STATEMENT OF PHYSICAL CHARACTERISTICS

AND

AGRICULTURAL LAND CLASSIFICATION

NEWTON UPON DERWENT,
WILBERFOSS, YORK
PROPOSED SAND AND GRAVEL
EXTRACTION SITE

MAFF
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1. STATEMENT OF PHYSICAL CHARACTERISTICS

A. GENERAL INTRODUCTION

The site is located around National Grid Reference SE 726 502, south of the A1079 Hull-York road, about ½ km south of Wilberfoss. It covers an area of about 14.2 hectares all of which is in agricultural use.

Survey work was carried out in August 1990 when soils were examined by hand auger borings at points predetermined by the National Grid. Detailed soil descriptions to provide information on soil structure were carried out at inspection pits located at representative points on the site.

All land quality assessments were made 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).

LAND USE

All land on the site is in arable use. The crops in 1990 were potatoes, and cereals.

CLIMATE AND RELIEF

Salient climatic parameters at the site are as follows:-

Average Annual Rainfall (mm)		628
Accumulated Temperature Above 0°C (Jan-June)		1390
Field Capacity Days		145
Moisture Deficit (mm)	wheat	107
	potatoes	99

Although there is no overall climatic limitation light textured soils will be droughty.

The site slopes gently eastwards towards Blackfoss Beck and lies at an average altitude of 12 m aod.

GEOLOGY AND SOILS

Solid strata do not occur within 1 m of the surface and soils are largely developed on drift deposits consisting of post glacial "blown sand" over gravel at depth. Clay occurs at variable depths below the sand in the eastern and south eastern parts of the site and on the access strip in the north west, where the land rises up on to a clayey glacial moraine. The resulting soils consist mainly of loamy fine sand topsoils very similar subsoils passing into a clayey lower subsoil in the east and south east. Within this area clay occurs close enough to the surface in a few places to give patches of heavier soil.

DRAINAGE

Soils are well drained (Wetness Class I) except in some areas underlain by clay where there is likely to be slight drainage impedance in the lower subsoil (Wetness Class II).

B. SOIL PROPERTIES

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

Soil type 1: Deep Sandy Soil (Full description Table 1).

These soils occur over most of the site away from the eastern and southern boundaries. Topsoils consist of weakly structured stoneless loamy fine sand over similar, almost loose upper and lower subsoils. Coarse textured stony material occur in places at depth. Although gleyed, most profiles are now well drained, the gley features being a relic of historic higher ground water levels.

Soil type 2: Sandy over clayey soil.

These occur along the eastern and southern boundaries of the site, and also along the sloping strip of land leading to the road above Newton Lodge. Topsoils consist of weakly structured loamy fine sand over similar textured gleyed upper subsoils which pass into reddish clay or heavy clay loam at depth.

Topsoils are stoneless except on the access strip at the northern end of the site where stones from the underlying morainic material have been incorporated into the topsoil.

C. SOIL RESOURCES

1. TOPSOIL

Unit T1

This unit which covers the whole site consists of very light (loamy fine sand) material which is usually stoneless. Mean thickness is 30 cm. Structure is weakly developed fine and medium subangular blocky.

2. SUBSOILS

These are divided into upper and lower subsoils.

Upper Subsoil, Unit U1

This very light textured unit underlies the whole site and consists of gleyed weakly structured almost loose material. Upper horizons are usually stoneless, but pass into coarser gravelly material at depth. Mean thickness mover most of the site (Unit U1A) is 70 cm, but only 40 cm (Unit U1B) in the east and south east where it overlies a clayey lower subsoil unit.

Table 1

Newton on Derwent	Soil type 1:-
Profile Pit 1 (Near auger boring 3)	Deep Sandy Soil
Slope:-	2°E
Land Use:-	Arable (Wheat) Stubble

Horizons (cm)	
0-38	Brown (10 YR 4/3) loamy fine sand; unmottled; stoneless; slightly moist; weakly developed fine and medium subangular blocky structure breaking to medium granular (ploughed in straw at 27, compacted below this); medium packing density 0-27, high packing density 27-38; extremely porous; very weak soil strength; non sticky and non plastic; common very fine fibrous roots; non calcareous; abrupt wavy boundary.
38-60	Yellowish brown (10 YR 5/4) loamy fine sand; common medium distinct strong brown (7.5 YR 5/6) and light yellowish brown (10 YR 6/4) mottles; stoneless; slightly moist; weakly developed medium angular blocky structure (compacted); medium packing density; extremely porous; moderately week soil strengths; non sticky and non-plastic; few very fine fibrous roots; non calcareous; clear wavy boundary.
60-85	Yellowish brown (10 YR 5/6) medium sandy loam; common medium distinct brownish yellow (10 YR 6/8) and light yellowish brown (10 YR 6/4) mottles; moderately stony with many medium subrounded quartz and sandstone pebbles; slightly moist; weakly developed medium subangular blocky structure; medium packing density; very porous moderately weak soil strength; slightly sticky and slightly plastic; few very fine fibrous roots; non calcareous.
85+	Gritty sand and gravel.

Soil type 2:- Sandy over clayey soil.

Upper horizons similar to soil type 1 (deep sandy soil) but passes into heavy clay below about 60 cm from the surface.

2. AGRICULTURAL LAND CLASSIFICATION

The ALC grades on the site are as follows:

GRADE	HECTARES	PERCENTAGE OF TOTAL AREA
2	5.1 ha	36%
3A	9.1 ha	64%
	14.2 ha	100%

Grade 2

Grade 2 land is restricted to the east and south east where the underlying clay reduces droughtiness soils are all well or moderately well drained (Wetness Classes I and II) and stoneless or only very slightly stony. Topsoils consist of loamy fine sand topsoils over loamy fine sand upper subsoils passing into clay or heavy clay loam between 60 and 70 cm depth. The main limitation on ALC grade is slight droughtiness.

Sub Grade 3A

Land in this subgrade consists typically of loamy fine sand topsoils over similar or lighter textured subsoils. Although gleyed, all are now freely drained (Wetness Class 1) and thus have no wetness or workability limitations. Soils of this type are subject to wind erosion (blowing) in early spring as well as slight summer droughtiness and they are limited to subgrade 3a for these reasons.

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