

STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION
GASCOIGNE WOOD MINE
PROPOSED COLLIERY SPOIL DISPOSAL SITE
JULY 1993

ADAS
Leeds Statutory Group

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SUMMARY

A Statement of Physical Characteristics and Semi-detailed Agricultural Land Classification survey of 136ha of land at Gascoigne Wood was carried out in July 1993.

At the time of survey 133.8ha of the site was in agricultural use of which 8.2ha falls within Grade 2. These soils are light textured and well drained (Wetness Class I) and are limited to Grade 2 by slight droughtiness.

Subgrade 3a land covers 18.7ha. These soils are medium to heavy textured, are imperfectly drained (Wetness Class III) and limited to Subgrade 3a by soil wetness.

Subgrade 3b land covers 106.9ha. Soils within this subgrade consist of poorly drained (Wetness Class IV) medium or heavy clay loam topsoils over clay subsoils. They are limited to Subgrade 3b by soil wetness and workability problems.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED COLLIERY SPOIL DISPOSAL SITE AT GASCOIGNE WOOD MINE, SHERBURN-IN-ELMET, NORTH YORKSHIRE

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site lies 4km east south east of Sherburn in Elmet between the B1222 and the Leeds-Selby railway around National Grid Reference SE 533323. Survey work (semi-detailed) was carried out in July 1993 when soils were examined by hand auger borings at intervals predetermined by the National Grid. Overall boring density was approximately one per two hectares with extra borings made, where necessary to refine grade boundaries. Three soil inspection pits were dug to allow detailed descriptions of soil structure to be made. 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 98% of the site was in agricultural production, most of which was under arable crops. The remainder of the site consists of Urban land (roads) and Agricultural Buildings (Milford Hagg Farm).

1.3 Climate

Grid Reference	: SE 533323
Altitude (m)	: 7
Accumulated Temperature above 0°C (January-June)	: 1406 day°C
Average Annual Rainfall (mm)	: 620
Climatic Grade	: 1
Field Capacity Days	: 134
Moisture Deficit (mm) Wheat	: 107
Moisture Deficit (mm) Potatoes	: 99

1.4 Geology, Soils and Drainage

The site is underlain by Upper Permian Marl over which there is a cover of glacial and post glacial silt and clay. Soils are generally medium to heavy textured (typically medium or heavy clay loam topsoils over heavy clay loam or clay subsoils) except in the south where there is an area of light textured drift. In north west there is also an area of peaty soils. The light soils are well drained (Wetness Class I) whereas the medium to heavy textured soils are imperfectly or poorly drained (Wetness Classes III and IV). Drainage of the peat soils is difficult to determine because of their low lying situation and the presence of slowly permeable clay lenses in some profiles. Some profiles are well drained (Wetness Class I), whilst at the other extreme some are probably no better than poorly or even very poorly drained (Wetness Classes IV and V).

1.5 Soil Properties

Three 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:- Peat soils (Unit T1/S1)
(Full Profile Description Table 1)

This soil formed on fen-carr peat occurs in the north west of the site.

- (b) Soil Type 2:- Light textured soils (Unit T2/S2)
Full Profile Description, Table 2)

This soil formed on Coarse loamy drift occurs in the south eastern part of the site.

- (c) Soil Type 3:- Medium to heavy textured soils (Unit T3/S3)
Full Profile Description, Table 3)

This soil formed on silt and clay drift occurs over most of the site.

6 Soil Resources

(i) Topsoils

Unit T1 occurs in the north. It is peaty textured and consists typically of stoneless organic medium silty clay loam or peaty loam. It has a weakly developed medium subangular to coarse granular structure and a median thickness of 30cm.

Unit T2 occurs in the south of the site. It is light textured and consists typically of stoneless medium sandy loam. It has a moderately developed, fine to medium sub angular blocky structure and a median thickness of 30cm.

Unit T3 covers most of the site. It is medium to heavy textured and typically consists of stoneless to very slightly stony medium or heavy clay loam. This topsoil has a strongly developed medium to coarse angular or subangular blocky structure and a median thickness of 30cm.

(ii) Subsoils

Unit S1 occurs in the north west of the site and consists of well humified peat sometimes with thin horizons of silty clay. It has a coarse to very coarse granular structure. Below 90cm the peat consists of partially decomposed plant material including tree remains. This unit is likely to be waterlogged in the winter months particularly at depth. Mean thickness is 90cm.

Unit S2 occurs in the south eastern corner. It is light textured, typically of stoneless medium sandy loam. It has a moderate or weakly developed fine to medium subangular blocky structure and a mean thickness of 90cm.

Unit S3 covers most of the site. It is heavy textured, typically of stoneless clay or heavy clay loam. It has a medium to coarse moderately developed angular blocky to prismatic structure. Mean thickness is 90cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Peat soil, T1/S1

Profile Pit 1 (Near auger boring 18)

Slope:- 0°

Land Use:- Permanent pasture

Weather:- Fine

Depth cm	Horizon Description
0-20	Very dark grey (10YR 3/1) organic silty clay; fine clear distinct yellowish brown (10YR 5/8) mottles; stoneless; moderately developed medium angular blocky; firm soil strength; moist; moderately sticky; moderately plastic; many fine fibrous roots; slightly porous; clear wavy boundary.
20-90	Black (10YR 2/1) humified peat; no mottles; stoneless; moderately developed coarse granular structure; friable; moist; non sticky; non plastic; common fine fibrous roots; porous; non calcareous; clear wavy boundary.
90-120	Black (10YR 2/1) semi-fibrous peat; no mottles; stoneless; moist; non sticky; non plastic; no roots; porous; non calcareous

Table 2 light textured soil, T2/S2

Profile Pit 2 (Near auger boring 134)

Slope:- 0°
Land Use:- Sugar Beet
Weather:- Wet

Depth cm	Horizon Description
0-30	Dark brown (10YR 3/3) medium sandy loam; no mottles; stoneless, well developed medium to coarse sub angular blocky structure; friable; moist; common fine and medium fibrous roots; moderately porous; slightly sticky; slightly plastic; non calcareous; abrupt smooth boundary.
30-120	Very pale brown (10YR 7/4) medium sandy loam with common diffuse yellowish brown (10YR 5/6) mottles; moist; stoneless; weakly developed fine and medium subangular blocky structure; friable; common fine and medium fibrous roots ; slightly sticky; slightly plastic; moderately porous; non calcareous.

Table 3 Medium/heavy over heavy textured soil, T3/S3

Profile Pit 3 (Near auger boring 51)

Slope:- 0
Land Use:- Peas
Weather: Fine

Depth cm	Horizon Description
0-30	Dark greyish brown (7.5YR 4/2) heavy silty clay loam; common coarse distinct dark grey (10YR 4/1) and a few medium prominent dark reddish brown (2.5YR 3/3) mottles; stoneless; moist; strongly developed medium to coarse angular blocky structure; very firm soil strength; common fine and medium fibrous roots; slightly sticky; moderately plastic; non calcareous; clear wavy boundary.
30-120	Grey (10YR 5/1) heavy silty clay loam; common fine prominent clear yellowish brown (10YR 5/8) mottles; stoneless; moist; moderately developed medium to coarse angular blocky and very coarse prismatic structures; firm soil strength; very slightly porous; few fine fibrous roots; moderately sticky; moderately 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	8.2	6.0
3a	18.7	13.7
3b	106.9	78.4
4		
5		
(Subtotal)	(133.8)	(98.1)
Urban	1.6	1.2
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings	0.9	0.7
Open Water		
Land not surveyed		
(Subtotal)	(2.5)	(1.9)
TOTAL	136.3	100

3.1 Grade 2

Grade 2 land occurs in the south western part of the site. Soils are well drained (Wetness Class I) and consist usually of stoneless medium sandy loam topsoils over similar textured subsoils. This land is limited to Grade 2 by slight soil droughtiness.

3.2 Subgrade 3a

Small areas of Subgrade 3a land occur across the site. Profiles are imperfectly drained (Wetness Class III) and consist typically of stoneless medium clay loam topsoils over stoneless heavy clay loam which is slowly permeable below 40cm depth. This land is limited to Subgrade 3a by soil wetness.

3.3 Subgrade 3b

Subgrade 3b land covers most of the site. Profiles are poorly drained (Wetness Class IV) and consist of stoneless medium or heavy clay loam topsoils over gleyed heavy clay loam or clay subsoils which are slowly permeable within 35cm of the surface. Soils of this type are limited to Subgrade 3b by soil wetness and workability problems.

3.4 Urban

This consists of several roads.

3.5 Agricultural Buildings

Milford Hagg Farm falls within this category

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MAPS