

SOIL PHYSICAL CHARACTERISTICS REPORT FOR CANDLES/COPPICE SOUTH OPENCAST COAL SITE

Site A

Summary

8.9 ha of land to the south west of Telford were graded under the Revised Agricultural Land Classification system. The whole site was found to be Grade 3b.

Introduction

A reconnaissance survey at Candles/Coppice South, was carried out by members of the Resource Planning Team in December 1992. An Agricultural Land Classification (ALC) survey was undertaken on the 8.9 ha site using the ALC Revised Guidelines (MAFF 1988).

Location, Altitude and Relief

The site lies to the south west of Telford and is bounded by Dog in the lane to the west with Upper Coalmoor Farm in the south and a spoil heap to the east. The altitude of the site varies from 192 m in the east to 210 m in the north and west. Altitude and relief are therefore non-limiting factors in the classification of the site.

Climate and Rainfall

The main parameters used to assess climatic limitations are average annual rainfall (AAR) as a measure of overall wetness, and accumulated temperature (ATO) as a measure of the relative warmth of the locality. For this site the figures are 777 mm and 1255°C respectively indicating that the site can be graded no higher than Grade 2 therefore there is a climatic limitation on this site.

Geology and Soils

The solid geology is Carboniferous Coal Measures which have previously been worked. The associated soils are disturbed but tend to be medium clay loam or medium silty clay loam topsoils with inclusions of coal and shale fragments over clay to depth.

Limitations

Soil wetness and overall climate are the main limitations on this site. Wetness is measured by reference to climate especially field capacity days (FCD), soil water and topsoil texture. The site is at field capacity for approximately 176 days per year. All the soils have a gleyed morphology within 40 cm and are slowly permeable above about 48 cm falling into Wetness Class IV. Overall climate is a limiting factor indicating that the site can be graded no higher than Grade 2.

Land Use

At the time of survey the site was under grass.

Agricultural Land Quality

Sub-grade 3b

This sub-grade covers 8.9 ha and 100% of the site. The soils are disturbed over the whole site and typically have a medium clay loam or medium silty clay loam topsoil with inclusions of coal and shale fragments over clay to depth.

Breakdown of Agricultural Land Classification Grades

<u>Grade</u>	<u>Area (ha)</u>	<u>% of total</u>	<u>% of Agricultural land</u>
3b	8.9	100	100

This site has been disturbed previously by opencast mining. The soils are formed mainly from clayey drift containing shale and coal fragments. A survey was carried out on the basis of approximately 1 auger boring per hectare using a Dutch auger. The soils were augered to a depth of 120 cm where possible and soil pits were excavated in order to ascertain soil structure and other details which cannot be obtained from auger borings alone. Soil units have been identified on this site based on a reconnaissance survey. As all the sites have been illustrated on one map, the soil units identified have been numbered consecutively so as to avoid confusion.

Soil Resources

Topsoil

"Topsoil" is defined as the organic rich surface horizon. One predominant topsoil unit exists in the survey area. Occasional profiles with different topsoil textures were identified but these were too small to be mapped at this scale. The average depth of topsoil is about 25 cm ranging from 18 cm to 28 cm. The topsoil should therefore be stripped to a depth of 25 cm and stored.

Subsoil

"Subsoil" is defined as the less organic rich lower horizons. Across the site there is soil to a depth of at least 120 cm. The subsoil textures and depths remain fairly constant over the site. The subsoil should be stripped and stored separately from the topsoil.

One distinct soil unit has been identified on this site.

Unit I

This unit covers 100% of the site (8.9 ha) and is composed of 25 cm of dark grey (10YR4/1) medium silty clay loam topsoil. Some slight mottling occurs in occasional profiles. Few roots were visible. 4% small (<2 cm diameter) hard stones and fragments of coal and shale were incorporated in the topsoil, possibly the result of previous opencast mining operations. The subsoil extends to a depth of at least 120 cm. Between approximately 25 and 40 cm the subsoil is composed of yellow (10YR7/6) clay which is moderately developed medium sub-angular blocky in structure with very few plant roots present. There are many ochreous mottles (75YR4/6) within this horizon and it is of low porosity making it a slowly permeable layer. There are approximately 5% small (<2 cm diameter) stones within this horizon. Below about 40 cm and extending to at least 120 cm is grey (10YR5/1) clay which is weakly developed medium sub-angular blocky in structure with very few or no plant roots visible and approximately 5% small (<2 cm diameter) stones. Ochreous mottles are common in this horizon and porosity is low.

The depth at which each horizon exists is variable so average depths for the horizon have been taken in each unit.

RESOURCE PLANNING TEAM

Wolverhampton

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Site B

Summary

1.3 ha of land to the south west of Telford were graded under the Revised Agricultural Land Classification system. The whole of the site was found to be Grade 4.

Introduction

A reconnaissance survey at Candles/Coppice South, was carried out by members of the Resource Planning Team in December 1992. An Agricultural Land Classification (ALC) survey was undertaken on the 1.3 ha site using the ALC Revised Guidelines (MAFF 1988).

Location, Altitude and Relief

The site lies to the south west of Telford and covers one field located to the south west of Coppice House. The altitude of the site varies slightly from 203 m in the south to 208 m in the north. Altitude and relief are therefore non-limiting factors in the classification of the site.

Climate and Rainfall

The main parameters used to assess climatic limitations are average annual rainfall (AAR) as a measure of overall wetness and accumulated temperatures (ATO) as a measure of the relative warmth of the locality. For this site, the figures are 784 mm and 1257°C respectively indicating that the site can be graded no higher than Grade 2 therefore there is a climatic limitation on this site.

Geology and Soils

The solid geology is Carboniferous Coal Measures which have previously been worked. The associated soils are disturbed but tend to be medium clay loam topsoil with inclusion of coal and shale fragments over clay to depth. Areas also occur where very little or no topsoil is present.

Limitations

Soil wetness and overall climate are the main limitations on this site. Wetness is measured by reference to climate especially field capacity days (FCD), soil water and topsoil texture. The site is at field capacity for approximately 170 days per year. All the soils have a gleyed morphology within 40 cm and are slowly permeable above about 48 cm falling into Wetness Class IV. Overall climate is a limiting factor indicating that the site can be graded no higher than Grade 2. Lack of topsoil is also a limiting factor.

Land Use

At the time of survey the site was under scrub grassland vegetation.

Agricultural Land Quality

Grade 4

This grade covers 1.3 ha and 100% of the site. The soils are disturbed over the whole of the site and typically have little or no topsoil with clay to the surface. Occasional profiles of 3b were found where topsoils of medium clay loam occurred but these areas are too small to be mapped at this scale of survey.

Breakdown of Agricultural Land Classification Grades

<u>Grade</u>	<u>Area (Ha)</u>	<u>% of total</u>	<u>% of Agricultural land</u>
4	1.3	100	100

The site has been disturbed previously by opencast mining and then poorly restored. The site has been restored with clay materials containing coal and shale fragments.

A survey was carried out on the basis of approximately 2 auger borings per hectare using a Dutch auger. The soils were augered to a depth of 120 cm where possible. In places little or no topsoil was found and only one soil unit was identified based on the reconnaissance survey carried out. As all the sites have been illustrated on one map, the soil units identified have been numbered consecutively to avoid confusion.

Soil Resources

Topsoil

"Topsoil" is defined as the organic rich surface horizon. There is little or no topsoil present on this site but a more detailed survey would enable what little topsoil there is to be identified and stripped separately from the subsoil.

Subsoil

"Subsoil" is defined as the less organic rich lower horizons. Across the site there is soil to a depth of at least 120 cm. In some areas of the site the subsoil is at the surface. The subsoil should be stripped and stored separately from the topsoil.

Unit II

This unit covers 100% of the site (1.3 ha) and is composed of a small amount of dark greyish brown (10YR4/2) medium clay loam topsoil between 0 cm and 25 cm in depth. A few mottles were present together with 2% small (<2 cm diameter) stones. The subsoil extends to a depth of at least 120 cm. The subsoil enters the profile between 0 cm and 25 cm. The subsoil is composed of light grey (10YR7/1) clay. Mottling (75YR4/6) is common in the subsoil and coal fragments are present, possibly the result of previous opencast mining operations. The presence of mottling together with the wet surface conditions identified over the site would indicate that the subsoil is generally poorly structured.

The depth at which each horizon exists is variable, so average depths for the horizons have been taken in each unit.

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SOIL PHYSICAL CHARACTERISTICS REPORT FOR CANDLES/COPPICE SOUTH OPENCAST COAL SITE

Site E

Summary

4.3 ha of land to the south west of Telford were graded under the Revised Agricultural Land Classification system. 9.3% of the agricultural land was found to be sub-grade 3a with the remainder of the site being classified as sub-grade 3b.

Introduction

A reconnaissance survey at Candles/Coppice South was carried out by members of the Resource Planning Team in December 1992. An Agricultural Land Classification (ALC) survey was undertaken on the 4.3 ha site using the Revised ALC Guidelines (MAFF 1988).

Location, Altitude and Relief

The site lies to the south west of Telford and is bounded by Coalmoor Lane in the east with the B4380 in the south and Lydebrook Dingle in the west. The altitude of the site varies from 148 m in the west to 165 m in the east. Altitude and relief are therefore non-limiting factors in the classification of the site.

Climate and Rainfall

The main parameters used to assess climatic limitations are average annual rainfall (AAR) as a measure of overall wetness and accumulated temperature (ATO) as a measure of the relative warmth of the locality. For this site the figures are 795 mm and 1307°C respectively indicating that the site can be graded no higher than Grade 2 therefore there is a climatic limitation on this site.

Geology and Soils

The solid geology is Carboniferous Coal Measures which have previously been worked. The associated soils are disturbed but tend to be medium clay loam topsoil with inclusions of coal and shale fragments over clay or sandy clay loam to depth.

Limitations

Soil wetness and overall climate are the main limitations on this site. Wetness is measured by reference to climate especially field capacity days (FCD), soil water and topsoil texture. The site is at field capacity for approximately 184 days per year. The majority of soils have a gleyed morphology within 40 cm and are slowly permeable above about 48 cm falling into Wetness Class IV. Overall climate is a limiting factor indicating that the site can be graded no higher than Grade 2.

Land Use

At the time of survey the site was under grass.

Agricultural Land Quality

The soils are disturbed over the whole of the site.

Sub Grade 3a

This sub-grade covers 0.4 ha and 9.3% of the site. Soils of this grade typically have medium clay loam topsoil with inclusions of coal or shale fragments over sandy clay loam to depth.

Sub Grade 3b

This sub-grade covers 3.9 ha and 90.7% of the site. Soils of this sub-grade typically have medium clay loam topsoil with inclusions of coal and shale fragments onto clay to depth.

Breakdown of Agricultural Land Classification Grades

<u>Grade</u>	<u>Area (ha)</u>	<u>% of total</u>	<u>% of Agricultural land</u>
3a	0.4	9.3	9.3
3b	3.9	90.7	90.7
Total Area	4.3	100	100
Total Agricultural Area	4.3		

The site has been disturbed previously by opencast mining. The soils of the site are formed mainly from clayey material containing shale and coal fragments. A survey was

carried out on the basis of approximately 2 auger borings per hectare using a Dutch auger. The soils were augered to a depth of 120 cm where possible and soil pits were excavated in order to ascertain soil structure and other details which cannot be obtained from auger borings alone. Soil units have been identified on this site based on a reconnaissance survey. As all the sites have been illustrated on one map, the soil units identified have been numbered consecutively so as to avoid confusion.

Soil Resources

Topsoil

"Topsoil" is defined as the organic rich surface horizon. Two topsoil units exist in the survey area differing in depth. The average depth is 23 cm varying between 18 cm and 28 cm. A small area in the southern central part of the site was a topsoil depth of between 28 cm and 46 cm and should be stripped to a depth of 34 cm. This latter area corresponds with the area of Grade 3a on the Agricultural Land Classification map. The topsoils from the two units could be stripped and stored together although the topsoil of unit IV should be stripped to a greater depth than that of unit III.

Subsoil

"Subsoil" is defined as the less organic rich lower horizons. Across the site there is soil to a depth of at least 120 cm. The subsoil textures vary in different areas as do soil depths which are described below. The subsoils should be stripped and stored separately due to the different soil textures described.

Two distinct soil units have been identified on this site.

Unit III

This unit covers 86% of the site (3.7 ha). This unit is composed of 23 cm of dark brown (10YR3/3) medium clay loam topsoil. Slight mottling occurred in most profiles. Many plant roots were visible. Approximately 2% of small (<2 cm diameter) hard stones were present, together with fragments of coal and shale, possibly the result of previous opencast mining operations. The subsoil extends to a depth of at least 120 cm. Between approximately 23 cm and 72 cm, the subsoil is composed of brown (10YR4/3) clay which is moderately developed sub-angular blocky in structure with few roots present. Ochreous mottles are common within this horizon and it is of low porosity making it a slowly permeable layer. Below about 72 cm and extending to a depth of at least 120 cm is grey (10YR5/1) clay. This clay has a moderately developed

coarse sub-angular blocky structure with no plant roots visible. Many ochreous mottles were present and the soil is of low porosity.

Unit IV

This unit covers 14% of the site (0.6 ha) and typically has 34 cm of dark greyish brown (10YR4/2) medium clay loam topsoil. Slight mottling is visible and there are many plant roots within the horizon. A few coal and shale fragments were found within the topsoil, possibly the result of previous opencast mining operations. The topsoil overlies approximately 50 cm of brown (10YR4/2) sandy clay loam subsoil. Many ochreous mottles are present within the subsoil but not plant roots are visible. 85 cm+ was impenetrable due to the presence of a high proportion of stones.

The depth at which each horizon exists is variable and so average depths have been used in each soil unit.

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