

AGRICULTURAL LAND CLASSIFICATION

Hollins Strategic Land LLP

*Land off Garstang Road
Broughton*



Our Ref: SES/HSL/GR/#1

Date: 20th April 2021

Client:

Hollins Strategic Land LLP
Suite 4, 1 King Street
Manchester
M2 6AW

AGRICULTURAL LAND CLASSIFICATION

***Land off Garstang Road
Broughton***

A report prepared on behalf of *Soil Environment Services* by:

Louise Tavasso BSc (Hons)
Environmental Consultant

Approved by:

Dr Robin S Davies BSc PhD SoilSci PGC *Contaminated Land Management*
Managing Director

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Soil Environment Services

Agricultural Land Classification, Contaminated Land
Risk Assessment, Mineral Extraction Soil Planning
Unit 8, Stocksfield Hill, Stocksfield, Northumberland, NE43 7TN
Tel: 01661 844 827, Email: rd@soilenvironmentservices.co.uk

www.soilenvironmentservices.co.uk

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DRAWING 1 **ALC Grade and survey points**

APPENDIX A **Survey profile data sheet**

APPENDIX B **Site photographs**

STATEMENT OF COMPETENCE

GENERAL INFORMATION SOURCES

1. INTRODUCTION

An Agricultural Land Classification (ALC) has been carried out on 2.4 ha of land off Garstang Road, Broughton (Drawing ALC/1). The site is centred on OS Grid Ref. 352481, 434690

The survey was conducted on the 14th April 2021 and classified the land into one or more of the below grades.

On the survey date, the site was in an arable crop.

1.1 Methodology

Agricultural land is classified into the following grades according to the 1988 guidelines¹.

Grade	Description
1	Excellent quality agricultural land with no or very minor limitations to agricultural use.
2	Very good quality agricultural land with minor limitations which affect crop yield, cultivation or harvesting.
3a	Good quality agricultural land capable of producing moderate to high yields of a narrow range of arable crops or moderate yields of a wider range of crops.
3b	Moderate quality agricultural land capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops.
4	Poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields.
5	Very poor quality agricultural land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

The classification includes an initial desktop investigation to examine previously mapped soil types and to note the drift and solid geology followed by the field survey consisting of auger borings at one every 100 m in general and a pit excavated at least in each of the main soil types to confirm the structures and stone content. Laboratory analysis of soil textures is undertaken if needed in order to confirm textures such the *heavy/medium* clay and *medium/fine* sand categories or stone content. All site survey profile data is listed in Appendix A.

All of the potential limitations are assessed and then the most limiting factor dictating the ALC grade was determined for this site and is detailed in Table 2.

1.2 Previous ALC gradings

Grading on the MAFF (1983) 1: 250 000 map indicated the site was mapped as **ALC Grade 3**. No detailed surveys have been undertaken for the site.

2. CLIMATIC LIMITATIONS

2.1 Overall climate

The climatological data for the entire site centre is detailed in Table 1.

Table 1		
Climatological information³		
Factor	Units	Value
Altitude AOD	m	42
Accumulated temperature	day°C (Jan-June)	1387.7
Average Annual Rainfall	mm	1039.7
Field Capacity Days	days	236.7
Moisture Deficit Wheat	mm	69.4
Moisture Deficit Potatoes	mm	52.1
Overall climate ALC Grade	Grade 2	

Overall climate will not result in the most significant limiting factor for this site.

2.2. Local climate

Local climate will not result in a significant limiting factor for this site.

3 SITE LIMITATIONS

3.1 Gradient

The gradient will not result in a significant limiting factor for this site.

3.2 Microrelief

The microrelief will not result in a significant limiting factor for this site.

3.3 Flooding

A very low risk of flooding from surface water and very low risk from rivers and sea has been identified (<https://flood-warning-information.service.gov.uk/long-term-flood-risk>).

Flooding will not result in a significant limiting factor for this site.

4 SOIL LIMITATIONS

4.1 Texture and structure

The textures noted across the site were generally sandy clay loam over sandy clays with moderate soil structure.

The site has previously been mapped as having soils of the Salop Association which comprise fine loamy over clayey typical stagnogley soils.

Superficial Geology

1:50 000 scale superficial deposits description: *Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions.*

Bedrock Geology

1:50 000 scale bedrock geology description: *Sherwood Sandstone Group - Sandstone. Sedimentary Bedrock formed approximately 229 to 271 million years ago in the Triassic and Permian Periods. Local environment previously dominated by rivers.*

4.2 Depth

Soil depth will not result in a significant limiting factor for this site.

4.3 Stoniness

Stoniness is not a direct significant limiting factor for soils noted on site.

4.4 Chemical

Chemical contamination will not result in a significant limiting factor for this sit

5. INTERACTIVE LIMITATIONS

5.1 Wetness

The soils have a slowly permeable layer at 30 cm with gleying at 30 cm depth.

The combination of a Wetness Class of IV (see Appendix A) in the soils with the Field Capacity Days of 236.7 and a topsoil texture of sandy clay loam results in an **ALC Grade of 3b**.

5.2. Droughtiness

Following assessment of the soil characteristics and climatic factors, the soil was found to have a soil Moisture Balance which subsequently when considered with respect to wheat and potatoes resulted in no significant limiting factor in determining the ALC Grade.

5.3 Erosion

Erosion will not result in a significant limiting factor for this site.

6. AGRICULTURAL LAND CLASSIFICATION

6.1 Most limiting factor

Grade 3b land – Wetness Limitation

The combination of a Wetness Class of IV (see Appendix A) in the soils with the Field Capacity Days of 236.7 and a topsoil texture of sandy clay loam results in an **ALC Grade of 3b**.

6.2 Current grading

This survey has resulted in an Agricultural Land Classification of the following grades (Drawing 1):

Table 2. ALC gradings and limitations			
Grade	ha	%	Limitation
1			
2			
3a			
3b	2.4	100	Wetness
4			
5			
Non-agricultural land			
Total	2.4	100%	

DRAWING 1

ALC Grade

Key

- ALC Grades
- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Non agricultural land

- Boring
- Pit

Soil Environment Services

Drawing Title: ALC Grade

Drawing No.: ALC/1

Scale: NA

Date: 20/04/21



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APPENDIX A

Soil profile data

Notes

- 1 All abbreviations relating to soil parameters are standard and derived from the guidance documents:

Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land. MAFF. 1988.
Soil Survey Field Handbook. Technical Monograph No.5. Soil Survey of England and Wales.1976.
- 2 The pit data is detailed in this table and information on structure and stone content copied to the boring profiles.
- 3 Any blanks in the cells indicate the data is not needed or appropriate for that cell.
- 4 If 'NA' is inserted in a cell the information is not appropriate on this occasion.

APPENDIX B

Site photographs

Photo 1



Photo 2



Photo 3



Agricultural land Classification

Statement of competence

SES Ltd undertake several dozen Agricultural Land Classification (ALC) or Land Capability Classifications for Agriculture (LCCA- Scotland) surveys a year and have worked on sites up to 1000 ha including housing, roads, solar farm and mineral extraction developments.. We have been undertaking ALC surveys for 25 years and have won many contracts to supply Land Classification reports to local authorities as part of their strategic development plans.

A number of our staff have attended the training course Agricultural Land Classification: England and Wales. Working with Soil – The IPSS Professional Competency Scheme. BSSS & DEFRA.

DR ROBIN DAVIES BSc PhD F.I.SoilSci.

- Managing Director – 25 years
- Fellow of The British Society of Soil Science
- Council Member of The Institute of Professional Soil Scientists for 4 years.
- PhD Soil Physics - Agricultural land drainage - University of Newcastle upon Tyne
- Founder and Managing Director of Soil Environment Services Limited for 25 years.

Selected peer reviewed scientific papers:

- * **Soil nitrogen depletion - the threat from soil stockpiling.** Environmental Scientist: Journal of The Institution of Environmental Sciences, 1997.
- * **Nitrogen loss from a soil, restored after surface-mining.** Journal of Environmental Quality, 1995
- * **The influence of soil factors on the growth of a grass/clover sward on a restored site in Northumberland.** Grass & Forage Science, 1994.
- * **The effect of post-restoration cropping regime on some physical properties of a restored soil.** Soil Use & Management, 1994
- * **Water availability in a restored soil.** Soil Use & Management, 1992.
- * **A laboratory Method for Investigating the Stabilisation of Mole Channels.**J.Agric.Eng.Res.1991.

GENERAL INFORMATION SOURCES

1. *Agricultural Land Classification of England and Wales*. Revised guidelines and criteria for grading the quality of agricultural land. MAFF. 1988.
2. *Soil Survey Field Handbook*. Technical Monograph No.5. Soil Survey of England and Wales.1976.
3. *Climatological Data for Agricultural Land Classification*, The Met. Office 1989
4. *Soil Map of England and Wales: 1:250 000*. Soil Survey of England and Wales, Harpenden.
5. *Soils and Their Use in Northern England*. Soil Survey of England and Wales,
6. *Agricultural Land Classification Map* 1:250 000. MAFF 1983.
7. *Risk of Flooding*: <https://flood-warning-information.service.gov.uk/long-term-flood-risk>
8. *Geology of Britain Viewer*. Reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved
9. *Butler, B E. Soil Classification for Soil Survey Monographs on Soil Survey (1980)* Clarendon Press, Oxford
10. *Munsell Soil Colour Charts, Munsell Colour, Grand Rapids 1994*.