STATEMENT OF PHYSICAL CHARACTERISTICS

AND AGRICULTURAL LAND CLASSIFICATION

GILEAD HOUSE FARM, GILDERSOME

LEEDS, WEST YORKSHIRE

AUGUST 1992

PROPOSED LAND FILL SITE

ADAS

LEEDS STATUTORY GROUP

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ALCGILHS.GIL

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MAPS

LAND AT GILEAD HOUSE FARM, GILDERSOME

1. INTRODUCTION AND SITE CHARACTERISTICS

The site is located around Grid Reference SE251296 approximately 1 km north east of Gildersome centre. It covers 3.96 hectares, all of which is in agricultural use. Survey work was carried out in July 1992 when soils were examined by hand auger boring at 50 m intervals pre-determined by the National Grid. Detailed soil descriptions were carried out in inspection pits located at representative points in each of the two soil types occurring on the site.

All land quality assessments were made using the methods described in Agricultural Land Classification of England and Wales (MAFF 1988).

1.1 Land Use

The whole of the site is in rough grazing. A watercourse runs through the centre of the site.

1.2 Climate

Average Annual Rainfall (AAR) is approximately 750 mm. Accumulated temperature above 0°C between January and June (ATO) is 1284 days °C and the land is at field capacity for 183 days a year. The rainfall and temperature figures impose an overall climatic limitation of ALC grade 2. Summer moisture deficits of 86 mm for wheat and 72 mm for potatoes indicate that no limitations on droughtiness should occur in most years..

1.3 Relief

The site varies between 100 and 145 m above ordnance datum. It is steeply sloping to the south east then gradually moderates along the east side of the watercourse from strongly to moderately sloping. Along the whole site small areas of micro relief break up the slopes causing further machinery working problems.

1.4 Geology

Drift deposits are largely absent and soils are developed on clays and shales formed by weathering of the underlying Carboniferous Coal Measures.

2. STATEMENT OF PHYSICAL CHARACTERISTICS

Two main soil types occur on the site.

The topsoil and subsoil resources are shown on the accompanying maps.

2.1 Medium clay loams Over Heavy Clay Loams and Clay. (Resource Unit T1/S1)

These occur over the majority of the area apart from an area in the centre north and two stony areas in the south west and centre of the site and consist of medium clay loam topsoils over heavy clay loam and clay subsoils. (Full profile description in table 1).

Topsoils

This topsoil (Unit 1) is common to both soil types on the site. It consists of medium textured material approximately 20 cm thick with a coarse granular structure. Most of the unit is very slightly stony with some areas slightly stony. Median thickness of Unit T1 is 20 cm.

Subsoils

Subsoils (Unit S1) consist of stoneless heavy clay loam or clay. Structure is medium to coarse sub angular blocky and slowly permeable. Clay occurs below the heavy clay loam in most cases and has a very firm medium to coarse prismatic structure. Occasionally profiles impenetrable to augers because of localised stoniness. Mean thickness is 80 cm.

2.2 Deep medium clay loams. Resource Unit T1/S2)

These soils occur on the eastern side of the watercourse in the central and northern parts on the site. They consist of medium clay loam topsoils over medium clay loam subsoils. Profiles often become lighter at depth and are normally very slightly stony. Areas with a higher stone content are indicated on the accompanying maps.

Topsoils

These are common to both soil types and form part of unit T1 described in the preceding section.

Subsoils

Subsoils (Unit S2) consist of slightly stony coarse subangular blocky medium textured permeable material. Profiles with a much higher stone content occur locally. These are indicated on the accompanying maps. Mean thickness is 80 cm.

3. AGRICULTURAL LAND CLASSIFICATION GRADES

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

Grade/Subgrade	Hectares	Percentage of Total Site Area
3b	3.51	88.6
4	0.45	11.4
TOTAL	3.96	100.0

3.1 Subgrade 3b

The majority of the site falls within this subgrade. Soils consist of medium or heavy clay loam topsoils to a depth of 20 cm lying directly over slowly peermeable strongly mottled and gleyed heavy clay loam or clay to depth. These soils fall into Wetness Class IV and are limited to this subgrade by wetness and workability problems.

The area east of the watercourse is also restricted to subgrade 3b by gradient and micro relief.

Grade 4

Grade 4 land occurs in the south east of the site. Soils consist of medium clay loam topsoils over heavy clay loam and clay subsoils. Profiles are slowly permeable and poorly drained (Wetness Class IV) and limited to subgrade 3b by wetness. Slopes in this area, however, vary between 15° and 18° resulting in an overall gradient limitation of Grade 4.

4. SOIL PROFILE DESCRIPTIONS

Table 1.

Soil 1: Medium clay loam over heavy clay loam and clay (T1/S1)

Land Use: Rough Grazing.

Slope: 6°E

Available Water: 124 mm (Wheat). 116 mm (Potatoes).

Wetness Class : IV

Horizon	Depth (cm)	Description
1	0- 15	Very dark greyish brown (10YR 3/2) medium clay loam; unmottled; very slightly stony; few medium hard angular sandstones; slightly moist; medium/coarse granular structure; medium packing density; very slightly porous; weak soil strength; slightly sticky; moderately plastic; many fine and medium fibrous roots; clear level boundary.
2	15 - 25	Light yellowish brown (10YR 64) heavy clay loam; unmottled; stoneless; dry; medium to coarse subangular blocky; moderately firm soil strength; medium packing density; moderately porous; moderately sticky; moderately plastic; common fine fibrous roots; distinct boundary.

3	25 - 60	Light grey (10YR 71) clay; many medium clear brownish yellow (10YR 65) mottles; stoneless; slightly moist; medium prismatic structure; moderately firm soil strength, medium packing density; slightly porous; moderately sticky; moderately plastic; few fine fibrous roots; distinct boundary.
4	60 - 100	Grey (2.5YR 60) clay; common fine sharp dusky red (2.5YR 32) mottles; stoneless; slightly moist; coarse prismatic structure; moderately firm soil strength; medium packing density; slightly porous; moderately sticky; moderately plastic; no roots.

Overall grade 3b due to wetness.

Table 2

Soil 2: Deep medium clay loams. (T1/S2).

Land Use:	Rough Grazing.
Slope:	11° NW
Wetness Class:	I

Horizon	Depth (cm)	Description
1	0 - 25	Very dark greyish brown (10YR 3/2) medium clay loam; unmottled; slightly stony; few medium and large angular sandstones; dry; medium to coarse subangular blocky structure; medium packing density; moderately porous; moderately weak soil strength; slightly sticky; slightly plastic; many fine and medium fibrous roots; distinct boundary.
2	25 - 100	Yellowish brown (10YR 54) medium clay loam; few distinct fine dark grey (10YR 41) mottles; very slightly stony; dry; coarse subangular blocky structure; moderately firm soil strength; medium packing density; moderately porous; slightly sticky; slightly plastic; common fine roots.

Overall grade 3b due to gradient.

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