

8FCS 4645

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HARTCLIFFE ROCKS LANDFILL EXTENSION, FELTON, BRISTOL, AVON

STATEMENT OF SITE PHYSICAL CHARACTERISTICS

1. INTRODUCTION

MAFF was asked in March 1992 to carry out fieldwork at this landfill extension site at Hartcliffe Rocks. The survey was to verify the RAC findings and to collect information on the subsoil resources.

Survey work was conducted by members of the Resource Planning Group (South West Region). Four soil pits were dug to cover the range of grades and subsoils.

Details of the land quality are provided in section 2 below. The topsoil over the site works as either a medium clay loam or medium silty clay loam. This causes a main limitation of workability for the Grade 2 area. Sub-grade 3A was downgraded due to a stoney subsoil which causes a droughtiness limitation. The main limitation of sub-grade 3B varies over the site. Slope causes the downgrading to the east of the survey area. There is a wetness limitation in the north east of the site with soils which contain clay subsoil horizons which impede drainage. The remaining 3B area has a very stoney subsoil after 30 cm which causes a droughtiness limitation and also a depth limitation.

Details of topsoil and subsoil resources are provided in section 3. One topsoil map unit can be recognised across the site. Two subsoil map units can be identified due to variability in subsoil depth.

2. AGRICULTURAL LAND CLASSIFICATION

Climate: The climatic criteria are considered first when classifying land as they may be overriding in the sense that severe climate limitations will restrict land to low grades irrespective of favourable soil or site conditions.

The climatic information was obtained from RAC, it showed that there was no overall limitation in terms of climate across the site. The values used were:

MD Wheat 85
MD Potatoes 73
FCD Range 176-225

Table 1:

Distribution of ALC Grades and Sub-grades

Grade	Area (ha)	% of Survey Area	% of Agricultural Area
2	7.6	21.9	21.9
3A	9.6	27.7	27.7
3B	17.5	50.4	50.4
Total	34.7	100.0	100.0

Grade 2: Pit 1 shows the characteristics of this grade. The topsoil typically works as a medium clay loam. The textures become heavier as soil depth increases becoming a clay subsoil at 70 cm. The main limitation is workability. The workability of a soil affects the ease with which it can be cultivated and grazed without causing structural damage.

Sub-grade 3A: Pit 4 shows the characteristics of this grade. The topsoil typically works as a medium clay loam. This area is downgraded due to a droughtiness limitation. This is caused by a stoney clay subsoil at a depth of 40 cm. The presence of 30% stone within the horizon will reduce the water available to the plant roots.

Sub-grade 3B: A gradient of between 7-11° causes slope to be a limitation in the east of this sub-grade area.

In the north east of the site the soil characteristics are described by Pit 3. The topsoil typically works as a medium clay loam, with a clay subsoil at 20 cm depth. The soil is gleyed at 35 cm and a slowly permeable layer occurs at approximately 50 cm, these cause a wetness limitation.

The remainder of this sub-grade is described by Pit 2. The topsoil works as a medium silty clay loam. At approximately 30 cm solid limestone occurs causing a shallow pit. Plant roots were able to penetrate through cracks within the rock and a root mat was present above the rock surface. The main limitation within this area is droughtiness.

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Topsoil : One topsoil map unit can be recognised across the site, comprising Medium Clay Loam and Medium Silty Clay Loam textures to an average depth of 20 cm. This gives a total topsoil resource of 69,400 m³. Over the Grade 2 and Sub-grade 3A map units there is a total topsoil resource of 34,400 m³.

Subsoil : Given the variability in subsoil textures across the site (comprising a mix of Medium Clay Loam, Heavy Clay Loam and Clay) it is not possible to differentiate subsoils units on the basis of texture. However, subsoil depth varies and this gives rise to 2 subsoil map units which relate to the higher quality land (Grade 2 and Sub-grade 3A). The soils within the Grade 2 map unit should be stripped to a depth of 60 cm, giving an average thickness of 40 cm and a subsoil resource of 30,400 m³. The subsoils within the Sub-grade 3A map unit should be stripped to a depth of 40 cm, giving an average thickness of 20 cm and a subsoil resource of 19,200 m³. Together, these provide a total subsoil resource of 49,600 m³.

Climate: When further climatic interpolations were carried out across the survey site at Hartcliffe Rocks it was found that climate is a limitation over part of the site. The boundary between Grade 1 and Grade 2 is located along the 155 m contour and is marked on the accompanying map.

There are no changes to the ALC grades as the highest ALC grade on the site is Grade 2. The FCD Range also remains the same.