

November 2022

Smith Simmons & Partners

Agricultural Land Classification and Soil Resources

at

Land adjacent to Eastergate Lane, Eastergate, West Sussex

Beechwood Court,
Long Toll, Woodcote,
RG8 0RR


www.reading-ag.com

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1. Introduction

- 1.1. Reading Agricultural Consultants Ltd (RAC) is instructed by Smith Simmons & Partners to investigate the Agricultural Land Classification (ALC) and soil resources of land adjacent to Eastergate lane, Eastergate, West Sussex 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 Ministry of Agriculture, Fisheries and Food (MAFF) revised guidelines and criteria for grading the quality of agricultural land¹, and summarised in Natural England's Technical Information Note 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.
- 1.6. 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

¹ **MAFF (1988).** *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.* MAFF Publications.

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

guidance on agricultural 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 (1:63,360). The Provisional ALC map shows the site as Grade 1. 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 methodology within the established ALC guidelines.

2. Site and climatic conditions

General features, land form and drainage

- 2.1. The site extends to approximately 0.5ha of mostly former orchard land. It is bordered to the north by Eastergate Lane and the residential property named Wayside, with part of the property's garden included within the site. Woodland and small business units border to the east, with grassland to the west and south.
- 2.2. Topography within the site is flat at an elevation of approximately 16m above Ordnance Datum (AOD), with land draining through the soil profile.

Agro-climatic conditions

- 2.3. Agro-climatic data for the site have been interpolated from the Meteorological Office's standard 5km grid point dataset at representative altitude of 16m AOD. The data are given in Table 1. The climate is warm and moist. Moisture deficits are large. The number of Field Capacity Days (FCD) is larger than is average for lowland England (150) and is slightly unfavourable for providing opportunities for agricultural field work.

Table 1: Local agro-climatic conditions

Parameter	Value
Average Annual Rainfall	778mm
Accumulated Temperatures >0°C	1530 day°
Field Capacity Days	159 days
Average Moisture Deficit, wheat	116mm
Average Moisture Deficit, potatoes	112mm

Soil parent material and soil type

- 2.4. The underlying geology mapped by the British Geological Survey³ across the site is the London Clay Formation, which comprises poorly laminated, blue-grey or grey-brown, slightly calcareous, clay with variable proportions of silt, and sometimes silt or sandy clay.
- 2.5. Superficial river terrace deposits are mapped across the south of the site and comprise sand and gravel. Head deposits are mapped across the north, comprising gravel, sand, silt and clay.
- 2.6. The Soil Survey of England and Wales soil association mapping⁴ (1:250,000 scale) shows the Hamble 2 association across the site, characterised by deep, stoneless, silty soils variably affected by groundwater. Soils have a varied soil water regime which is largely dependent on local groundwater. Soils typically respond well to drainage⁵.

3. Agricultural land quality

Soil survey methods

- 3.1. Two soil profiles were examined within the site using an Edelman (Dutch) auger at an observation density in excess of the one per hectare recommended for ALC surveys². One observation pit was also excavated to examine subsoil structures and stone. The locations of observations are shown on Figure RAC/9728/1. At each observation point the following characteristics were assessed for each soil horizon up to a maximum of 120cm or any impenetrable layer:

³ **British Geological Survey (2022).** *Geology of Britain viewer*, <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

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

⁵ **Jarvis et al (1984).** *Soils and Their Use in South East England*. Soil Survey of England and Wales Bulletin 15, Harpenden.

- soil texture;
 - significant stoniness;
 - 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.

Agricultural land classification and site limitations

- 3.5. Assessment of land quality has been carried out according to the revised ALC guidelines¹. Soil profiles have been described according to Hodgson⁶ which is the recognised source for describing soil profiles and characteristics according to the revised ALC guidelines.
- 3.6. There is one soil type present within the site. The topsoil comprises dark brown (10YR3/3 in the Munsell soil colour charts⁷) medium silty clay loam. Stone content is slight, at 10-12% by volume, 7% of which is over 2cm in size. The topsoil has a medium subangular blocky structure and the consistency is friable.

⁶ Hodgson, J. M. (Ed.) (1997). *Soil survey field handbook*. Soil Survey Technical Monograph No. 5, Silsoe.

⁷ Munsell Color (2009). *Munsell Soil Color Book*. Grand Rapids, MI, USA

- 3.7. The upper subsoil comprises brown (7.5YR4/4) heavy silty clay loam. Stone content is very slight to slight, at 5-7%. The upper subsoil has a medium subangular blocky structure and is friable.
- 3.8. The lower subsoil comprises brown (7.5YR4/4) heavy silty clay loam. The upper part of the lower subsoil horizon is slightly stony, at 7-10%. This increases at around 90cm where moderate levels of stone were observed, estimated to be 20% by volume. The lower subsoil is friable and the structure is fine to medium subangular blocky.
- 3.1. Soils with these characteristics are assessed as WC I, and are freely draining. Profiles have slight deficits in available water throughout the growing season and are limited to Grade 2 by droughtiness. Profiles are also limited to the same extent by topsoil stone.
- 3.2. Other than the garden area of Wayside, which amounts to approximately 0.1ha of non-agricultural land, the site is classified as Grade 2, as shown in Figure RAC/9728/2.

4. Relevant Policies

- 4.1. Paragraph 174 of the National Planning Policy Framework (NPPF)⁸ indicates that planning policies and decisions should contribute to and enhance the natural and local environment by:
- protecting soils, amongst other matters, in a manner commensurate with their statutory status or identified quality in the development plan; and
 - recognising the wider benefits from natural capital and ecosystem services, including the economic and other benefits of the BMV agricultural land.
- 4.2. Policy SO DM1, Soils, of the adopted Arun Local Plan 2011-2018⁹ sets out policies for the protection of soils and BMV agricultural land associated with construction activities. Paragraph 11.1.6 states that:

“It is national policy to take into account the economic and other benefits of the best and most versatile agricultural land. Therefore the Council requires that a planning application on agricultural land falling within Grades 1, 2 and 3a of the Agricultural Land Classification, which involves permanent loss of one hectare or more, shall be accompanied by a Report on the agricultural land to include its economic status, an assessment of the land's

⁸ Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework. [National Planning Policy Framework \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/553172/nppf-2021.pdf)

⁹ Arun District Council (2018). Adoption Arun Local Plan 2011-2031. <https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n12844.pdf&ver=12984>

environmental and other benefits, a plan demonstrating how the soils and soil qualities are to be conserved and where development is proposed mitigation measures for the loss of soils. The applicant, their agent or another party to be agreed by Arun District Council will be responsible for fulfilling this requirement."

- 4.3. As this proposal does not involve the permanent loss of one hectare or more of BMV land, the need to demonstrate the site's economic status does not apply but nevertheless this assessment has been included in this appraisal to assist in the balancing exercise that is undertaken in the policy itself which states that:

"Unless designated by this Plan or a Neighbourhood Development Plan, the use of Grades 1, 2 and 3a of the Agricultural Land Classification for any form of development not associated with agriculture, horticulture or forestry will not be permitted unless need for the development outweighs the need to protect such land in the long term.

The requirement to protect the best and most versatile land can be outweighed if it is demonstrated through sustainability and options appraisals that:

- a. Preservation of land of lower agricultural quality has greater benefits in terms of ecosystem services (for example carbon storage, flood water retention, support of biodiversity);*
- b. That any site preferred for development is demonstrated to be the best and most sustainable option, including but not limited to the terms of land quality, ecosystem services, infrastructure and proven need; and*
- c. The proposed development meets the requirements of the countryside policy and/or equine development policy.*

Where development is permitted it should, as far as possible, use the lowest grade of land suitable for that development. Development will not be permitted unless:

- d. The applicant has submitted sustainability and options appraisals, mitigation measures, and a soil resources plan for the development site;*
- e. Site appraisal documents submitted by the applicant must demonstrate that consideration has been given to DEFRA's Soil Strategy for England;*
- f. The productivity of the land is demonstrated using a methodology for assessing gross margins as contained in the Arun Soils and Agricultural Land Assessment Report; and*

- g. The applicant has submitted a comprehensive soil resources plan for the development site which demonstrates that care will be taken to preserve the soil resource, such that it can be incorporated into a Productive Green Environment following development.*

Developments shall also be consistent with all other Local Plan policies."

5. Appraisal of the site's agricultural land quality

- 5.1. The site comprises approximately 0.4ha of former orchard land and approximately 0.1ha of the garden of the property Wayside.
- 5.2. The site was part of a larger apple orchard that occupied the currently open land to the west and south-west. The orchard was planted in the 1930s and remained until the majority of it (other than this site) was grubbed up and cleared in around 2008. However, the site had stopped being in commercial use as an orchard in the early 1990s in common with many orchards at that time which could not compete with cheaper imports and was sold in separate lots, with the applicant's parents purchasing this site in 1995.
- 5.3. The site has not been in commercial production for over thirty years. The trees have been left in place but are gradually being lost to high winds and rot, and no commercial use is made of them.
- 5.4. In terms of paragraph 174 of the NPPF, there are therefore no economic benefits that are associated with the BMV land at the site.
- 5.5. There is no prospect of returning the site to a commercial orchard or general commercial agricultural use. It is too small and isolated to form a viable agricultural unit, does not have the benefit of any agricultural buildings or other infrastructure, and has not formed part of a larger commercial unit for over thirty years. Moreover part of the adjacent land is now allocated within the adopted Local Plan as part of the Strategic Housing Allocation, SD5.
- 5.6. The Provisional ALC shows that Eastergate sits within an area of Grade 1 agricultural land, much of which has been confirmed by detailed surveys in the area, with other detailed surveys also confirming land is mostly high quality in Grade 2.
- 5.7. There are therefore no opportunities to direct development at Eastergate to sites of a poorer agricultural quality or a lower agricultural utility than this site.

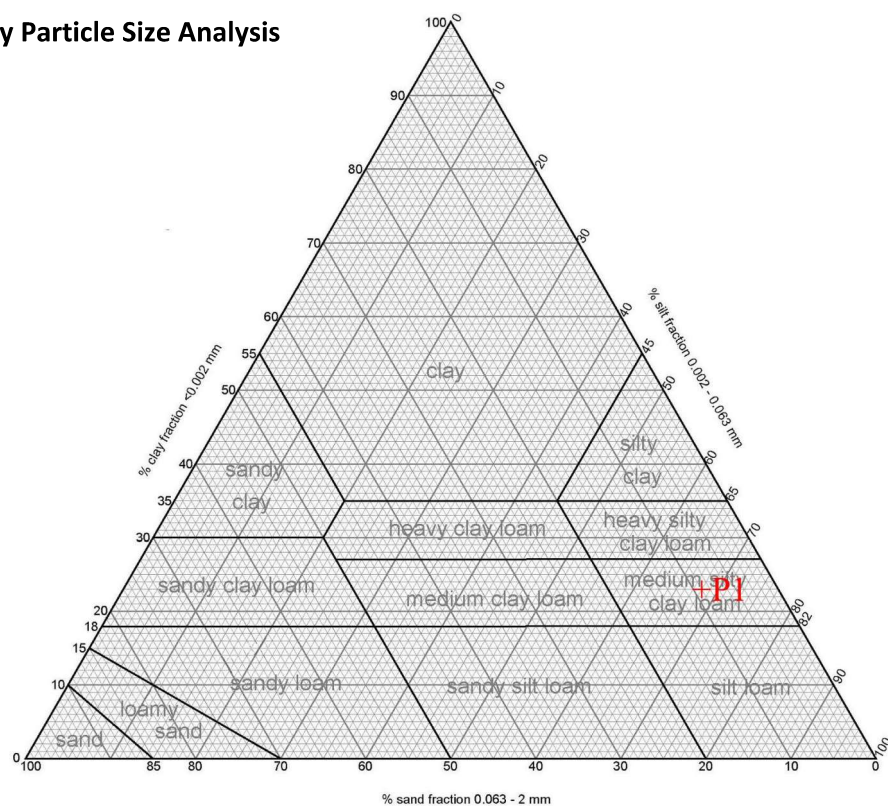
Appendix 1: Laboratory Data

Determinand	P1 TS	Units
Sand 2.00-0.063 mm	9	% w/w
Silt 0.063-0.002 mm	68	% w/w
Clay <0.002 mm	23	% w/w
Organic Matter	2.1	% w/w
Texture	Medium silty clay loam	

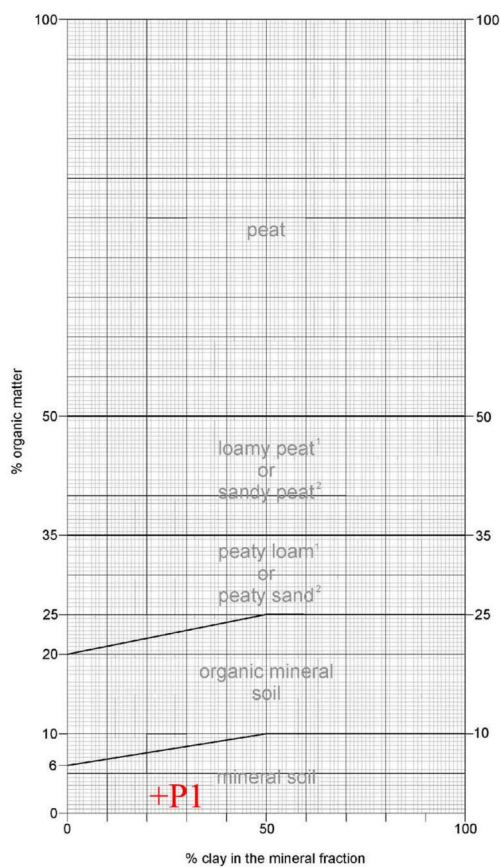
Determinand	P1 TS	Units
Soil pH	5.8	
Phosphorus (P)	38.0	Mg/l (av)
Potassium (K)	130	Mg/l (av)
Magnesium (Mg)	115	Mg/l (av)

Determinand	P1 TS	Units
Phosphorus (P)	3	ADAS Index
Potassium (K)	2-	ADAS Index
Magnesium (Mg)	3	ADAS Index

Soil Texture by Particle Size Analysis



Organic Matter Class



¹Less than 50% sand in the mineral fraction

² 50% sand or more in the mineral fraction

Appendix 3: Site Photographs



Site photo. View looking north.



Observation 1: Auger arisings.



Pit: Topsoil exposed under grass turf.



Pit: Pit wall. Topsoil, upper subsoil boundary



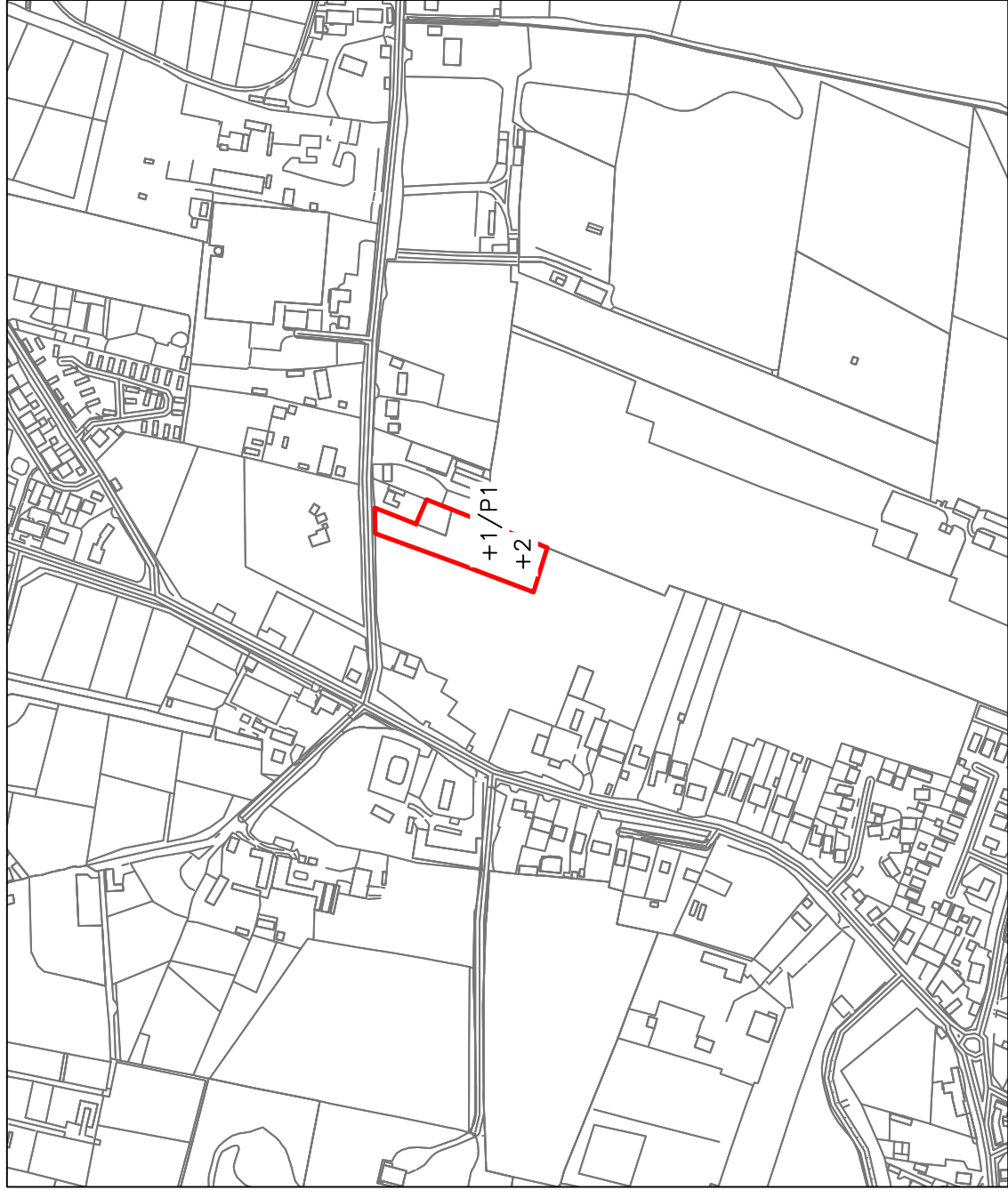
Pit: Topsoil



Pit: Upper subsoil



Pit: Lower subsoil

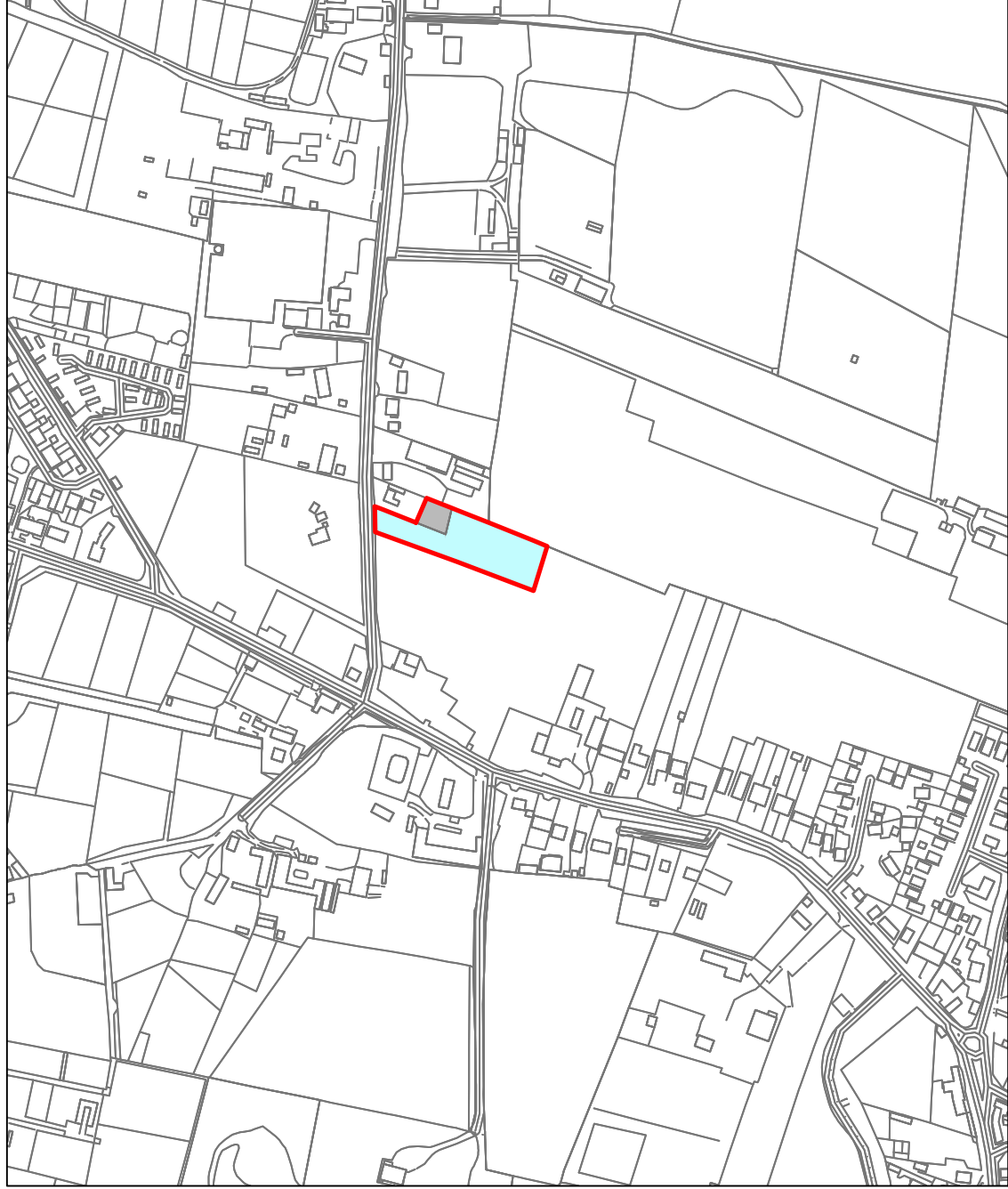


KEY	
	Survey boundary
+1	Observations
+P	Pit

1:5,000
0 100m 200m

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KEY			
Grade 1		Grade 4	
Grade 2		Grade 5	
Subgrade 3a		Non-agricultural	
Subgrade 3b		Not present	

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