# AGRICULTURAL LAND CLASSIFICATION AND SOIL PHYSICAL CHARACTERISTICS

**Report for Granville**
**Landfill Site**
**Redhill**
**Telford**

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# AGRICULTURAL LAND CLASSIFICATION AND SOIL PHYSICAL CHARACTERISTICS REPORT FOR GRANVILLE LANDFILL SITE

## 1. SUMMARY

1.1 The Agricultural Landfill Classification (ALC) Survey for this site shows that the following proportions of ALC grades are present.

| Grade/Subgrade | Ha | % of site |
|---|---|---|
| 3a | 6.7 | 15 |
| 3b | 15.4 | 34 |
| Other land | | |
| Non Agricultural | 14.1 | 31 |
| Urban | 8.0 | 18 |
| Not surveyed | 0.9 | 2 |

1.2 The main limitations to the agricultural use of land in Subgrade 3a are soil wetness and soil droughtiness.

1.3 The main limitations to the agricultural use of land in Subgrade 3b are soil wetness and soil droughtiness.

## 2. INTRODUCTION

2.1 The site was surveyed by the Resource Planning Team in June 1994. An Agricultural Land Classification Survey was undertaken according to the guidelines laid down in the 'Agricultural Land Classification of England and Wales - Revised Guidelines and Criteria for Grading the Quality of Agricultural Land' (MAFF 1988).

2.2 The 45.1 ha site is situated to the north of Redhill, approximately 4 km north east of Telford. The land immediately surrounding the site is predominantly in agricultural use. The land to the west is historically associated with disused coal workings.

2.3 The survey was requested by MAFF in connection with the proposed extension to the Granville Landfill site.

2.4 At MAFF Land Use Planning Unit's request this was a detailed survey at 1:10000 with a minimum auger boring density of at least 1 per hectare. The attached map is only accurate at the base map scale, and any enlargement would be misleading.

2.5 At the time of survey the southern half of the site was under grass, whilst the northern half of the site was an active landfill site and recontoured colliery spoil tip.

## 3. CLIMATE

3.1 The following interpolated data are relevant for the site:

| | |
|---|---|
| Average Annual Rainfall (mm) | 726 |
| Accumulated Temperature above 0°C January to June (day °C) | 1308 |

3.2 Climatically this site is limited to Grade 2.

3.3 Other relevant data for classifying land include:

| | |
|---|---|
| Field Capacity Days | 165 |
| Moisture Deficit, (mm) | 84 |
| Moisture Deficit, potatoes (mm) | 69 |

## 4. SITE

4.1 Three site factors of gradient, micro-relief and flooding are considered when classifying land.

4.2 These factors do not impose any limitations on the agricultural use of the land.

## 5. GEOLOGY AND SOILS

5.1 The solid geology of the area is comprised of Upper Coal Measures (Enville and Keele Beds) - British Geological Survey Sheet 139 Stafford 1 Inch. This is overlain with deposits of Quaternary sand and gravel.

5.2 The underlying geology influences the soils which either have clay loam texture in the south east of the site or a sandy loam texture in the south west.

## 6. AGRICULTURAL LAND CLASSIFICATION

6.1 Subgrade 3a - occupies 6.7 ha (15%) of the survey area and is found mainly to the south and east of the current landfill site.

6.1.1 The soils within this subgrade are variable in texture and depth. These soils are of two distinct types:

6.1.2 Firstly there are the soils which typically have a sandy loam or sandy clay loam texture over sandy clay loam or loamy sand. Weathered sandstone is often encountered below 60 cm. The subsoils may be very slightly or slightly stony. The moisture balance places these soils into Subgrade 3a.

6.1.3 Secondly there are the soils which typically have a sandy loam or sandy clay loam texture over sandy clay loam and clay to depth. There are few or no stones within the profile. Observations of gleying and the

depth to the slowly permeable layer place these soils into Wetness Class III. Occasionally there is a lens of lighter material in the upper subsoil.

6.1.4 The main limitations to the agricultural use of this land are soil droughtiness and soil wetness.

6.2 Subgrade 3b - occupies 15.4 ha (34%) of the survey area and is found in the east and south west of the site.

6.2.1 The soils within this subgrade are of two distinct types.

6.2.2 Firstly there are the soils in the south west of the site which typically have a sandy loam texture over loamy sand and sand. Below 30 cm sandstone bedrock is often encountered. The moisture balance places these soils into Subgrade 3b.

6.2.3 Secondly there are the soils in the east of the site which typically have a clay loam texture over heavy clay loam and clay to depth. Observations of gleying and the depth to the slowly permeable layer place these soils into Wetness Class IV.

6.2.4 The main limitation to the agricultural use of the land in the south west is soil droughtiness and soil wetness in the east

6.3 Other land Includes:

6.3.1 Non-agricultural land which occupies 14.1 ha (31%) of the survey area. It is found mainly in the north as the landfill site.

6.3.2 Urban land occupies 8.0 ha (18%) of the survey area. It is found as roadways, reception areas at the landfill site and as the recontoured Granville colliery spoiltip in the north west of the site. The spoil tip has been classified as urban land because it consists of shale and very large sandstone blocks with no sub or topsoil being present (ie overburden). The spoil tip is sparsely vegetated with much evidence of surface water erosion. In its current condition it can not be classed as agricultural land.

6.3.3 Land not surveyed occupies 0.9 ha (2.0%) of the survey area. It is located between the landfill site and the colliery spoil tip.

## 6.4 SUMMARY OF AGRICULTURAL LAND CLASSIFICATION

| Grade/Subgrade | Area in Hectares | % of Survey area | % of Agricultural Land |
|---|---|---|---|
| 3a | 6.7 | 15 | 30 |
| 3b | 15.4 | 34 | 70 |
| Other land | | | |
| Non Agricultural | 14.1 | 31 | - |
| Urban | 8.0 | 18 | - |
| Not surveyed | 0.9 | 2 | - |
| Totals | 45.1 | 100 | 100 |

## 7. SOIL UNITS

Soils have been classed into three soil units, reflecting differences in their soil textural characteristics. Each individual unit identifies soils with similar handling and storage needs.

### 7.1 Unit 1

7.1.1 This is mapped mainly in the east of the site and accounts for 11 ha and 24% of the area. The topsoils of Unit 1 are typically 25-30 cm deep and have a dark greyish brown (10 YR 4/2) medium clay loam texture.

7.1.2 Below this topsoil the subsoil texture for Unit 1 is of a yellowish red (5 YR 5/6 or 4/6) clay. Many strong brown (75 YR 5/6 to 5/8) mottles occur in most profiles. Stone content throughout the profile is less than 5%.

7.1.3 A typical profile for soil unit 1 is given below:

| | |
|---|---|
| 0-25 cm 10 YR 4/2 | Medium clay loam moderately well developed medium subangular blocky, few rounded hard stones and common roots. Common mottles (75 YR 5/6) |
| 25-40 cm 5 YR 5/6 | Clay strongly developed coarse prismatic, very firm consistence, low porosity, no stones and few roots. Many mottles (75 YR 5/6) |
| 40-120 5 YR 4/6 | Clay strongly developed coarse prismatic very firm consistence, low porosity, no stones and few roots. Many mottles (75 YR 5/6) |

## 7.2 Unit 2

7.2.1 This unit is mapped in the south west of the site accounting for 5.1 ha and 11% of the area. Topsoils are typically 25 cm deep and have a reddish brown (5 YR 4/3) medium sandy loam overlying dark reddish brown (5 YR 3/3) sandy loam and reddish brown (5 YR 43) loamy sand. Sandstone is encountered between depths of 30 and 80 cm.

7.2.2 A typical profile for this soil unit is given below:

| | |
|---|---|
| 0-27 cm 5 YR 4/3 | Medium sandy loam, moderately well developed fine sub-angular blocky, with few rounded hard and weathered sandstone stones |
| 27-43 cm 5YR 3/3 | Medium sandy loam moderately well developed medium platy, friable consistence, porous, common stones, common roots |
| 43-60 cm 5 YR 4/3 | Loamy medium sand weakly developed fine sub-angular blocky, very friable consistence, porous, common roots, common stones |
| 60 cm + | Sandstone bedrock |

## 7.3 Unit 3

7.3.1 This unit is mapped between units 1 and 2 and accounts for 6.5 ha and 15% of the area. This unit is highly variable in texture and depth. Topsoils are between 30 and 35 cm deep and have a dark brown (75 YR 3/3) or dark greyish brown (10 YR 4/2) sandy loam or sandy clay loam overlying reddish brown (5 YR 4/4 and 5/3) or dark brown (75 YR 4/3) sandy loam or sandy clay loam and sandy clay loam (5 YR 54 and 10 YR 7/4 and 5/4) and clay (5 YR 5/4). Subsoils have strong brown (75 YR 5/6) mottles. Below 65 cm sandstone bedrock may be encountered.

7.3.2 A typical profile for this soil unit is given below:

| | |
|---|---|
| 0-35 cm 5 YR 3/3 | Medium sandy loam, moderately well developed coarse sub-angular blocky, firm consistence with few weathered sandstone stones and many roots. |
| 35-48 5 YR 4/4 | Medium sandy loam, moderately well developed coarse angular blocky, friable consistence, porous, with few weathered sandstone stones and common roots. |

| | | |
|---|---|---|
| 48-79 | 5 YR 5/4 | Sandy clay loam, moderately well developed coarse angular blocky, friable consistence, porous, no stone and few roots. |
| 79-120 | 5 YR 5/4 | Clay, strongly developed coarse prismatic, very firm consistence, low porosity, no stones, few roots. |

7.4 **Area A**

7.4.1 Area A is occupied by the current Granville landfill site. The perimeter of the area is bunded with landscaped material that was inaccessible at the time of the survey.

7.5 **Area B**

7.5.1 Area B is occupied by the recountoured Granville colliery spoil tip. This area consists of overburden with no soil forming material.

## 8. SUMMARY

Of the site 15% is classified as Subgrade 3a, 34% as Subgrade 3b and the remainder (51%) as other land.

Three soil units are identified with Unit 1 covering 24%, Unit 2 covering 11% and Unit 3 15% of the site. The remainder is occupied by the active landfill site and the recontoured colliery spoil tip Areas A and B respectively.