



Agricultural Land Classification:

Blackmore Farm, Melksham, Wiltshire

Prepared for:
Gleeson Strategic Land Ltd

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Our interpretation of the site characteristics is based on available data made during our desktop study and soil survey. This desktop study and soil survey has assessed the characteristics of the site in relation to the assessment of its Agricultural Land Classification. It should not be relied on for alternative end-uses or for other schemes. This report has been prepared solely for the benefit of Gleeson Strategic Land Ltd. No warranty is provided to any third party and no responsibility or liability will be accepted for any loss or damage in the event that this report is relied upon by a third party or is used in circumstances for which it was not originally intended.

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1 INTRODUCTION

1.1 Background

- 1.1.1 This report was commissioned by Gleeson Strategic Land Ltd to determine the quality of agricultural land at a site proposed for residential development at Blackmore Farm to the northeast of Melksham, Wiltshire, SN12 7QT ('the Site'). The assessment is made in accordance with the Agricultural Land Classification (ALC) system for England and Wales (see 'Methodology' below).
- 1.1.2 The approximately 62.0 hectare (ha) Site is located to the northeast of Melksham. The approximate centre of the Site is located at British National Grid (BNG) reference ST 92764 64012. The Site comprises two parcels of land. The main Site, which is approximately 58.5 ha, is bordered by Snowberry Lane and residential development at Melksham to the west, by a solar farm to the east, and by agricultural land to the south, and by the A3102 to the north. The smaller approximately 3.5 ha parcel is located to the north of the A3102. The location of the Site is shown on **Figure 1**.

1.2 Methodology

- 1.2.1 This report has been prepared by a Chartered Scientist (CSci), who is a Professional Member of the British Society of Soil Science (BSSS). The author meets the requirements of the BBSS Professional Competency Scheme for ALC (see IPSS PCSS Document 2 'Agricultural Land Classification of England and Wales', given as **Appendix B**). The BSSS Professional Competency Scheme is endorsed, amongst others, by the Department for Environment, Food and Rural Affairs (Defra), Natural England, the Science Council, and the Institute of Environmental Assessment and Management (IEMA) (see Appendix B also).
- 1.2.2 This assessment is based upon the findings of a study of published information on climate, geology and soil, in combination with the findings of a detailed soil investigation carried out by the former Ministry of Agriculture, Fisheries and Food (MAFF)¹ in accordance with the national 'Agricultural Land Classification of England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land', October, 1988 (henceforth referred to as the 'the ALC Guidelines').
- 1.2.3 The ALC system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The ALC system divides agricultural land into five grades (Grade 1 'Excellent' to Grade 5 'Very Poor'), with Grade 3 subdivided into Subgrade 3a 'Good' and Subgrade 3b 'Moderate'. Agricultural land classified as Grade 1, 2 and Subgrade 3a falls in the 'best and most versatile' category in

¹ The Ministry of Agriculture, Fisheries and Food (MAFF) was incorporated within the Department for Environment, Food and Rural Affairs (Defra) in June 2001

Paragraph 170 (a and b) of the National Planning Policy Framework (NPPF), as revised on 19th February 2019. Further details of the ALC system and national planning policy implications are set out by Natural England in its Technical Information Note 049, given as **Appendix B**, and in Section 2.0 of this report.

- 1.2.4 A detailed soil survey and ALC was carried out over two days in July 2019. The ALC survey involved examination of the soil's physical properties at sixty-two auger locations, at a sampling density of approximately one soil profile per ha. The soil profile was examined at each sample location to a maximum depth of approximately 1.2 m by hand with the use of a 5cm diameter Dutch (Edleman) soil auger. One soil pit, i.e. Soil Pit 1, was excavated by hand with a spade in order to examine certain soil physical properties, such as stone content and the structural condition of the subsoil, more closely. The locations of the auger bores and soil pits are shown on **Figure 1**. A record of the soil profiles recorded at each auger bore location is given as **Appendix C**. A description of the soil profile recorded in Soil Pit 1 is given as **Appendix D**.
- 1.2.5 The auger locations were located using a hand-held Garmin E-Trec Geographic Information System (GIS) to enable the sample locations to be relocated for verification, if necessary. Where auger locations on a 100 m grid pattern fall on headland, tramlines, or within 3 m of a hedgerow or tree, they were relocated on agricultural land close by, i.e. to avoid compacted ground or land affected by tree roots, etc.
- 1.2.6 The soil profile at each sample location was described using the 'Soil Survey Field Handbook: Describing and Sampling Soil Profiles' (Ed. J.M. Hodgson, Cranfield University, 1997). Each soil profile was ascribed an Agricultural Land Classification (ALC) grade following the MAFF ALC Guidelines.
- 1.2.7 A sample of topsoil was collected at auger bore locations 19, 23 and 57 as shown on **Figure 1**. The samples were sent to an accredited laboratory for particle size distribution (PSD) / soil texture analysis, i.e. the proportions of sand, silt and clay. This is to determine the definitive texture class of the topsoil, especially with regard to distinguishing between fine, medium and coarse sand fraction. A copy of the laboratory Certificate of Analysis reporting the findings of the topsoil PSD analysis is given as **Appendix E**.

1.3 Structure of the Remainder of this Report

- 1.3.1 The remainder of this report is structured as follows:
- Section 2 – Planning Policy Framework
 - Section 3 – Agricultural Land Classification;
 - Section 4 - ALC at the Site in a Wider Geographical Context;
 - Section 5 – Summary and Conclusions

2 PLANNING POLICY FRAMEWORK

2.1 Background

- 2.1.1 This section of the report sets out the national and local planning framework in which to assess the opportunities and constraints to development at the Site in agricultural land quality terms.

2.2 National Planning Policy Statement (NPPF) February 2019

- 2.2.1 National planning policy guidance on development involving agricultural land is set out in National Planning Policy Framework (NPPF), which was revised on the 19th February 2019. The NPPF aims to provide a simplified planning framework which sets out the Government's economic, environmental and social planning policies for England. The NPPF includes policy guidance on 'Conserving and Enhancing the Natural Environment' (Section 15). Paragraph 170 (a and b) (page 49) are of relevance to this assessment of agricultural land quality and soil and state that:

'170...Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;...'

- 2.2.2 Paragraph 171 of the NPPF (2019) goes on to describe that:

'171. Plan should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework⁵³ ...'

- 2.2.3 Footnote number 53 states that:

'Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.'

2.3 Development Plan Policy

- 2.3.1 The current local plan comprises the Wiltshire Core Strategy and 'saved policies' in the West Wiltshire District Local Plan.

I. Wiltshire Core Strategy

- 2.3.2 The Wiltshire Core Strategy was adopted in 2015 and soils are recognised within Core Policy 51 (vi) as follows:

‘Development should protect, conserve and where possible enhance landscape character and must not have a harmful impact upon landscape character, while any negative impacts must be mitigated as far as possible through sensitive design and landscape measures. Proposals should be informed by and sympathetic to the distinctive character areas identified in the relevant Landscape Character Assessment(s) and any other relevant assessments and studies. In particular, proposals will need to demonstrate that the following aspects of landscape character have been conserved and where possible enhanced through sensitive design, landscape mitigation and enhancement measures:...

iv) Visually sensitive skylines, soils, geological and topographical features.’

II. West Wiltshire District Local Plan

- 2.3.3 On the 26th September, 2009, the Secretary of State issued a direction setting out the policies within the West Wiltshire District Plan 1st Alteration (2004) that can be 'saved' beyond 26th September, 2009. However, Policy E9 'Agricultural Land' was not saved. In this case, consideration should be given the national planning policy regarding development on agricultural land, as set out above.

2.4 Best Practice Guidance

- 2.4.1 The Department for Environment, Food and Rural Affairs (Defra) has published 'Safeguarding our Soils – A Strategy for England' (24th September 2009). The Soil Strategy was published in tandem with a 'Code of Practice for the Sustainable Use of Soils on Construction Sites'. The Soil Strategy for England, which builds on Defra's 'Soil Action Plan for England (2004-2006)', sets out an ambitious vision to protect and improve soil to meet an increased global demand for food and to help combat the adverse effects of climate change.

3 AGRICULTURAL LAND CLASSIFICATION

3.1 Background

3.1.1 This section of the report sets out the findings of the Agricultural Land Classification (ALC). It is based on a desktop study of relevant published information on climate, topography, geology, and soil in conjunction with a detailed ALC survey carried out in July 2019.

3.1.2 As described in the ALC Guidelines, the main physical factors influencing agricultural land quality are:

- Climate;
- Site;
- Soil; and
- Interactive limitations.

3.1.3 These factors are considered in turn below.

3.2 Climate

3.2.1 Interpolated climate data relevant to the determination of the Agricultural Land Classification (ALC) grade of land at the Site is given in Table 3.1 below.

Table 3.1: ALC Climate Data	
Climate Parameter	Data for ST 92764 64012
Average Altitude (m)	43
Average Annual Rainfall (mm)	731
Accumulated Temperature above 0°C (January – June)	1496
Moisture Deficit (mm) Wheat	106
Moisture Deficit (mm) Potatoes	99
Field Capacity Days (FCD)	165
Grade According to Climate	1

3.2.2 With reference to Figure 1 ‘Grade according to climate’ on page 6 of the ALC Guidelines, there is no overall climatic limitation to the quality of agricultural land at the Site. This means that agricultural land at the Site could be graded as ALC Grade 1 in overall climatic terms, in the absence of any other limiting factor, i.e. site, soil and/or interactive limitations.

- 3.2.3 Agricultural land at the Site is predicted to be at field capacity (i.e. near saturation point) for 165 days per year, mainly over the late autumn, winter and early spring. In combination with topsoil texture will cause an 'interactive limitations' to agricultural land quality at the Site, i.e. soil wetness and / or soil droughtiness (see below).

3.3 Site

- 3.3.1 As show on **Figure 1**, the approximately 62 hectare (ha) Site is located to the northeast of Melksham. The approximate centre of the Site is located at British National Grid (BNG) reference ST 92764 64012. The Site comprises two parcels of land. The main Site, which is approximately 58.5 ha, is bordered by Snowberry Lane and residential development at Melksham to the west, by a solar farm to the east, and by agricultural land to the south, and by the A3102 to the north. The smaller approximately 3.5 ha parcel is located to the north of the A3102.

- 3.3.2 A small stream flows from east to west though the southern part of the Site and joins Clackers Brook on the western edge of Melksham. A small wood (Eight Acre Plantation) is located in the southeast corner of the Site.

- 3.3.3 With regard to the ALC Guidelines, agricultural land quality can be limited by one or more of three main site factors as follows:

- Gradient;
- Micro-relief (i.e. complex change in slope angle over short distances); and
- Risk of flooding.

III. Gradient and Micro-Relief

- 3.3.4 The Site is broadly level at approximately 50 metres (m) Above Ordnance Datum (AOD) at the highest point in the northeast corner, and 39m AOD at the lowest point in the southwest.

- 3.3.5 The quality of agricultural land at the Site is not limited by gradient or micro-relief, i.e. complex changes in slope angle and direction over short distances.

IV. Risk of Flooding

- 3.3.6 From the Government Flood Map for Planning website², the Site is located in Flood Zone 1, at low risk of flooding by rivers or the sea. It is predicted that the quality of agricultural land is not limited by flood risk, re Table 2 '*Grade according to flood risk in summer*' and Table 3 '*Grade according to flood risk in winter*' of the ALC Guidelines.

3.4 Soil

² Available online @ <https://flood-map-for-planning.service.gov.uk/>

I. Geology/Soil Parent Material

- 3.4.1 British Geological Survey (BGS) information available online³ has been utilised to identify the Bedrock underlying the Site and any Superficial (Drift) Deposits over the Bedrock. This information helps to determine the parent material from which the soil has formed.
- 3.4.2 The BGS information (1:50,000) indicates that Site is underlain entirely by the Oxford Clay Formation (mudstone).
- 3.4.3 The BGS information (1:50,000) indicates the Site is not covered by any superficial deposits, apart from for some Alluvium (clay, silt, sand and gravel) along the brook in the south.

II. Published Information on Soil

- 3.4.4 The Soil Survey of England and Wales (SSEW) soil map of South West England (Sheet 5) at a scale of 1:250,000 and accompanying Bulletin No. 14 'Soils and their Use in South West England' (D.C Findlay et al, Harpenden, 1984) reports that agricultural land at the Site is covered by soils in the Denchworth Association.
- 3.4.5 As described by the SSEW, the Denchworth Association is extensive on Jurassic and Cretaceous clays and clay shales in the Midlands, South West and South East England. This association consists mainly of wet clayey soils. Denchworth soils are stoneless, strongly mottled and waterlogged for long periods in winter. The soils are slowly or moderately permeable in the topsoil, slowly permeable at depth and are waterlogged for prolonged periods in the growing season (Wetness Class IV to V).

III. Soil Survey

- 3.4.6 The soil survey carried out in July 2019 confirmed the presence of slowly permeable clay soils which are seasonally waterlogged for long periods over the winter (Wetness Class IV). A log of the sixty-two soil profiles recorded during the survey is given as **Appendix C**. A description of the soil profile recorded on Site at Soil Pit 1 (see **Figure 1**) is given as **Appendix D**.
- 3.4.7 A sample of topsoil was collected at auger bore location 19, 23 and 57 (see **Figure 1**), and the samples were sent to an accredited laboratory for analysis of particle size distribution (PSD), based on the British Standard Institution particle size grades. The certificate of analysis is provided as **Appendix E**. The findings of the PSD analysis are shown in Table 3.2 below:

³ British Geological Survey 'Geology of Britain Viewer'. Available online @ <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>

Table 3.2: Topsoil Texture (re Table 10, ALC Guidelines)				
Topsoil Sample Location (See Fig. 1)	% sand 0.063-2.0 mm	% silt 0.002- 0.063 mm	% clay <0.002 mm	ALC Soil Texture Class
Auger Bore 19	7	39	54	Clay
Auger Bore 23	13	43	44	Clay
Auger Bore 57	17	37	46	Clay

3.5 Interactive Limitations

3.5.1 From the published information and the results of the Site visit, it has been determined that the quality of agricultural land at the Site is limited by soil wetness.

I. Soil Wetness

3.4.8 From the ALC Guidelines, a soil wetness limitation exists where *‘the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock’*.

3.4.9 Agricultural land quality at the Site is limited by soil wetness as per Table 3.4 below (based on Table 6 ‘Grade According to Soil Wetness – Mineral Soils’ in the ALC Guidelines). This table shows only combinations of wetness class and topsoil texture found at the Site.

3.4.10 Most of the soil at the Site was assessed as being slowly permeable and waterlogged for long periods over the winter (Wetness Class IV), as shown on the Soil Profile Logs given as **Appendix C**.

Table 3.4: Soil wetness limitation – Blackmore Farm, Melksham, Wiltshire		
Wetness Class	Texture of the Top 25 cm	151-175 Field Capacity Days
III	Sandy Loam	2
	Medium Silty Clay Loam, Medium Clay Loam*	3a
	Heavy Silty Clay Loam, Heavy clay loam**	3b
	Silty Clay, Clay	3b
IV	Sandy Loam	3a
	Medium Silty Clay Loam, Medium Clay Loam*	3b
	Heavy Silty Clay Loam, Heavy clay loam**	3b
	Silty Clay, Clay	3b
Key * <27% clay; and ** >27% clay		

- 3.4.11 Therefore, soil profiles with clay topsoil and slowly permeable clay subsoil which is seasonally waterlogged for long periods over the winter (Wetness Class IV), in a climate area with 165 field capacity days (FCD), are limited by soil wetness to Subgrade 3b (re Table 6 of the ALC Guidelines, October 1988).

3.5 ALC Grading at the Site

- 3.5.1 From the published information above, together with the findings of the detailed ALC survey, it has been determined that the quality of agricultural land at the Site is entirely Subgrade 3b. A small wood (Eight Acre Plantation) located in the southeast corner of the Site is classified as non-agricultural/other land.

Table 3.5: Agricultural Land Classification – Melksham, Wiltshire		
ALC Grade	Total (Ha)	Total (% of Site)
Grade 1 (Excellent)	0	0
Grade 2 (Very Good)	0	0
Subgrade 3a (Good)	0	0
Subgrade 3b (Moderate)	58.0	93.5
Grade 4 (Poor)	0	0
Grade 5 (Very Poor)	0	0
Other Land / Non-agricultural	4.0	6.5
Total	62.0	100

4 ALC AT THE SITE IN A WIDER GEOGRAPHICAL CONTEXT

4.1 Introduction

- 4.1.1 The aim of this section is to examine agricultural land quality at the Site in a national, regional, county and local context.

4.2 Pre-1988 ALC Information

- 4.2.1 As described in **Appendix B**, during the 1960's and 1970's MAFF produced a series of maps to show the provisional ALC grade of agricultural land over the whole of England and Wales at a scale of 1:250,000. These provisional ALC maps are suitable for strategic land use planning only, i.e. they are appropriate for land areas greater than 80 ha. The provisional MAFF ALC map of South East England (1:250,000, 1984) indicates that the quality of agricultural land at the Site is all Grade 3 (not differentiated between Subgrade 3a and Subgrade 3b). The proportion of agricultural land in each of the ALC grades (derived from MAFF provisional or pre-1988 ALC information) in England, South West Government Office, Wiltshire County and the West Wiltshire District is shown for comparison in Table 4.1 below.

Table 4.1: Provisional ALC – National, Regional and Local Context (Proportion of ALC Grades as % of Total Land Area)⁴				
ALC Grade	England	South West Office	Wiltshire County	West Wiltshire District
1 (excellent)	2.7	1.5	2.0	0.7
2 (very good)	14.2	7.6	14.3	17.1
3 (good to moderate)	48.2	58.9	58.9	49.6
4 (poor)	14.1	18.4	9.3	10.1
5 (very poor)	8.4	5.5	1.2	1.5
Non-Agricultural	5.0	4.6	12.7	17.6
Urban	7.3	3.6	1.7	3.4

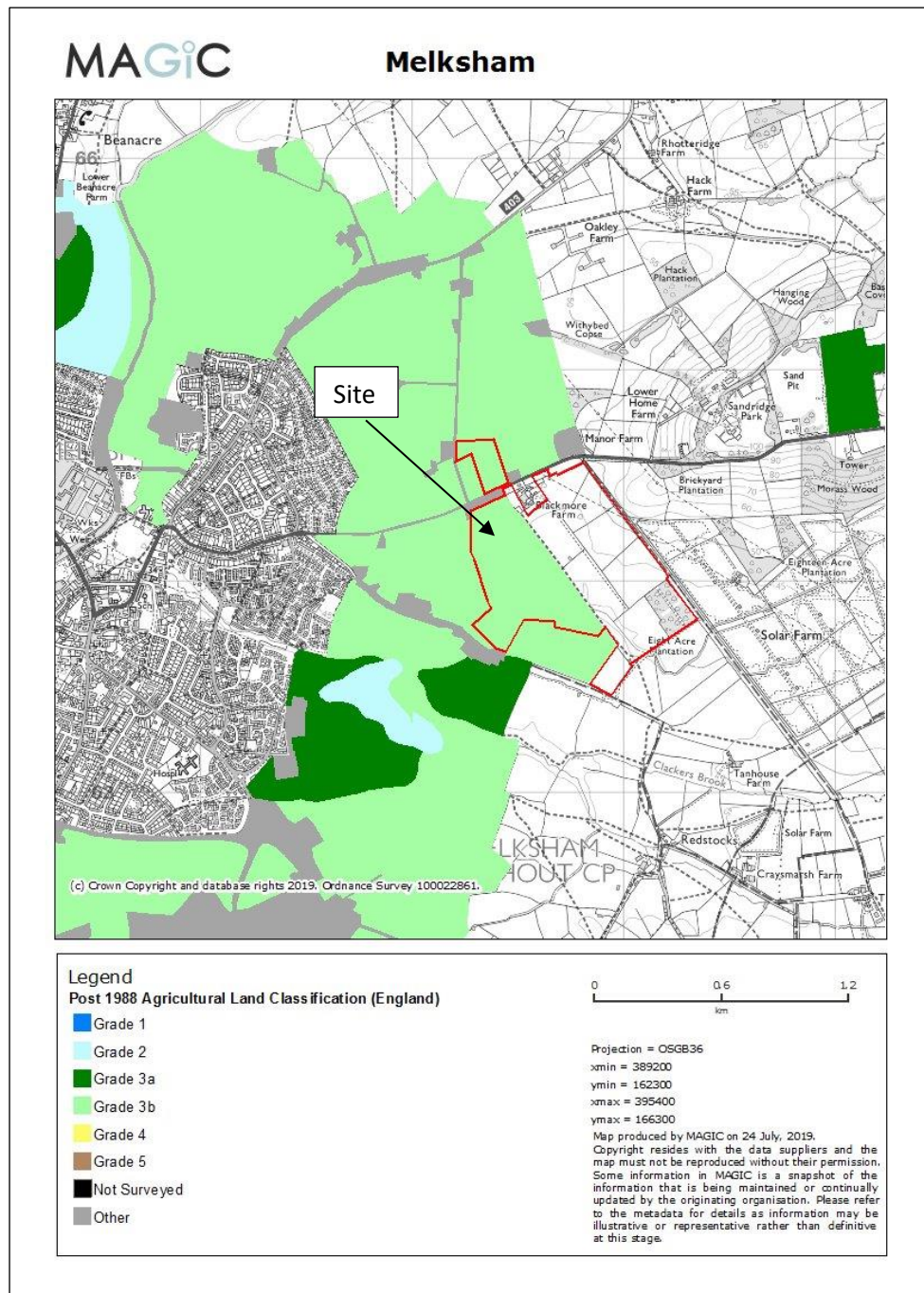
- 4.2.2 The provisional MAFF ALC information indicates that there is a high proportion of Grade 3 at regional (i.e. 58.9%), county (i.e. 58.9%) and district (i.e. 49.6%) level. Therefore, Grade 3 (Subgrade 3a and Subgrade 3b) is to be expected across the Site as it is widespread in the area.

4.3 Post-1988 ALC Information

- 4.3.1 The former MAFF has not carried a detailed (Post-1988) ALC survey of agricultural land at the Site. However, MAFF has carried out a semi-detailed ALC survey around Melksham, as part of

⁴ Ministry of Agriculture, Fisheries and Food, Land and Water Service, Technical Notes, Resource Planning (February 1983)
'Agricultural Land Classification of England and Wales – The Distribution of the Grades' (TN/RP/01 TFS 846)

the West Wiltshire Local Plan. MAFF determined Subgrade 3b in the western region of the Site, and Subgrade 3a and Grade 2 land further to the west and south west of the Site. An extract from the Post 1988 Agricultural Land Classification map on MAGIC⁵ is given below.

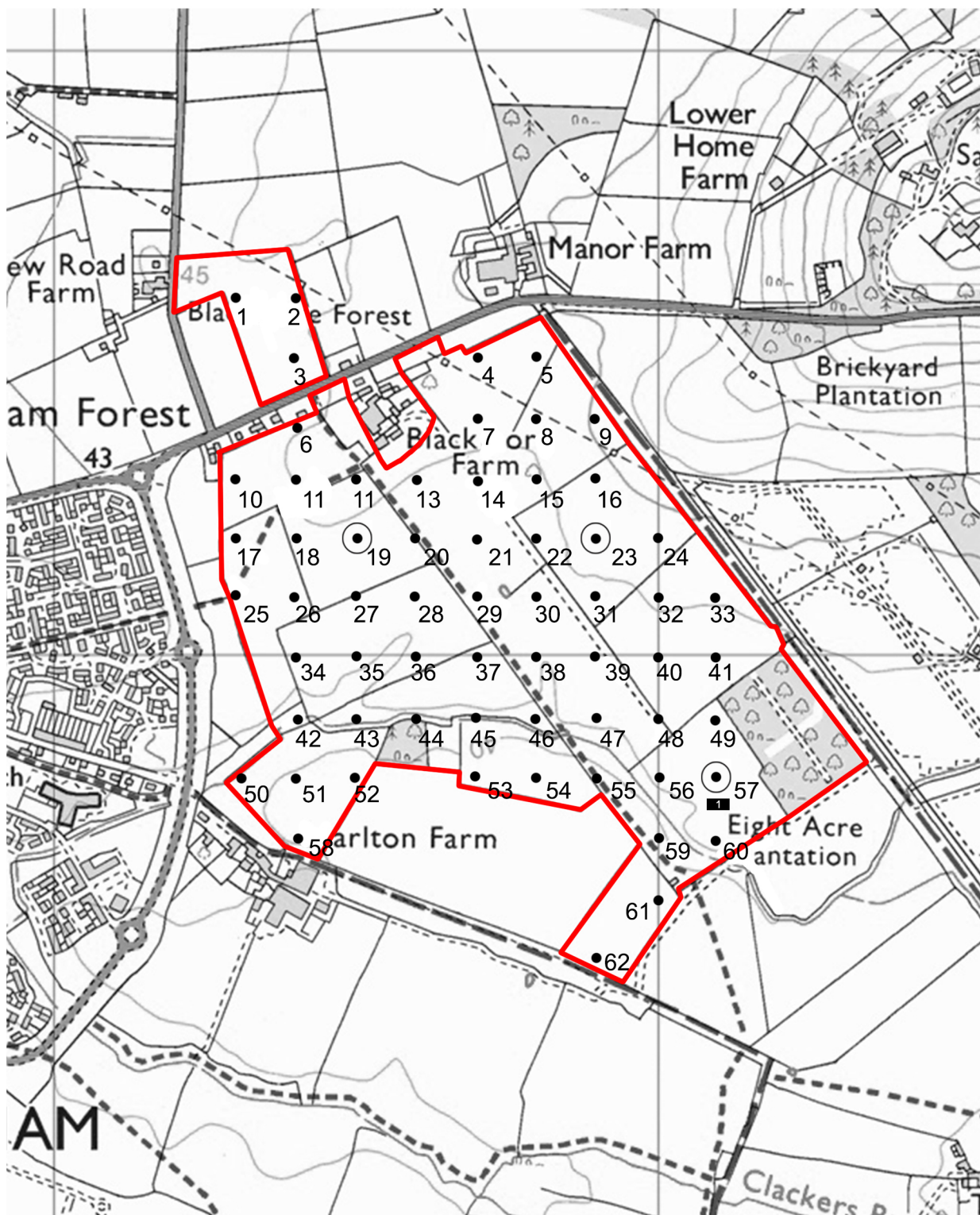


⁵ Multi Agency Geographic Information for the Countryside. Post 1988 Agricultural Land Classification.
Available online @ www.MAGiC.gov.uk

5 SUMMARY AND CONCLUSIONS

- 5.1.1 This report was commissioned by the Gleeson Strategic Land Ltd to determine the quality of agricultural land at a site proposed for residential development at Blackmore Farm, located to the northeast of Melksham, Wiltshire, SN12 7QT ('the Site'). The assessment is made in accordance with the Agricultural Land Classification (ALC) system for England and Wales (see 'Methodology' below).
- 5.1.2 British Geological Survey (BGS) information (1:50,000) indicates that Site is underlain entirely by the Oxford Clay Formation (mudstone). The Site is not covered by any superficial deposits, apart from some Alluvium (clay, silt, sand and gravel) along a small brook in the south.
- 5.1.3 The Soil Survey of England and Wales (SSEW) soil map of South West England (Sheet 5) at a scale of 1:250,000 and accompanying Bulletin No. 14 'Soils and their Use in South West England' (D.C Findlay et al, Harpenden, 1984) reports that agricultural land at the Site is covered by soils in the Denchworth association. This association consists mainly of wet clayey soils. These soils are waterlogged for prolonged periods in the growing season (Wetness Class IV to V).
- 5.1.4 An Agricultural Land Classification (ALC) survey carried out in July 2019 determined the presence of one main soil type across the Site, which is consistent with SSEW's description of the Denchworth association.
- 5.1.5 The detailed ALC survey determined that soil profiles with clay topsoil and slowly permeable clay subsoil which is seasonally waterlogged for long periods over the winter (Wetness Class IV), in a climate area with 165 field capacity days (FCD), are limited by soil wetness to Subgrade 3b (re Table 6 of the ALC Guidelines, October 1988).
- 5.1.6 The former MAFF carried a semi-detailed (Post-1988) ALC survey of agricultural land at the Site and determined Subgrade 3b in the western half (see Section 4.3 above).
- 5.1.7 Therefore, the quality of agricultural land across the whole Site has been classified as Subgrade 3b, which is outside of the NPPF (2019) best and most versatile (BMV) category (i.e. ALC Grade 1, Grade 2 and Subgrade 3a). In this regard, the proposed development at the Site would not significantly harm national agricultural interests.

Figures



Site boundary



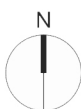
Auger location



Topsoil Sample



Soil Pit



Client

Gleeson Strategic Land Ltd

Project No C655

Dwg. No 01

Scale NTS

Date 25/07/19

Drawn By ELA

Figure 1

Sample Locations

Project Name

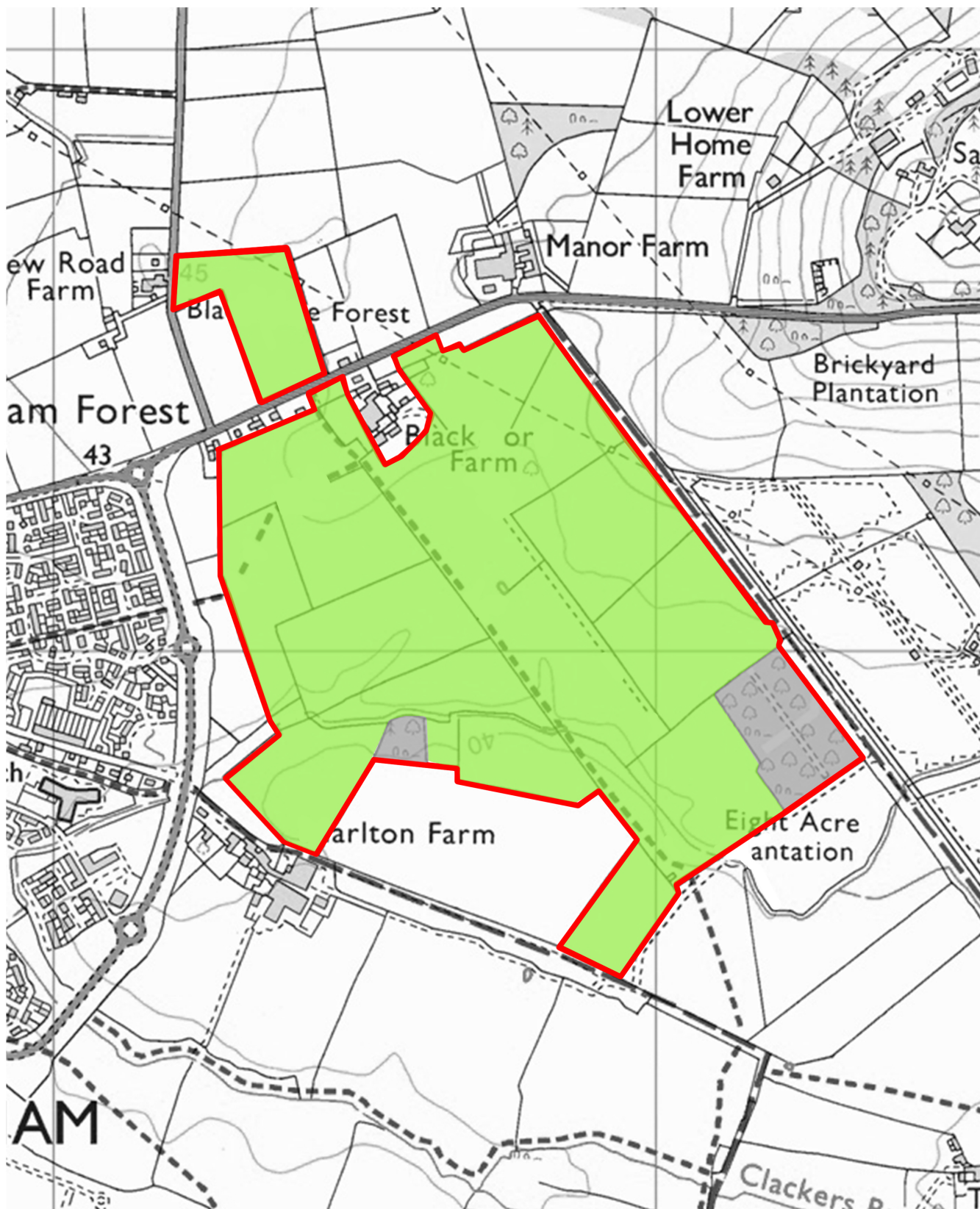
Melksham, Wiltshire

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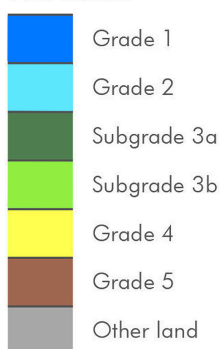
The Old Stables, Upexe, Exeter, EX5 5ND

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ALC Grade



Site boundary



Client

Gleeson Strategic Land Ltd

Project No C655
 Dwg. No 02
 Scale NTS
 Date 25/07/19
 Drawn By ELA

Figure 2:

Agricultural Land Classification

Project Name

Melksham, Wiltshire

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Appendix A:
IPSS Professional Competency Scheme Doc. 2 –
Agricultural Land Classification

Agricultural Land Classification (England and Wales)



Background

The evaluation of land for its agricultural potential in England and Wales¹ is accomplished by application of the Agricultural Land Classification² (ALC). Professional competence in Agricultural Land Classification builds upon foundation skills in field soil investigation, description and interpretation (IPSS PCSS Document 1). This system of professional competence is based upon a detailed written procedures document developed by the Farming and Rural Conservation Agency³.

Qualifications

Professional soil scientists with competence in Agricultural Land Classification will have graduated in a relevant science subject. They will also have a number of years of relevant field experience and will have, or be adequately qualified for, membership of a relevant professional body such as the Institute of Professional Soil Scientists.

Minimum competencies

Skills and Knowledge:

These are described under a number of subheadings that relate to different tasks. A professionally competent contractor should have the skills and knowledge identified under the **General heading** and **all other headings that are relevant** to the tasks required.

General

- 1** A general knowledge and understanding of natural soil development and of world, European and national soil taxonomy
- 2** A detailed knowledge and understanding of the Agricultural Land Classification system relevant to the site and of the classification of land according to the current published Guidelines and other documents^{1,2} and the ability to apply it accurately and consistently in the classification of an area of land

¹ Similar systems are employed in Scotland and Northern Ireland

² ALC Revised Guidelines and Criteria for the Grading the Quality of Agricultural Land (MAFF, 1988) and Climatological Datasets for ALC (Met. Office, 1989)

³ A former Executive Agency of the Ministry of Agriculture, Fisheries and Food (now Defra)

Agricultural Land classification (England and Wales)

- 3 An awareness and knowledge of existing published and unpublished, paper-based and digital ALC information and sources
- 4 A knowledge of paper and digital topographic, geology and soil maps, mineral assessment reports and memoirs and other technical sources of reference; and of their role in ALC work
- 5 An understanding of map scales and of the Ordnance Survey National Grid
- 6 The ability to investigate, sample, describe and interpret soils in the field in a consistent manner and to professional standards (IPSS PCSS Document 1)
- 7 Knowledge of relevant European and national regulations and policies including national and local land use planning policy and guidance, and soil protection policy
- 8 The ability to effectively communicate soil information in a simple and relevant form to developers, planners and other relevant professionals with clear statements as to the reliability and certainty of the results
- 9 The ability to write accurate, concise reports in clear English and in line with best practice examples of ALC survey that communicate the relevant information to all relevant communicants
- 10 An awareness of the importance of systems of quality assurance and control in all aspects of professional work

Preparations prior to field survey

- 1 The ability to compile background site physical data (e.g. relief, geology, soils, climate, flood-risk, exposure and grade from published and unpublished sources) and understanding of the limitations of the data obtained
- 2 An understanding of scale and of how different survey sampling densities may impact on the certainty of results obtained. A knowledge of how to tailor survey density appropriately to the requirements of the client, and understanding of the limitations that might impose

- 3 The ability to compute gradients from map contours
- 4 A thorough knowledge of climatic data interpolation procedures (and any available associated bespoke computer software), and the ability to obtain representative site values
- 5 An understanding of soil maps, the concepts of soil associations and soil series and their limitations as a background to ALC grading
- 6 A knowledge of GPS and data logger technology and its uses and limitations for field survey work
- 7 A knowledge and understanding of relevant Health and Safety legislation requirements for work in the field
- 8 An understanding of basic biosecurity requirements and any animal or plant health restrictions which may be in force

Field survey for Agricultural Land Classification

- 1 The ability to determine, lay out and work to a relevant sampling strategy
- 2 Competency in the Foundation Skills (field soil investigation, sampling, description and interpretation) as per IPSS PCSS Document 1
- 3 The ability to accurately and consistently apply the ALC system to soil and other data collected during the field survey

Reporting

- 1 The knowledge and ability to compile an ALC map from background information and data collected during the field survey
- 2 The ability to write an ALC survey report according to an agreed format
- 3 Understanding of the principles of quality assurance and the ability to apply these as required by the client
- 4 The ability to convey the findings of the survey verbally such that they are understood by the client

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The following organisations have given their support to the Institute of Professional Soil Scientist's Working with Soils Professional Competency Initiative:



'Defra welcomes initiatives, such as the IPSS Working with Soils Competency Statements, that aim to improve the quality of professional soils advice'



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Appendix B:
Natural England
Technical Information Note 049 –
Agricultural Land Classification

Agricultural Land Classification: protecting the best and most versatile agricultural land

Most of our land area is in agricultural use. How this important natural resource is used is vital to sustainable development. This includes taking the right decisions about protecting it from inappropriate development.

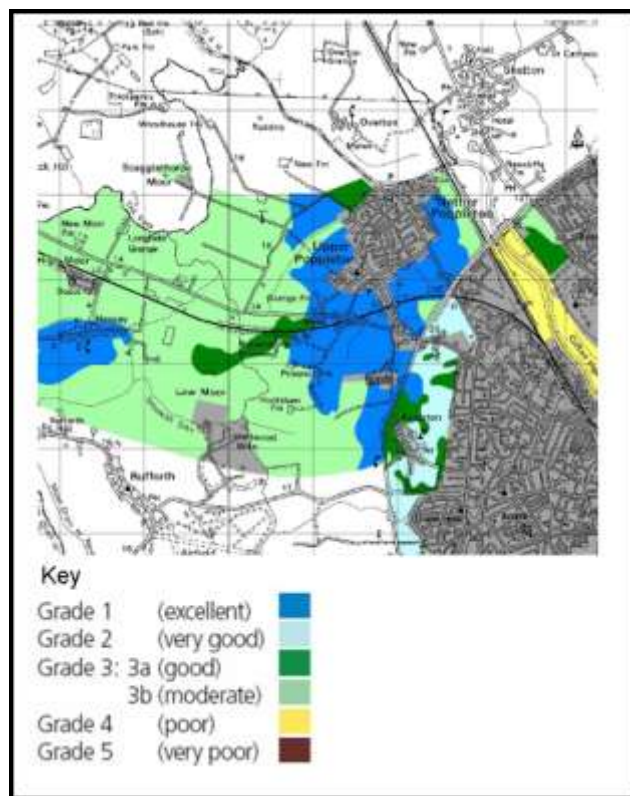
Policy to protect agricultural land

Government policy for England is set out in the National Planning Policy Framework (NPPF) published in March 2012 (paragraph 112). Decisions rest with the relevant planning authorities who should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of higher quality. The Government has also re-affirmed the importance of protecting our soils and the services they provide in the Natural Environment White Paper The Natural Choice: securing the value of nature (June 2011), including the protection of best and most versatile agricultural land (paragraph 2.35).

The ALC system: purpose & uses

Land quality varies from place to place. The Agricultural Land Classification (ALC) provides a method for assessing the quality of farmland to enable informed choices to be made about its future use within the planning system. It helps

underpin the principles of sustainable development.



Agricultural Land Classification - map and key

Agricultural Land Classification: protecting the best and most versatile agricultural land

The ALC system classifies land into five grades, with Grade 3 subdivided into Subgrades 3a and 3b. The best and most versatile land is defined as Grades 1, 2 and 3a by policy guidance (see Annex 2 of NPPF). This is the land which is most flexible, productive and efficient in response to inputs and which can best deliver future crops for food and non food uses such as biomass, fibres and pharmaceuticals. Current estimates are that Grades 1 and 2 together form about 21% of all farmland in England; Subgrade 3a also covers about 21%.

The ALC system is used by Natural England and others to give advice to planning authorities, developers and the public if development is proposed on agricultural land or other greenfield sites that could potentially grow crops. The Town and Country Planning (Development Management Procedure) (England) Order 2010 (as amended) refers to the best and most versatile land policy in requiring statutory consultations with Natural England. Natural England is also responsible for Minerals and Waste Consultations where reclamation to agriculture is proposed under Schedule 5 of the Town and Country Planning Act 1990 (as amended). The ALC grading system is also used by commercial consultants to advise clients on land uses and planning issues.

Criteria and guidelines

The Classification is based on the long term physical limitations of land for agricultural use. Factors affecting the grade are climate, site and soil characteristics, and the important interactions between them. Detailed guidance for classifying land can be found in: *Agricultural Land Classification of England and Wales: revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988):

- **Climate:** temperature and rainfall, aspect, exposure and frost risk.
- **Site:** gradient, micro-relief and flood risk.
- **Soil:** texture, structure, depth and stoniness, chemical properties which cannot be corrected.

The combination of climate and soil factors determines soil wetness and droughtiness.

Wetness and droughtiness influence the choice of crops grown and the level and consistency of yields, as well as use of land for grazing livestock. The Classification is concerned with the inherent potential of land under a range of farming systems. The current agricultural use, or intensity of use, does not affect the ALC grade.

Versatility and yield

The physical limitations of land have four main effects on the way land is farmed. These are:

- the range of crops which can be grown;
- the level of yield;
- the consistency of yield; and
- the cost of obtaining the crop.

The ALC gives a high grading to land which allows more flexibility in the range of crops that can be grown (its 'versatility') and which requires lower inputs, but also takes into account ability to produce consistently high yields of a narrower range of crops.

Availability of ALC information

After the introduction of the ALC system in 1966 the whole of England and Wales was mapped from reconnaissance field surveys, to provide general strategic guidance on land quality for planners. This Provisional Series of maps was published on an Ordnance Survey base at a scale of One Inch to One Mile in the period 1967 to 1974. These maps are not sufficiently accurate for use in assessment of individual fields or development sites, and should not be used other than as general guidance. They show only five grades: their preparation preceded the subdivision of Grade 3 and the refinement of criteria, which occurred after 1976. They have not been updated and are out of print. A 1:250 000 scale map series based on the same information is available. These are more appropriate for the strategic use originally intended and can be downloaded from the Natural England [website](http://magic.defra.gov.uk/). This data is also available on 'Magic', an interactive, geographical information website <http://magic.defra.gov.uk/>.

Since 1976, selected areas have been re-surveyed in greater detail and to revised

Agricultural Land Classification: protecting the best and most versatile agricultural land

guidelines and criteria. Information based on detailed ALC field surveys in accordance with current guidelines (MAFF, 1988) is the most definitive source. Data from the former Ministry of Agriculture, Fisheries and Food (MAFF) archive of more detailed ALC survey information (from 1988) is also available on <http://magic.defra.gov.uk/>. Revisions to the ALC guidelines and criteria have been limited and kept to the original principles, but some assessments made prior to the most recent revision in 1988 need to be checked against current criteria. More recently, strategic scale maps showing the likely occurrence of best and most versatile land have been prepared. Mapped information of all types is available from Natural England (see *Further information* below).

New field survey

Digital mapping and geographical information systems have been introduced to facilitate the provision of up-to-date information. ALC surveys are undertaken, according to the published Guidelines, by field surveyors using handheld augers to examine soils to a depth of 1.2 metres, at a frequency of one boring per hectare for a detailed assessment. This is usually supplemented by digging occasional small pits (usually by hand) to inspect the soil profile. Information obtained by these methods is combined with climatic and other data to produce an ALC map and report. ALC maps are normally produced on an Ordnance Survey base at varying scales from 1:10,000 for detailed work to 1:50 000 for reconnaissance survey.

There is no comprehensive programme to survey all areas in detail. Private consultants may survey land where it is under consideration for development, especially around the edge of towns, to allow comparisons between areas and to inform environmental assessments. ALC field surveys are usually time consuming and should be initiated well in advance of planning decisions. Planning authorities should ensure that sufficient detailed site specific ALC survey data is available to inform decision making.

Consultations

Natural England is consulted by planning authorities on the preparation of all development

plans as part of its remit for the natural environment. For planning applications, specific consultations with Natural England are required under the Development Management Procedure Order in relation to best and most versatile agricultural land. These are for non agricultural development proposals that are not consistent with an adopted local plan and involve the loss of twenty hectares or more of the best and most versatile land. The land protection policy is relevant to all planning applications, including those on smaller areas, but it is for the planning authority to decide how significant the agricultural land issues are, and the need for field information. The planning authority may contact Natural England if it needs technical information or advice.

Consultations with Natural England are required on all applications for mineral working or waste disposal if the proposed afteruse is for agriculture or where the loss of best and most versatile agricultural land agricultural land will be 20 ha or more. Non-agricultural afteruse, for example for nature conservation or amenity, can be acceptable even on better quality land if soil resources are conserved and the long term potential of best and most versatile land is safeguarded by careful land restoration and aftercare.

Other factors

The ALC is a basis for assessing how development proposals affect agricultural land within the planning system, but it is not the sole consideration. Planning authorities are guided by the National Planning Policy Framework to protect and enhance soils more widely. This could include, for example, conserving soil resources during mineral working or construction, not granting permission for peat extraction from new or extended mineral sites, or preventing soil from being adversely affected by pollution. For information on the application of ALC in Wales, please see below.

Agricultural Land Classification: protecting the best and most versatile agricultural land

Further information

Details of the system of grading can be found in: *Agricultural Land Classification of England and Wales: revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

Please note that planning authorities should send all planning related consultations and enquiries to Natural England by e-mail to consultations@naturalengland.org.uk. If it is not possible to consult us electronically then consultations should be sent to the following postal address:

Natural England
Consultation Service
Hornbeam House
Electra Way
Crewe Business Park
CREWE
Cheshire
CW1 6GJ

ALC information for Wales is held by Welsh Government. Detailed information and advice is available on request from Ian Rugg (ian.rugg@wales.gsi.gov.uk) or David Martyn (david.martyn@wales.gsi.gov.uk). If it is not possible to consult us electronically then consultations should be sent to the following postal address:

Welsh Government
Rhodfa Padarn
Llanbadarn Fawr
Aberystwyth
Ceredigion
SY23 3UR

Natural England publications are available to download from the Natural England website: www.naturalengland.org.uk.

For further information contact the Natural England Enquiry Service on 0300 060 0863 or e-mail enquiries@naturalengland.org.uk.

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Appendix C:

Soil Profile Logs

Project Number	Project Name	Parcel
C655	Blackmore Farm, Melksham, Wiltshire	C655

Date of Survey	Survey Type	Surveyor(s)	Company
24/07/2019	ALC	RWA	Askew Land and Soil

Weather	Relief	Land use and vegetation
Dry, Sunny	Level	LEY (Ley Grass)

Grid Reference	Postcode	Altitude	Area
ST92766401	SN12 7QT	43	62

MAFF prov	MAFF detailed	Flooding
Grade 3	None	Flood Zone 1

AAR	ATO	MDw	MDp	FCD	Climate grade
731	1496	106	99	165	1

Bedrock	Superficial deposits
Oxford Clay Formation	None/Alluvium along brook in the south

Soil association(s) 1:250,000	Detailed soil information
Denchworth	None

Revision Number	Date Revised
2	07/08/2019

Point	Grid ref.				Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y	Z					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour			%	> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape					MBw	MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade
1	ST 92300	64600	392300	164600	44				0 25 35	25 10 85	10YR4/3 10YR5/3 10YR5/1		CD - C:10YR5/8 CD - C:10YR5/8		CD - C:2.5Y4/2 CD - C:2.5Y4/2	No Yes Yes	C - Clay C - Clay C - Clay	0 0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate Moderate Poor			No No Yes	21 5 2	WC IV	3b	Wetness				3b					
2	ST 92400	64600	392400	164600	44				0 23 30	23 7 90	10YR4/3 10YR5/3 10YR5/1		CD - C:10YR5/8 CD - C:10YR5/8		CD - C:2.5Y4/2 CD - C:2.5Y4/2	No Yes Yes	C - Clay C - Clay C - Clay	0 0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate Moderate Poor			No No Yes	19 3 2	WC IV	3b	Wetness				3b					
3	ST 92400	64500	392400	164500	44				0 24 36	24 12 84	10YR4/2 10YR5/2 10YR5/1		CD - C:10YR5/8 CD - C:10YR5/8		CD - C:2.5Y4/2 CD - C:2.5Y4/2	No Yes Yes	C - Clay C - Clay C - Clay	0 0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate Moderate Poor			No No Yes	21 5 2	WC IV	3b	Wetness				3b					
4	ST 92700	64500	392700	164500	50				0 23	23 120	10YR4/3 10YR5/12		CD - C:10YR5/8		CD - C:2.5Y4/2	Yes Yes	C - Clay C - Clay	0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable Poor		Yes	No Yes	17 1 2	WC IV	3b	Wetness				3b					
5	ST 92800	64500	392800	164500	51				0 24	24 120	10YR4/3 10YR5/1		CD - C:10YR5/8 MD - h:10YR5/8		CD - C:2.5Y4/2 MD - h:2.5Y4/2	Yes Yes	C - Clay C - Clay	0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable Poor		No Yes	No Yes	18 2 2	WC IV	3b	Wetness				3b					
6	ST 92400	64380	392400	164380	45				0 22	22 120	10YR4/2 10YR5/1		CD - C:10YR5/8 MD - h:10YR5/8		CD - C:2.5Y4/2 MD - h:2.5Y4/2	Yes Yes	C - Clay C - Clay	0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable Poor		No Yes	No Yes	17 1 2	WC IV	3b	Wetness				3b					
7	ST 92700	64400	392700	164400	46				0 27	27 120	10YR4/3 10YR5/1		CD - C:10YR5/8 MD - h:10YR5/8		CD - C:2.5Y4/2 MD - h:2.5Y4/2	Yes Yes	C - Clay C - Clay	0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable Poor		No Yes	No Yes	19 3 2	WC IV	3b	Wetness				3b					
8	ST 92800	64400	392800	164400	46				0 23	23 120	10YR4/3 10YR5/1		CD - C:10YR5/8 MD - h:10YR5/8		CD - C:2.5Y4/2 MD - h:2.5Y4/2	Yes Yes	C - Clay C - Clay	0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable Poor		No Yes	No Yes	17 1 2	WC IV	3b	Wetness				3b					
9	ST 92900	64400	392900	164400	53				0 26	26 120	10YR4/3 10YR5/1		CD - C:10YR5/8 MD - h:10YR5/8		CD - C:2.5Y4/2 MD - h:2.5Y4/2	Yes Yes	C - Clay C - Clay	0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable Poor		No Yes	No Yes	18 2 2	WC IV	3b	Wetness				3b					
10	ST 92300	64300	392300	164300	45				0 24	24 120	10YR4/2 10YR5/1		CD - C:10YR5/8 MD - h:10YR5/8		CD - C:2.5Y4/2 MD - h:2.5Y4/2	Yes Yes	C - Clay C - Clay	0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable Poor		No Yes	No Yes	18 2 2	WC IV	3b	Wetness				3b					
11	ST 92400	64300	392400	164300	45				0 25	25 120	10YR4/2 10YR5/1		CD - C:10YR5/8 MD - h:10YR5/8		CD - C:2.5Y4/2 MD - h:2.5Y4/2	Yes Yes	C - Clay C - Clay	0 0							HR - All hard rocks or stones (i.e. those which cannot be scratched with HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable Poor		No Yes	No Yes	18 2 2	WC IV	3b	Wetness				3b					

Point	Grid ref.				Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	Top	Bttm	Thick	Munsell colour					Form	Munsell colour	Form	Munsell colour	%	> 2cm	> 6cm	Type			%	> 2cm	> 6cm	Type	Strength	Size	Shape	MBw	MBp	Gd	WC					Gw	Limitation 1	Limitation 2	Limitation 3	Grade				
12	ST 92500 64300	392500	164300	47				0	23	23	10YR4/3	CD - C: 10YR5/8	CD - C: 2.5Y4/2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	No	17	1	2	WC IV	3b	Wetness				3b			
								23	120	97	10YR5/1	MD - A 10YR5/8	MD - A 2.5Y4/2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor									No	Yes	Yes												
13	ST 92600 64300	392600	164300	46				0	24	24	10YR4/2	CD - C: 10YR5/8	CD - C: 2.5Y4/2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	No	18	2	2	WC IV	3b	Wetness				3b			
								24	120	96	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5Y4/2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor									No	Yes	Yes												
14	ST 92700 64300	392700	164300	46				0	26	26	10YR4/2	CD - C: 10YR5/8	CD - C: 2.5Y4/2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	No	18	2	2	WC IV	3b	Wetness				3b			
								26	120	94	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5Y4/2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor									No	Yes	Yes												
15	ST 92800 64300	392800	164300	46				0	20	20	10YR4/2			No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	No	16	0	2	WC IV	3b	Wetness				3b			
								20	29	9	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								No	Yes	Yes													
								29	120	91	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								No	Yes	Yes													
16	ST 92900 64300	392900	164300	53				0	20	20	10YR4/2			No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	No	16	0	2	WC IV	3b	Wetness				3b			
								20	26	6	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								No	Yes	Yes													
								26	120	94	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								No	Yes	Yes													
17	ST 92300 64200	392300	164200	44				0	25	25	10YR4/3			No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	No	21	5	2	WC IV	3b	Wetness				3b			
								25	35	10	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate								No	No	Yes													
								35	120	85	10YR6/1	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								No	Yes	Yes													
18	ST 92400 64200	392400	164200	44				0	25	25	10YR4/3			No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	No	32	16	1	WC IV	3b	Wetness				3b			
								25	120	95	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate								Yes	No														
19	ST 92500 64200	392500	164200	44				0	20	20	10YR4/2			No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	16	0	2	WC IV	3b	Wetness				3b				
								20	23	3	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								Yes	Yes	Yes													
								23	120	97	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor									Yes	Yes	Yes												
20	ST 92600 64200	392600	164200	42				0	25	25	10YR4/2			No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	18	2	2	WC IV	3b	Wetness				3b				
								25	120	95	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								Yes	Yes	Yes													
21	ST 92700 64200	392700	164200	42				0	20	20	10YR4/2			No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	16	0	2	WC IV	3b	Wetness				3b				
								20	30	10	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								No	Yes	Yes													
								30	120	90	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor								No	Yes	Yes													
22	ST 92800 64200	392800	164200	43				0	20	20	10YR4/2			No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable									No	16	0	2	WC IV	3b	Wetness				3b				

Point	Grid ref.			Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix		Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1			Stones - type 2			Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC				
	NGR	X	Y					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour	%			> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size					Shape	MBw	MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade
								20	27	7	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0												Yes	Yes											
								27	120	93	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0												Yes	Yes											
23	ST 92900	64200	392900	164200	44			0	20	20	10YR4/2				No	C - Clay	0										Not Applicable			No	16	0	2	WC IV	3b	Wetness		3b			
								20	25	5	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0												Yes	Yes											
								25	120	95	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0												Yes	Yes											
24	ST 93000	64200	393000	164200	46			0	20	20	10YR4/2				No	C - Clay	0										Not Applicable			No	16	0	2	WC IV	3b	Wetness		3b			
								20	24	4	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0												Yes	Yes											
								24	120	96	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0												Yes	Yes											
25	ST 92300	64100	392300	164100	44			0	25	25	10YR4/3				No	C - Clay	0										Not Applicable			No	21	5	2	WC IV	3b	Wetness		3b			
								25	35	10	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0									Moderate			No	No											
								35	120	85	10YR6/1	MD - A: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Poor		Yes	Yes											
26	ST 92400	64100	392400	164100	44			0	25	25	10YR4/3				No	C - Clay	0										Not Applicable			No	32	16	1	WC IV	3b	Wetness		3b			
								25	120	95	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Moderate			No	No										
27	ST 92500	64100	392500	164100	44			0	25	25	10YR4/3				No	C - Clay	0										Not Applicable			No	32	16	1	WC IV	3b	Wetness		3b			
								25	120	95	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Moderate		Yes	No	No										
28	ST 92600	64100	392600	164100	42			0	25	25	10YR4/2				No	C - Clay	0										Not Applicable			No	18	2	2	WC IV	3b	Wetness		3b			
								25	120	95	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Poor		Yes	Yes											
29	ST 92700	64100	392700	164100	42			0	27	27	10YR4/2				No	C - Clay	0										Not Applicable			No	19	3	2	WC IV	3b	Wetness		3b			
								27	120	93	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Poor		Yes	Yes											
30	ST 92800	64100	392800	164100	43			0	24	24	10YR4/2				No	C - Clay	0										Not Applicable			No	18	2	2	WC IV	3b	Wetness		3b			
								24	120	96	10YR5/1	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Poor		No	Yes											
31	ST 92900	64100	392900	164100	44			0	20	20	10YR4/2				No	C - Clay	0										Not Applicable			No	16	0	2	WC IV	3b	Wetness		3b			
								20	27	7	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Poor		No	Yes											
								27	120	93	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Poor		Yes	Yes											
32	ST 93000	64100	393000	164100	46			0	20	20	10YR4/2				No	C - Clay	0										Not Applicable			No	16	0	2	WC IV	3b	Wetness		3b			
								20	30	10	10YR5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Poor		No	Yes											
								30	120	90	5Y5/3	CD - C: 10YR5/8	CD - C: 2.5YR4.2	CD - C: 2.5YR4.2	Yes	C - Clay	0										Poor		No	Yes											

Point	Grid ref.				Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y	Top					Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour	%			> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape	MBw					MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade	
33	ST 93100 64100	393100	164100	46	0	20	20	10YR4/2				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	16	0	2	WC IV	3b	Wetness			3b										
					20	32	12	10YR5/3				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				No	Yes																		
					32	120	88	5Y5/3				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				Yes																			
34	ST 92400 64000	392400	164000	44	0	25	25	10YR4/3				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	32	16	1	WC IV	3b	Wetness			3b										
					25	120	95	10YR5/1				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate				Yes	No																		
35	ST 92500 64000	392500	164000	44	0	25	25	10YR4/3				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	32	16	1	WC IV	3b	Wetness			3b										
					25	120	95	10YR5/1				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate				Yes	No																		
36	ST 92600 64000	392600	164000	42	0	25	25	10YR4/2				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	18	2	2	WC IV	3b	Wetness			3b										
					25	120	95	10YR5/1				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				Yes	Yes																		
37	ST 92700 64000	392700	164000	42	0	25	25	10YR4/2				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	18	2	2	WC IV	3b	Wetness			3b										
					25	120	95	10YR5/1				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor																							
38	ST 92800 64000	392800	164000	43	0	27	27	10YR4/2				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	19	3	2	WC IV	3b	Wetness			3b										
					27	120	93	10YR5/1				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				Yes	Yes																		
39	ST 92900 64000	392900	164000	44	0	23	23	10YR4/2				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	17	1	2	WC IV	3b	Wetness			3b										
					23	120	97	10YR5/1				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				Yes	Yes																		
40	ST 93000 64000	393000	164000	46	0	20	20	10YR3/2				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	16	0	2	WC IV	3b	Wetness			3b										
					20	24	4	10YR5/3				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				No	Yes																		
					24	120	96	5Y5/3				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				Yes	Yes																		
41	ST 93100 64000	393100	164000	46	0	20	20	10YR3/2				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	16	0	2	WC IV	3b	Wetness			3b										
					20	27	7	10YR5/3				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				No	Yes																		
					27	120	93	5Y5/3				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				Yes	Yes																		
42	ST 92400 63900	392400	163900	39	0	20	20	10YR4/3				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	19	3	2	WC IV	3b	Wetness			3b										
					20	30	10	10YR5/3				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate				No	No																		
					30	120	90	10YR5/1				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor				Yes	Yes																		
43	ST 92500 63900	392500	163900	39	0	20	20	10YR4/3				CD - C:10YR5/8	CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable				No	19	3	2	WC IV	3b	Wetness			3b										
					20	30	10	10YR5/3				CD - C:10YR5/8	CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate				No	No																		

Point	Grid ref.			Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix		Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1			Stones - type 2			Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour	% > 2cm			> 6cm	Type	% > 2cm	> 6cm	Type	Strength	Size	Shape	MBw					MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade	
								30	120	90	10YR5/1		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0										Yes											
44	ST 92600 63900	392600	163900	40				0	25	25	10YR4/3						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			No	21	5	2	WC IV	3b	Wetness			3b		
								25	35	10	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Moderate			No	No										
								35	120	85	10YR5/1		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			No	Yes										
45	ST 92700 63900	392700	163900	40				0	25	25	10YR4/3						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			No	21	5	2	WC IV	3b	Wetness			3b		
								25	35	10	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Moderate			No	No										
								35	120	85	10YR5/1		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			No	Yes										
46	ST 92800 63900	392800	163900	41				0	30	30	10YR4/3						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			No	24	8	2	WC IV	3b	Wetness			3b		
								30	45	15	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Moderate			No	No										
								45	120	75	10YR5/1		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			No	Yes										
47	ST 92900 63900	392900	163900	41				0	20	20	10YR3/2						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			No	16	0	2	WC IV	3b	Wetness			3b		
								20	30	10	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			No	Yes										
								30	120	90	5Y5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			No	Yes										
48	ST 93000 63900	393000	163900	44				0	20	20	10YR3/2						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			No	16	0	2	WC IV	3b	Wetness			3b		
								20	26	6	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			Yes	Yes										
								26	120	94	5Y5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			Yes	Yes										
49	ST 93100 63900	393100	163900	44				0	20	20	10YR4/2						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			No	16	0	2	WC IV	3b	Wetness			3b		
								20	26	6	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			Yes	Yes										
								26	120	94	5Y5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			Yes	Yes										
50	ST 92300 63800	392300	163800	39				0	20	20	10YR4/3						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			No	19	3	2	WC IV	3b	Wetness			3b		
								20	30	10	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Moderate			No	No										
								30	120	90	10YR5/1		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			No	Yes										
51	ST 92400 63800	392400	163800	39				0	20	20	10YR4/3						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			Yes	No	19	3	2	WC IV	3b	Wetness			3b	
								20	30	10	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Moderate			Yes	No										
								30	120	90	10YR5/1		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			Yes	Yes										
52	ST 92500 63800	392500	163800	39				0	20	20	10YR4/3						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			Yes	No	19	3	2	WC IV	3b	Wetness			3b	
								20	30	10	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Moderate			Yes	No										
								30	120	90	10YR5/1		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			Yes	No										
53	ST 92700 63800	392700	163800	40				0	30	30	10YR4/3						No	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Not Applicable			No	24	8	2	WC IV	3b	Wetness			3b		
								30	45	15	10YR5/3		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Moderate			No	No										
								45	120	75	10YR5/1		CD - C: 10YR5/8		CD - C: 2.5YR4.2		Yes	C - Clay	0					HR - All hard rocks or stones (i.e. those which cannot be scratched with		Poor			No	Yes										

Point	Grid ref.				Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y	Top					Btm	Thick	Munsell colour	Form Munsell colour		Form Munsell colour		%			> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape	MBw					MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade	
												CD - C:10YR5/8	CD - C:10YR5/8	CD - C:2.5YR4.2	CD - C:2.5YR4.2	HR - All hard rocks or stones (i.e. those which cannot be scratched with			HR - All hard rocks or stones (i.e. those which cannot be scratched with	HR - All hard rocks or stones (i.e. those which cannot be scratched with	HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor	Moderate	Poor																		
54	ST 92800 63800	392800	163800	41	0	30	30	10YR4/3				CD - C:10YR5/8		CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								No	24	8	2	WC IV	3b	Wetness		3b						
					30	45	15	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate							Yes	No														
					45	120	75	10YR5/1				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	No														
55	ST 92900 63800	392900	163800	41	0	20	20	10YR4/2						CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								No	16	0	2	WC IV	3b	Wetness		3b						
					20	25	5	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							No	Yes														
					25	120	95	5Y5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
56	ST 93000 63800	393000	163800	44	0	20	20	10YR4/2						CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								No	16	0	2	WC IV	3b	Wetness		3b						
					20	28	8	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							No	Yes														
					28	120	92	5Y5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
57	ST 93100 63800	393100	163800	44	0	20	20	10YR4/2						CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								No	16	0	2	WC IV	3b	Wetness		3b						
					20	33	13	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							No	Yes														
					33	120	87	5Y5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
58	ST 92400 63700	392400	163700	40	0	20	20	10YR4/3						CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								No	19	3	2	WC IV	3b	Wetness		3b						
					20	30	10	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Moderate							No	Yes														
					30	120	90	10YR5/1				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							No	Yes														
59	ST 93000 63700	393000	163700	41	0	20	20	10YR4/2						CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								No	16	0	2	WC IV	3b	Wetness		3b						
					20	25	5	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
					25	120	95	5Y5/3				MD - A:10YR5/8		MD - A:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
60	ST 93100 63700	393100	163700	41	0	20	20	10YR4/2						CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								No	16	0	2	WC IV	3b	Wetness		3b						
					20	27	7	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
					27	120	93	5Y5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
61	ST 93000 63600	393000	163600	41	0	20	20	10YR4/2						CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								Yes	16	0	2	WC IV	3b	Wetness		3b						
					20	25	5	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
					25	120	95	5Y5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
62	ST 92900 63500	392900	163500	42	0	20	20	10YR4/2						CD - C:2.5YR4.2	No	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Not Applicable								No	16	0	2	WC IV	3b	Wetness		3b						
					20	30	10	10YR5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							No	Yes														
					30	120	90	5Y5/3				CD - C:10YR5/8		CD - C:2.5YR4.2	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with	Poor							Yes	Yes														
END																																										

Mottle form

FF - Few Faint
FD - Few Distinct
FP - Few Prominent
CF - Common Faint
CD - Common Distinct
CP - Common Prominent
MF - Many Faint
MD - Many Distinct
MP - Many Prominent
VF - Very many Faint
VD - Very many Distinct
VP - Very many Prominent

Texture

C - Clay
CHK - Chalk
CS - Coarse Sand
CSL - Coarse sandy loam
CSZL - Coarse sandy silt loam
FP - Fibrous and semifibrous peats
FS - Fine Sand
FSL - Fine sandy loam
FSZL - Fine sandy silt loam
HCL - Clay loam (heavy)
HP - Humified peats
HZCL - Silty clay loam (heavy)
IMP - Impenetrable to roots
LCS - Loamy Coarse Sand
LFS - Loamy fine sand
LMS - Loamy medium sand
LP - Loamy peats
MCL - Clay loam (medium)
MS - Medium Sand
MSL - Medium sandy loam
MSZL - Medium sandy silt loam
MZ - Marine Light Silts
MZCL - Silty clay loam (medium)
OC - Organic clays
OL - Organic loams
OS - Organic sands
PL - Peaty loams
PS - Peaty sands
SC - Sandy clay
SCL - Sandy clay loam
SP - Sandy peats
ZC - Silty clay
ZL - Silt loam

Stone Type

CH - Chalk or chalk stones
FSST - Soft fine grained sandstones
GH - Gravel with non-porous (hard) stones
GS - Gravel with porous stones (mainly soft stone types listed above)
HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)
MSST - Soft, medium or coarse grained sandstones
SI - Soft 'weathered' igneous or metamorphic rocks or stones
SLST - Soft oolitic or dolomitic limestones
ZR - Soft, argillaceous or silty rocks or stones

Ped. Shape

SG - Single grain
GRA - Granular
SAB - Subangular Blocky
AB - Angular Blocky
PRIS - Prismatic
PLAT - Platy
MASS - Massive
NA - N/A

Subsoil Structure Condition

Not Applicable
Good
Moderate
Poor

Soil or Ped. Strength

Loose
Very friable
Friable
Firm
Very firm
Extremely firm
Extremely hard
N/A

Calcareousness

NON - Non-calcareous (<0.5% CaCO₃)
VSC - Very slightly calcareous (0.5 - 1% CaCO₃)
SC - Slightly calcareous (1 - 5% CaCO₃)
MC - Moderately calcareous (5 - 10% CaCO₃)
VC - Very calcareous (>10% CaCO₃)

Ped. Size

VF - Very Fine
F - Fine
M - Medium
C - Coarse
VC - Very Coarse
NA - N/A

Degree of Ped. Development

W - Weak
M - Moderate
S - Strong
NA - Not applicable

Wetness Class

WC I
WC II
WC III
WC IV
WC V
WC VI

ALC Grades

1
2
3a
3b
4
5
Non-Ag

Gley

None
Gley
N/A

Appendix D:

Soil Pit Descriptions

Project	Location	Date	Surveyor(s)	Company
C655	Blackmoor Farm, Melkshan, Wiltshire	24-Jul-19	RWA	Askew Land and Soil

Pit	WC	Grade	Limitation(s)	Notes
1	IV	3b	Wetness	Dairy farm. Permanent pasture/long-term ley. Undulations in south indicative of former/dry watercourse.

Grid Ref.			Altitude	Nearest point	Topography				Flora			Weather and conditions			
Square	East	North			Gradient	Aspect	Slope form	Surface	Cultivation type	Vegetation types		Temp	Sky	Wind	Precipitation
ST	931	638	44	57	1°	S	Straight	Level	Ploughed	Permanent pasture/long term ley		Hot	Few clouds	Slight	Dry

Horizon	Depth		Matrix			Gleying			Mottles			Stone content				Calc.	Mn	C	Ped/soil structure				Horizon boundary		Biopores	SPL
	Top	Bttm	Texture	Colour	Munsell	Gley	Colour	Munsell	Form	Colour	Munsell	%	H	Type	S				Type	Dev.	Size	Structure	Strength	Distinct		
Ap	0	20	Clay	DGB	10YR4/2	No						0	0		0		Non- c	No	Mod	Med	SAB	Firm	Clear	Smooth	>0.5	No
B	20	33	Clay	GB	10YR5/3	Yes			CD	YB	10YR5/8	0	0		0		Non- c	Comm	Poor	Med	Angular	Firm	Clear	Smooth	<0.5	Yes
C	33	120	Clay	Olive	5Y5/3	Yes			CD	YB	10YR5/8	0	0		0		Non- c	Comm	Poor	Coarse	Prismatic	Firm			<0.5	Yes

Appendix E:

Topsoil Particle Size Distribution (PSD)



ANALYTICAL REPORT

Report Number	63554-19	N717	
Date Received	26-JUL-2019		BLACKMOOR FARM
Date Reported	01-AUG-2019		MELKSHAM
Project	SOIL		WILTSHIRE
Reference	C655		
Order Number			

Laboratory Reference		SOIL443571	SOIL443572	SOIL443573							
Sample Reference		19	23	57							
Determinand	Unit	SOIL	SOIL	SOIL							
Sand 2.00-0.063mm	% w/w	7	13	17							
Silt 0.063-0.002mm	% w/w	39	43	37							
Clay <0.002mm	% w/w	54	44	46							
Textural Class **		O-C	C	O-C							

Notes	
Analysis Notes	The sample submitted was of adequate size to complete all analysis requested. The results as reported relate only to the item(s) submitted for testing. The results are presented on a dry matter basis unless otherwise stipulated.
Document Control	This test report shall not be reproduced, except in full, without the written approval of the laboratory.

Reported by	** Please see the attached document for the definition of textural classes. Myles Nicholson Natural Resource Management, a trading division of Cawood Scientific Ltd. Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS Tel: 01344 886338 Fax: 01344 890972 email: enquiries@nrm.uk.com
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ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

Class	Code
Sand	S
Loamy sand	LS
Sandy loam	SL
Sandy Silt loam	SZL
Silt loam	ZL
Sandy clay loam	SCL
Clay loam	CL
Silt clay loam	ZCL
Clay	C
Silty clay	ZC
Sandy clay	SC

For the *sand*, *loamy sand*, *sandy loam* and *sandy silt loam* classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

vf	Very Fine (more than 2/3's of sand less than 0.106 mm)
f	Fine (more than 2/3's of sand less than 0.212 mm)
c	Coarse (more than 1/3 of sand greater than 0.6 mm)
m	Medium (less than 2/3's fine sand and less than 1/3 coarse sand).

The subdivisions of *clay loam* and *silty clay loam* classes according to clay content are indicated as follows:

M	medium (less than 27% clay)
H	heavy (27-35% clay)

Organic soils i.e. those with an organic matter greater than 10% will be preceded with a letter O.

Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.