



July 2026

Gleeson Land Limited

Agricultural Land Classification and Soil Resources

at

Land at Swindon Road, Royal Wootton Bassett, Wiltshire

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1. Introduction

- 1.1. Reading Agricultural Consultants Ltd (RAC) is instructed by Gleeson Land Limited to investigate the Agricultural Land Classification (ALC) and soil resources of land at Swindon Road, Royal Wootton Bassett, Wiltshire, by means of a detailed survey of site and soil characteristics.
- 1.2. Guidance for assessing the quality of agricultural land in England and Wales is set out in the Department for the Environment, Food and Rural Affairs (Defra) and Welsh Government guidelines for grading the quality of agricultural land¹, and summarised in Natural England's Technical Information Note (TIN) 049².
- 1.3. Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. The principal physical factors influencing grading are climate, site conditions and soil which, together with interactions between them, form the basis for classifying land into one of the five grades.
- 1.4. Grade 1 land is excellent quality agricultural land with very minor or no limitations to agricultural use. Grade 2 is very good quality agricultural land, with minor limitations which affect crop yield, cultivations or harvesting. Grade 3 land has moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield, and is subdivided into Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land). Grade 4 land is poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields. Grade 5 is very poor quality land, with severe limitations which restrict use to permanent pasture or rough grazing.
- 1.5. Land which is classified as Grades 1, 2 and 3a in the ALC system is defined as best and most versatile (BMV) agricultural land.

¹ **Defra and Welsh Government (2025)** *Agricultural Land Classification of England and Wales. Guidelines for grading the quality of agricultural land.* Joint Publication 069.

² **Natural England (2012).** *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land*, Second Edition.

Strategic-scale ALC mapping

- 1.6. As explained in Natural England's TIN049, the whole of England and Wales was mapped from reconnaissance field surveys in the late 1960s and early 1970s, to provide a provisional series of maps for general strategic guidance on agricultural land quality for planners. In April 2026, Defra released an updated Predictive ALC Map³, which was produced in collaboration with Cranfield University and takes precedence over the provisional mapping⁴. The Provisional Mapping shows the site as undifferentiated Grade 3. The Predictive ALC Map shows the site as likely to be Grade 1.
- 1.7. However, these maps should not be used for assessing the quality of individual sites because of limitations of scale. This is confirmed in Natural England's TIN049, and for the latest iteration of mapping, Defra and Cranfield University explain:

“Scale and resolution limitations mean it should only be used for strategic or indicative purposes. The Predictive ALC map is not a replacement for detailed field-based ALC surveys, especially in planning contexts.”

- 1.8. As noted within TIN049, a definitive ALC grading should be obtained by undertaking a detailed survey according to the published guidelines, at an observation density of one boring per hectare. This survey follows the detailed methodology set out in the ALC guidelines.

³ **Department for Environment, Food & Rural Affairs (2026).** Predictive Agricultural Land Classification Map for England. <https://environment.data.gov.uk/dataset/a817d96f-271d-487b-89ad-48d271f931aa>

⁴ **Hannam J.A., Keay C.A., Mukherjee K., Holden A., Liyana Arachchige M. 2025.** Development of a Predictive Agricultural Land Classification Map for England: Final Report (draft). Defra Project RDE118. 28pp

2. Site and climatic conditions

General features, landform and drainage

- 2.1. The site extends to approximately 6.5 hectares (ha), which primarily comprises agricultural land under grass ley at the time of survey. An area of road verge along Swidon Road constitutes the non-agricultural land within the site boundary.
- 2.2. The site is located on the north side of Royal Wootton Bassett and is bounded to the south by Swindon Road, to the east by hotel grounds, to the west by two detached residential properties, and to the north by other agricultural land.
- 2.3. The site is level to gently sloping and has an altitude between around 125 m and 137 m above Ordnance Datum (AOD).
- 2.4. Drainage of the site is mainly through the soil profile. There is no mapped flood risk at the site⁵.

Agro-climatic conditions

- 2.5. Agro-climatic data for the site have been interpolated from the Meteorological Office's standard 5km grid point dataset at a representative altitude of 132 m AOD. The data are given in Table 1. The climate at the site is mild. Moisture deficits are moderate. The number of Field Capacity Days (FCD) is larger than the average for lowland England (150) and is slightly unfavourable for providing opportunities for agricultural field work. There is no overriding climatic limitation to agricultural land quality.

Table 1: Local agro-climatic conditions

Parameter	Value
Grid reference	SU 08100 83200
Average Annual Rainfall	727 mm
Accumulated Temperatures >0°C	1,379 day°
Field Capacity Days	161 days
Average Moisture Deficit, wheat	97 mm
Average Moisture Deficit, potatoes	86 mm

⁵ **GOV.uk (2026).** *Flood map for planning.* <https://flood-map-for-planning.service.gov.uk/>

Soil parent material and soil type

- 2.6. The underlying bedrock mapped by the British Geological Survey⁶ in the east and west of the site is the Ampthill Clay Formation, comprising slightly silty pale grey mudstone with limestone nodules. In the centre and north, the bedrock is the Kimmeridge Clay Formation, characterised by mudstones with thin siltstone and cementstone beds, and locally sands and silts. In the north of the site, this also includes limestone.
- 2.7. No superficial deposits are mapped at the site.
- 2.8. The Soil Survey of England and Wales soil association mapping⁷ (1:250,000 scale) shows the Wickham 3 association at the site, bordering closely on the Denchworth association to the north.
- 2.9. The Wickham 3 soils are characterised by silty clay loam or clay loam topsoils over strong brown, mottled grey clay, passing to grey clay with ochreous mottles. The subsoil is slowly permeable and the profiles are ordinarily in Wetness Class (WC) IV or V.
- 2.10. The similar Denchworth soils are characterised by clay loam or clay topsoil over grey, mottled clay subsoils, which are slowly permeable throughout but calcareous at depth. The profiles are similarly poorly drained, in WC IV or V⁸.

3. Methodology

Soil survey methods

- 3.1. Seven soil profiles were examined across the site using an Edelman (Dutch) auger at an observation density of one per hectare, which is the recommended density for ALC surveys². One observation pit was excavated to examine subsoil structures and stone content. The locations of observations are shown in Figure RAC/11125/1. At each observation point, the following characteristics were assessed for each soil horizon that was able to be observed:

⁶ **British Geological Survey (2026).** *Geology Viewer*, <http://mapapps.bgs.ac.uk/geologyofbritain/home>

⁷ **Soil Survey of England and Wales (1984).** *Soils of South West England* (1:250,000), Sheet 5.

⁸ **Findlay et al (1984).** *Soils and Their Use in South West England*. Soil Survey of England and Wales Bulletin 14, Harpenden.

- soil texture;
 - stone content;
 - colour (including localised mottling);
 - consistency;
 - structural condition;
 - free carbonate; and
 - depth.
- 3.2. One topsoil sample was submitted for laboratory determination of particle size distribution, pH, organic matter content and nutrient contents (P, K, Mg). Results are presented in Appendix 1.
- 3.3. Soil WC was determined from the matrix colour, presence or absence of, and depth to, greyish and ochreous gley mottling, and slowly permeable subsoil layers at least 15cm thick, in relation to the number of Field Capacity Days at the location.
- 3.4. Soil droughtiness was investigated by the calculation of moisture balance equations (given in Appendix 2). Crop-adjusted Available Profile Water (AP) is estimated from texture, stoniness and depth, and then compared to a calculated moisture deficit (MD) for the standard crops wheat and potatoes. The MD is a function of potential evapotranspiration and rainfall. Grading of the land can be affected if the AP is insufficient to balance the MD and droughtiness occurs.
- 3.5. Assessment of the agricultural land quality has been carried out according to the ALC guidelines¹. Soil profiles have been described according to Hodgson⁹, which is the recognised source for describing soil profiles and characteristics in accordance with the ALC guidelines.

⁹ **Hodgson, J. M. (Ed.) (1997).** *Soil survey field handbook*. Soil Survey Technical Monograph No. 5, Silsoe.

4. Agricultural land classification and site limitations

- 4.1. Agricultural land quality at the site is limited by soil wetness to Subgrade 3b. Photographs are included in Appendix 3.
- 4.2. The topsoil is dark greyish brown or occasionally greyish brown (10YR4/2 or 10YR5/2 in the Munsell soil colour charts¹⁰) heavy silty clay loam or clay of 32 cm average thickness. In the east, the topsoil is friable and in the west is firm. The top approximately 10 cm has a good structure over weak, coarse, subangular blocky peds throughout the rest of the topsoil. There are no to very few stones.
- 4.3. The upper subsoil is clay or silty clay, which is greyish brown or brown (10YR5/2 or 10YR5/3) and mottled. In the east of the site, the upper subsoil has a moderate but coarse structure, whilst in the west, the structure is weak. The soil forms coarse angular blocks that are very firm.
- 4.4. Due to dry antecedent weather conditions, the soil became too dry to auger at variable depths, such that lower subsoil was fully observed in one location in the south. The lower subsoil is very firm silty clay, which is greyish brown (10YR5/2) and slightly calcareous. In the easternmost profile observed, the auger reached the top of the lower subsoil, which was shown to be greyer and slightly calcareous. The lack of moisture and poor structure hindered further observation.
- 4.5. Other than one profile in the south, the soil is gleyed and slowly permeable immediately beneath the topsoil, and the profiles are in WC IV. The anomalous profile is in WC III. With heavy topsoil texture, all profiles are limited by wetness to Subgrade 3b.
- 4.6. All the agricultural land at the site is classified as Subgrade 3b as shown in Figure RAC/11125/2. There is no BMV land present within the site.

¹⁰ **Munsell Color (2009).** *Munsell Soil Color Book*. Grand Rapids, MI, USA

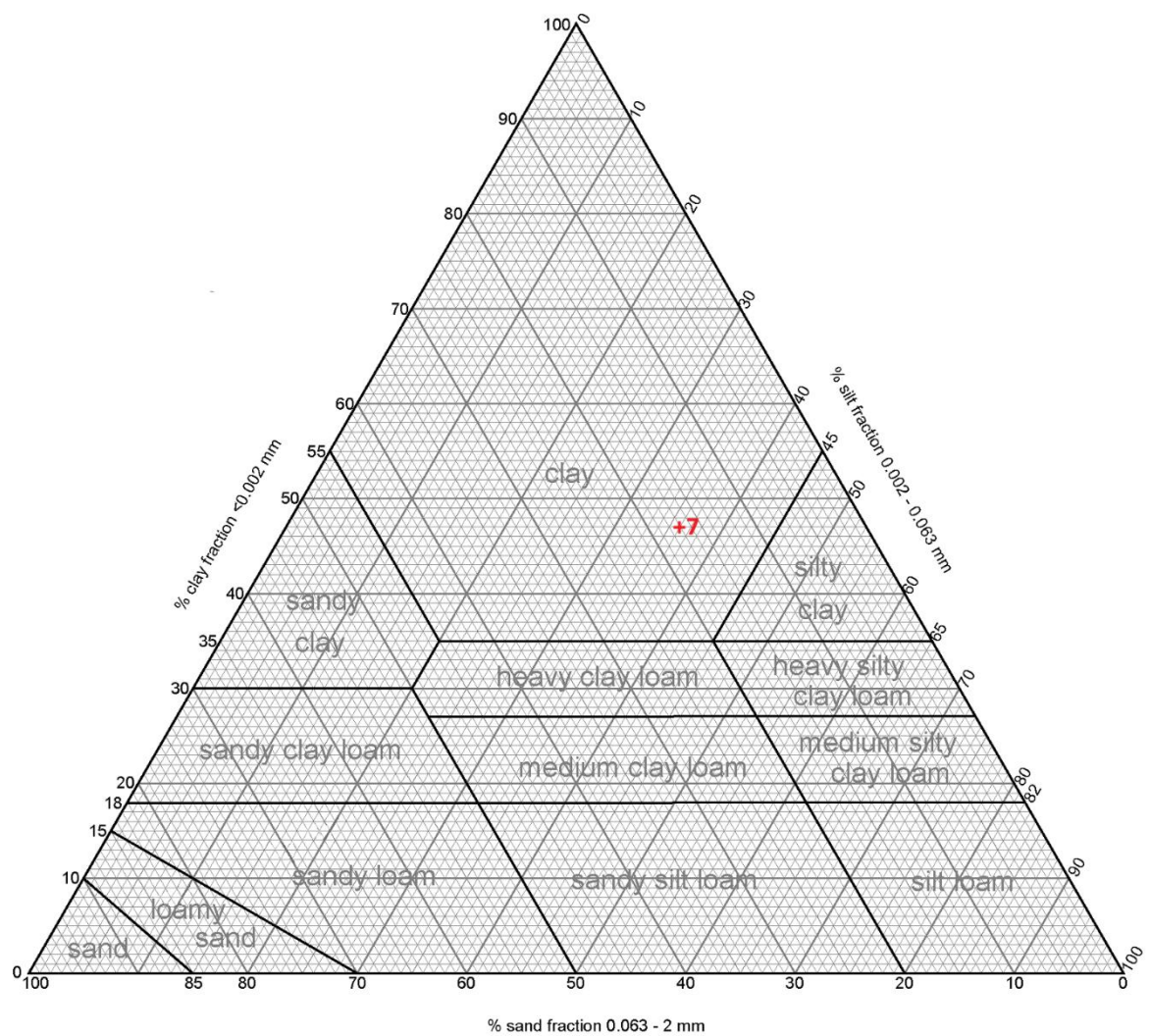
Appendix 1: Laboratory Data

Determinand	Obervation 7/Pit Topsoil	Units
Sand 2.00-0.063 mm	17	% w/w
Silt 0.063-0.002 mm	36	% w/w
Clay <0.002 mm	47	% w/w
Organic Matter	7.9	% w/w
Texture	Clay	

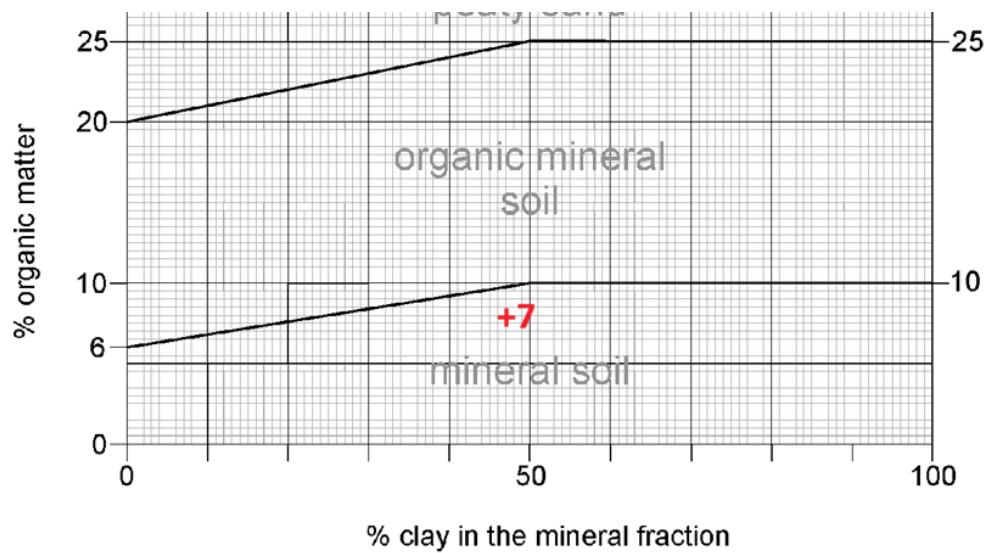
Determinand	Obervation 7/Pit Topsoil	Units
Soil pH	7.5	
Phosphorus (P)	10.4	mg/l (av)
Potassium (K)	142	mg/l (av)
Magnesium (Mg)	155	mg/l (av)

Determinand	Obervation 7/Pit Topsoil	Units
Phosphorus (P)	1	ADAS Index
Potassium (K)	2-	ADAS Index
Magnesium (Mg)	3	ADAS Index

Soil Texture by Particle Size Analysis



Organic matter



Appendix 2: Soil Profile Summaries and Droughtiness Calculations

Wetness / workability limitations are determined according to the methodology given in Appendix 3 of the ALC guidelines

Droughtiness calculations are made according to the methodology given in Appendix 4 of the ALC guidelines

Grades are shown for drought, wetness and any other soil or site factors which are relevant. The overall Grade is set by the most limiting factor and shown on the right.

Stone types			Climate Data		Wetness Class Guidelines					Climate	
%	TAv	EAv	MDwheat	97	II		III	IV	V	1,379 D° Limitation Grade 1	
Hard	1	0.5	MDpotato	86	SPL within 80cm, gleying within 40cm		>71cm	44-71cm	<44cm		
N/A			FCD	161	SPL within 80cm, gleying at 40-70cm		>56cm	<56cm			
			AAR		No SPL but gleying within 40cm		coarse subsoil		I	other cases	II
			727		Maximum depth of auger penetration is underlined						

Site No.		Depth cm		Texture	CaCO ₃	Colour	Mottle colour	abundance	stone% Hard	stone% N/A	Structure	APwheat mm	AP potato mm	Gley	SPL	WC	Wetness grade WE	Final Grade	Limiting Factor(s)
1	T	0	29	C	n	10YR5/2			0			49	49	n	n	///	3b	3b	WE
		29	46	ZC	n	10YR5/1	Fe	com	0		m/poor	26	26	y	n				
		46	70	ZC	sli	10YR5/2	Fe	com	0		poor	19	29	y	y				
		70	120	ZC	sli	10YR5/2	Fe	com	0		poor	35	0	y	y				
											Total	129	104						
											MB	32	18						
											Droughtiness grade (DR)		1	1					
2	T	0	27	hZCL	n	10YR4/2			0			51	51	n	n	/V	3b	3b	WE
		27	58	C	n	10YR5/2	FeMn	com	0		poor	36	40	y	y				
		58	70	C	sli	10YR6/1	Fe	com	0		poor	8	16	y	y				
		70	120	C	sli	10YR6/1	Fe	com	0		poor	35	0	y	y				
											Total	130	107						
											MB	33	21						
											Droughtiness grade (DR)		1	1					
3	T	0	16	hZCL	n	10YR4/2			0			30	30	n	n	/V	3b	3b	WE
	T	16	25	hZCL	n	10YR4/2			0			17	17	n	n				

25	70	C	v.sli	10YR5/2	Fe	com	0	poor	47	59	y	y
70	120	C	sli	10YR6/1	Fe	com	0	poor	35	0	y	y
									Total	129	106	
									MB	32	20	
Droughtiness grade (DR)										1	1	

Impenetrable - dry
Assume as 2

4	T	0	26	hZCL	n	10YR4/2		0		49	49	n	n	IV	3b	3b	WE
		<u>26</u>	70	C	n	10YR5/2	Fe	com	0	poor	45	57	n	n			
		70	120	C	v.sli	10YR6/1	Fe	com	0	poor	35	0	y	y			
										Total	130	107					
										MB	33	21					
Droughtiness grade (DR)										1	1						

Impenetrable - dry
Assume as 2

5	T	0	39	hZCL	n	10YR4/2		0		74	74	n	n	IV	3b	3b	WE
		39	48	ZC	n	10YR5/2	Fe	com	0	m/poor	12	12	y	y			
		<u>48</u>	120	ZC	n	10YR5/2	Fe	com	0	poor	51	26	y	y			
										Total	138	113					
										MB	41	27					
Droughtiness grade (DR)										1	1						

6	T	0	39	C	n	10YR4/2		0		66	66	n	n	IV	3b	3b	WE
		39	65	ZC	n	10YR5/2	Fe	com	0	poor	24	31	y	y			
		<u>65</u>	120	ZC	n	10YR5/2	Fe	com	0	poor	39	6	y	y			
										Total	128	104					
										MB	31	18					
Droughtiness grade (DR)										1	1						

7	T	0	23	C	n	10YR4/2		0		66	66	n	n	IV	3b	3b	WE
	Pit	23	45	C	n	10YR5/3	Fe	com	2	poor	24	31	y	y			
		<u>45</u>	120	ZC	n	10YR5/2	Fe	com	2	poor	39	6	y	y			

Total	128	104
MB	31	18
Droughtiness grade (DR)	1	1

Appendix 3: Photographs



Pit



Pit topsoil



Pit upper subsoil



Pit overview



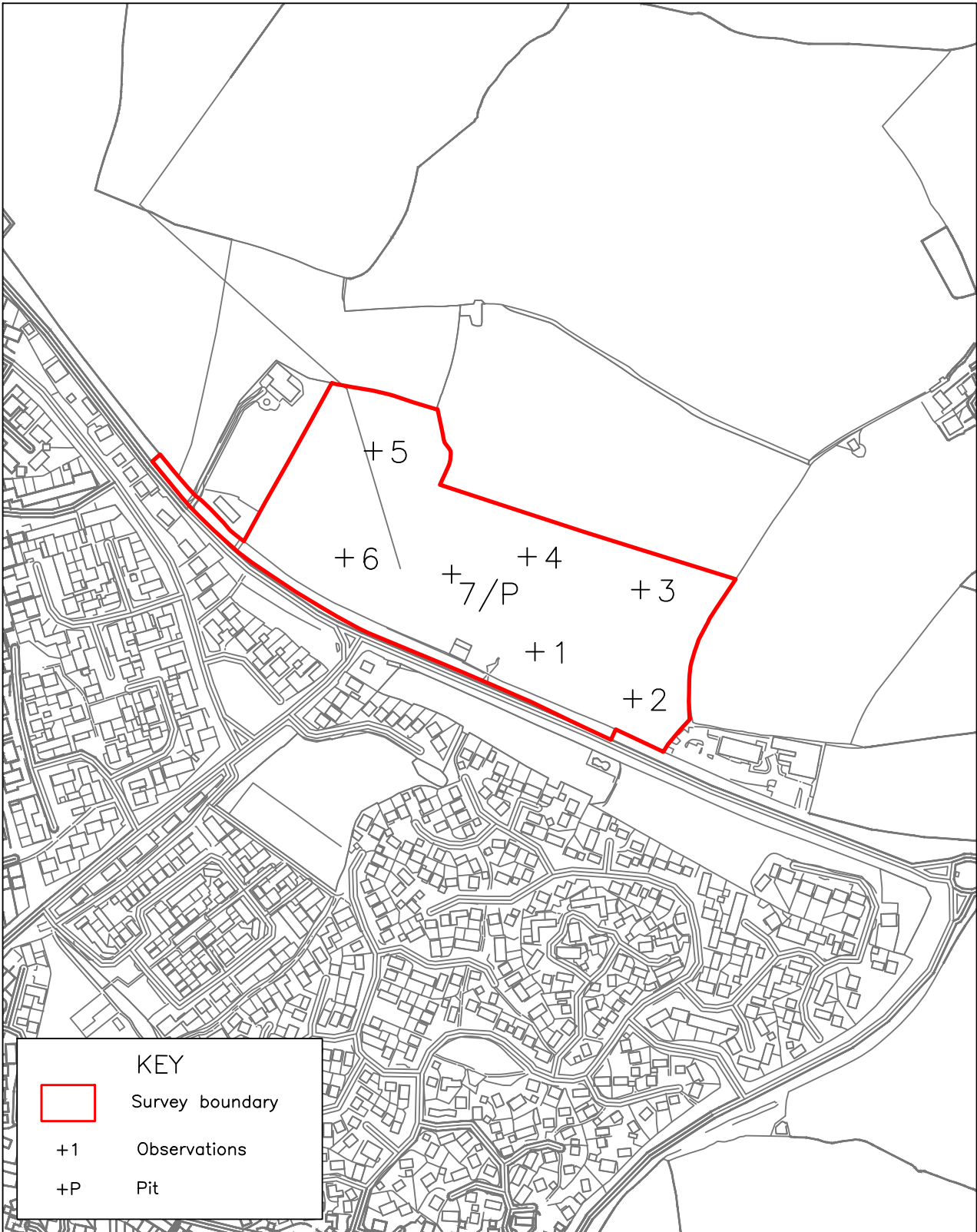
Profile 2



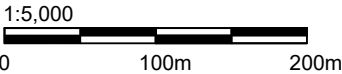
Profile 5



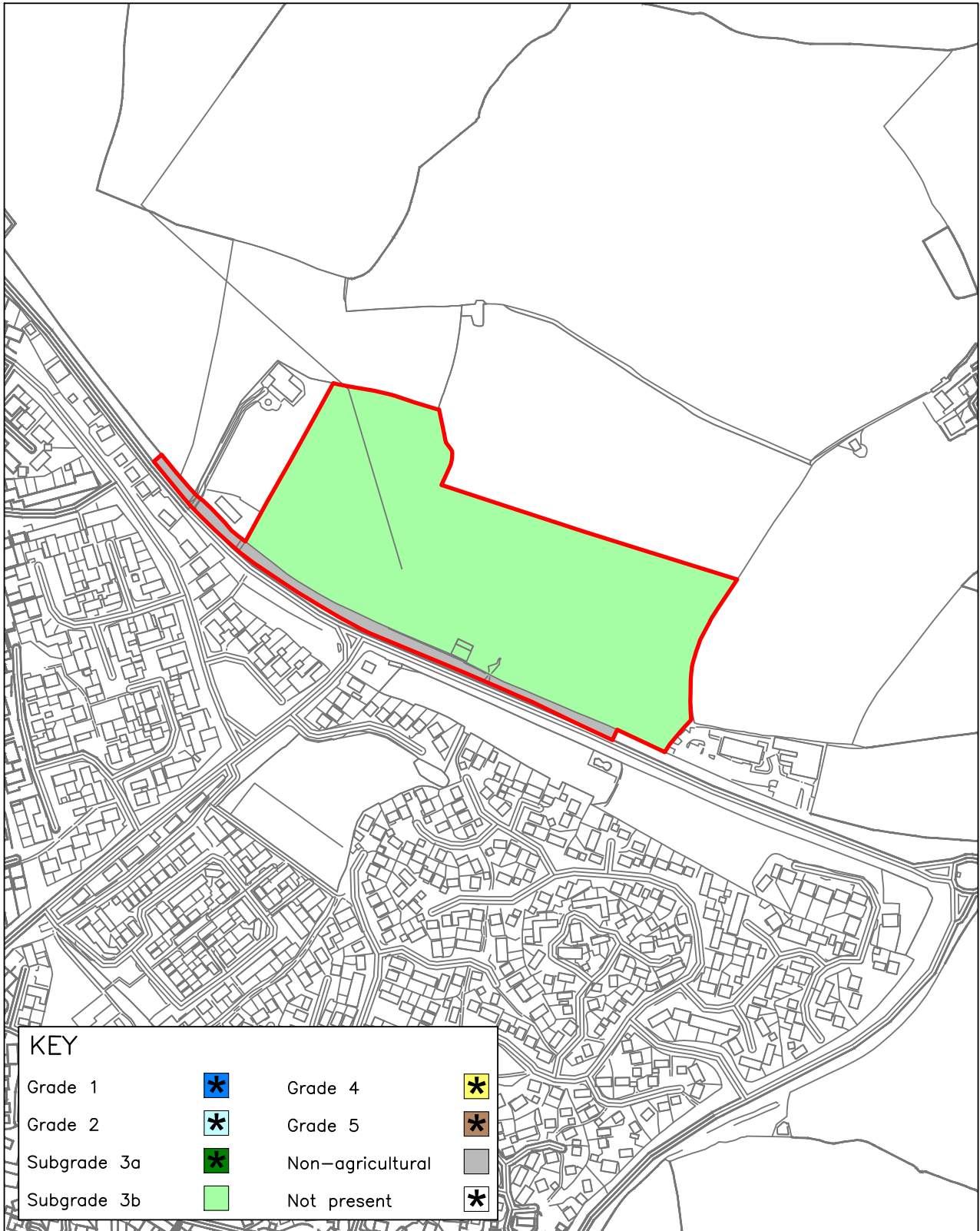
Profile 6 subsoil



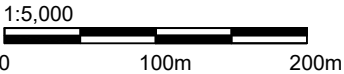
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Contract LAND AT SWINDON ROAD, ROYAL WOOTTON BASSETT, WILTSHIRE	Drawn by AGM	Checked by SRW				
	Scales 1:5,000@A4	Date 07/2026				
			Rev.	Comment	Date	

