angular blocky or single grain structure. Mean thickness is 45cm.

(b) Lower Subsoils

Unit S1 occurs in the southern and north eastern part of the site. It is heavy textured and consists of clay with a moderately developed coarse prismatic structure. The unit is stoneless and has a mean thickness of 65cm.

Unit S1A occurs in the north, west and east. It is identical to Unit S1 except that it underlies the light upper subsoil Unit U1. It thus has a mean thickness of only 15cm. Depth from the surface is variable, however and tends to be greatest towards the western edge of the site.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Light to very light textured soil, T1/U1/S1A

Profile Pit 1 (Near auger boring 1)

Slope:- 0°
Land Use:- Cereals
Weather:- Cool and overcast

<u>Depth</u> cm	<u>Horizon</u>	<u>Description</u>
0-45		Very dark brown (10YR2/2) loamy fine sand, no mottles; stoneless; very moist; weakly developed medium and coarse angular blocky structure; very friable; very porous; few fine fibrous roots and many ploughed-in potato haulms; slightly sticky; slightly plastic; non-calcareous; abrupt smooth boundary.
45-55		Dark reddish brown (5YR3/2) podzolised loamy fine sand; common distinct reddish brown (5YR4/3) mottles; stoneless; moist; very weakly developed medium angular blocky structure; very firm soil strength; very porous; no roots; non-sticky; non-plastic; non-calcareous; abrupt irregular boundary.
55-100		Light yellowish brown (10YR6/4) fine sand; many distinct brownish yellow (10YR6/8) mottles; stoneless; moist; single grain structure; loose; very porous; no roots; non-sticky; non-plastic; non-calcareous.
100+		Grey (N5) clay

Table 2 Medium to heavy-textured soil T2/S1

Profile Pit 1 (near auger boring 17)

Slope:- 0°
 Land Use:- Cereals
 Weather:- Cool and overcast

<u>Depth</u> cm	<u>Horizon</u>	<u>Description</u>
0-35		Very dark brown (10YR2/2) medium clay loam; no mottles; stoneless; very moist; weakly developed coarse subangular blocky structure; firm; moderately porous; few fine fibrous roots and ploughed-in straw at 20cm; moderately sticky; moderately plastic; non-calcareous; abrupt smooth boundary.
35-40		Light grey (2.5Y7/2) medium sandy loam; many distinct strong brown (7.5YR5/6) mottles; stoneless; moist; weakly developed medium angular blocky structure; friable; very porous; few fine fibrous roots; non-calcareous; abrupt smooth boundary.
40-100		Brown (7.5YR5/4) clay; many large prominent grey (N5) mottles; stoneless; moist; moderately developed coarse prismatic structure; very firm soils strength; very slightly porous (<0.5% pores >0.5mm); few fine fibrous roots; very sticky; very plastic; non-calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:-

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a	8.4	71.2
3b	3.4	28.8
4		
5		
(Subtotal)	(11.8)	(100)
Urban		
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Subtotal)		
	<hr/>	<hr/>
TOTAL	(11.8)	(100)
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3.1 Subgrade 3a

Land in this subgrade occurs in the north, east and west of the site. Profiles are typically well drained (Wetness Class I) and consist of loamy fine sand topsoils overlying loamy fine sand or fine sand subsoils. A clay lower subsoil occurs in places at around 80cm depth.

These soils are only very slightly droughty but the very light textured topsoils may be subject to wind erosion in early spring and it is this factor which limits the land to Subgrade 3a.

3.2 Subgrade 3b

Subgrade 3b land occurs in the central, southern and north eastern parts of the site. Profiles are poorly drained (falling in Wetness Class IV) and consist of medium clay loam or heavy clay loam topsoils overlying slowly permeable clay subsoils at around 35cm depth. This land is thus restricted to Subgrade 3b by soil wetness and workability limitations.

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MAPS