

**The Soils and Land Capability for Agriculture
Of
Land North of Aberdeen,
Aberdeenshire**



Report prepared for Peter Radmall Associates

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Contents

1. Introduction	1
2. Site Description	1
3. Climate.....	1
4. Methods.....	2
5. Geology	2
6. Soil Types.....	2
7. Land Capability for Agriculture	3

1. Introduction

Commissioned by Peter Radmall Associates, Reading Agricultural Consultants Ltd (RAC) undertook a desk based appraisal of land north of Aberdeen. The work involved a detailed study of the fields as instructed by the client, to enable a Land Capability for Agriculture (LCA) classification to be undertaken.

The objectives were:

1. To describe and characterise the site and soils;
2. To combine the soils data with climatic and gradient parameters to assess the Land Capability for Agriculture; and
3. To prepare a report describing the capability of the designated area of land.

The work was undertaken during the month of May, 2012, and the report compiled by RAC.

2. Site Description

The study area sits on the northern outskirts of the city of Aberdeen and extends to around 310 hectares in total. Land use is predominantly agricultural, consisting of both crops and cattle grazing, although woodland and a quarry are also included in the site boundary.

The whole site is bounded to the west and south by a minor road and the A90 respectively. To the north is agricultural land and to the east a large residential area which also extends south of the A90 to Danestone opposite the site. The River Don flows adjacent to the western boundary. Approximately one third of the site to the north east is separated from the main block by Whitestripes Road.

Topography

The site sits around the Skene Lowlands which typically consists of rolling topography with long and occasionally steep slopes. The highest point of the site is near the centre and sits at approximately 93m above Ordnance Datum (aOD). Land slopes downward to the north to around 60m aOD where a convergent hillslope rises to the east to around 82 m aOD. To the south of the highest point, the elevation drops first steeply to around 75m aOD and then more gently to around 70 m aOD. Land is on a shallow gradient sloping to the south west to around 75m aOD, but gradient steepness increases significantly with land falling to approximately 30m aOD in under 1 km.

3. Climate

The area is described in the Assessment of Climatic Conditions in Scotland (Birse and Dry, 1970)¹ as being fairly warm, moist lowland and foothill. Average annual accumulated

¹ Birse, E.L. and Dry, F.T., 1970. Assessment of Climatic Conditions in Scotland 1: Based on Accumulated Temperature and Potential Water Deficit. The Macaulay Institute for Soil Research, Aberdeen.

temperatures are 1100 to 1375 day degrees C and there is a mean annual potential water deficit of 25 to 50 mm. The closest station to the site is in Aberdeen for which specific annual accumulated temperatures and moisture deficits are 1337 day degrees C and 41mm respectively. The site is moderately exposed (2.6 to 4.4 metres per second wind speed) and has moderate winters of 50 to 110 day degrees C of accumulated frost (Birse and Robertson, 1970)².

Climate imposes moderate restraints on the capability of the land and has been classified as Climate Zone 3 in the Soil Survey of Scotland Map of Climatic Guidelines (1:250,000). Land is limited by climate to no better than Class 3.

4. Methods

An initial desktop appraisal has been undertaken utilising all available data surrounding the site. Data is drawn from Soil Survey of Scotland maps of climate (1:250,000), Land Capability for Agriculture (1:50,000) and soil associations (1:250,000 and 1:25,000).

5. Geology

The underlying geology is Aberdeen Formation and Aberdeen Pluton. The Aberdeen Formation underlies the eastern half of the site and comprises mainly sandstone while the Aberdeen Pluton, underlying the western half, is formed of foliated granite. Superficial deposits vary across the site, but are predominantly Banchory Till Formation, consisting of sand, gravel and boulders.

In the west, in the vicinity of the River Don, are deposits of the Lochton Sand and Gravel Formation. There are two isolated patches, one of alluvium and one of lacustrine deposits in the north and centre of the site respectively.

6. Soil Types

Soils belonging to the Countesswells Association are present across the site and surrounds (Figure RAC 5571-1). These soils develop on till and have a typically coarse sandy loam texture, to a loam or sandy clay loam till, with many stones and boulders due to the granitic geology. On hillsides, thickness is often less than 0.5 metres, although on shallower slopes, depth reaches up to around 1.5m. Where topography is flat and drainage is poor, finer textures which are gleyed are common.

Soils are mostly capable of producing high yields of a narrow range of arable crops, principally cereals. In foothill areas where there may be climatic, wetness, topographical and soil limitations, land use is restricted to a limited arable rotation or long ley grassland. On uncultivated land, heather moor is commonly present.

² Birse, E.L. and Robertson, L., 1970. Assessment of Climatic Conditions in Scotland 2: Based on Exposure and Accumulated Frost. The Macaulay Institute for Soil Research, Aberdeen.

7. Land Capability for Agriculture

The Land Capability for Agriculture classification system is designed to identify the potential productivity and flexibility of agricultural land in Scotland. The system integrates soil, climate and site factors to identify the physical limitations on the land and upon agricultural practices. The classification is described in detail in Bibby *et al.* (1982³).

The site has been classed by the Soil Survey of Scotland Land Capability for Agriculture (LCA) map (1:50,000) as predominantly Class 3 Division 2, land capable of supporting mixed agriculture, with soil and wetness limitations (Figure RAC5571-2). Land is capable of producing a moderate range of crops including cereals and forage crops, with an increasing trend towards grass within the rotation. The map also identifies areas of Class 4.2, land capable of producing a narrow range of crops, although grass predominates, and a soil limitation is highlighted. These areas are synonymous with some of the most steeply sloping parts of the site.

The scale of the LCA map (1:50,000) cannot identify small areas which may not be entirely typical to the classification. While it is possible that some better quality land may be included within the site boundary, these areas may be too isolated for practical farming to a consistently high standard. Furthermore, Figure RAC 5571-2 demonstrates that immediately to the north of the site, land is assessed as Class 5.3, and Figure RAC 5571-3 shows that no land better than Class 3 is present within around 10km of the site.

Given all of the above findings, it is considered very unlikely that land of prime quality is present on the site.

³ Bibby, J.S., Douglas, H.A., Thomasson, A.J., and Robertson, J.S., 1982. Land Capability for Agriculture, Soil Survey of Scotland, The Macaulay Institute for Soil Research, Aberdeen.