READING AGRICULTURAL CONSULTANTS

January 2026

Wates Developments Limited and the Licensed Trade Charity

Agricultural Land Classification and Soil Resources

Land at LVS Hassocks, London Road, Sayers Common, BN6 9HT

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1 Introduction

1.1 Reading Agricultural Consultants Ltd (RAC) is instructed by Wates Developments Limited and the Licensed Trade Charity to investigate the Agricultural Land Classification (ALC) and soil resources of land at LVS Hassocks, London Road, Sayers Common, BN6 9HT by means of a detailed survey of soil and site 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)/Welsh Government guidelines for grading the quality of agricultural land[1], and summarised in Natural England's Technical Information Note (TIN) 049[2].

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 very 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.

1.6 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 general strategic guidance on agricultural land quality for planners. This Provisional Series of maps was published

[1] **Defra/Welsh Government (2025).** *Agricultural Land Classification of England and Wales. Guidelines for grading the quality of agricultural land*.

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

on an Ordnance Survey base at a scale of One Inch to One Mile (1:63,360). The Provisional ALC map shows the site as undifferentiated Grade 3. However, TIN049 explains that:

> *"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 …"*

1.7 TIN049 goes on to explain that 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.

2 Site and climatic conditions

General features, landform and drainage

2.1 The site extends to 14.408ha of land surrounding LVS Hassocks school. The land is in permanent grassland which is either used for grazing sheep, as at the time of survey, or is managed parkland in the south.

2.2 The site has elevations of between 15m and 23m above Ordnance Datum (AOD) and is very gently sloping, at 1-2^{o} from north to south.

2.3 Land drains downslope to an east-west orientated ditch and pond, located outside the site.

Agro-climatic conditions

2.4 Agro-climatic data for the site have been interpolated from the Meteorological Office's standard 5km grid point data set at representative altitude of 20m AOD, and are set out in Table 1. The rainfall is typical for south east England and the temperature is warm with moderately large to large soil moisture deficits. The number of Field Capacity Days is larger than average for lowland England (150) and is slightly unfavourable for providing opportunities for agricultural field work. There is however no overriding climatic limitation to agricultural land quality.

Table 1: Local agro-climatic conditions

Parameter	Value
Grid Reference	526500 118800
Average Annual Rainfall	797 mm
Accumulated Temperatures >0°C	1,512day°
Field Capacity Days	170 days
Average Moisture Deficit, wheat	111 mm
Average Moisture Deficit, potatoes	106 mm

Soil parent material and soil type

2.5 The bedrock geology mapped by the British Geological Survey[3] is the Weald Clay Formation. This formation comprises mudstones and mudstones with subordinate siltstones, fine to medium grained sandstones, shelly limestones and clay ironstones.

2.6 There are no superficial deposits mapped at the site.

2.7 The Soil Survey of England and Wales soil association mapping[4] (1:250,000 scale) shows the Wickham 1 association at the site. The main soils in this association are fine silty or fine loamy over clayey and typical stagnogleys. They have slowly permeable subsoils and are typically waterlogged for long periods in winter (Wetness Class (WC) IV) when undrained. Appropriate field drainage measures achieve some improvement, although it is often difficult to reduce waterlogging substantially and the soils continue to be wet in winter (WC III or IV). The soils present some difficulties for land work even after drainage treatment.

[3] **British Geological Survey (2026).** *BGS Geology Viewer*, https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/

[4] **Soil Survey of England and Wales (1984).** *Soils of South East England* (1:250,000), Sheet 6, Bulletin 15.

3 Agricultural land quality

Soil survey methods

3.1 Ten soil profiles were examined by auger at an observation density of one per hectare in accordance with the established recommendations for ALC surveys[2]. One pit was also excavated to examine soil structure. The locations of observations are shown on Figure RAC/10520/1. At each observation point the following characteristics were assessed for each soil horizon up to 120cm or impenetrable layer:

- 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, and pH, organic matter content and nutrient contents (P, K, Mg). Results are in Appendix 1.

3.3 Soil Wetness Class (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.

Agricultural land quality

3.5 Assessment of agricultural land quality has been carried out according to the ALC guidelines[1]. Soil profiles have been described according to Hodgson[5] which is the recognised source for describing soil profiles and characteristics according to the revised ALC guidelines.

3.6 Agricultural land quality at the site is limited by soil wetness to Subgrade 3b. There is one soil type present.

3.7 The topsoil comprises brown (10YR4/3 in the Munsell soil colour charts[6]) or dark greyish brown (10YR4/2) stoneless, heavy clay loam, heavy silty clay loam or silty clay, with one recording of medium silty clay loam. The topsoil has a medium subangular blocky structure and a friable to firm consistency.

3.8 The upper subsoil is typically dark greyish brown (10YR4/2), brown (10YR4/3, 10YR5/3) or light yellowish brown (10YR6/4), with strong brown (7.5YR4/6) or yellowish red (5YR5/6) observed in observations to the south-west. The upper subsoil comprises clay or heavy clay loam and is stoneless with few recordings of slight to moderate volumes, at 5 or 20%. Soil within this horizon has a firm consistency and is either permeable with a medium subangular blocky structure or slowly permeable with a coarse angular blocky structure. Ochreous mottling is prevalent through this horizon and indicates prolonged periods of wetness.

3.9 The lower subsoil comprises clay or heavy clay loam which is typically over mudstone at depth. Where clay or heavy clay loam is recorded, the lower subsoil has a varied colour including brown (10YR5/3), pale brown (10YR6/3), light yellowish brown (10YR6/4), light grey (10YR7/1 or 2.5Y7/2) and blueish black (5B2.5/1). The lower subsoil mostly has a coarse prismatic to massive structure and a firm consistency. Ochreous mottling continues within the horizon.

3.10 Soils with these characteristics are imperfectly or poorly drained and assessed as WC III or IV, depending on the depth to the slowly permeable horizon and the presence of shallow gley mottling.

3.11 All profiles that are assessed as WC III have a heavy clay loam or silty clay topsoil and, given the number of FCD at the site, are classified as Subgrade 3b in line with Table 6 of the ALC Guidelines. All poorly drained soils in WC IV are also classified as Subgrade 3b, even in the one observation with a medium silty clay loam topsoil.

[5] **Hodgson, J. M. (Ed.) (2022).** *Soil survey field handbook.* Soil Survey Technical Monograph No. 5, Cranfield University.

[6] **Munsell Color (2009).** *Munsell Soil Color Book*. Grand Rapids, MI, USA

3.12 Soil wetness restricts suitable conditions throughout the year for machinery to work the land without damaging the soil profile. Wetness also increases the likelihood and occurrence of waterlogging within the soil profile, which restricts crop growth.

3.13 The whole site is classified as Subgrade 3b and non-agricultural land, as shown in Figure RAC/10520/2.

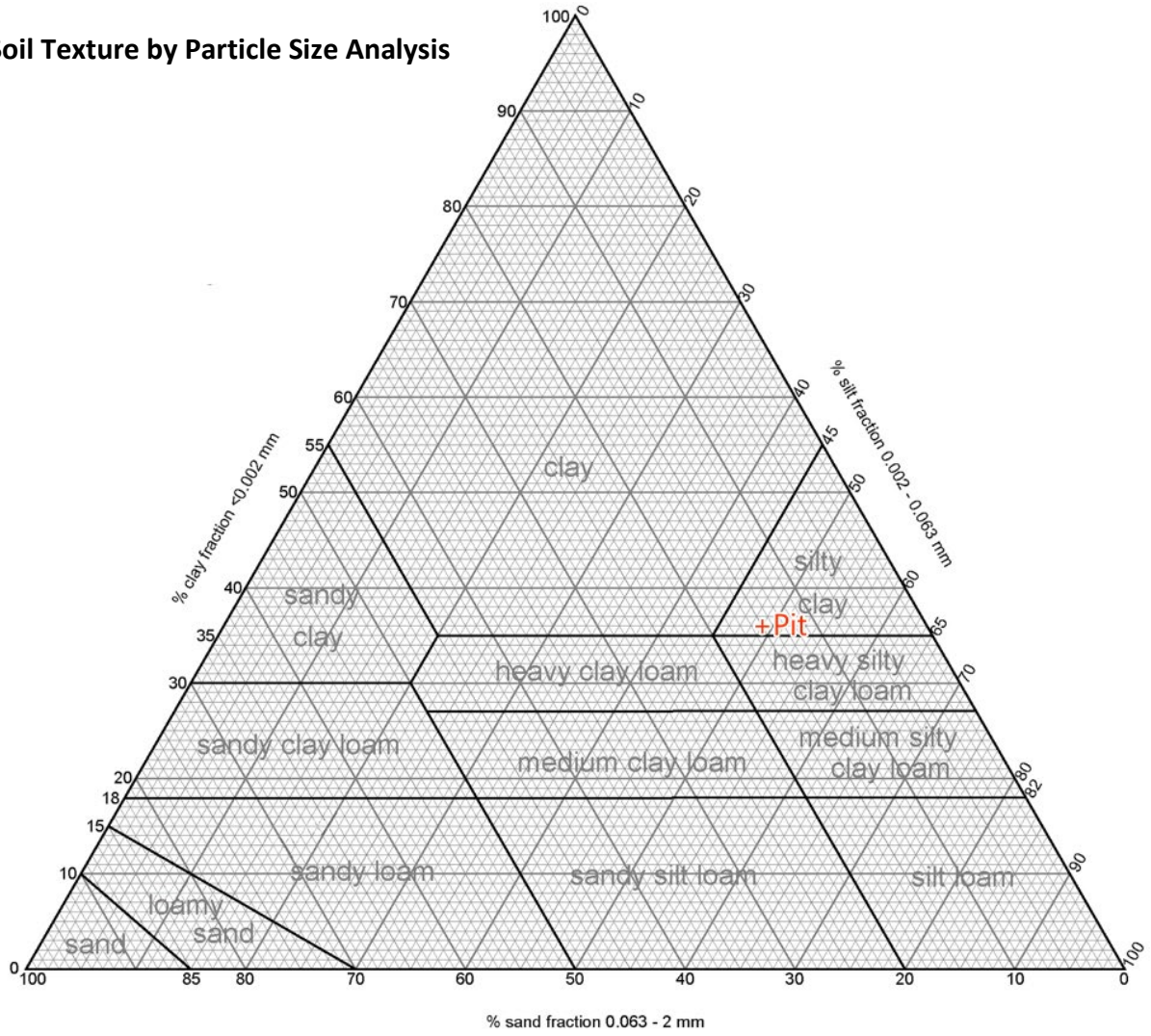
Appendix 1: Laboratory Data

Determinand	Pit 1	Units
Sand 2.00-0.063 mm	15	% w/w
Silt 0.063-0.002 mm	49	% w/w
Clay <0.002 mm	36	% w/w
Organic Matter	4.1	% w/w
Texture	Silty Clay	

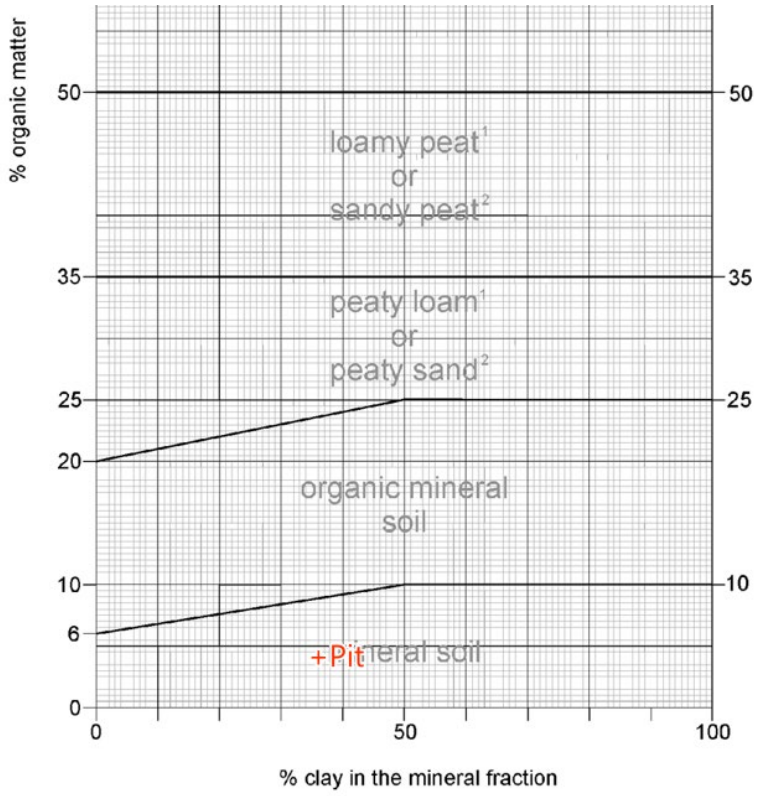
Determinand	Pit 1	Units
Soil pH	6.7	
Phosphorus (P)	12.8	mg/l (av)
Potassium (K)	89.4	mg/l (av)
Magnesium (Mg)	99.8	mg/l (av)

Determinand	Pit 1	Units
Phosphorus (P)	1	ADAS Index
Potassium (K)	1	ADAS Index
Magnesium (Mg)	2	ADAS Index

Soil Texture by Particle Size Analysis



Organic Matter Class



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		
%	TAv	EAv
mSston	3	2

Mst = mudstone

Climate Data	
MDwheat	111
MDpotato	106
FCD	170
AAR	797

Wetness Class Guidelines	*II*	*III*	*IV*	*V*
SPL within 80cm, gleying within 40cm	>74cm	46-74cm	<46cm	
SPL within 80cm, gleying at 40-70cm	>60cm	<60cm		
No SPL but gleying within 40cm	coarse subsoil	*I*	other cases	*II*

Maximum depth of auger penetration is underlined

Climate
1512 D°
Limitation
Grade 1
20 m

Site No.		Depth cm		Texture	$CaCO_3$	Colour	Mottle colour	abund-ance	stone% mSston	stone%	Struct-ure	APwheat mm	AP potato mm	Gley	SPL	WC	Wetness grade WE	Final Grade	Limiting Factor(s)
1	T	0	24	hCL	n	10YR4/3	Fe	few	0			43	43			*IV*	3b	**3b**	WE
		24	40	C		10YR6/4	Fe	many	0		poor	21	21	y	y				
		40	110	C		5B2.5/1	Fe	pred	0		poor	55	39	y	y				
		110	120	Mst							poor	5	0	n	y				
											Total	**124**	**103**		GR.gradient			2o	S
											MB	13	-3		Grass (sheep)				
									Droughtiness grade (DR)			2	2						
2	T	0	35	hCL	n	10YR4/3	Fe	few	0			63	63			*III*	3b	**3b**	WE
		35	70	C		10YR6/4	Mn/Fe	many	0		m/poor	37	51	y					
		70	90	C		7.5YR5/6	Fe	pred	0		poor	14	0	(y)	y				
		90	120	Mst							poor	15	0	n	y				
											Total	**129**	**114**		GR.gradient			2o	S
											MB	18	8		Grass (sheep)				
									Droughtiness grade (DR)			2	2						
3	T	0	28	hCL		10YR4/3	Fe	few	0			50	50			*IV*	3b	**3b**	WE
		28	50	C		10YR5/3	Fe	many	0		poor	29	29	y	y				
		50	120	C		5B2.5/1	Fe	pred	0		poor	49	26	y	y				
											Total	**128**	**105**		GR.gradient			3o	S
											MB	17	-1		Grass (sheep)				
									Droughtiness grade (DR)			2	2						

4	T	0	20	ZC	10YR4/3	Fe	few	0			34	34			*III*	3b	**3b**	WE
		20	40	C	10YR4/3	Fe	few	0		m/poor	29	29	n					
		40	90	C	5B2.5/1	Fe	many	0		poor	41	39	y	y				
		90	120	Mst						poor	15	0	n	y				
										Total	**119**	**102**		GR.gradient			0.5o	S
										MB	8	-4		Grass (sheep)				
									Droughtiness grade (DR)		2	2						
5	T	0	18	mZCL	10YR4/3	Fe	few	0			34	34			*IV*	3b	**3b**	WE
		18	38	hCL	10YR5/3	Fe/Mn	com	5		m/poor	27	27	y					
		38	60	C	10YR6/4	Fe	many	0		poor	23	29	y	y				
		60	80	C	10YR5/8	Grey	pred	2		poor	14	13	(y)	y				
		80	120	Mst						poor	20	0	n	y				
										Total	**118**	**103**		GR.gradient			1o	S
										MB	7	-3		Grass (mown-non agric)				
									Droughtiness grade (DR)		2	2						
6	T	0	18	hCL	10YR4/2	Mn	few	0			32	32			*III*	3b	**3b**	WE
		18	42	hCL	10YR4/2	Mn	few	0			38	38						
		42	58	hCL	10YR5/3	Mn/Fe	com	0		poor	15	19	y	y				
		58	70	hCL	10YR6/4	Fe	com	0		poor	8	14	y	y				
		70	120	Mst						poor	25	0	n	y				
										Total	**119**	**104**		GR.gradient			1-2o	S
										MB	8	-2		parkland (mown)				
									Droughtiness grade (DR)		2	2						
7	T	0	24	hCL	10YR4/2			0			43	43			*III*	3b	**3b**	WE
		24	40	hCL	10YR4/2	Mn	few	0			26	26						
		40	70	C	10YR5/6	grey	pred	0		poor	27	39	(y)	y				
		70	90	C	10YR5/6	Fe	pred	0		poor	14	0	(y)	y				
		90	120	Mst						poor	15	0	n	y				
										Total	**125**	**108**		GR.gradient			1-2o	SE
										MB	14	2		parkland (mown)				
									Droughtiness grade (DR)		2	2						
8	T	0	20	hCL	10YR4/3	Fe	com	0			36	36			*IV*	3b	**3b**	WE

		20	40	hCL	10YR5/3	Fe/Mn	com	0		32	32	y							
		40	90	C	10YR6/3	Fe	com	0	poor	41	39	y	y						
		90	110	sZL	10YR3/2	Fe/grey	com	0		0	0	n							
		110	120	C	10YR6/4	Fe	com	0	poor	7	0	y	y						
									Total	**116**	**107**		GR.gradient					0.5o	S
									MB	5	1		parkland (mown)						
									Droughtiness grade (DR)	2	2								
9	T	0	35	hCL	10YR4/3	Fe/Mn	few	0		63	63			*IV*	3b	**3b**			WE
		35	60	C	5YR5/6	pale	many	0	poor	27	33	(y)	y						
		60	80	C	7.5YR4/6			0	poor	14	13		y						
		80	120	Mst					poor	20	0		y						
									Total	**124**	**109**		GR.gradient					1-2o	S
									MB	13	3		parkland (mown)						
									Droughtiness grade (DR)	2	2								
10	T	0	20	ZC	10YR4/3			0		34	34			*IV*	3b	**3b**			WE
		20	68	C	7.5YR4/6	Mn	pred	0	poor	52	62	n	y						
		68	95	C	10YR7/1	Fe	many	0	poor	19	3	y	y						
		95	120	Mst					poor	13	0		y						
									Total	**117**	**99**		GR.gradient					3o	S
									MB	6	-7		parkland (mown)						
									Droughtiness grade (DR)	2	2								
Pit 1	T	0	22	ZC	10YR5/3	Fe	com	0		34	34	y		*IV*	3b	**3b**			WE
		22	41	C	2.5Y5/3	Fe	com	20	m/poor	52	62	y	y						
		41	60	C	2.5Y7/2	Mn/Fe	many	0	poor	19	3	y	y						
		60	120	C	2.5Y7/2	Fe	pred	0	poor	13	0	y	y						
									Total	**117**	**99**		GR.gradient					3o	S
									MB	6	-7		parkland (mown)						
									Droughtiness grade (DR)	2	2								

Appendix 3: Pit Description and Photographs

Pit 1		Description (grazed grass)
Ap	0-22 cm	Brown (10YR4/3) silty clay. Common mottles, iron along rooting channels, many grass roots, granular peds, moderately developed with firm consistence.
Eg	22-41 cm	Light olive brown (2.5Y5/3) clay, common mottles, iron along roots, common roots, moderately stony. Medium sized sub angular blocky peds, firm consistence.
Btg	41-60 cm	Light grey (2.5Y7/2) clay, manganese layer at horizon top, many mottles, few roots, Medium sized sub angular blocky peds, weak consistence.
BCg	60-120 cm (augured)	Light grey (2.5Y7/2) clay, predominately mottled, poor structure, firm consistence, clay passing to mudstone, massive structure.

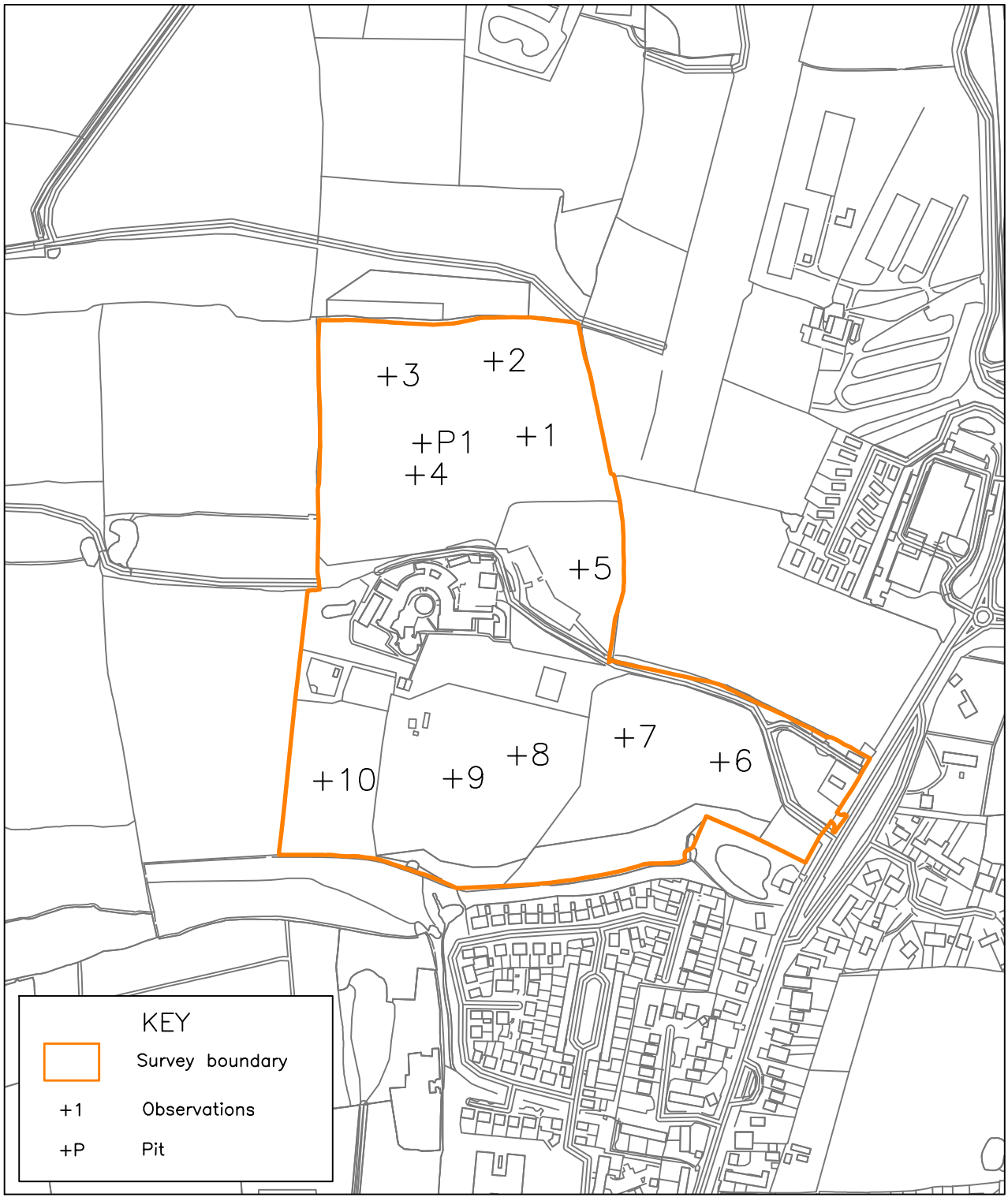
Pit 1 Geology: Weald Clay

Soil Pit

Soil pit structures reassembled, soil on right from auger at 60cm+ (Marker every 10cm)

Observation 1	Observation 7	Observation 10
		
Augered soil from the top of the profile on the left, soil on right is 60cm+, tape marks every 10 cm		

Observation 3
Iron mottling at 90 cm



1:5,000

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Drawing title OBSERVATION MAPPING	Ref. RAC/10520/1	Rev. A			
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	Scales 1:5,000@A4	Date 01/2026	–	–	11.24
			Rev.	Comment	Date

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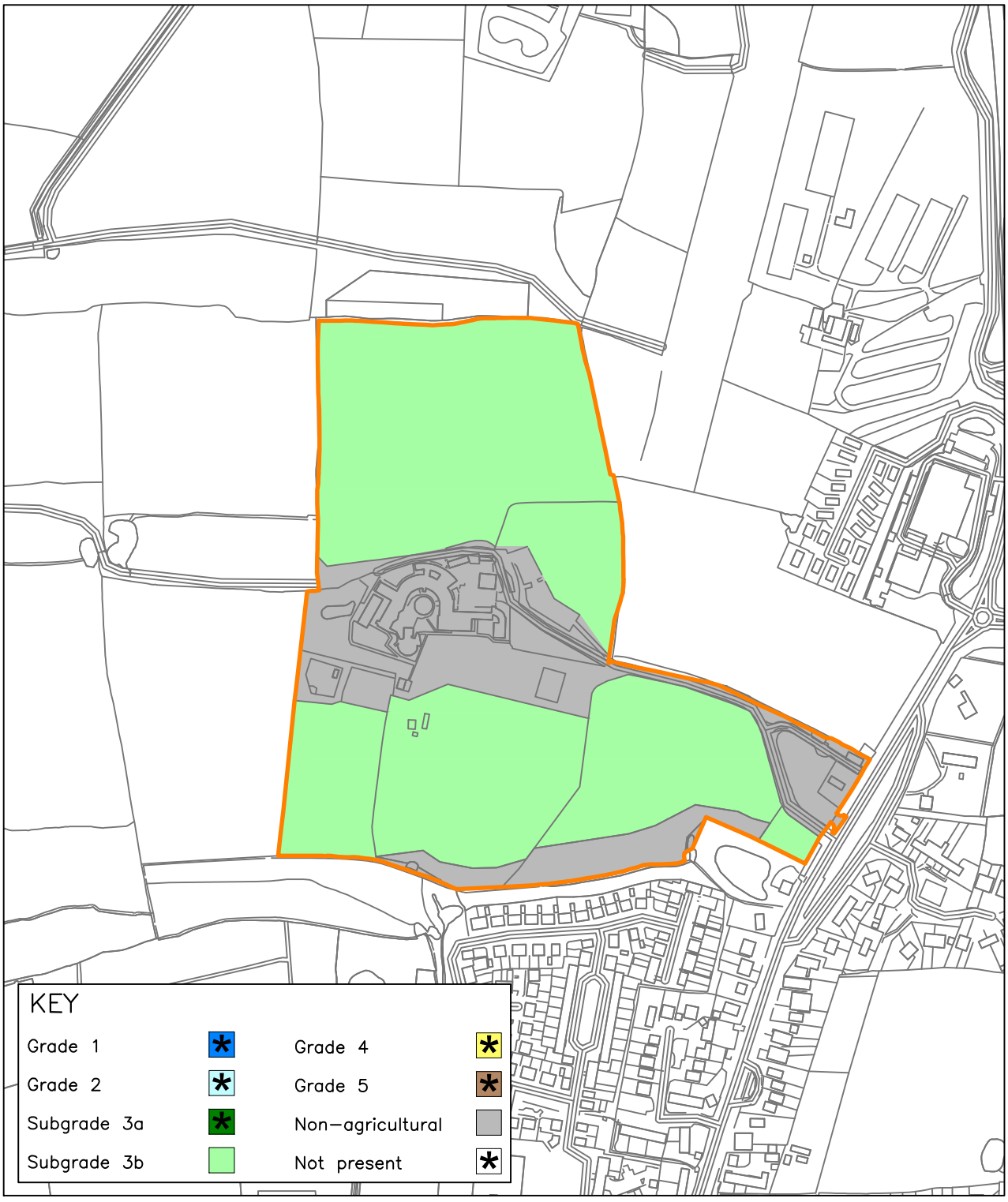

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