



Land East of Calne Road, Lyneham

Agricultural Land Classification

November 2025

ADAS GENERAL NOTES

Project No.: 1011701

Title: Land East of Calne Road, Lyneham – Agricultural Land Classification

Date: 20/11/2025

Office: ADAS Rosemaund, Preston Wynne, Hereford HR1 3PG

Status: Final-v2

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Date:	20/11/2025	Date:	20/11/2025

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK ADAS Ltd.



EXECUTIVE SUMMARY

ADAS have been instructed by Ashflame Properties Limited to undertake an Agricultural Land Classification survey of 8.2 ha at Calne Road, Lyneham, Wiltshire SN11 9JB (herein referred to as 'the site').

The survey has identified clay topsoils over clay subsoils (where present) over limestone. These soils form agricultural land of Subgrade 3b (8.2 ha, 100 %) quality.

The principal limitations to the agricultural use of the land are soil droughtiness and wetness (workability) .

CONTENTS

1	INTRODUCTION.....	1
1.1	Site Environment	1
1.2	Agricultural Use.....	1
1.3	Published Information	1
1.3.1	Geology.....	1
1.3.2	Soils	1
1.3.3	Previous Agricultural Land Classification.....	2
2	METHODOLOGY.....	2
3	SOILS	3
3.1	Soil Types	3
3.1.1	Soil Type: Clay topsoils over clay subsoils.....	3
3.2	Laboratory Analysis.....	4
4	AGRICULTURAL LAND CLASSIFICATION	4
4.1	Climate	4
4.2	Results	5
	Grade 1.....	5
	Grade 2.....	5
	Subgrade 3a	5
	Subgrade 3b	6
	Grade 4.....	6
	Grade 5.....	6
	Non-agricultural	6
	Urban	6
	Not Surveyed.....	6
4.3	Summary of grade areas.....	7
5	CONCLUSION	7
	APPENDIX 1 – OBSERVATION LOCATION MAP	I
	APPENDIX 2 – AGRICULTURAL LAND CLASSIFICATION MAP	II
	APPENDIX 3 – ALC SURVEY DETAILS.....	III
	APPENDIX 4 – LABORATORY ANALYSIS.....	IV
	APPENDIX 5 – DESCRIPTION OF ALC GRADES	V

1 INTRODUCTION

ADAS have been instructed by Ashflame Properties Limited to undertake an Agricultural Land Classification (ALC) survey. This report provides information on the soils and agricultural land quality of 8.2 ha at Calne Road, Lyneham, Wiltshire SN11 9JB (herein referred to as 'the site'). The report is based on a survey of the land undertaken in October 2025.

1.1 Site Environment

The site is located around 1 mile north of Goatacre off the A3102. The site is bordered by the A3102 along the western boundary, Lyneham MOD base along the northern boundary and grassland along the eastern and southern boundaries. The elevation varies from 121 m to 127 m across the site with an average of 123.1 m.

The site is not in a flood risk zone.

1.2 Agricultural Use

The site is used as a grassland for livestock grazing.

1.3 Published Information

1.3.1 Geology

1:50,000 scale BGS information¹ records one bedrock geological unit in the site:–

Stanford formation – Limestone. Sedimentary bedrock formed between 163.5 and 157.3 million years ago during the Jurassic period.

There are no superficial deposits recorded for the site.

1.3.2 Soils

One soil association has been mapped on the 1:250,000 scale National Soils Map (Sheet 5 South West England²). The mapping records the site as belonging to the following soil association:

- **343d - Sherborne Association** – Shallow well drained brashy calcareous clayey soils over limestone with some associated slowly permeable calcareous clayey soils.

¹ British Geological Survey, 2019. *Geology of Britain viewer*. Online resource: <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>

² Soils and their use in Wales: flat, 1:250,000 scale <https://www.landis.org.uk/publications/downloads/publicationslist.pdf>

1.3.3 Previous Agricultural Land Classification

The Natural England Regional Agricultural Land Classification Map³ shows the survey area as Grade 3 and Non-agricultural land.

A detailed ALC survey using the 1988 revised ALC guidelines has been conducted on land 910 m away to the north-east of the site. This survey identified primarily land of Subgrade 3b quality⁴.

2 METHODOLOGY

A detailed soil survey was carried out in October 2025. The survey was based on observations at intersects of a 100 m grid, giving a sampling density of at least one observation per hectare. During the survey soils were examined via a combination of auger borings and a soil description pit to a maximum depth of 60 cm. A map showing the location of each observation point is attached to this report as Appendix 1 and a log of the details of each observation point is attached to this report as Appendix 3.

One soil description pit was dug at this site. The soil pit was assessed following the methodology detailed in The Soil Survey Field Handbook⁵. Soil samples representative of the top 25cm and subsoil were taken from the pit. The samples were submitted to NRM laboratories for particle size distribution analysis by the pipette methodology to confirm site findings. The results of this analysis are given in Section 3 and in Appendix 4.

³ Natural England, 2023. Regional Agricultural Land Classification Map. Online resource: <https://publications.naturalengland.org.uk/publication/144017?category=5954148537204736>

⁴ <https://publications.naturalengland.org.uk/file/5177687218847744>

⁵ Soil Survey Field Handbook, Hodgson, J.M. (1974)

3 SOILS

3.1 Soil Types

One soil type was found across the survey area; clay topsoils over clay subsoils over limestone (occurring at 24-60cm).

3.1.1 Soil Type: Clay topsoils over clay subsoils

This soil type was found at all 8 observation locations.

Topsoil depth ranged from 24 cm to 33 cm with an average of 29.3 cm.

An example soil profile is described below from the pit at observation point 6.

Pit at observation location 6

0-30 cm	Dark greyish brown (10YR 4/2) clay; 2% small hardstones; calcareous; no mottles; moderately developed medium to coarse subangular blocky structure; firm; common fine fibrous roots;
30-40 cm	Light yellowish brown (10YR 6/4) clay; 10% limestones; calcareous; common mottles; fine to medium angular blocky structure; no roots; firm.
40+ cm	Limestone

The soil profile is in a location with 167 Field Capacity Days (FCDs) which with gleying commencing within 40 cm of the soil surface, absence of a slowly permeable layer within 80 cm of the soil surface and a heavy textured subsoil places the profile into Wetness Class (WC) II. WC II ss combined with clay top 25 cm in a location with 167 FCDs limits the profile to Subgrade 3b due to a wetness (workability) limitation. Also due to the shallow depth of soil over limestone the profile is also limited to Subgrade 3b due to droughtiness (moisture balance, MB, wheat - 35.2mm, MB potatoes -24.2). These MBs are assuming no rooting into the limestone (see 4.2).



3.2 Laboratory Analysis

A sample representative of the top 25 cm and subsoil from pit at observation point 6 was taken. The soil samples were submitted to NRM Laboratories for particle size distribution (PSD) analysis by the pipette methodology. The laboratory report is given in Appendix 4, the laboratory textures are given in the table below.

Table 3.2: PSD analysis results

Observation	PSD Analysis
6 Top 25 cm	Clay

4 AGRICULTURAL LAND CLASSIFICATION

The Agricultural Land Classification (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 for food production. The limitations can operate in one or more of four principal ways; they may affect the range of crops which can be grown, the level of crop yield, the consistency of crop yield, and the cost of obtaining a crop.

The classification system gives considerable weight to flexibility of cropping, whether actual or potential, however the ability of some land to produce consistently high yields of a narrower range of crops is also taken into account.

The Agricultural Land Classification (ALC) system classifies land into five grades numbered 1 to 5, with grade 3 divided into two subgrades (3a and 3b). The system was devised and introduced by the then Ministry of Agriculture, Fisheries and Food (MAFF) in the 1960s and revised in 1988. A description of the grades used in the ALC system is attached to this report as Appendix 5.

4.1 Climate

The agricultural climate is an important factor in assessing the agricultural quality of land, and the agricultural climate of this site has been calculated using the Climatological Data for Agricultural Land Classification⁶. The relevant site data for an average elevation of 123.1 m AOD is given below.

⁶ Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

Table 4.1: Agro-climatic variables

	SU 020 777
Altitude(m)	122
Average Annual Rainfall (AAR)	749 mm
January-June Accumulated Temperature (AT0)	1398 day °C
Field Capacity Days (FCD)	167
Field Capacity Period	Late October to Early April
Moisture Deficit Wheat (MDW)	99 mm
Moisture Deficit Potatoes (MWP)	88 mm
Climate (upper grade limit)	1

The site is not limited by climate.

4.2 Results

The results of the soil survey described in Section 3 were used in conjunction with the agro-climatic data above to classify the land according to the revised guidelines for Agricultural Land Classification issued in 1988 by the Ministry of Agriculture, Fisheries and Food (now Defra)⁷.

This report has identified agricultural land of Subgrade 3b quality. The principal limitation to agricultural use of the land is droughtiness due to the shallow depth of soil over limestone.

Grade 1

No land of this quality has been mapped.

Grade 2

No land of this quality has been mapped.

Subgrade 3a

No land of this quality has been mapped.

⁷ MAFF, (1988). *Agricultural Land Classification for England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land*.

Subgrade 3b

There are 8.2 ha of Subgrade 3b land within the survey area. This land is formed of clay topsoil over clay subsoil (where present) over limestone.

Observation points 1, 3, 4, 5, 6, 7 and 8 have shallow soil profiles (28-40cm) over limestone. These observation points are limited to Subgrade 3b because of a droughtiness limitation (moisture balance, MB, wheat range -34mm to -48.8mm, MB potatoes -24.2 to -38.0). The MBs assume no rooting into the limestone. The limestone is likely to provide a small amount of available water but for the land to be upgraded to Subgrade 3a based on droughtiness the limestone would need to be supplying some available water from below 1m. This is considered unlikely.

Observation points 6 and 7 have gleying within 40 cm with no slowly permeable layer within 80 cm which with clay soil in a location with 167 FCDs results in wetness class (WC) II. WCII combined with clay top 25 cm results in ALC Subgrade 3b. Hence in addition to droughtiness observation points 6 and 7 are also limited to Subgrade 3b because of a wetness (workability) limitation.

Note - Observation point 2 is limited to ALC Grade 3a due to wetness and droughtiness limitations. This point has no gleying and no slowly permeable layer within 80 cm, which along with heavy textured clay and 167 FCDs results in wetness class I. Wetness class I combined with clay top 25 cm results in ALC Subgrade 3a.

The soil profile showed moisture balances of -14mm for wheat and 4.0mm for potatoes resulting in also a Subgrade 3a classification based on a droughtiness limitation.

This point has been downgraded to ALC Subgrade 3b due to pattern limitation. It was an isolated Subgrade 3a observation point and has been mapped in with surrounding Subgrade 3b observations.

The principal limitations to the agricultural use of the land are soil droughtiness and wetness (workability).

Grade 4

No land of this quality has been mapped.

Grade 5

No land of this quality has been mapped.

Non-agricultural

No land of this description has been mapped.

Urban

No land of this description has been mapped.

Not Surveyed

All land was surveyed.

4.3 Summary of grade areas

The boundaries between the different grades of land are shown in Appendix 2. The area occupied by each grade is shown below.

Table 4.3: Grade areas

Grade / subgrade	Area (ha)	Area (%)
Grade 1	-	-
Grade 2	-	-
Subgrade 3a	-	-
Subgrade 3b	8.2	100 %
Grade 4	-	-
Grade 5	-	-
Non-agricultural	-	-
Urban	-	-
Not Surveyed	-	-
Total	8.2	100 %

5 CONCLUSION

The survey has identified clay topsoils over clay subsoils (where present) over limestone. These soils form agricultural land of Subgrade 3b (8.2 ha, 100 %) quality.

The principal limitations to the agricultural use of the land are soil droughtiness and wetness (workability).



Title	Appendix 1: Observation Location Map
Project	Lyneham
Client	Ashflame Properties Limited
Key	● Survey Points ▭ Redline boundary
Date: 18 / 11 / 2025	
 www.adas.uk	



Title

Appendix 2 - Agricultural Land
Classification Map

Project

Lyneham

Client

Ashflame Properties Limited

Key:

ALC Grade

 3b

 Redline boundary

Date Drawn: 18/11/2025



www.adas.uk

APPENDIX 3 – ALC SURVEY DETAILS

Key to auger records:

Texture		Principal limitation(s) to Agriculture		Stone lithology	
C	clay	CL	climate	1	hard rocks or stones
ZC	silty clay	DE	depth	2	soft, medium or coarse-grained sandstones
SC	sandy clay	DR	droughtiness	3	soft 'weathered' igneous or metamorphic rocks or stones
ZCL	clay loam (H - heavy, M - medium)	ER	erosion	4	soft oolitic or dolomitic limestones
SCL	silty clay loam (H - heavy, M - medium)	FL	flooding	5	soft fine-grained sandstones
SZL	sandy silt loam (F - fine, M - medium, C - coarse)	GR	gradient	6	soft, argillaceous or silty rocks or stones
ZL	silty loam	MR	microrelief	7	chalk or chalk stones
SL	sandy loam (F - fine, M - medium, C - coarse)	ST	stoniness	8	gravel with non-porous stones
LS	sand (F - fine, M - medium, C - coarse)	TX	texture	9	gravel with porous stones
S	sand (F - fine, M - medium, C - coarse)	WE	wetness		
Org	organic				
Pty	peaty				
Pt	peat (S - sandy, L - loamy, H - humified, SF - semi-fibrous, F - fibrous)				
R	bedrock				

Droughtiness Calculation		CaCO ₃		Other abbreviations	
MDW	moisture deficit wheat [mm]	non	non-calcareous	SPL	slowly permeable layer
MDP	moisture deficit potatoes [mm]	v sl ca	very slightly calcareous	FMCs	ferri-manganiferous concretions
MBW	moisture balance wheat [mm]	sl ca	slightly calcareous		
MBP	moisture balance potatoes [mm]	ca	calcareous		
Grade W	droughtiness grade for wheat	v ca	very calcareous		
Grade P	droughtiness grade for potatoes				

Appendix 3: Auger Boring Log

Soil Profile											Agricultural Land Classification					
Auger	Depth (cm)	Texture	Primary Colour	Mottling	FMCs	Gleying	SPL	CaCO ₃	Stones (%)		Slope (°)	WE Class	WE Grade	DR Grade	Overall Grade	Limit(s)
									Total	Litho'						
1	0 - 30	C	10yr42 (dark greyish brown)	None	None	No	-	calc	2	4	0-1°	I	3a	3b	3b	DR
Latitude: 51.49963026											Droughtiness Calculation					
Longitude: -1.972573455											MDW	MDP	MBW	MBP	Grade W	Grade P
											99	88	-48.8	-38.0	3b	3b
2	0 - 33	C	10yr42 (dark greyish brown)	None	None	No	-	calc	2	4	0-1°	I	3a	3a	3a	WE/DR
Latitude: 51.49975025	33 - 60	C	10yr64 (light yellowish brown)	Few	None	No	No	v calc	20	4	Droughtiness Calculation					
Longitude: -1.971101845											MDW	MDP	MBW	MBP	Grade W	Grade P
											99	88	-14.0	4.0	3a	2
3	0 - 30	C	10yr42 (dark greyish brown)	None	None	No	-	calc	2	4	0-1°	I	3a	3b	3b	DR
Latitude: 51.49858383	30 - 40	C	10yr64 (light yellowish brown)	Few	None	No	No	v calc	10	4	Droughtiness Calculation					
Longitude: -1.97239249											MDW	MDP	MBW	MBP	Grade W	Grade P
											99	88	-34.0	-23.0	3b	3a
4	0 - 30	C	10yr42 (dark greyish brown)	None	None	No	-	calc	2	4	0-1°	I	3a	3b	3b	DR
Latitude: 51.49876148											Droughtiness Calculation					
Longitude: -1.970952898											MDW	MDP	MBW	MBP	Grade W	Grade P
											99	88	-48.8	-38.0	3b	3b
5	0 - 30	C	10yr42 (dark greyish brown)	None	None	No	-	calc	2	4	0-1°	I	3a	3b	3b	DR
Latitude: 51.49770754											Droughtiness Calculation					
Longitude: -1.973756561											MDW	MDP	MBW	MBP	Grade W	Grade P
											99	88	-48.8	-38.0	3b	3b
6	0 - 30	C	10yr42 (dark greyish brown)	None	None	No	-	calc	5	4	0-1°	II	3b	3b	3b	WE/DR
Latitude: 51.49777292	30 - 40	C	10yr64 (light yellowish brown)	Common	None	Yes	No	v calc	10	4	Droughtiness Calculation					
Longitude: -1.972229127											MDW	MDP	MBW	MBP	Grade W	Grade P
											99	88	-35.2	-24.2	3b	3a
7	0 - 24	C	10yr42 (dark greyish brown)	None	None	No	-	calc	2	4	0-1°	II	3b	3b	3b	WE/DR
Latitude: 51.49774362	24 - 32	C	10yr42 (dark greyish brown)	Common	None	Yes	No	v calc	5	4	Droughtiness Calculation					
Longitude: -1.97074553											MDW	MDP	MBW	MBP	Grade W	Grade P
											99	88	-47.0	-36.0	3b	3b

Appendix 3: Auger Boring Log

Soil Profile											Agricultural Land Classification					
Auger	Depth (cm)	Texture	Primary Colour	Mottling	FMCs	Gleying	SPL	CaCO ₃	Stones (%)		Slope (°)	WE Class	WE Grade	DR Grade	Overall Grade	Limit(s)
8	0 - 30	C	10yr42 (dark greyish brown)	None	None	No	-	calc	2	4	0-1°	I	3a	3b	3b	DR
Latitude:											Droughtiness Calculation					
51.49686545											MDW	MDP	MBW	MBP	Grade W	Grade P
Longitude:											99	88	-48.8	-38.0	3b	3b
-1.970848627																

APPENDIX 4 – LABORATORY ANALYSIS

ANALYTICAL REPORT

Report Number	24339-25	Y537	SIDDHARTHA OSWAL
Date Received	15-OCT-2025		RSK ADAS
Date Reported	27-OCT-2025		SUITE 115
Project	1011701		CREATIVE QUARTER
Reference	LYNEHAM		8A MORGAN ARCADE
Order Number			CARDIFF CF10 1AF

Laboratory Reference		SOIL768920									
Sample Reference		POINT 6 TS									
Determinand	Unit	SOIL									
Sand 2.00-0.063mm	% w/w	23									
Silt 0.063-0.002mm	% w/w	33									
Clay <0.002mm	% w/w	44									
Textural Class **		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. Ella Knowles 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.

APPENDIX 5 – DESCRIPTION OF ALC GRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. The *'best and most versatile agricultural land'* falls into grades 1, 2 and subgrade 3a – which collectively comprises about one-third of the agricultural land in England and Wales. About half the land in England and Wales is either of moderate quality (subgrade 3b) or poor quality (grade 4). Although less significant on a national scale, such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in grade 5, which mostly occurs in the uplands.

Grade 1 – excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 – very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 – good to moderate quality land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a – good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b – moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 – poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 – very poor quality agriculture land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.