
APPENDIX 1: HERITAGE STATUTE POLICY & GUIDANCE

Heritage Statute: Scheduled Monuments

Scheduled Monuments are subject to the provisions of the Ancient Monuments and Archaeological Areas Act 1979. The Act sets out the controls of works affecting Scheduled Monuments and other related matters. Contrary to the requirements of the Planning Act 1990 regarding Listed buildings, the 1979 Act does not include provision for the ‘setting’ of Scheduled Monuments.

Heritage Statute: Listed Buildings

Listed buildings are buildings of ‘special architectural or historic interest’ and are subject to the provisions of the Planning (Listed Buildings and Conservation Areas) Act 1990 (‘the Act’). Under Section 7 of the Act ‘no person shall execute or cause to be executed any works for the demolition of a listed building or for its alteration or extension in any manner which would affect its character as a building of special architectural or historic interest, unless the works are authorised.’ Such works are authorised under Listed Building Consent. Under Section 66 of the Act ‘In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any feature of special architectural or historic interest which it possesses’.

Note on the extent of a Listed Building

Under Section 1(5) of the Act, a structure may be deemed part of a Listed Building if it is:

- (a) fixed to the building, or
- (b) within the curtilage of the building, which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948

The inclusion of a structure deemed to be within the ‘curtilage’ of a building thus means that it is subject to the same statutory controls as the principal Listed Building. Inclusion within this duty is not, however, an automatic indicator of ‘heritage significance’ both as defined within the NPPF (2024) and within Conservation Principles (see Section 2 above). In such cases, the significance of the structure needs to be assessed both in its own right and in the contribution it makes to the significance and character of the principal Listed Building. The practical effect of the inclusion in the listing of ancillary structures is limited by the requirement that Listed Building Consent is only needed for works to the ‘Listed Building’ (to include the building in the list and all the ancillary items) where they affect the special character of the Listed building as a whole.

Guidance is provided by Historic England on ‘Listed Buildings and Curtilage: Historic England Advice Note 10’ (Historic England 2018).

Heritage Statute: Conservation Areas

Conservation Areas are designated by the local planning authority under Section 69(1)(a) of the Planning (Listed Buildings and Conservation Areas) Act 1990 (‘the Act’), which requires that ‘*Every local planning authority shall from time to time determine which parts of their area*

are areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance'. Section 72 of the Act requires that 'special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area'.

The requirements of the Act only apply to land within a Conservation Area; not to land outside it. This has been clarified in various Appeal Decisions (for example APP/F1610/A/14/2213318 Land south of Cirencester Road, Fairford, Paragraph 65: *'The Section 72 duty only applies to buildings or land in a Conservation Area, and so does not apply in this case as the site lies outside the Conservation Area.'*).

The NPPF (2024) also clarifies in Paragraph 220 that *'Not all elements of a Conservation Area or World Heritage Site will necessarily contribute to its significance'*. Thus land or buildings may be a part of a Conservation Area, but may not necessarily be of architectural or historical significance. Similarly, not all elements of the setting of a Conservation Area will necessarily contribute to its significance, or to an equal degree.

National heritage policy: the National Planning Policy Framework

Heritage assets and heritage significance

Heritage assets comprise 'a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest' (the NPPF (2024), Annex 2). Designated heritage assets include World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Registered Parks and Gardens, Registered Battlefields and Conservation Areas (designated under the relevant legislation; NPPF (2024), Annex 2). The NPPF (2024), Annex 2, states that the significance of a heritage asset may be archaeological, architectural, artistic or historic. Historic England's 'Conservation Principles' looks at significance as a series of 'values' which include 'evidential', 'historical', 'aesthetic' and 'communal'.

The July 2019 revision of the Planning Practice Guidance (PPG) expanded on the definition of non-designated heritage assets. It states *that 'Non-designated heritage assets are buildings, monuments, sites, places, areas or landscapes identified by plan-making bodies as having a degree of heritage significance meriting consideration in planning decisions, but which do not meet the criteria for designated heritage assets.'* It goes on to refer to local/neighbourhood plans, conservation area appraisals/reviews, and importantly, the local Historic Environment Record (HER) as examples of where these assets may be identified, but specifically notes that such identification should be *made 'based on sound evidence'*, with this information *'accessible to the public to provide greater clarity and certainly for developers and decision makers'*.

This defines *non-designated heritage assets* as those which have been specially defined as such through the local HER or other source made accessible to the public by the plan-making body. Where HERs or equivalent lists do not specifically refer to an asset as a *non-designated heritage asset*, it is assumed that it has not met criteria for the plan-making body to define it as such, and will be referred to as a *heritage asset* for the purpose of this report.

The assessment of *non-designated heritage assets* and *heritage assets* will be equivalent in this report, in line with industry standards and guidance on assessing significance and impact.

They may not, however, carry equivalent weight in planning as set out within the provisions of the NPPF, should there be any effect to significance.

The setting of heritage assets

The ‘setting’ of a heritage asset comprises ‘the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral’ (NPPF (2024), Annex 2). Thus, it is important to note that ‘setting’ is not a heritage asset: it may contribute to the value of a heritage asset.

Guidance on assessing the effects of change upon the setting and significance of heritage assets is provided in ‘Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets’, which has been utilised for the present assessment (see below).

Levels of information to support planning applications

Paragraph 207 of the NPPF (2024) identifies that ‘In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets’ importance and no more than is sufficient to understand the potential impact of the proposal on their significance’.

Designated heritage assets

Paragraph 202 of the NPPF (2024) explains that heritage assets ‘are an irreplaceable resource and should be conserved in a manner appropriate to their significance’. Paragraph 212 notes that ‘when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance’. Paragraph 213 goes on to note that ‘substantial harm to or loss of a grade II listed building...should be exceptional and substantial harm to or loss of designated heritage assets of the highest significance (notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites)...should be wholly exceptional’.

Paragraph 215 clarifies that ‘Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use’.

Development Plan

The North Hertfordshire Local Plan 2011-2031 seeks to address the key issues facing North Hertfordshire and will set a strategic vision and spatial strategy for the district over the period 2011 to 2031. The relevant policies for the historic environment are included within ‘Chapter 12: Historic Environment’.

Policy HE1: Designated heritage assets

Planning applications relating to Designated heritage Assets or their setting shall be accompanied by a Heritage Assessment/Justification Statement that:

- i. Assesses the significance of heritage assets, including their setting;
- ii. Justifies and details the impacts of any proposal upon the significance of the designated heritage asset(s); and
- iii. Informs any necessary measures to minimise or mitigate against any identified harms.

Planning permission for development proposals affecting Designated Heritage Assets or their setting will be granted where they (as applicable):

- a) Enable the heritage asset to be used in a manner that secures its conservation and preserves its significance;
- b) Incorporate a palette of materials that make a positive contribution to local character or distinctiveness, where it is appropriate and justified; and
- a) Will lead to less than substantial harm to the significance of the designated heritage asset, and this harm is outweighed by the public benefits of the development, including securing the asset's optimum viable use.

Where substantial harm to, or loss of significance, of a designated heritage asset is proposed the Council shall refuse consent unless it can be demonstrated that the scheme is necessary to deliver considerable public benefits that outweigh the harm or loss.

Policy HE3: Non-designated heritage assets

Permission for a proposal that would result in harm to, or the loss of, a non-designated heritage asset will only be granted provided that a balanced judgement has been made that assesses the scale of harm to, or loss of significance of the non-designated asset and, where the proposal results in the loss of a non-designated heritage asset:

- a) The replacement building contributes to preserving the local character and distinctiveness of the area; and
- b) Where the asset is located in a conservation area a continuous contract for the demolition and redevelopment of the site has been secured, unless there are justifiable grounds for not developing the site.

Policy HE4: Archaeology

Permission for development proposals affecting heritage assets with archaeological interest will be granted provided that:

- a) Developers submit an appropriate desk-based assessment and, where justified, an archaeological field evaluation.
- b) It is demonstrated how archaeological remains will be preserved and incorporated into the layout of that development, if in situ preservation of important archaeological remains is considered preferable; and
- c) Where the loss of the whole or a material part of important archaeological remains is justified, appropriate conditions are applied to ensure that the archaeological

recording, reporting, publication and archiving of the results of such archaeological work is undertaken before it is damaged or lost.

Where archaeological sites have been assessed to meet the criteria for inclusion on adopted registers or maps of locally important heritage assets these shall be treated in the same way as archaeology areas and areas of archaeological significance.

Areas of as yet, unknown archaeology may be identified during research, or through the planning or plan making process. These sites or areas should be treated in the same way as archaeology areas and areas of archaeological significance.

Areas of Archaeological Significance

Para. 12.16: There are also a number of archaeological areas and Areas of Archaeological Significance across North Hertfordshire which, although not nationally recognised or designated are considered to be of local importance. This is because they contain or have the potential for moderate or high archaeological remains within them.....

Para. 12.18: Where development proposals will affect any of these areas, prospective developers will be required to undertake an archaeological assessment (if necessary with a field evaluation) of the site in line with Government guidance and in consultation with the County Council's Historic Environment Unit. A full report of this recording work and any findings should be submitted to the local planning authority for approval before an application can be determined.

Pirton Neighbourhood Development Plan (2011 – 2031) was compiled to encourage sustainable development in accordance with the character of the village and Parish of Pirton, which accords with the needs and wishes of the local community, and which is in general conformity with the Strategic Policies of North Herts. District Council (NHDC), and to provide a legally binding “practical framework within which decisions on planning applications can be made with a high degree of predictability and efficiency” in accordance with the NPPF Core Principles (Para. 17).

PNP 8 - Heritage Assets and Archaeological Heritage

Development proposals will be supported where:

8.1. Proposals conserve or enhance the heritage assets of the Parish and their settings in a way that is appropriate to their significance. Heritage assets include designated heritage assets and non-designated heritage assets;

8.2. Development proposals on sites that include or have the potential to include heritage assets with archaeological interest and planning applications for development affecting the archaeology alert areas should be submitted with a desk top archaeological survey and where necessary a field evaluation undertaken by an appropriately qualified specialist so that the impact of the proposed development on the significance of the heritage assets can be assessed. This may indicate that further pre-determination field evaluation excavation and / or mitigation secured by condition are required. Mitigation may take the form of further excavation, an archaeological watching brief, or the preservation in situ of significant archaeological remains.

8.3. Proposals demonstrate that they have consulted and respected appropriate sources of information such as Hertfordshire County Council's Historic Environment Record. In addition

to consultation with the archaeological planning advisory service and the Herts Historic Environment Record, specialists undertaking such surveys should consult with the Pirton Parish Council which holds local knowledge on these sites.

Areas of Archaeological Significance

The Pirton Neighbourhood Development Plan also refers to the Areas of Archaeological Significance identified within the Village: 'A large part of Pirton Village is covered by Archaeological Alert Areas as designated by the Hertfordshire County Council working with the North Hertfordshire District Council. The Saved Policies of the Local Plan 2007 designate Areas of Archaeological Significance (AAS), the Archaeological Area (AA) to which Saved Policy 16 refers'.

Good Practice Advice 1-3

Historic England has issued three Good Practice Advice notes ('GPA1-3') which support the NPPF. The GPAs note that they do not constitute a statement of Government policy, nor do they seek to prescribe a single methodology: their purpose is to assist local authorities, planners, heritage consultants, and other stakeholders in the implementation of policy set out in the NPPF. This report has been produced in the context of this advice, particularly 'GPA2 – Managing Significance in Decision-Taking in the Historic Environment' and 'GPA3 – The Setting of Heritage Assets'.

GPA2 - Managing Significance in Decision-Taking in the Historic Environment

GPA2 sets out the requirement for assessing 'heritage significance' as part of the application process. Paragraph 8 notes 'understanding the nature of the significance is important to understanding the need for and best means of conservation.' This includes assessing the extent and level of significance, including the contribution made by its 'setting' (see GPA3 below). GPA2 notes that 'a desk-based assessment will determine, as far as is reasonably possible from existing records, the nature, extent and significance of the historic environment within a specified area, and the impact of the proposed development on the significance of the historic environment, or will identify the need for further evaluation to do so' (Page 3).

GPA3 – The Setting of Heritage Assets

The NPPF (Annex 2: Glossary) defines the setting of a heritage asset as 'the surroundings in which a heritage asset is experienced...'. Step 1 of the settings assessment requires heritage assets which may be affected by development to be identified. Historic England notes that for the purposes of Step 1 this process will comprise heritage assets 'where that experience is capable of being affected by a proposed development (in any way)...'.

Step 2 of the settings process 'assess[es] the degree to which these settings and views make a contribution to the significance of the heritage asset(s) or allow significance to be appreciated', with regard to its physical surrounds; relationship with its surroundings and patterns of use; experiential effects such as noises or smells; and the way views allow the significance of the asset to be appreciated. Step 3 requires 'assessing the effect of the proposed development on the significance of the asset(s)' – specifically to 'assess the effects of the proposed development, whether beneficial or harmful, on the significance or on the ability to appreciate it', with regard to the location and siting of the development, its form and appearance, its permanence, and wider effects.

Step 4 of GPA3 provides commentary on ‘ways to maximise enhancement and avoid or minimise harm’. It notes (Paragraph 37) that ‘Maximum advantage can be secured if any effects on the significance of a heritage asset arising from development liable to affect its setting are considered from the project’s inception.’ It goes on to note (Paragraph 39) that ‘good design may reduce or remove the harm, or provide enhancement’.

Heritage significance

Discussion of heritage significance within this assessment report makes reference to several key documents. With regard to Listed buildings and Conservation Areas it primarily discusses ‘architectural and historic interest’, which comprises the special interest for which they are designated.

The NPPF provides a definition of ‘significance’ for heritage policy (Annex 2). This states that heritage significance comprises ‘The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic’. This also clarifies that for World Heritage Sites ‘the cultural value described within each site’s Statement of Outstanding Universal Value forms part of its significance’.

Regarding ‘levels’ of significance the NPPF (2024) provides a distinction between: designated heritage assets of the highest significance; designated heritage assets not of the highest significance; and non-designated heritage assets.

Historic England’s ‘Conservation Principles’ expresses ‘heritage significance’ as comprising a combination of one or more of: evidential value; historical value; aesthetic value; and communal value:

- Evidential value – the elements of a historic asset that can provide evidence about past human activity, including physical remains, historic fabric, documentary/pictorial records. This evidence can provide information on the origin of the asset, what it was used for, and how it changed over time.
- Historical value (illustrative) – how a historic asset may illustrate its past life, including changing uses of the asset over time.
- Historical value (associative) – how a historic asset may be associated with a notable family, person, event, or moment, including changing uses of the asset over time.
- Aesthetic value – the way in which people draw sensory and intellectual stimulation from a historic asset. This may include its form, external appearance, and its setting, and may change over time.
- Communal value – the meaning of a historic asset to the people who relate to it. This may be a collective experience, or a memory, and can be commemorative or symbolic to individuals or groups, such as memorable events, attitudes, and periods of history. This includes social values, which relates to the role of the historic asset as a place of social interactive, distinctiveness, coherence, economic, or spiritual / religious value.

Effects upon heritage assets

Heritage benefit

The NPPF clarifies that change in the setting of heritage assets may lead to heritage benefit. Paragraph 219 of the NPPF (2024) notes that ‘Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably’.

GPA3 notes that ‘good design may reduce or remove the harm, or provide enhancement’ (Paragraph 28). Historic England’s ‘Conservation Principles’ states that ‘Change to a significant place is inevitable, if only as a result of the passage of time, but can be neutral or beneficial in its effects on heritage values. It is only harmful if (and to the extent that) significance is reduced’ (Paragraph 84).

Specific heritage benefits may be presented through activities such as repair or restoration, as set out in Conservation Principles.

Heritage harm to designated heritage assets

The NPPF (2024) does not define what constitutes ‘substantial harm’. The High Court of Justice does provide a definition of this level of harm, as set out by Mr Justice Jay in *Bedford Borough Council v SoS for CLG and Nuon UK Ltd*. Paragraph 25 clarifies that, with regard to ‘substantial harm’: ‘Plainly in the context of physical harm, this would apply in the case of demolition or destruction, being a case of total loss. It would also apply to a case of serious damage to the structure of the building. In the context of non-physical or indirect harm, the yardstick was effectively the same. One was looking for an impact which would have such a serious impact on the significance of the asset that its significance was either vitiated altogether or very much reduced’.

Effects upon non-designated heritage assets

The NPPF (2024) paragraph 216 guides that ‘The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset’.

Hedgerows Regulations, 1997

The 1997 Hedgerows Regulations were made under section 97 of the Environment Act 1995, and introduced arrangements for Local Planning Authorities to protect ‘important’ hedgerows in the countryside, by controlling their removal through a system of notification. The DEFRA publication ‘The Hedgerows Regulations 1997: A Guide to the Law and Good Practice’ is a useful guide in this respect. The Regulations provide criteria for assessing whether a hedgerow is ‘important’ for the purposes of the Regulations. To qualify as ‘important’ a hedgerow must have existed for 30 years or more and following this must fulfil at least one of the criteria in the Schedule 1 criteria. Those for ‘archaeology and history’ comprise Part II, namely:

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1. The hedgerow marks the boundary, or part of the boundary, of at least one historic parish or township; and for this purpose “historic” means existing before 1850.
 2. The hedgerow incorporates an archaeological feature which is-
 - (a) included in the schedule of monuments compiled by the Secretary of State under section 1 (schedule of monuments) of the Ancient Monuments and Scheduled Areas Act 1979(g); or
 - (b) recorded at the relevant date in a Sites and Monuments Record [Historic Environment Records have largely replaced Sites and Monuments Records].
 3. The hedgerow-
 - (a) is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2 or on land adjacent to and associated with such a site; and
 - (b) is associated with any monument or feature on that site.
 4. The hedgerow-
 - (a) marks the boundary of a pre-1600 AD estate or manor recorded at the relevant date in a sites and Monuments Record or on a document held at that date at a Record Office; or
 - (b) is visibly related to any building or feature of such an estate or manor.
 5. The hedgerow-
 - (a) is recorded in a document held at the relevant date at a Record Office as an integral part of a field system pre-dating the Inclosure acts(a); or
 - (b) is part of, or visibly related to, any building or other feature associated with such a system, and that system-
 - (i) is substantially complete; or
 - (ii) is of a pattern which is recorded in a document prepared before the relevant date by a local planning authority, within the meaning of the 1990 Act(b), for the purposes of development control within the authority’s area, as a key landscape characteristic

The criterion of point five is the subject of debate and differing interpretation. Some heritage professionals interpret the criterion referring to the individual Inclosure Act for the parish in which a site is located, and numerous Acts were made in the 18th century (including the 1773 Inclosure Act). However, the criterion references the Short Titles Act of 1896, and it is commonly interpreted by LPAs and heritage professionals that it thus refers to the Inclosure Act of 1845, and subsequent Acts up to the Commonable Rights Compensation Act of 1882. This latter interpretation sets a date of 1845 as the benchmark test.

‘Important’ hedgerows are not designated heritage assets (as defined in NPPF Annex 2). The Regulations are essentially a notification mechanism. Thus an applicant needs to notify the LPA prior to the removal, either entirely or in part, of an ‘important’ hedgerow. There is a prescribed form of notice set out in Schedule 4 to the Regulations, although the form an LPA uses does not have to follow this. The requirement is for sufficient information to be given to the LPA for them to consider the proposed removal.

APPENDIX 2: GAZETTEER OF SELECTED HERITAGE ASSETS

Designated Heritage Assets and Locally Listed Buildings

Ref.	Name	Designation	Easting	Northing	NHLE Ref.
A	Anglo-Saxon Settlement, and Probable Prehistoric Ring Ditches, West of Pirton Village	Scheduled Monument	514305	231751	1434415
B	Pirton Conservation Area (Includes the previous Scheduled Monument and following Designated Heritage Assets)	Conservation Area	514593	231785	-
	Moated Site and Associated Enclosure at Rectory Farm	Scheduled Monument	514181	232000	1009451
	The Rectory Farmhouse	Grade II* Listed Building	514148	231935	1103158
	Three Gables	Grade II* Listed Building	514578	231498	1103185
	Hammond's Farmhouse	Grade II* Listed Building	514443	232288	1175235
	West Barn at Rectory Farm	Grade II* Listed Building	514107	231886	1175545
	Farm Building at Entrance to Yard at Hammond's Farm	Grade II* Listed Building	514421	232296	1295388
	28, Shillington Road	Grade II Listed Building	514316	231964	1103157
	Dovecote, Stable and Granary at Rectory Farm	Grade II Listed Building	514124	231915	1103159
	North Barn at Hammond's Farm	Grade II Listed Building	514445	232337	1103184
	4-6, Bury End	Grade II Listed Building	514603	231491	1103186
	Ivy Cottage	Grade II Listed Building	514736	231741	1103187
	"The Cottage	Grade II Listed Building	514526	231512	1103188
	Tudor Cottage"	Grade II Listed Building	514455	231592	1103189
	16, Great Green	Grade II Listed Building	514655	231810	1103191
	31, High Street	Grade II Listed Building	514796	231789	1103192
	Cromwell Cottage	Grade II Listed Building	514735	231766	1103193

Ref.	Name	Designation	Easting	Northing	NHLE Ref.
	20, High Street	Grade II Listed Building	514943	231857	1103194
	19-21, Royal Oak Lane	Grade II Listed Building	514384	232333	1175262
	Burge End Farmhouse	Grade II Listed Building	514384	232333	1175262
	17, High Street	Grade II Listed Building	514575	231959	1175469
	The Fox Inn	Grade II Listed Building	514693	231803	1175478
	Pirton Methodist Church	Grade II Listed Building	514558	231843	1175488
	Docwra Manor	Grade II Listed Building	514577	231468	1175493
	14, Royal Oak Lane	Grade II Listed Building	514962	231827	1175517
	Barn At Number 28	Grade II Listed Building	514342	231963	1175526
	Farm Building to The North-West of Burge End Farmhouse	Grade II Listed Building	514360	232339	1250685
	5, Crabtree Lane	Grade II Listed Building	514724	231750	1295337
	8, Great Green	Grade II Listed Building	514492	231541	1295356
	Elm Cottage	Grade II Listed Building	514672	231482	1295369
	1 And 3, Crabtree Lane	Grade II Listed Building	514721	231762	1295373
	7-13, Bury End	Grade II Listed Building	514605	231516	1295393
	Cartshed next entrance to Forecourt at Rectory Farmhouse	Grade II Listed Building	514170	231888	1308280
	14, Great Green	Grade II Listed Building	514466	231578	1308341
	41-45, High Street	Grade II Listed Building	514740	231797	1347076
	Primrose Cottage	Grade II Listed Building	514957	231819	1347077
	South Barn and Adjoining Stable At Rectory Farm	Grade II Listed Building	514136	231874	1347094
	Lavender Cottage	Grade II Listed Building	514357	231937	1347095

Ref.	Name	Designation	Easting	Northing	NHLE Ref.
	4-6, Walnut Tree Road	Grade II Listed Building	514854	231682	1347097
	Outhouse 10m to North of House at Hammond's Farm	Grade II Listed Building	514441	232302	1347107
	Ashburn	Grade II Listed Building	514364	232280	1347108
	Crabtree House	Grade II Listed Building	514670	231746	1347109
	Sawford Cottage	Grade II Listed Building	514473	231560	1347111
	Orchard Cottage	Grade II Listed Building	514541	231997	1347112
	Pirton War Memorial	Grade II Listed Building	514700	231726	1430264
	Barn at Wright's Farm	Grade II Listed Building	514297	232168	1466237
C	Church of St Mary (C of E)	Grade I Listed Building	514694	231661	1347110
D	Toot Hill Motte and Bailey Castle and Shrunken Medieval Village at Pirton	Scheduled Monument	514729	231525	1012325
E	Elm Tree Farmhouse	Grade II Listed Building	514918	231713	1308350
	South-East Barn at No 1 (Elm Tree Farm)	Grade II Listed Building	514917	231694	1103190
	7, Walnut Tree Road	Grade II Listed Building	514890	231648	1175604
F	Walnut Tree Farmhouse	Grade II Listed Building	514846	231428	1103161
	South-East Barn at Walnut Tree Farm	Grade II Listed Building	514862	231403	1103162
	Farm Buildings fronting Road at Walnut Tree Farm	Grade II Listed Building	514811	231439	1175626
	23-25, Walnut Tree Road	Grade II Listed Building	514791	231424	1308247
-	4 Hambridge Way (Holly Cottage)	Locally Listed Building	514940	231670	-
	6 Hambridge Way (Holly Cottage)	Locally Listed Building	514940	231670	-

Previous Investigations

Ref.	Name	Year	Easting	Northing	HER Ref.
P1	Evaluation of land at Holwell Turn, Holwell Road	2011	515144	232062	EHT6846
	Evaluation of land at Holwell Road	2015	515150	231918	EHT8016
	Archaeological 'strip and map' excavation at Holwell Road.	2016-17	515150	232039	EHT8352
P2	Geophysical survey of land off Holwell Road	2017	515258	231952	EHT8416
	Evaluation at Land off Holwell Road	N/A	515255	231923	EHT8495
P3	Evaluation of land at 40 Royal Oak Lane	2016	515090	231956	EHT8041
P4	Monitoring at Land Adjacent to Elm Tree Farm, Hambridge Way	2020	515132	231875	EHT8869
P5	Evaluation at Elm Tree Farm, Hambridge Way	2004	515000	231700	EHT5425
	Watching Brief at Elm Tree Farm	2006	514990	231730	EHT5581
	Geophysical survey on land adjacent to Elm Tree Farm	2015	515134	231845	EHT7979
P6	Evaluation at Land Rear of 17 Walnut Tree Road	2018	514948	231584	EHT8630
	Excavation at Land Rear of 17 Walnut Tree Road	2020	514950	231565	EHT8902
	Excavation at Land Rear of 17 Walnut Tree Road	2021	514945	231625	EHT8932
	Monitoring at Land Rear of 17 Walnut Tree Road	2022	514895	231550	EHT9105
P7	Watching brief at Walnut Tree Farm	1996	514800	231400	EHT4209
	Observations at Barn 2, Walnut Tree Farm	1997	514800	231400	EHT4805
P8	Excavation on land at Little Lane	2001-2	514735	231935	EHT5319
P9	Evaluation of land to the rear of The Fox Public House	1993	514732	231843	EHT4188
	Excavation on land to the rear of The Fox Public House	1995	514725	231841	EHT4203
P10	Geophysical survey of land at Shillington Road	2016	514217	231817	EHT8202
	Evaluation at Land at Shillington Road	2017	514250	231840	EHT8400
P11	Magnetometer survey of land at Priors Hill	2015	514330	231730	EHT7865

Ref.	Name	Year	Easting	Northing	HER Ref.
	Evaluation of land at Pollards Way/Priors Hill	2015	514330	231730	EHT8220
P12	Evaluation of land adjacent to Pollards Way	2012	514441	231767	EHT7310
	Monitoring on land adjacent to Pollards Way	2014-15	514426	231767	EHT7824
P13	Watching brief at Pirton Primary School, High Street	2010	514525	231825	EHT6790
P14	Excavation at land adjacent to The Coach House, Shillington Road	2017	514435	231900	EHT8893
P15	Geophysical Survey	2024	515101	231620	-
-	Test pits at St Mary's Church	2003-4	514705	231670	EHT1296
-	Watching brief at Rectory Farm	1996	514170	231900	EHT4567
-	Monitoring at 77 High Street	1998	514840	231780	EHT4816
-	Evaluation of land to the rear of The Fox Public House	1993	514732	231843	EHT4188
-	Excavation on land to the rear of The Fox Public House	1995	514725	231841	EHT4203
-	Evaluation at The Dial, West Lane	2013	514502	232072	EHT7428
-	Watching brief at The Dial, West Lane,	2015	514511	232077	EHT7653
-	Evaluation at land adjacent to The Coach House, Shillington Road	2016	514443	231884	EHT8203
-	Monitoring at 6 Bury End	2017	514599	231486	EHT8353
-	Archaeological evaluation at Pirton School, High Street	2017	514575	231808	EHT8371
-	Excavation at Pirton School, High Street, Pirton	N/A	514569	231801	EHT8629
-	Strip and map at 14 High Street, Pirton	N/A	514510	231870	EHT8641
-	Archaeological test pits at 11 Royal Oak Lane	2018	514887	231841	EHT8657
-	Evaluation at Land at Wrights Farm	2019	514300	232155	EHT8668
-	Test pits and strip, map and record at 7 Royal Oak Lane	2020	514855	231828	EHT8874
-	Strip and map and monitoring at 11 Royal Oak Lane	2021	514880	231850	EHT8884

Ref.	Name	Year	Easting	Northing	HER Ref.
-	Strip, map and record at The Methodist Church Hall, High Street	2021	514540	231837	EHT8914
-	Evaluation and test pit at 12 Davis Crescent	2021	514730	231976	EHT8941
-	Monitoring at 12 Davis Crescent	2021	514728	231975	EHT8952
-	Monitoring at 33a High Street	2019	514640	231865	EHT9016
-	Strip and map and monitoring at Springfields Bury End	2022	514600	231550	EHT9088
-	Strip map and record at Ashburn Burge End Lane Pirton	2022	514380	232252	EHT9109
-	Monitoring at Pirton School High Street	2022	514540	231790	EHT9206
-	Monitoring at 1 West Lane Pirton, 2024	2024	514940	232060	EHT9310
-	Air Photo of Cropmarks of a Sub-Rectangular Enclosure	N/A	515400	231400	EHT1658
-	Air Photo of Cropmarks of an Enclosure and Linear Ditches	N/A	516100	231400	EHT1879
-	Air Photo of Cropmarks of an Enclosure and Linear Ditches	N/A	516100	231400	EHT1938
-	Air Photo of Cropmarks of an Enclosure and Linear Ditches	N/A	514400	231200	EHT2603

Test Pits included in the CORS project

Ref.	Name	Year	Easting	Northing	HER Ref.
-	Test Pit in Pirton Village	2007	232085	514471	EHT1206
			231941	515013	
			231536	514604	
			231655	514876	
			232085	514471	
			231996	514551	
			231536	514604	

Ref.	Name	Year	Easting	Northing	HER Ref.
			231996	514551	
		2008	231819	514890	EHT8473
			232260	514464	
			231555	514508	
			231555	514508	
			231582	514576	
			231557	514974	
			231550	514961	
			231819	514890	
			231919	514739	
			231480	514528	
			231571	514959	
			231948	514318	
			231613	514249	
			231771	514819	
			232293	514365	
			231542	514629	
			231956	514929	
			231742	514750	
			231926	514809	
			231672	514998	
			232240	514461	

Ref.	Name	Year	Easting	Northing	HER Ref.
			231597	514963	
			231948	514318	
			231905	514117	
			231419	514464	
			232104	514465	
		2009	232303	514320	EHT8474
			232322	514335	
			231596	514917	
			232310	514298	
			231970	514909	
			231604	514965	
			231445	514967	
			232390	514480	
			231625	514932	
			231842	514111	
			231640	514912	
			231853	514869	
			231625	514943	
			231468	514905	
			232367	514472	
			231960	514382	
			231758	514572	

Ref.	Name	Year	Easting	Northing	HER Ref.
			231563	514998	
			231587	514279	
			231475	514932	
			231670	514911	
			231754	514857	
			231828	514130	
			232294	514340	
			231962	514655	
			231666	514659	
			231203	514319	
			232327	514312	
			231320	514337	
			231602	514929	
		2010	232234	514279	EHT8475
			232051	514714	
			231422	514633	
			231979	514301	
			232000	514762	
			232197	514239	
			231980	514310	
			232044	514708	
			232127	514233	

Ref.	Name	Year	Easting	Northing	HER Ref.
			231924	514216	
			232121	514287	
			231967	514599	
			231955	514132	
			231646	514396	
			232315	514396	
			231978	514285	
			231947	514275	
			232203	514229	
			232249	514243	
			231906	514196	
			231966	514280	
			232054	514481	
			231869	514551	
			231854	514989	
			231988	514106	
		2011	232095	514487	EHT8476
			231920	514618	
			231535	514899	
			232204	514539	
			232193	514411	
			231536	514917	

Ref.	Name	Year	Easting	Northing	HER Ref.
			231990	514856	
			232130	514478	
			232071	514538	
			231941	514650	
			232060	514464	
			232183	514353	
			231597	514436	
			231605	514588	
			231809	514755	

Archaeological Remains

Ref.	Description	Period	Easting	Northing	HER Ref.
1	Pit	Neolithic	514162	231842	MHT31580
2	Ring Ditches	Bronze Age	514317	231717	MHT31109
3	Cropmark Of Ring Ditches	Bronze Age	514445	231190	MHT6369
4	Pits And Post Holes	Bronze Age to Iron Age	514440	231784	MHT31515
5	Possible Round House	Bronze Age to Iron Age	515171	232072	MHT31348
	Groups Of Intercutting and Cremation Pits	Bronze Age to Iron Age	515139	232059	MHT31349
6	Ditch	Iron Age	515159	232060	MHT18218
7	Building	Roman	514700	231500	MHT1478
8	Pit	Roman	514519	231836	MHT17170
9	Pit	Roman	514440	231763	MHT18649
10a	Cobbled Surface and Pottery sherds	Roman	514947	231500	N/A

Ref.	Description	Period	Easting	Northing	HER Ref.
10b	Pottery	Roman	514321	232316	N/A
11	Pottery	Saxon / Medieval	514998	231672	N/A
12	Ditch And Pit	Saxon / Medieval	MHT31642	MHT31642	MHT31642
13	Rubbish Pit, Ditches and Gullies	Saxon / Medieval	514800	231400	MHT9680
14	Ditches	Saxon / Medieval	514960	231763	MHT12824
15	Settlement	Saxon / Medieval	514317	231729	MHT31108
16	Pits And Ditches	Saxon / Medieval	514574	231809	MHT31388
17	A Series of Ditches and Pits	Saxon / Medieval	514315	231905	MHT31579
18	Buildings	Saxon / Medieval	514730	231850	MHT9676
	Cemetery and possible Church	Saxon / Medieval	514730	231850	MHT9677
19	Pit, Ditch and Post Hole	Saxon / Medieval	514435	231900	MHT31645
20	Pit, Ditch and possible Building	Saxon / Medieval	514735	231935	MHT11409
21	Toot Hill Motte and Bailey Castle and Shrunken Medieval Village	Medieval	514744	231561	MHT32
	Manorial Site	Medieval	514730	231606	MHT1487
22	Ditch and Pit	Medieval	514769	232035	MHT10549
23	Pit	Medieval	514508	232078	MHT31320
24	Probable Moated Site at Wrights Farm	Medieval	514290	232125	MHT31510
25	Moated Site and Associated Enclosure at Rectory Farm	Medieval	514171	231981	MHT2221
26	Earthworks and Artefacts	Medieval	514250	232190	MHT31514
	Building	Post-medieval	514840	231780	MHT10894
27	Field Boundary	Post-medieval	515088	231931	MHT31509
-	Earthworks / Cropmarks of Ridge & Furrow	Medieval / Post-medieval	514045	231333	MHT15956

Ref.	Description	Period	Easting	Northing	HER Ref.
	Earthworks / Cropmarks of Ridge & Furrow	Medieval / Post-medieval	515150	231900	MHT31090
	Earthworks / Cropmarks of Ridge & Furrow	Medieval / Post-medieval	515262	232000	MHT31519
	Earthworks / Cropmarks of Ridge & Furrow	Medieval / Post-medieval	514656	230994	MHT7939
	Earthworks / Cropmarks of Ridge & Furrow	Medieval / Post-medieval	514210	232100	MHT9059
29	Building	Modern	515008	231624	N/A
30	Soilmarks of Mounds, Boundaries and Field System	Multiperiod	516010	232220	MHT17262
31	Cropmarks of a Sub-Rectangular Enclosure	Undated	515374	231371	MHT2334
32	Cropmarks of a Curvilinear Enclosure and Linear Ditches	Undated	516100	231400	MHT2464
33	Cropmark of a Rectangular Enclosure	Undated	514513	231172	MHT6349
34	Cropmark of a Linear Ditch	Undated	515488	230758	MHT31564
-	Pirton Village	Various	5147341	231808	MHT16620
Findspot	Scatter of Flint, East of Hitchin Road	Mesolithic / Neolithic	515290	230690	MHT10041
Findspot	Stone Celt	Neolithic	515000	231000	MHT1714
Findspot	Probable 'Hilly Fields'	Bronze Age	514235	231810	MHT553
Finds	Pottery	Bronze Age	514948	231584	N/A
Findspot	Pot Base	Iron Age (Uncertain)	514402	231715	MHT195
Findspot	Coin	Iron Age	515300	231800	MHT39138
Finds	Pottery	Iron Age	514948	231584	N/A
Findspot	A Copper-Alloy Nummus of Theodora (AD 337 - 341)	Roman	514500	230700	MHT20785
Findspot	A Copper-Alloy Nummus of Constantius II (AD 323 - 361)	Roman	514500	230700	MHT20786
Findspot	A Copper-Alloy Nummus Of The House Of Valentinian	Roman	514500	230700	MHT20787
Findspot	A Copper-Alloy Nummus of Constans (AD 333 - 350)	Roman	514500	230700	MHT20788

Ref.	Description	Period	Easting	Northing	HER Ref.
Findspot	A Copper-Alloy Radiate of Claudius II	Roman	514500	230700	MHT20789
Findspot	A Copper-Alloy Radiate of Gallienus, Probably Sole Reign, AD 260-26	Roman	514500	230700	MHT20790
Findspot	A Copper-Alloy Nummus of Constantine I (AD 306 - 337)	Roman	514500	230700	MHT20791
Findspot	Roman Copper Alloy Weight in the form of a Male Head	Roman	514210	232290	MHT21261
Findspot	Coin of Probus	Roman	514800	231400	MHT1474
Findspot	Pottery	Roman	514598	231768	MHT1475
Findspot	Pottery	Roman	514700	231700	MHT1477
Findspot	Spindle Whorl	Roman	514400	231700	MHT1480
Findspot	Late 8th Century Coin of King Offa (c.AD 792 – AD 796)	Saxon	514308	231504	MHT9470
Findspot	Seal Die	Medieval	514300	231500	MHT9471
Findspot	A Copper-Alloy Heavy-Duty Thimble	Medieval	514500	230700	MHT20778
Findspot	A Silver Farthing of Edward III (1327-1377)	Medieval	514500	230700	MHT20782
Findspot	A Clipped Silver Long-Cross Penny of Henry VI	Medieval	514500	230700	MHT20783
Findspot	A Silver Voided Short-Cross Penny, Probably of Richard I Or John	Medieval	514500	230700	MHT20784
Findspot	A Cast Lead Token Dating to The Period 1300-1750	Medieval	514210	232240	MHT21262
Findspot	Frame of a 13th-14th Century Copper Alloy Buckle	Medieval	514180	232260	MHT21263
Findspot	A Copper-Alloy Strap Loop of Medieval Date, C.1250-1400	Medieval	514180	232260	MHT21264
Findspot	A Heavily Worn, Corroded and Bent Silver Long-Cross Penny of Edward I	Medieval	514300	231400	MHT27469
Findspot	Copper-Alloy Buckle, 1300-1500	Medieval	514220	231970	MHT25797
Findspot	12th-13th Century Pottery	Medieval	514410	232193	MHT31569
Findspot	Pottery	Medieval	514464	232103	MHT13757

Ref.	Description	Period	Easting	Northing	HER Ref.
Findspot	A Copper-Alloy Double-Oval Buckle	Post-medieval	514500	230700	MHT20779
Findspot	A Copper-Alloy Double-Oval Buckle	Post-medieval	514500	230700	MHT20780
Findspot	1689 Maundy Fourpenny Piece	Post-medieval	514200	231800	MHT21635
Findspot	1700 Halfpenny of William III	Post-medieval	514200	231800	MHT21636
Findspot	Silvered Copper-Alloy Coin, Probably a Forgery of an Elizabeth I Sixpence, 1561-75	Post-medieval	514200	231800	MHT21637
Findspot	A Cast Lead Token	Post-medieval	514300	231400	MHT27334
Findspot	A Copper-Alloy Double-Loop Asymmetrical Buckle	Post-medieval	514300	231400	MHT27335
Findspot	Pottery	Post-medieval	514460	232250	MHT31571
Findspot	Pottery	Multiperiod	514320	232320	MHT31572
Findspot	Pottery	Multiperiod	514302	231971	MHT31512

APPENDIX 3: HISTORIC ORDNANCE SURVEY MAPPING

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Quarry		Shingle		Orchard
	Osiers		Reeds		Marsh
	Mixed Wood		Deciduous		Brushwood
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	•285 Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		Administrative County, County Borough or County of City
	Municipal Borough, Urban or Rural District, Burgh or District Council		Borough, Burgh or County Constituency
	Civil Parish		
	BP, BS Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Foot Bridge		Signal Box
	Fountain		Spring
	Guide Post		Telephone Call Box
	Mile Post		Telephone Call Post
	Mile Stone		Well

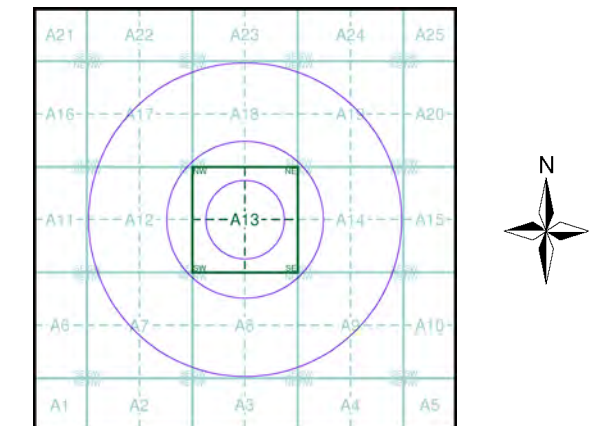
1:10,000 Raster Mapping

	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, parish or community boundary
	District, Unitary, Metropolitan, London Borough boundary		Constituency boundary
	Area of wooded vegetation		Non-coniferous trees
	Non-coniferous trees (scattered)		Coniferous trees
	Coniferous trees (scattered)		Positioned tree
	Orchard		Coppice or Osiers
	Rough Grassland		Heath
	Scrub		Marsh, Salt Marsh or Reeds
	Water feature		Flow arrows
	Mean high water (springs)		Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Hertfordshire	1:10,560	1884	2
Bedfordshire	1:10,560	1887	3
Hertfordshire	1:10,560	1899	4
Bedfordshire	1:10,560	1901	5
Bedfordshire	1:10,560	1925	6
Bedfordshire	1:10,560	1947	7
Ordnance Survey Plan	1:10,000	1960	8
Ordnance Survey Plan	1:10,000	1969	9
Ordnance Survey Plan	1:10,000	1982 - 1983	10

Historical Map - Slice A

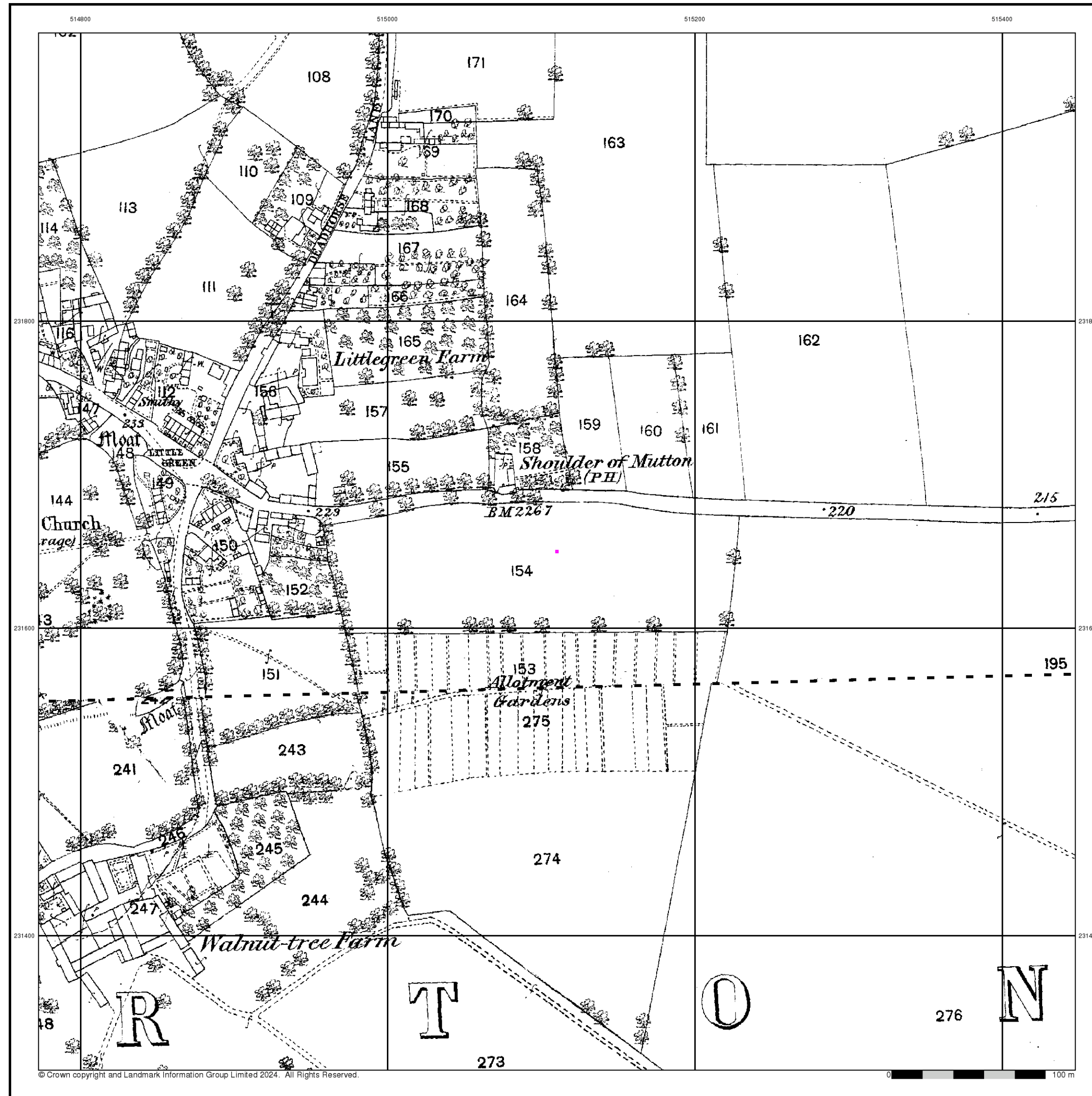


Order Details

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National Grid Reference: 515110, 231650
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

Site at 515110, 231650



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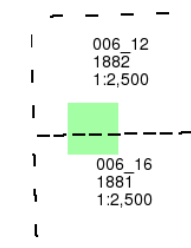
Hertfordshire

Published 1881 - 1882

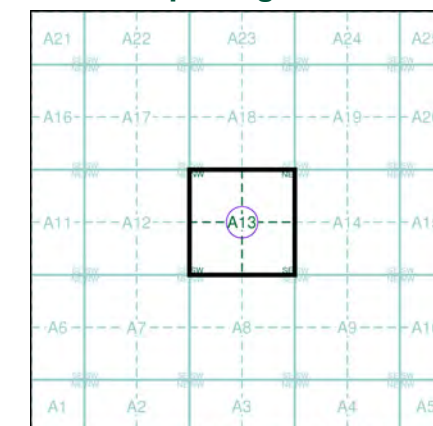
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

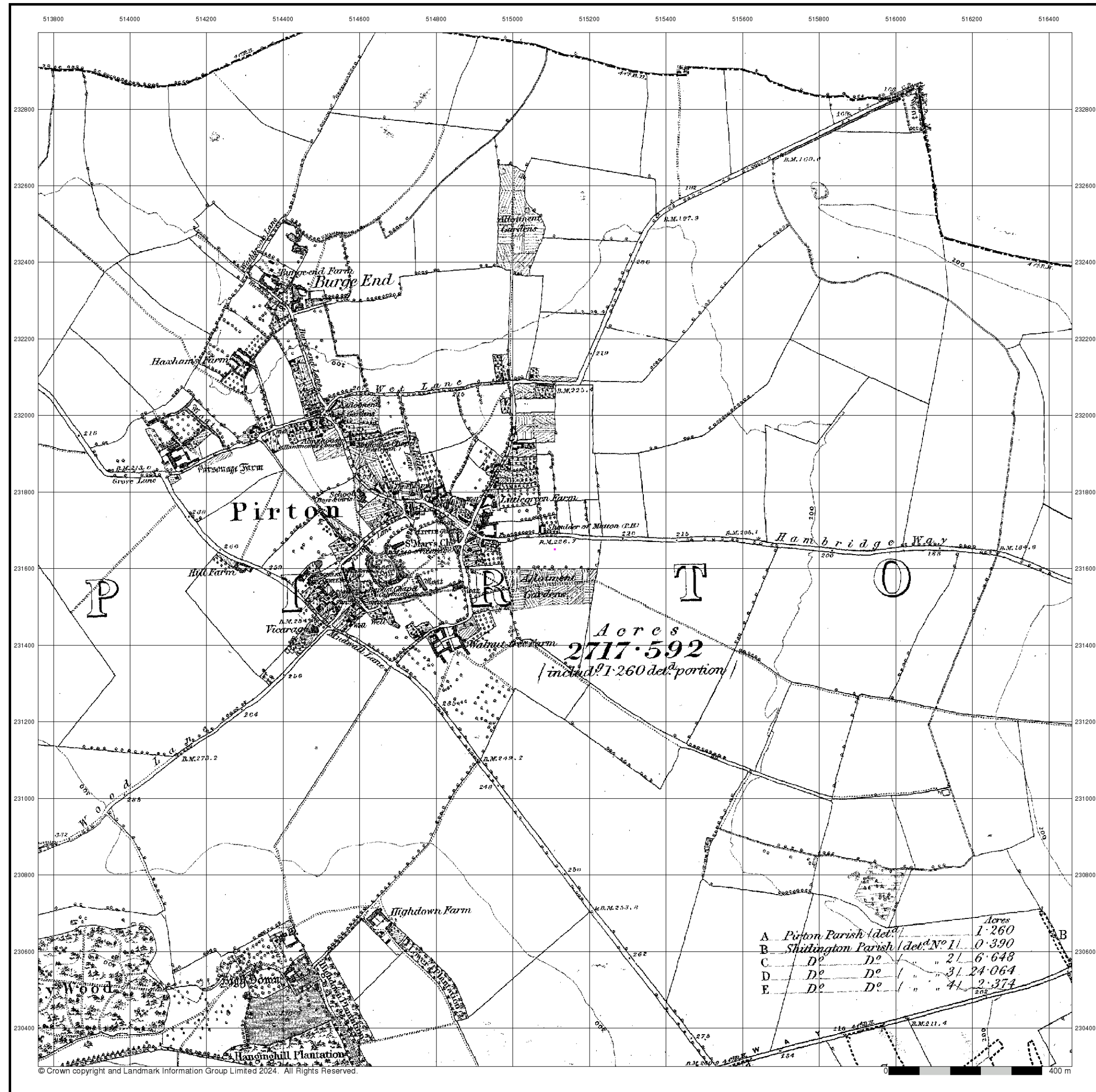
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Site Details

Site at 515110, 231650

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Hertfordshire

Published 1884

Source map scale - 1:10,560

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Map Name(s) and Date(s)

00600
1884
1:10,560

Historical Map - Slice A

Order Details

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Site Details

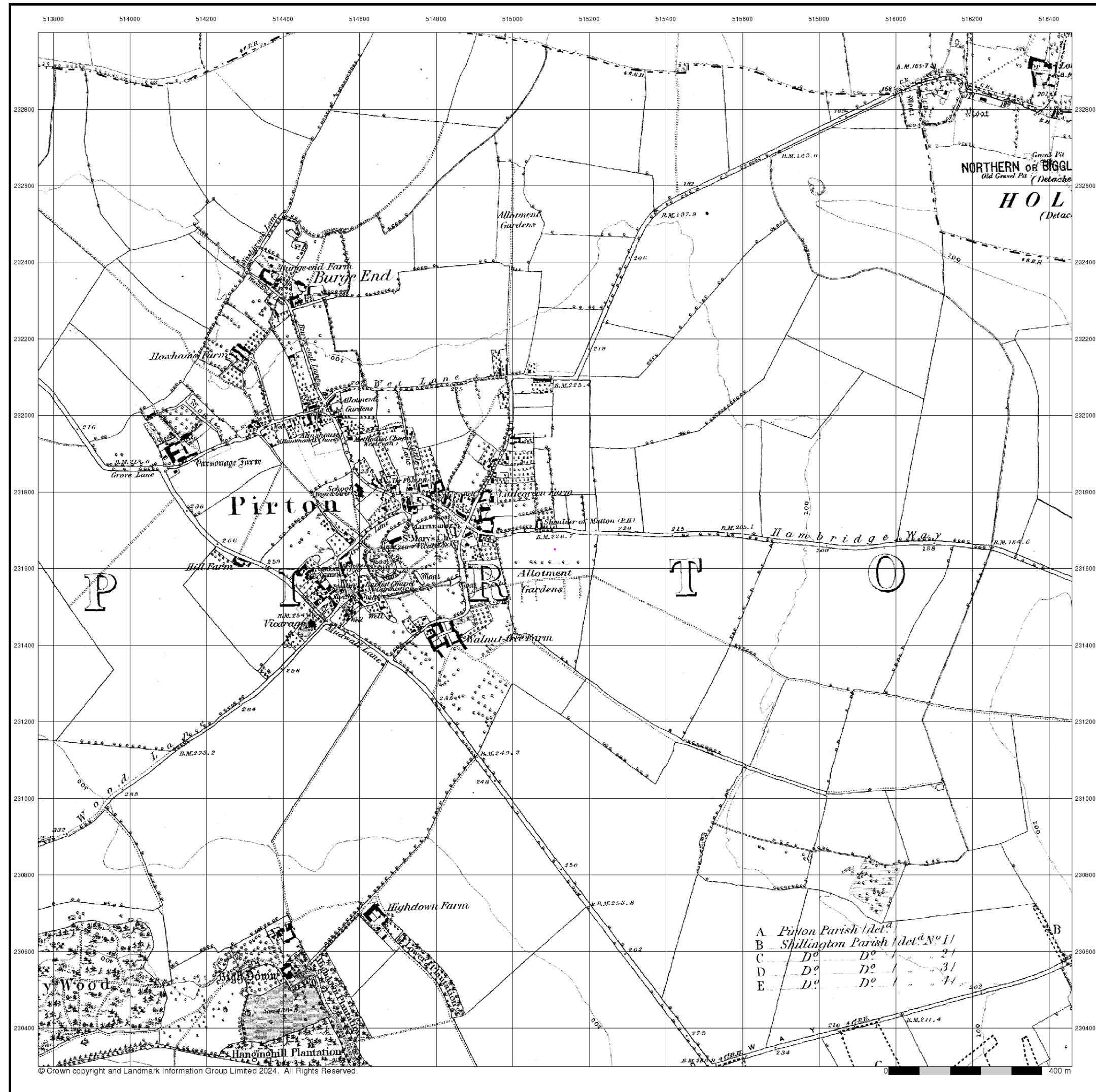
Site at 515110, 231650

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Bedfordshire

Published 1887

Source map scale - 1:10,560

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Map Name(s) and Date(s)

026SE
1887
1:10,560

Historical Map - Slice A

Order Details

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Site Details

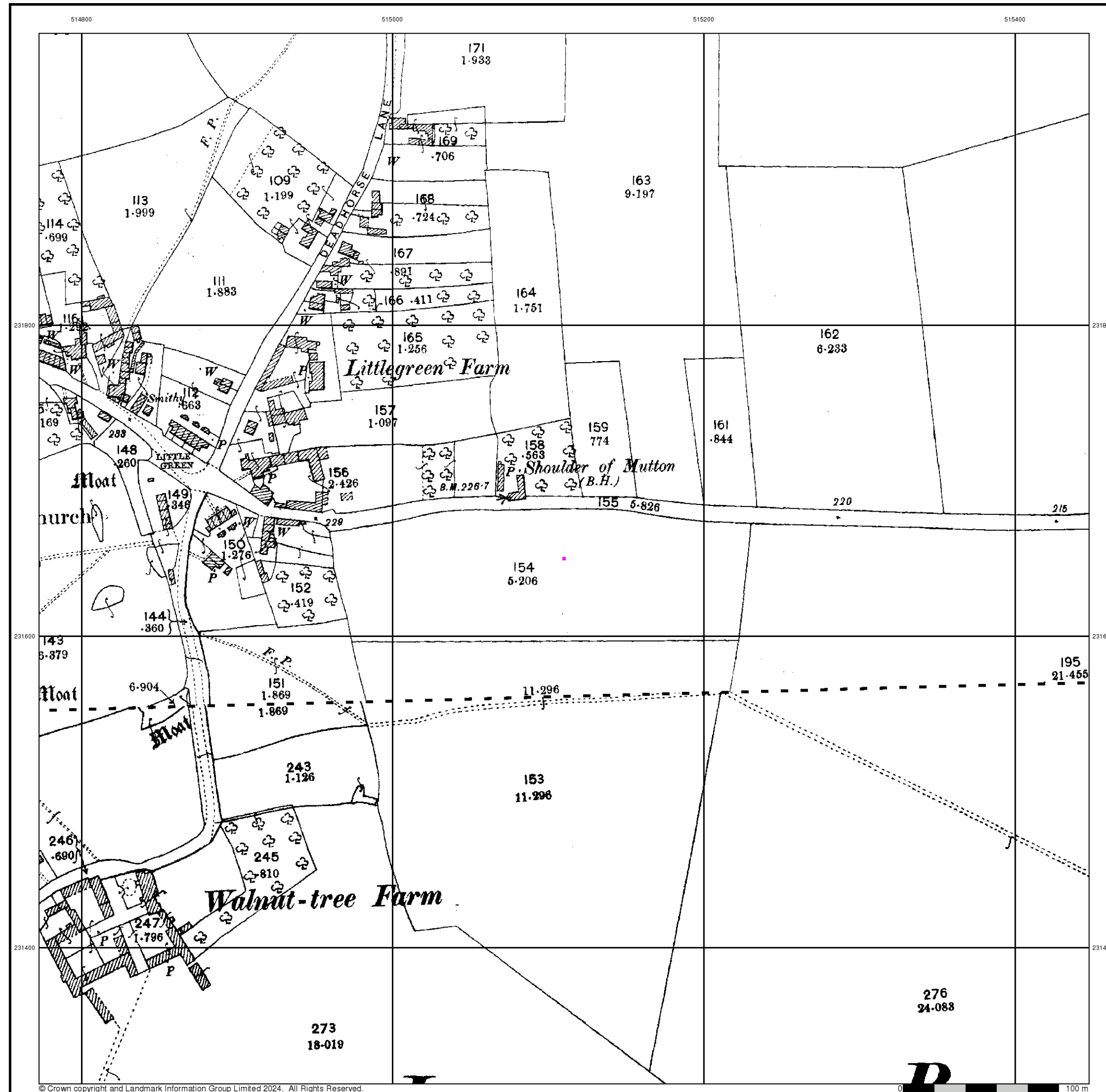
Site at 515110, 231650

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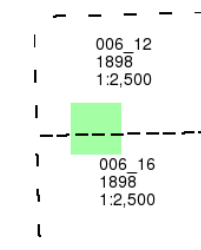
Hertfordshire

Published 1898

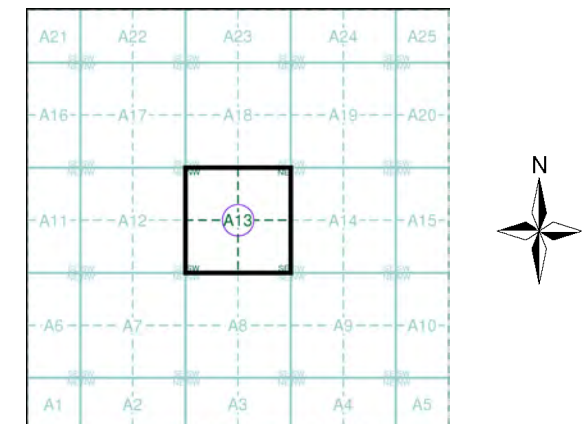
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

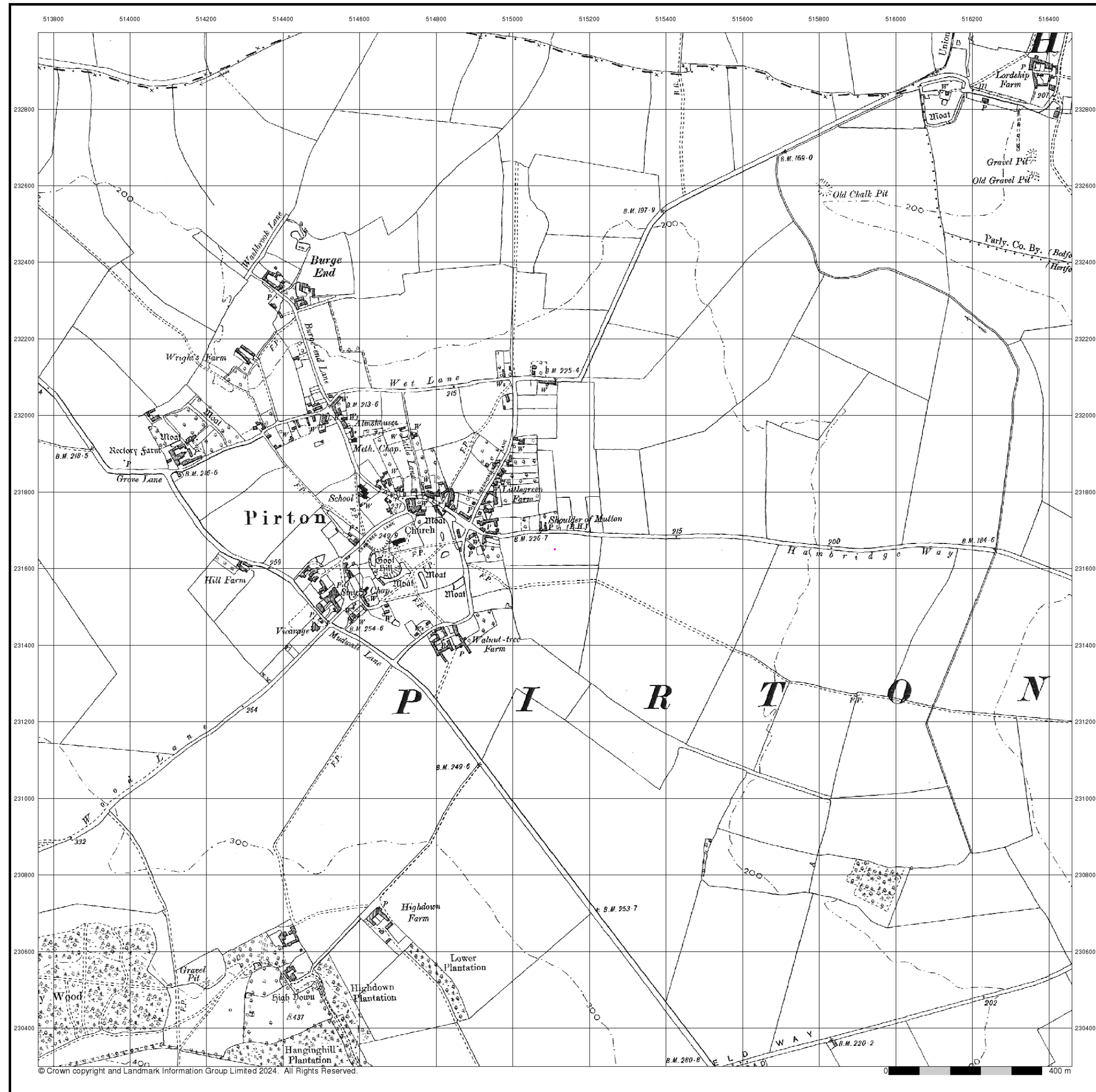
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Site Area (Ha): 0.01
Search Buffer (m): 100

Site Details

Site at 515110, 231650

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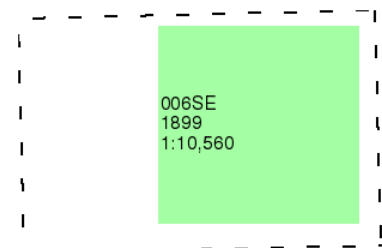
Hertfordshire

Published 1899

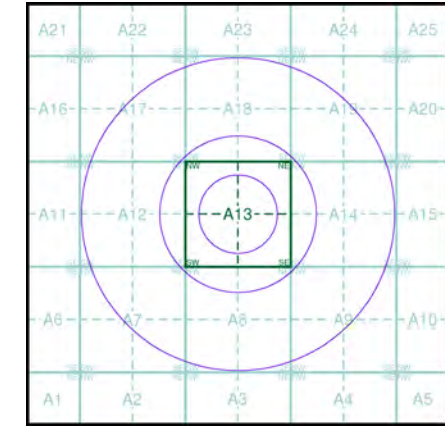
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



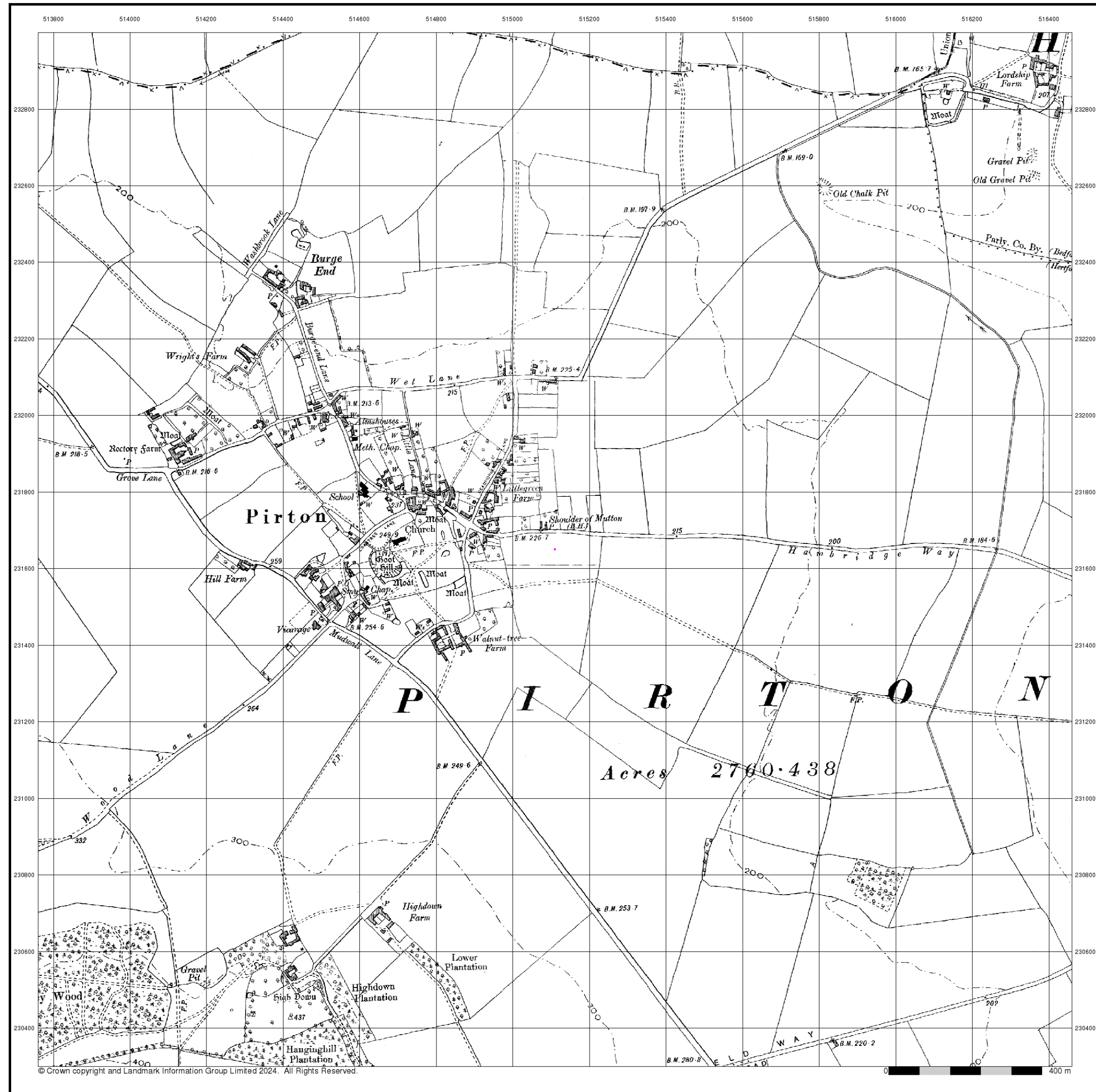
Historical Map - Slice A



Order Details	
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Site at 515110, 231650



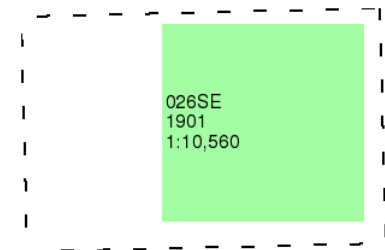
Bedfordshire

Published 1901

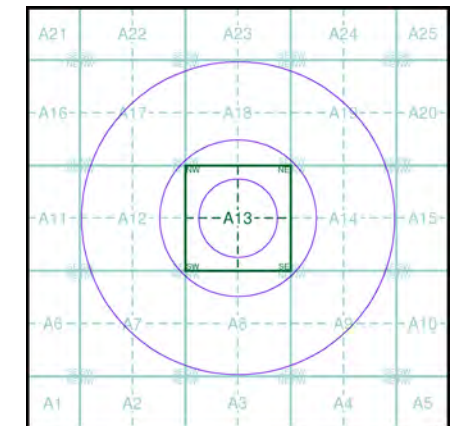
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

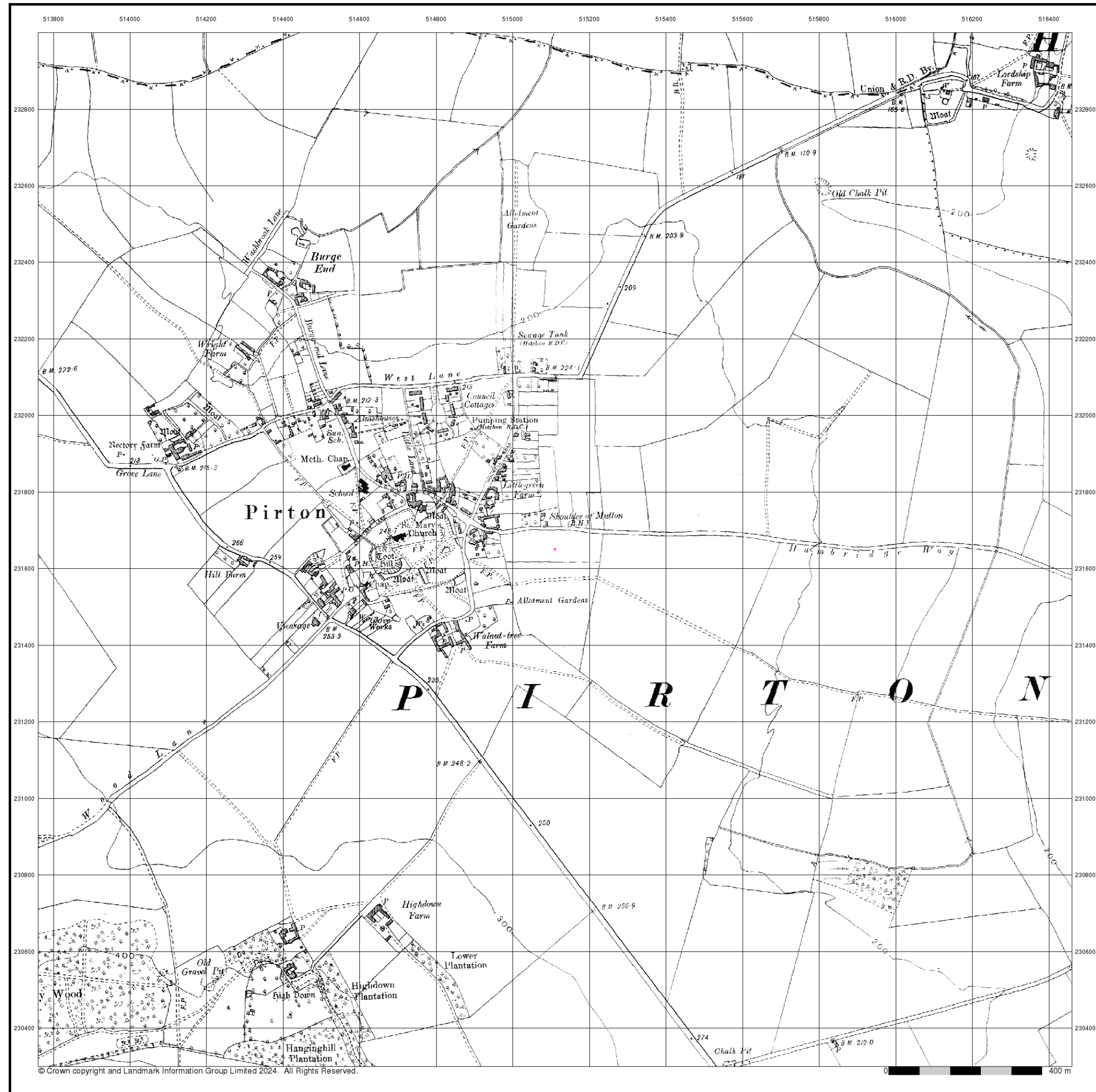


Order Details

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National Grid Reference: 515110, 231650
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

Site at 515110, 231650



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Bedfordshire

Published 1925

Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

026SE
1925
1:10,560

Historical Map - Slice A

Order Details

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Customer Ref:	MK1148 Pirton
National Grid Reference:	515110, 231650
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Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

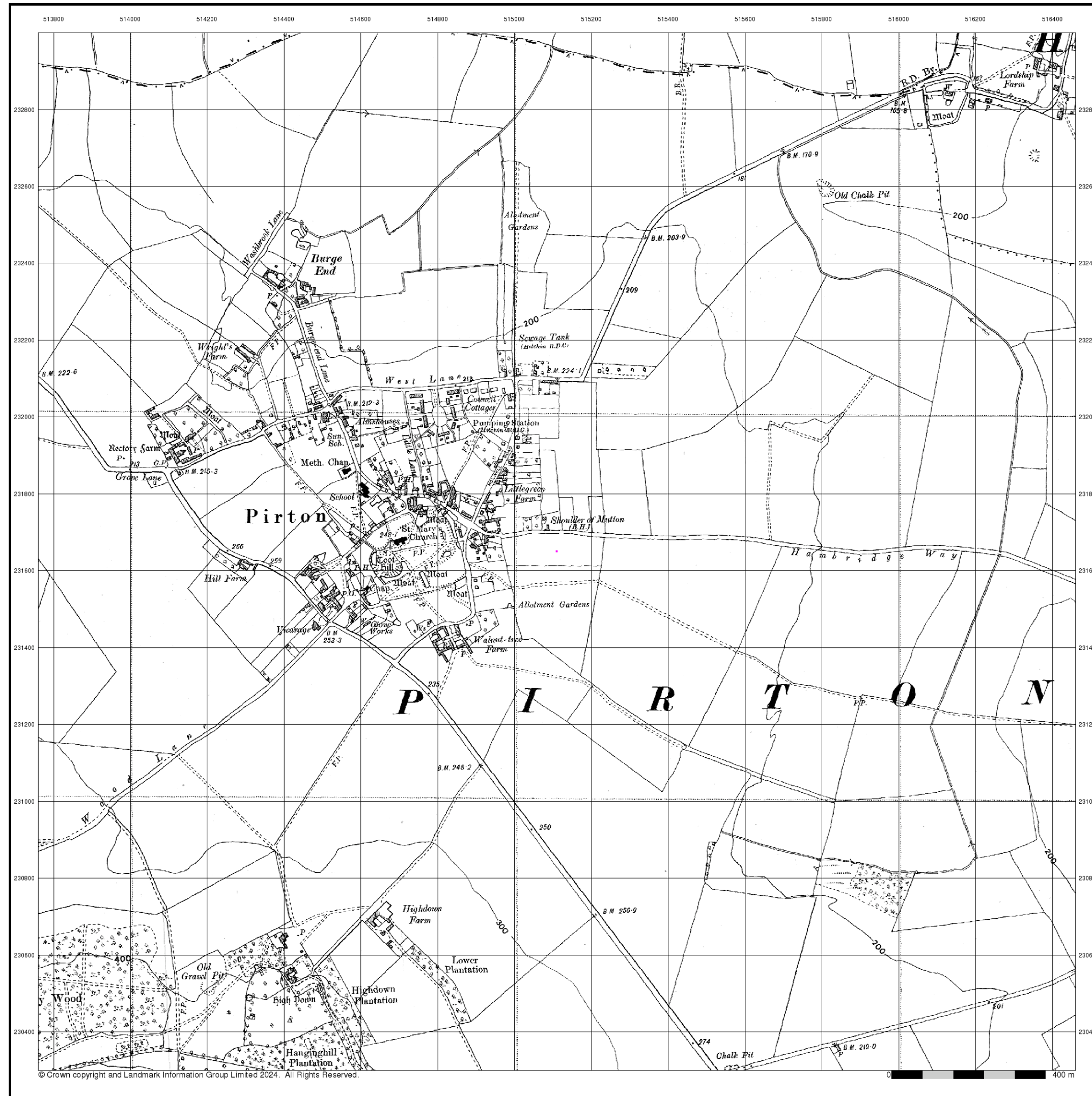
Site at 515110, 231650

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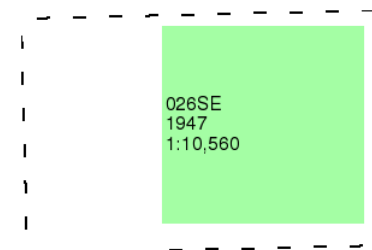
Bedfordshire

Published 1947

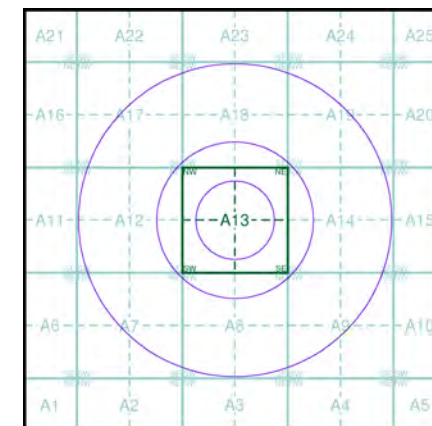
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:356916954_1_1

Customer Ref:MK1148 Pirton

National Grid Reference:515110, 231650

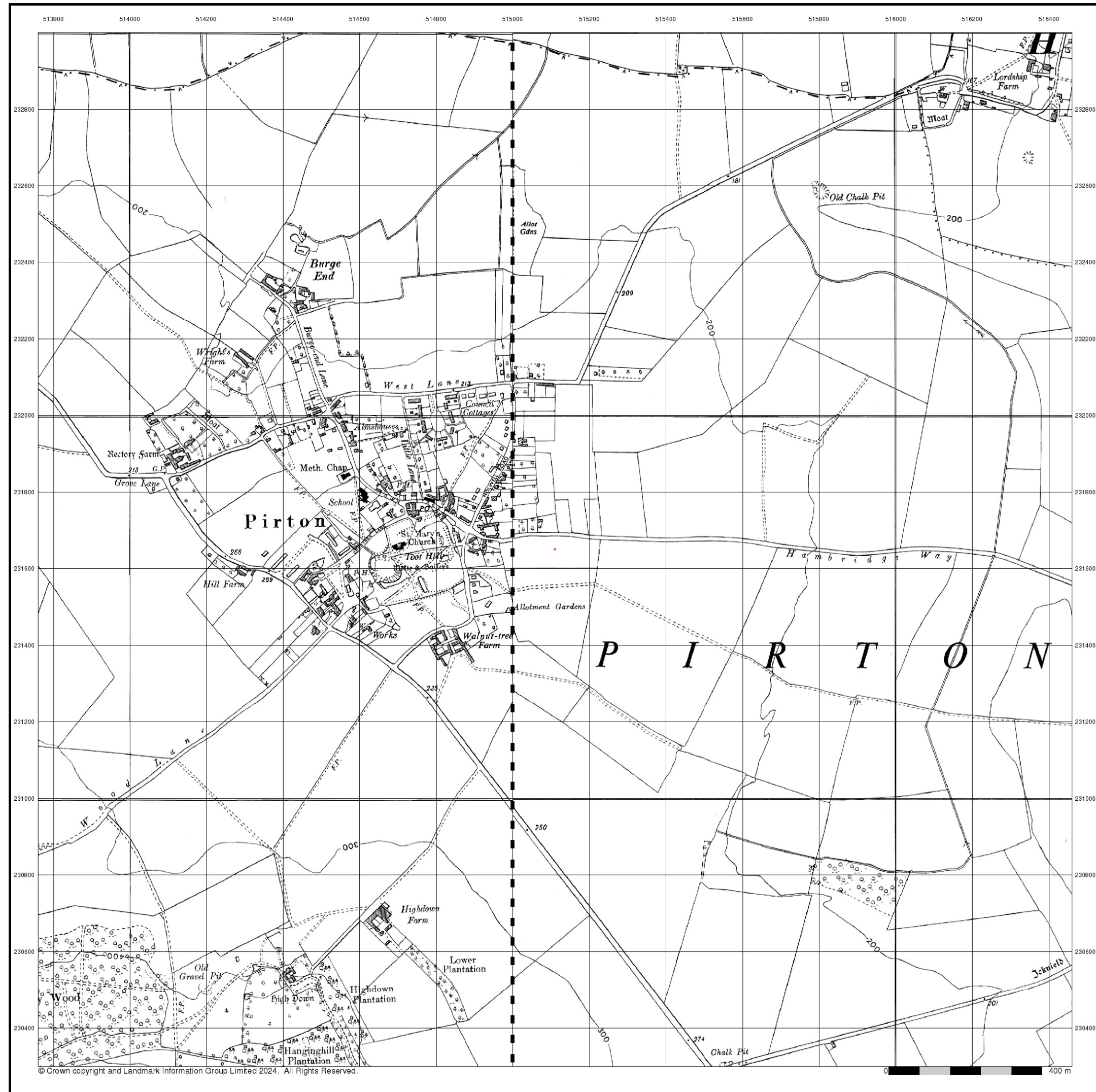
Slice:A

Site Area (Ha):0.01

Search Buffer (m):1000

Site Details

Site at 515110, 231650



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Ordnance Survey Plan

Published 1960

Source map scale - 1:10,000

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Map Name(s) and Date(s)

TL13SW
1960
1:10,560

TL13SE
1960
1:10,560

Historical Map - Slice A

Order Details

Order Number:	356916954_1_1
Customer Ref:	MK1148 Pirton
National Grid Reference:	515110, 231650
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Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

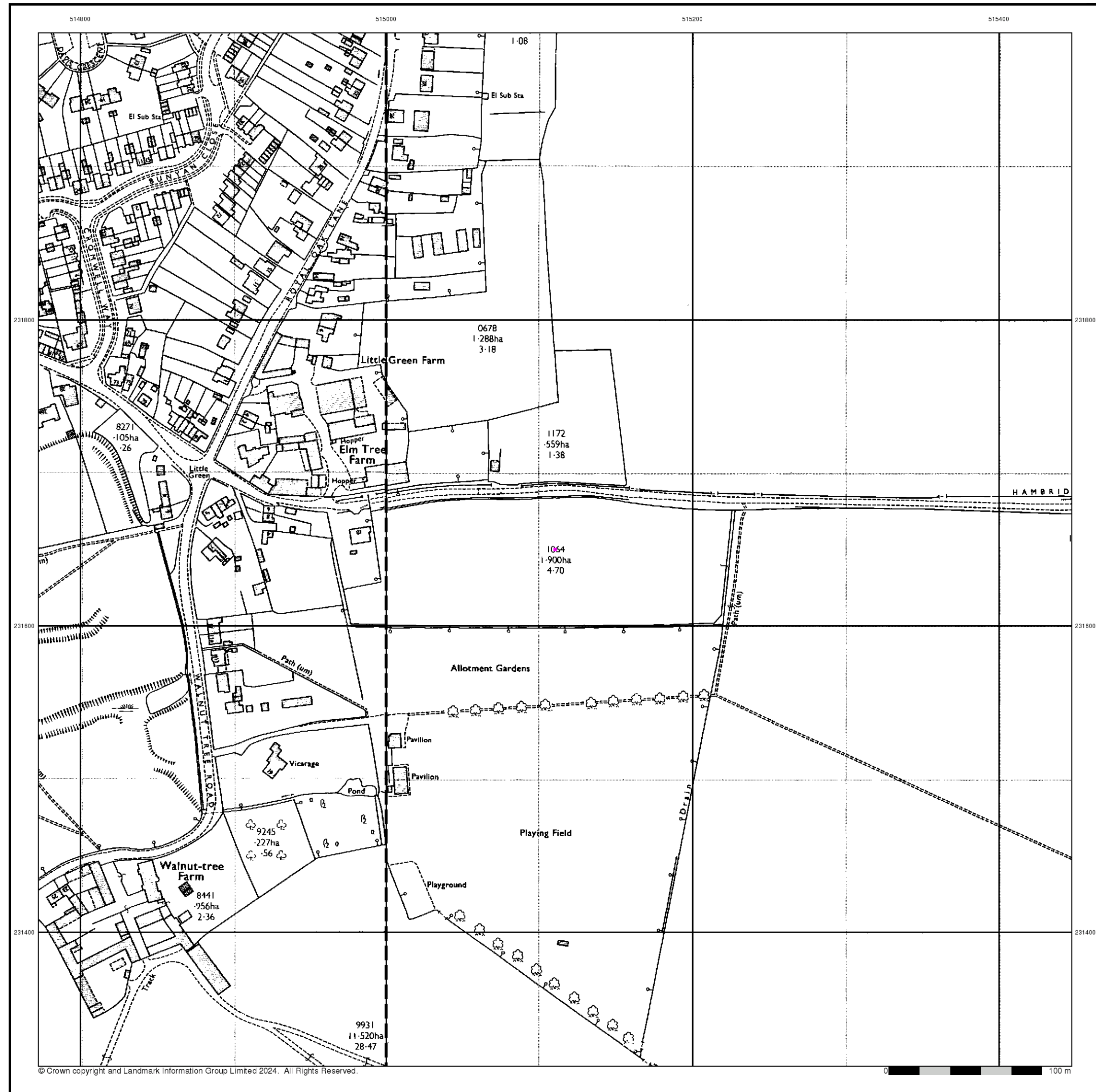
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Ordnance Survey Plan

Published 1980

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

TL1431
1980
1:2,500

TL1531
1980
1:2,500

Historical Map - Segment A13

A21A22A23A24A25

A16A17A18A19A20

A11A12A13A14A15

A6A7A8A9A10

A1A2A3A4A5

N

Order Details

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Customer Ref:	MK1148 Pirton
National Grid Reference:	515110, 231650
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	100

Site Details

Site at 515110, 231650

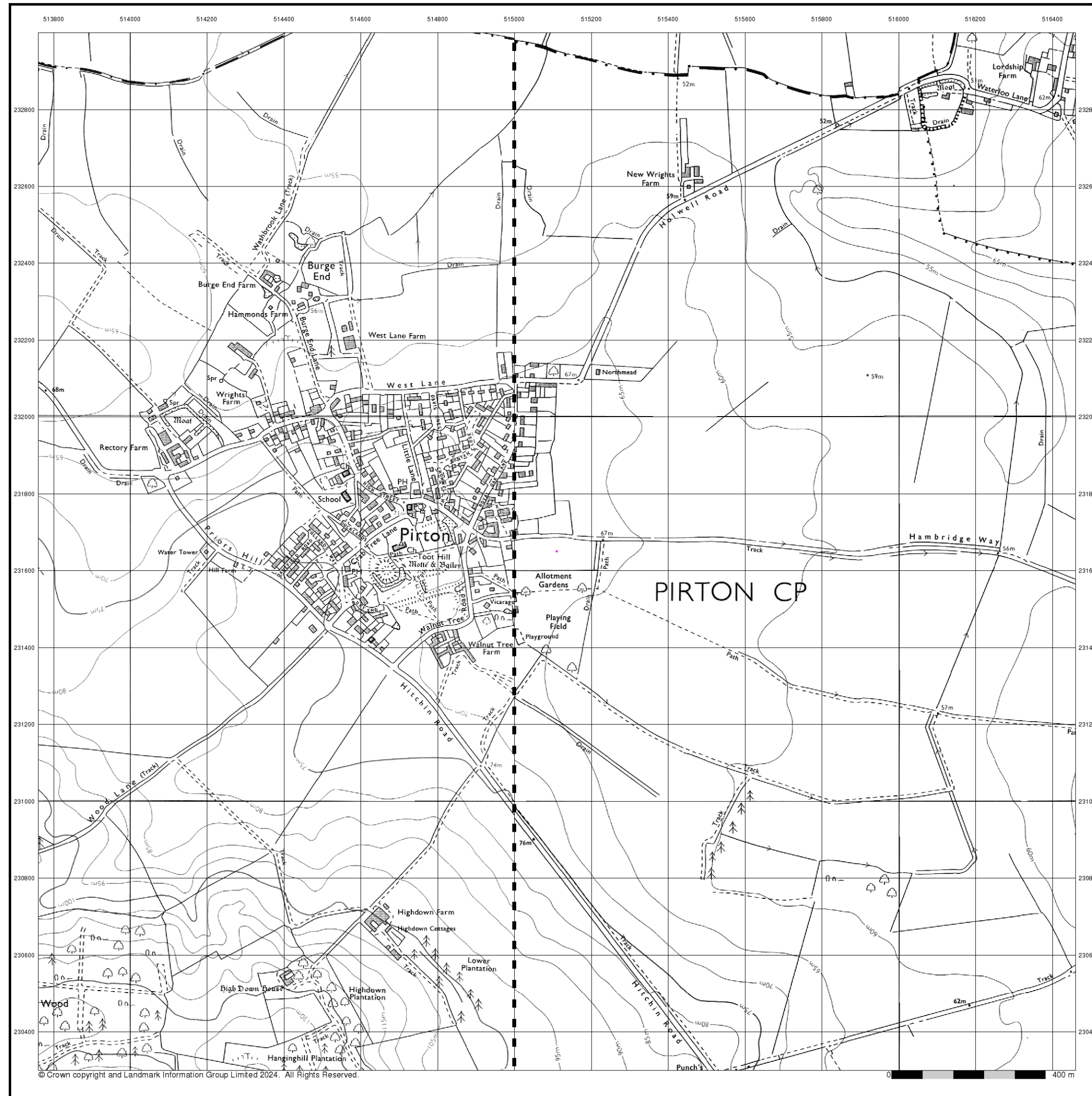
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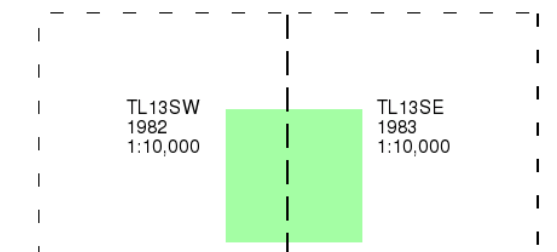
Ordnance Survey Plan

Published 1982 - 1983

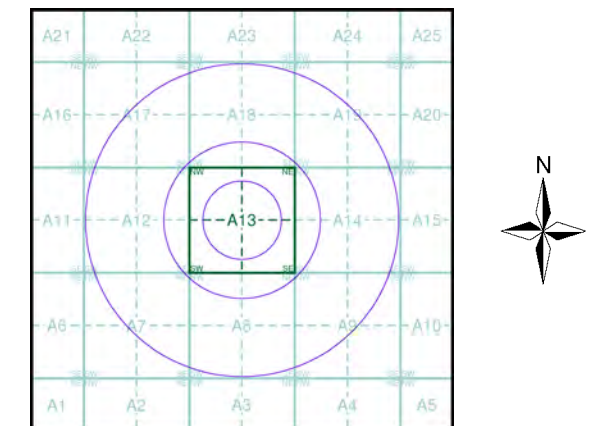
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

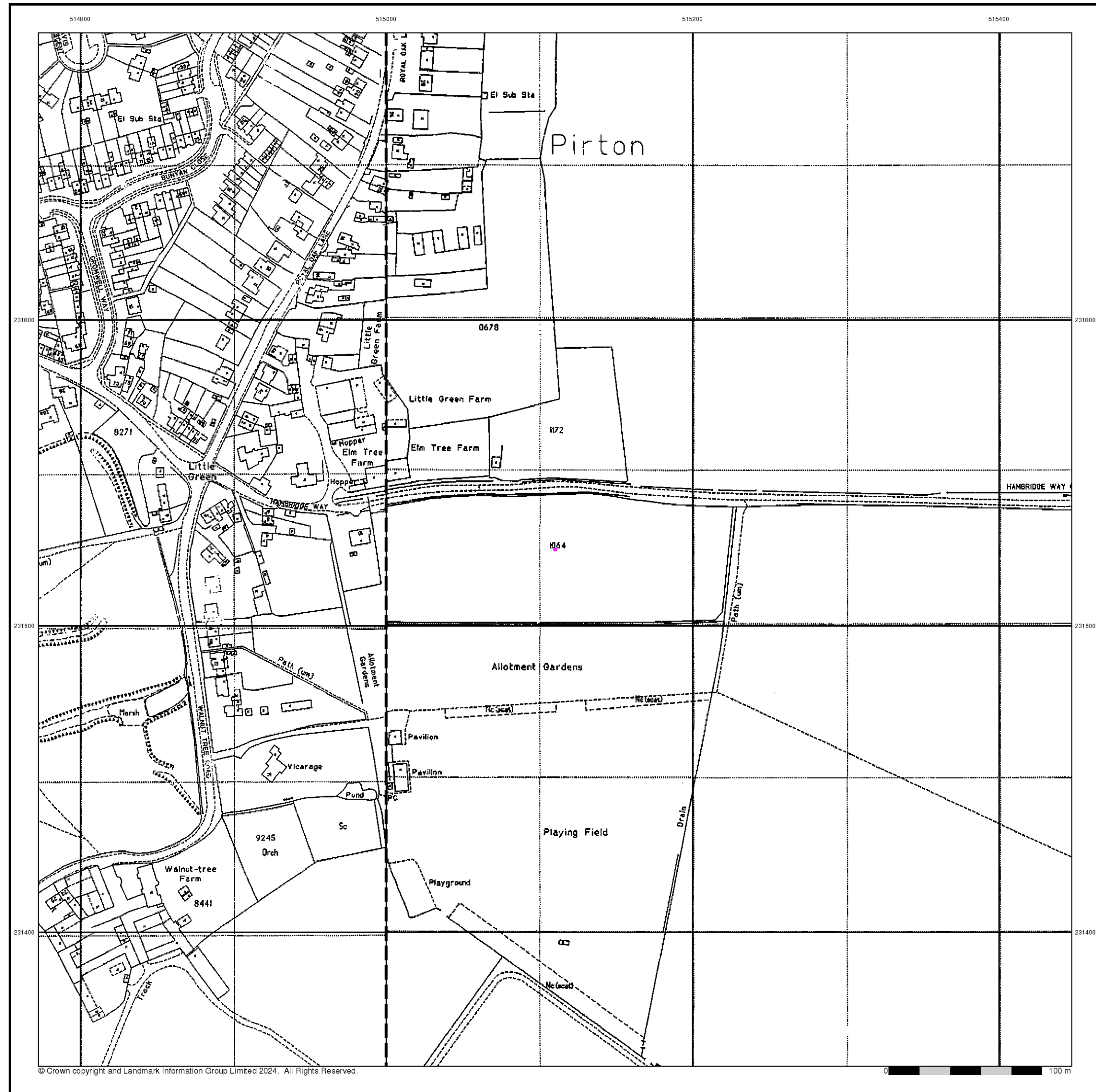


Order Details

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Customer Ref: MK1148 Pirton
National Grid Reference: 515110, 231650
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

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Large-Scale National Grid Data

Published 1993

Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TL1431
1993
1:2,500

TL1531
1993
1:2,500

Historical Map - Segment A13

A21A22A23A24A25

A16A17A18A19A20

A11A12A13A14A15

A6A7A8A9A10

A1A2A3A4A5

N

↑

Order Details

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National Grid Reference:	515110, 231650
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	100

Site Details

Site at 515110, 231650

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APPENDIX 4: AERIAL PHOTOGRAPHS AVAILABLE AT THE HISTORIC ENGLAND ARCHIVE

HISTORIC ENGLAND

Air Photographs



Historic England

Sortie number	Library number	Camera position	Frame number	Held	Centre point	Run	Date	Sortie quality	Scale 1:	Focal length (in inches)	Film details (in inches)	Film held by
RAF/CPE/UK/2139	663	RP	3166	P	TL 159 325	6	03 JUN 1947	AC	9800	20	Black and White 8.25 x 7.5	NMR
RAF/CPE/UK/2139	663	RP	3167	P	TL 151 325	6	03 JUN 1947	AC	9800	20	Black and White 8.25 x 7.5	NMR
RAF/CPE/UK/2139	663	RP	3168	P	TL 143 324	6	03 JUN 1947	AC	9800	20	Black and White 8.25 x 7.5	NMR
RAF/CPE/UK/2159	680	RS	4226	P	TL 148 315	18	13 JUN 1947	A	9800	20	Black and White 8.25 x 7.5	NMR
RAF/CPE/UK/2159	680	RS	4227	P	TL 155 315	18	13 JUN 1947	A	9800	20	Black and White 8.25 x 7.5	NMR
RAF/541/148	931	RS	4232	P	TL 144 308	25	31 AUG 1948	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/541/148	931	RS	4233	P	TL 151 309	25	31 AUG 1948	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/541/148	931	RS	4234	P	TL 158 310	25	31 AUG 1948	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/541/483	1062	RS	4029	P	TL 155 316	15	07 APR 1950	A	10100	20	Black and White 8.25 x 7.5	NMR
RAF/541/483	1062	RS	4030	P	TL 148 316	15	07 APR 1950	A	10100	20	Black and White 8.25 x 7.5	NMR
RAF/58/1340	1510	F22	58	P	TL 152 308	6	14 JAN 1954	AC	10000	20	Black and White 8.25 x 7.5	FNH
RAF/82/1006	1520	F62	191	P	TL 165 307	32	31 AUG 1954	AB	15000	36	Black and White 8.25 x 7.5	NMR
RAF/82/1006	1520	F62	192	P	TL 164 317	32	31 AUG 1954	AB	15000	36	Black and White 8.25 x 7.5	NMR
RAF/82/1006	1520	F62	193	P	TL 163 328	32	31 AUG 1954	AB	15000	36	Black and White 8.25 x 7.5	NMR
RAF/58/1567	1575	F22	1	P	TL 145 313	9	21 SEP 1954	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/4998	2065	F22	39	N	TL 150 318	8	16 MAR 1962	AB	10000	24	Black and White 9 x 9	MOD
RAF/58/5754	2153	F21	49	N	TL 153 324	12	04 JUN 1963	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/4646	2204	F44	161	P	TL 153 320	39	28 AUG 1961	A	12000	24	Black and White 9 x 9	NMR
RAF/58/4646	2204	F44	162	P	TL 144 319	39	28 AUG 1961	A	12000	24	Black and White 9 x 9	NMR
OS/73060	10446	V	325	P	TL 148 312	8	03 APR 1973	A	8000	12	Black and White 9 x 9	NMR
OS/73060	10446	V	326	P	TL 155 312	8	03 APR 1973	A	8000	12	Black and White 9 x 9	NMR
OS/74172	12056	V	81	P	TL 146 312	3	21 JUL 1974	A	10400	6	Black and White 9 x 9	NMR
OS/74172	12056	V	82	P	TL 155 312	3	21 JUL 1974	A	10400	6	Black and White 9 x 9	NMR
OS/99191	15539	V	162	N	TL 149 315	4	25 JUN 1999	A	7200	12	Black and White 9 x 9	NMR
OS/99191	15539	V	163	N	TL 155 315	4	25 JUN 1999	A	7200	12	Black and White 9 x 9	NMR
OS/03952(Y)	24348	V	2461	N	TL 150 320	1	12 JUL 2003	A	6000	12	Colour 9 x 9	NMR
OS/03952(Y)	24348	V	2558	N	TL 150 309	2	12 JUL 2003	A	6000	12	Colour 9 x 9	NMR

APPENDIX 5: FURTHER SETTING PHOTOGRAPHS



Photo. A The Scheduled Motte at Toot Hill (Fig. 11 D).



Photo. B Grade II Listed Elm Tree Farm (Fig. 11, Group E).

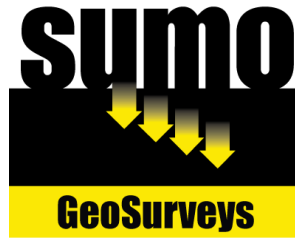


Photo. C Grade II Listed Walnut Tree Farmhouse (Fig. 11, Group F)'.



Photo. D Grade II Listed Farm Buildings fronting Road at Walnut Tree Farm (Fig. 11, Group F)'.

APPENDIX 6: RESULTS OF 2024 GEOPHYSICAL SURVEY (SUMO SURVEYS 2024)



GEOPHYSICAL SURVEY REPORT

Land south of Hambridge Way, Pirton, Hertfordshire

Client

Cotswold Archaeology

For

Blakeney Estates Ltd

Survey Report

20027

OASIS Ref. No.

Sumogeop1-529144

Date

09 December 2024



Survey Report 20027: Land south of Hambridge Way, Pirton, Hertfordshire

Survey dates	29 November 2024
Field co-ordinator	Simon Lobel BSc
Field Team	Stephen Weston BA
Report Date	09 December 2024
CAD Illustrations	Thomas Cockcroft MSc MCIfA
Report Author	Thomas Cockcroft MSc MCIfA
Project Manager	Thomas Cockcroft MSc MCIfA
Report approved	Dr John Gater BSc DSc(Hon) MCIfA FSA

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SUMO GeoSurveys is a trading name of SUMO Geophysics Ltd.

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5	INTRODUCTION	4
6	RESULTS.....	5
7	DATA APPRAISAL & CONFIDENCE ASSESSMENT	5
8	CONCLUSION.....	5
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Figure 02	1:1000	Magnetometer Survey - Greyscale Plots
Figure 03	1:1000	Magnetometer Survey - Colour Plots
Figure 04	1:1000	Magnetometer Survey - Interpretation
Figure 05	NTS	Greyscale Plots / Interpretation / 1830-1840 (bottom left) & 1892-1914 (bottom right) Ordnance Survey Mapping
Figure 06	NTS	Greyscale Plots / Interpretation / 2016 (bottom left) & 2022 (bottom right) Aerial Imagery
Figure 07	1:1000	Minimally Processed Data - Greyscale Plots
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2 LIST OF APPENDICES

Appendix A	Technical Information: Magnetometer Survey Methods, Processing and Presentation
Appendix B	Technical Information: Magnetic Theory
Appendix C	OASIS Data Collection Sheet
Appendix D	Data Management Plan & Archive Selection Strategy

3 SURVEY TECHNIQUE

- 3.1 Detailed magnetic survey (magnetometry) was chosen as the most efficient and effective method of locating the type of archaeological anomalies which might be expected at this site. All survey techniques followed the guidance set out by ClfA (2020) and the European Archaeology Council (EAC) (2016).

Bartington Cart System Traverse Interval 1.0m Sample Interval 0.125m

The only processes performed on data are the following unless specifically stated otherwise:

Zero Mean Traverse	This process sets the background mean of each traverse within each grid to zero. The operation removes instrument striping effects and edge discontinuities over the whole of the data set.
--------------------	---

4 EXECUTIVE SUMMARY OF RESULTS

- 4.1 A magnetometer survey of 2.5 hectares of land south of Hambridge Way, Pirton has not recorded any magnetic responses that could be interpreted as being of definite archaeological interest, except for ridge and furrow cultivation that is visible in both survey areas. A number of uncertain responses have been detected in the data. They have probably been caused by past land uses or underlying natural variations; however, archaeological origins cannot be entirely discounted for the anomalies.

5 INTRODUCTION

- 5.1 **SUMO GeoSurveys** was commissioned to undertake a geophysical survey of an area outlined for development. This survey forms part of an archaeological investigation being undertaken by **Cotswold Archaeology** on behalf of **Blakeney Estates Ltd.**

5.2 Site Details

NGR / Postcode	TL 15111 31610 / SG5 3QS
Location	The site is located 12km north-east of Luton and 4km north-west of Hitchin. The survey area is bounded to the north by Hambridge Way and to the south by Pirton Recreation Ground.
HER	Hertfordshire HER
OASIS Ref. No.	Sumogeop1-529144
District	North Hertfordshire District
Parish	Pirton Civil Parish
Topography	Flat
Land Use	Pasture
Geology	Bedrock: West Melbury Marly Chalk Formation - Chalk
(BGS 2024)	Superficial: Lowestoft Formation - Diamicton
Soils (CU 2024)	Soilscape 3: Shallow lime-rich soils over chalk or limestone
Survey Methods	Magnetometer survey (fluxgate gradiometer)
Study Area	2.5 ha

5.3 *Archaeological Background*

- 5.3.1 Cotswold Archaeology (2024) undertook an Historic Environment Desk-Based Assessment which identified a potential for archaeological remains of late prehistoric, Roman, Saxon, medieval and post-medieval date, with evidence of these periods being recorded in the study area.
- 5.3.2 Remains from the Saxon period have been recovered within the village and also within the Site, during several stages of a test pitting programme, and Pirton was well established by the medieval period, as recorded in the Domesday Survey. During this period the major settlement was located around the Motte and Bailey Castle at Toot Hill, with the scheduled earthworks of the associated shrunken village to the south-east and the Grade I Listed Church of St Mary to the north. Further moated settlements were located around Rectory Farm and, possibly, around Wrights Farm, both to the north-west of the Site
- 5.3.3 Taken as a whole, the evidence suggests there is a moderate to high potential for the presence of buried archaeological remains of late Saxon and medieval origin within the area of the proposed development. Such remains may comprise evidence of former agricultural activity, such as furrows and field systems, and older field boundaries, perhaps associated with activities contemporary with the shrunken village to the west.

- 5.3.4 The flourishing of Pirton suffered a significant contraction, probably during the Black Death of 1348, when the settlement was dramatically reduced, possibly limited to the area surrounding of Toot Hill. A recovery is perceivable during the post-medieval period, when many of the designated historic building of the village were established. During this and the following modern period the Site was likely part of the agricultural hinterland surrounding the historic core of the town. As such, it is suggested that there is moderate potential for the presence within the proposed development area of remains dating to these periods, comprising evidence of ploughing and infilled field boundaries but considered to be of negligible significance.

5.4 ***Aims and Objectives***

- 5.4.1 To locate and characterise any anomalies of possible archaeological interest within the study area.

6 **RESULTS**

- 6.1 *The survey has been divided into two survey areas (Areas 1 & 2).*

6.2 ***Probable / Possible Archaeology***

- 6.2.1 No magnetic responses have been recorded that could be interpreted as being of definite archaeological interest, except for ridge and furrow cultivation (see 6.3).

6.3 ***Ridge and Furrow***

- 6.3.1 Broad and parallel linear anomalies have been detected in both survey area which have been caused by historic ridge and furrow cultivation aligned on and east/west axis.

6.4 ***Uncertain***

- 6.4.1 A number of discrete anomalies, trends and zones of increased response have been detected in the survey which have been assigned to the category of *Uncertain*. It is unclear what has caused these anomalies: consequently, archaeological origins cannot be entirely discounted. Area 2 was once part of an allotment garden (see Figure 05) and some of the uncertain responses may have been caused by buried ferrous debris / ground disturbance associated with their removal. Alternatively, they may be due to underlying natural variations.

6.5 ***Ferrous / Magnetic Disturbance***

- 6.5.1 Ferrous responses close to boundaries are due to adjacent buildings, roads, fences, gates and survey pipes that are located of the periphery of the site. Smaller scale ferrous anomalies ("iron spikes") are present throughout the data and are characteristic of small pieces of ferrous debris (or brick / tile) in the topsoil; they are commonly assigned a modern origin. Only the most prominent of these are highlighted on the interpretation diagram.

7 **DATA APPRAISAL & CONFIDENCE ASSESSMENT**

- 7.1 Historic England Table 4 (EH 2008) states that the typical magnetic response on the local soils / geology is variable. The results from this survey indicate the presence of ridge and furrow cultivation; consequently, there is no *a priori* reason why archaeological features would not have been detected.

8 **CONCLUSION**

- 8.1 The magnetometer survey has not recorded any magnetic responses that could be interpreted as being of definite archaeological interest except for ridge and furrow cultivation that is visible in both survey areas. A number of uncertain responses have been detected in Area 1. They

have probably been caused by past land uses or underlying natural variations. However, archaeological origins cannot be entirely discounted for the anomalies.

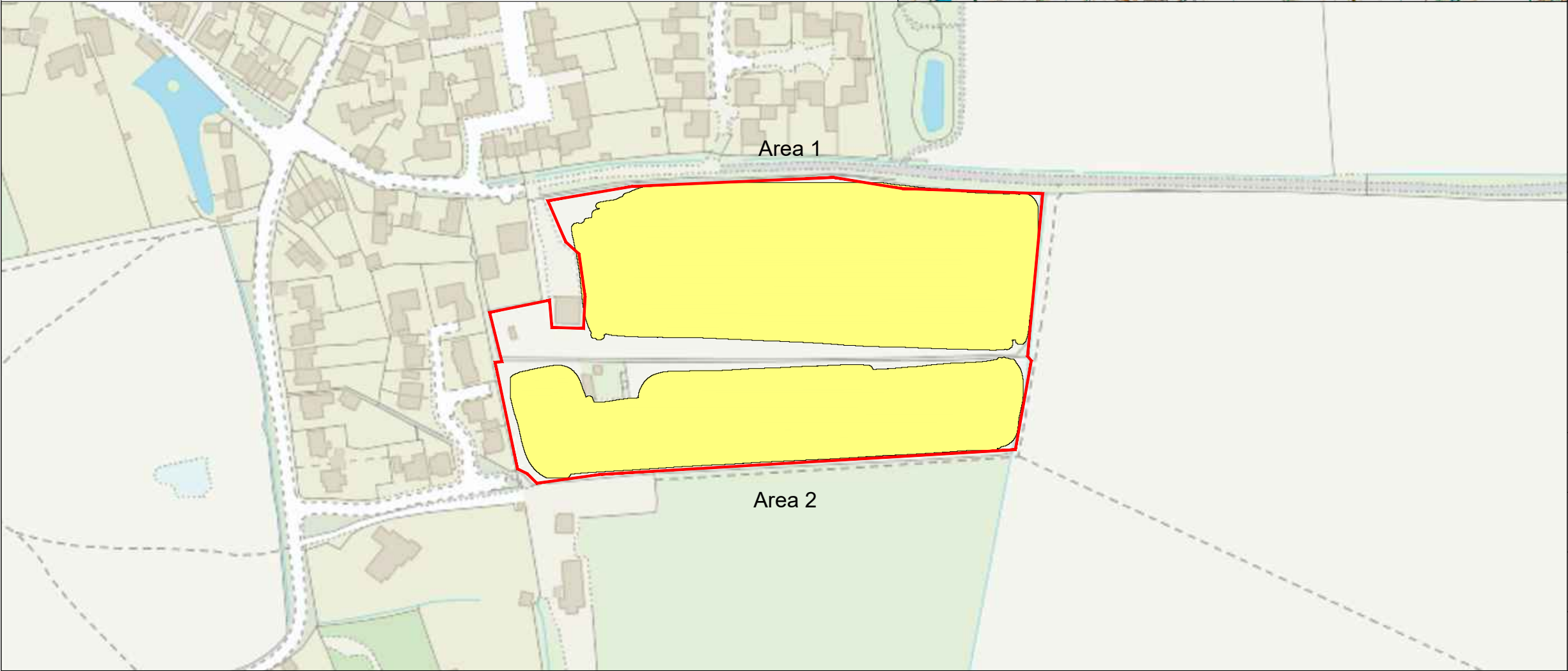
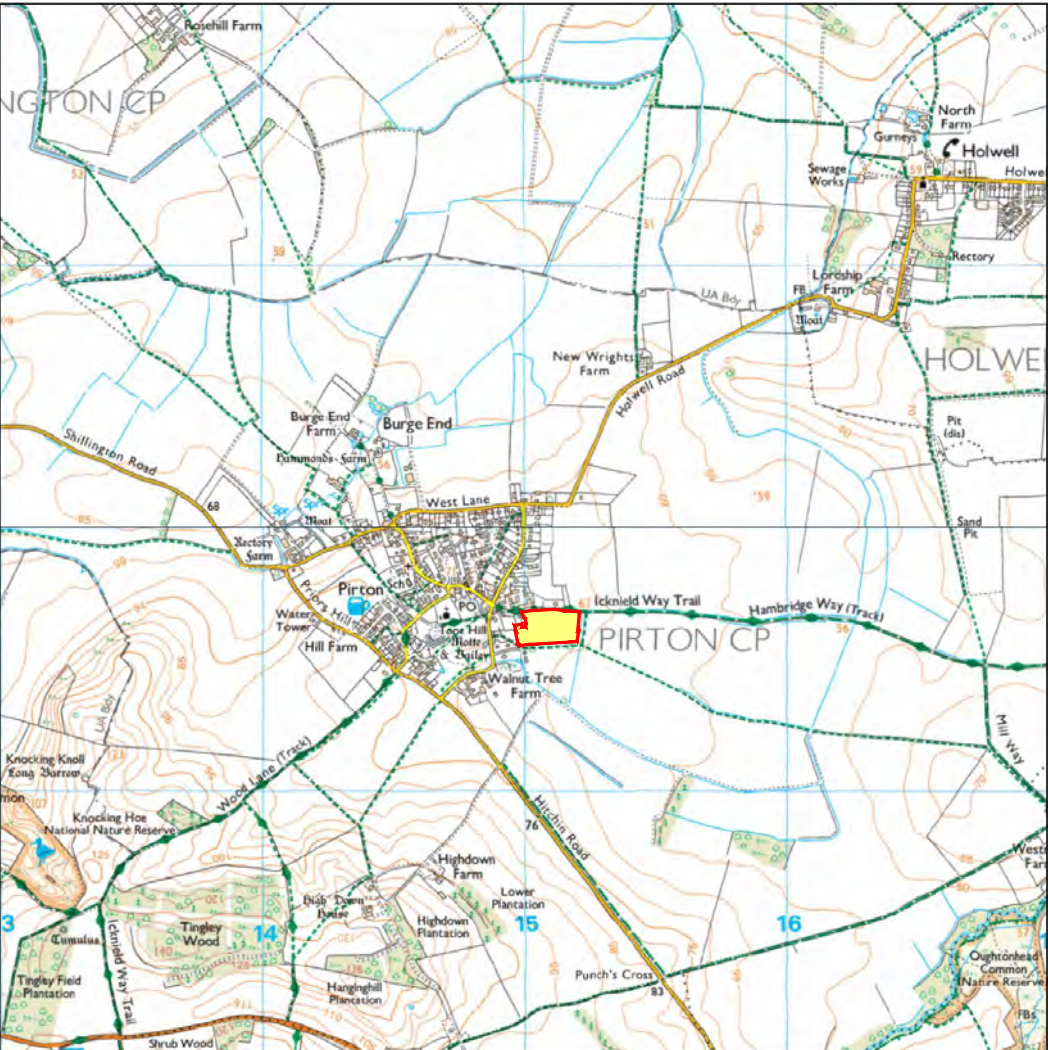
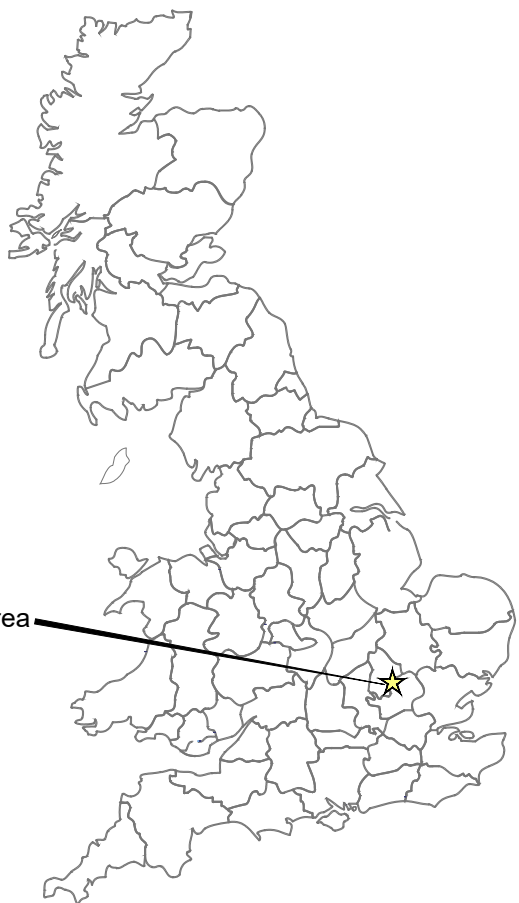
9 REFERENCES

- BGS 2024 *Geology of Britain Viewer*, British Geological Survey, website:
(<http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps>)
- CA 2024 *Land south of Hambridge Way, Pirton, Hertfordshire Historic Environment Desk-Based Assessment (DRAFT)*. Cotswold Archaeology, Cirencester
- ClfA 2020 *Standard and Guidance for Archaeological Geophysical Survey*. 2014 amended 2020. ClfA Guidance note. Chartered Institute for Archaeologists, Reading
https://www.archaeologists.net/sites/default/files/ClfAS%26GGeophysics_3.pdf
- CU 2024 *The Soils Guide*. www.landis.org.uk. Cranfield University, UK. website:
<http://mapapps2.bgs.ac.uk/ukso/home.html>
- EAC 2016 *EAC Guidelines for the Use of Geophysics in Archaeology*, European Archaeological Council, Guidelines 2.
- EH 2008 *Geophysical Survey in Archaeological Field Evaluation*. English Heritage, Swindon (now withdrawn, but used for evaluating suitability of soil types)

10 ARCHIVE

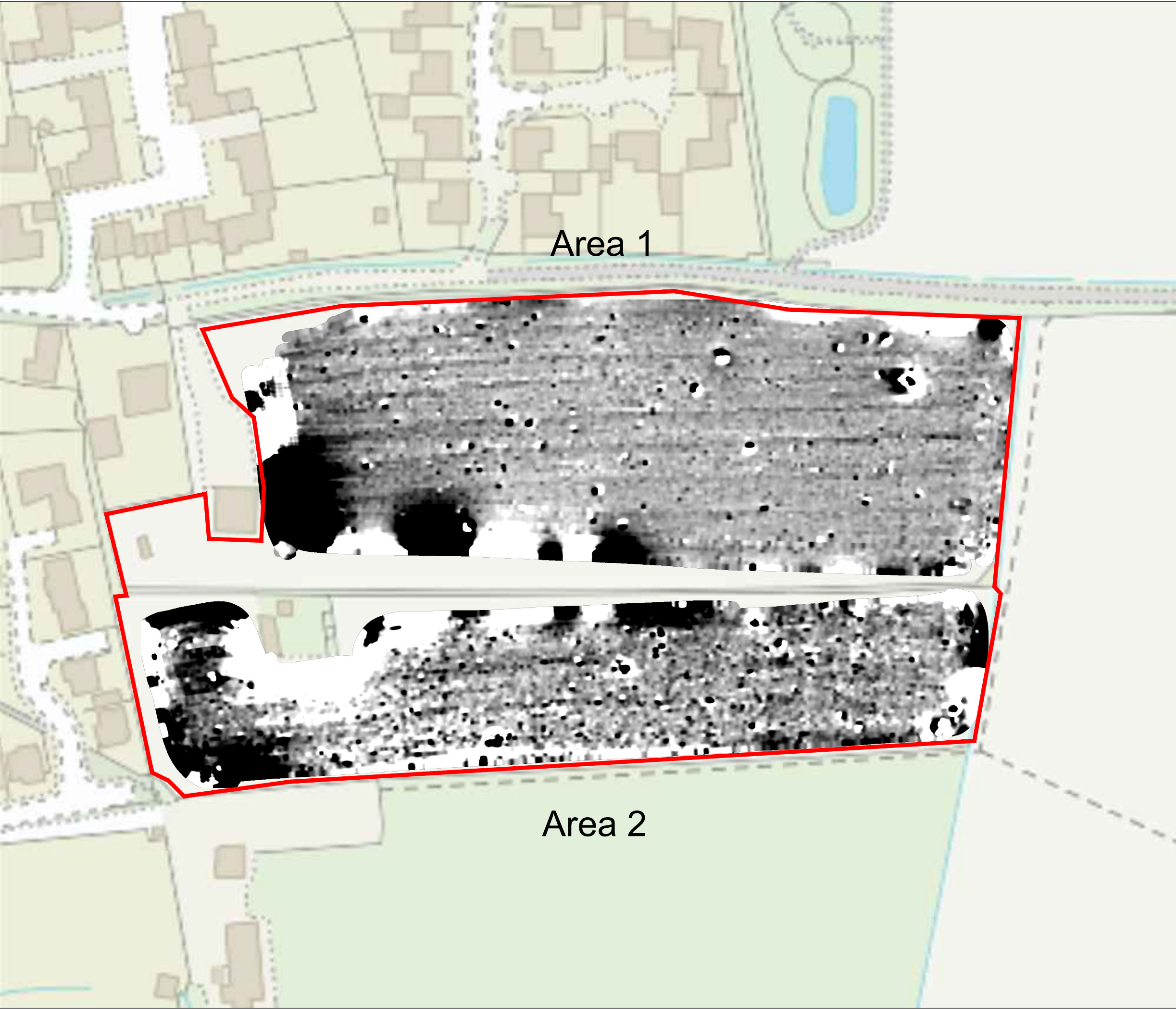
- 10.1 The minimally processed data, data images, XY traces and a copy of this report are stored in **SUMO GeoSurveys'** digital archive, on an internal RAID configured NAS drive in the Midlands Office. These data are also backed up to the Cloud for off-site storage.
- 10.2 The Grey Literature will be archived with OASIS and the relevant HER within a period of 12 months.

Survey Area



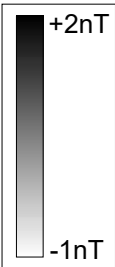
Reproduced from Ordnance Survey's 1:25 000 map of 1998 with the permission of the controller of Her Majesty's Stationery Office. Crown Copyright reserved. Licence No: 100018665

		Survey Areas
		
Title:		Site Location
Client:		Cotswold Archaeology
Project:		20027 - Land south of Hambridge Way, Pirton, Hertfordshire
Scale:		NOT TO SCALE
		Fig No: 01



Area 1

Area 2



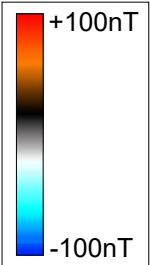
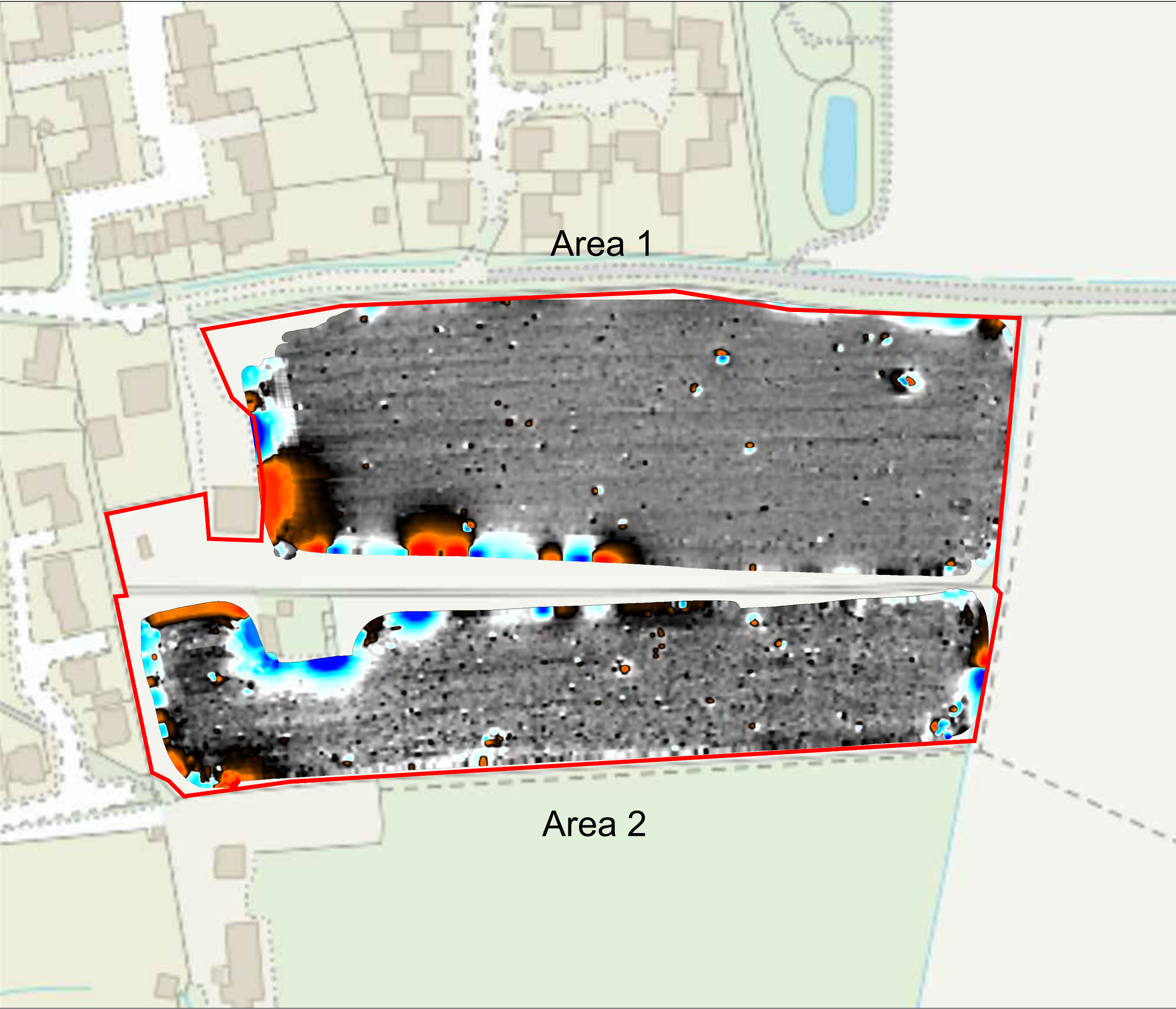
Title:
Magnetometer Survey - Greyscale Plots

Client:
Cotswold Archaeology

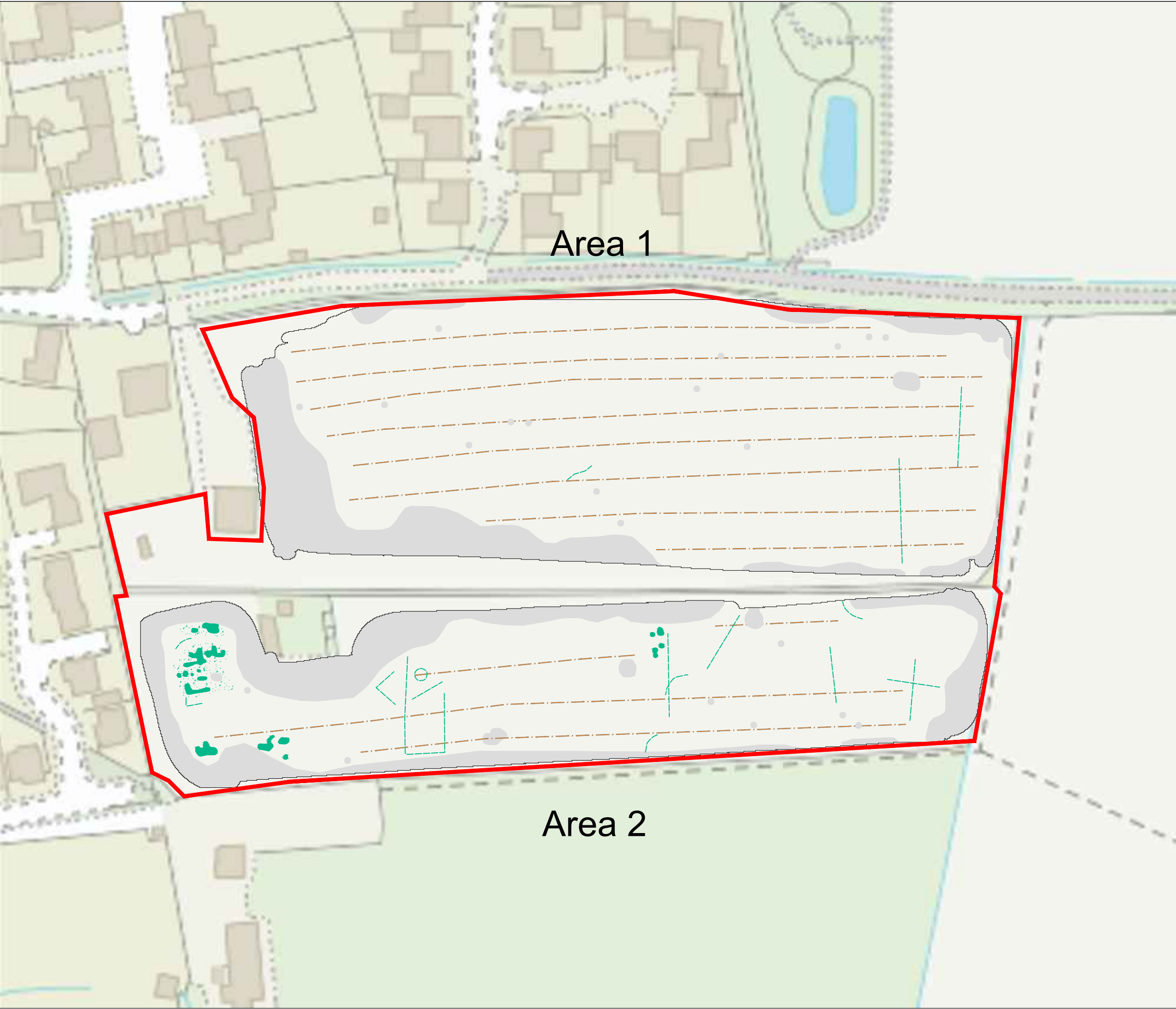
Project:
20027 - Land south of Hambridge Way, Pirton,
Hertfordshire

Scale:
0 50
metres
1:1000 @ A3

Fig No:
02



Title: Magnetometer Survey - Colour Plots	
Client: Cotswold Archaeology	
Project: 20027 - Land south of Hambridge Way, Pirton, Hertfordshire	
Scale: 0 metres 50 1:1000 @ A3	Fig No: 03



KEY

	Ridge and furrow
	Uncertain Origin (discrete anomaly / trend / increased response)
	Ferrous



Title:	Magnetometer Survey - Interpretation
Client:	Cotswold Archaeology
Project:	20027 - Land south of Hambridge Way, Pirton, Hertfordshire

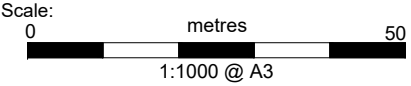
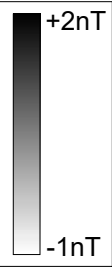


Fig No: 04

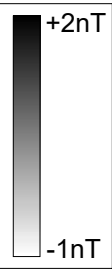
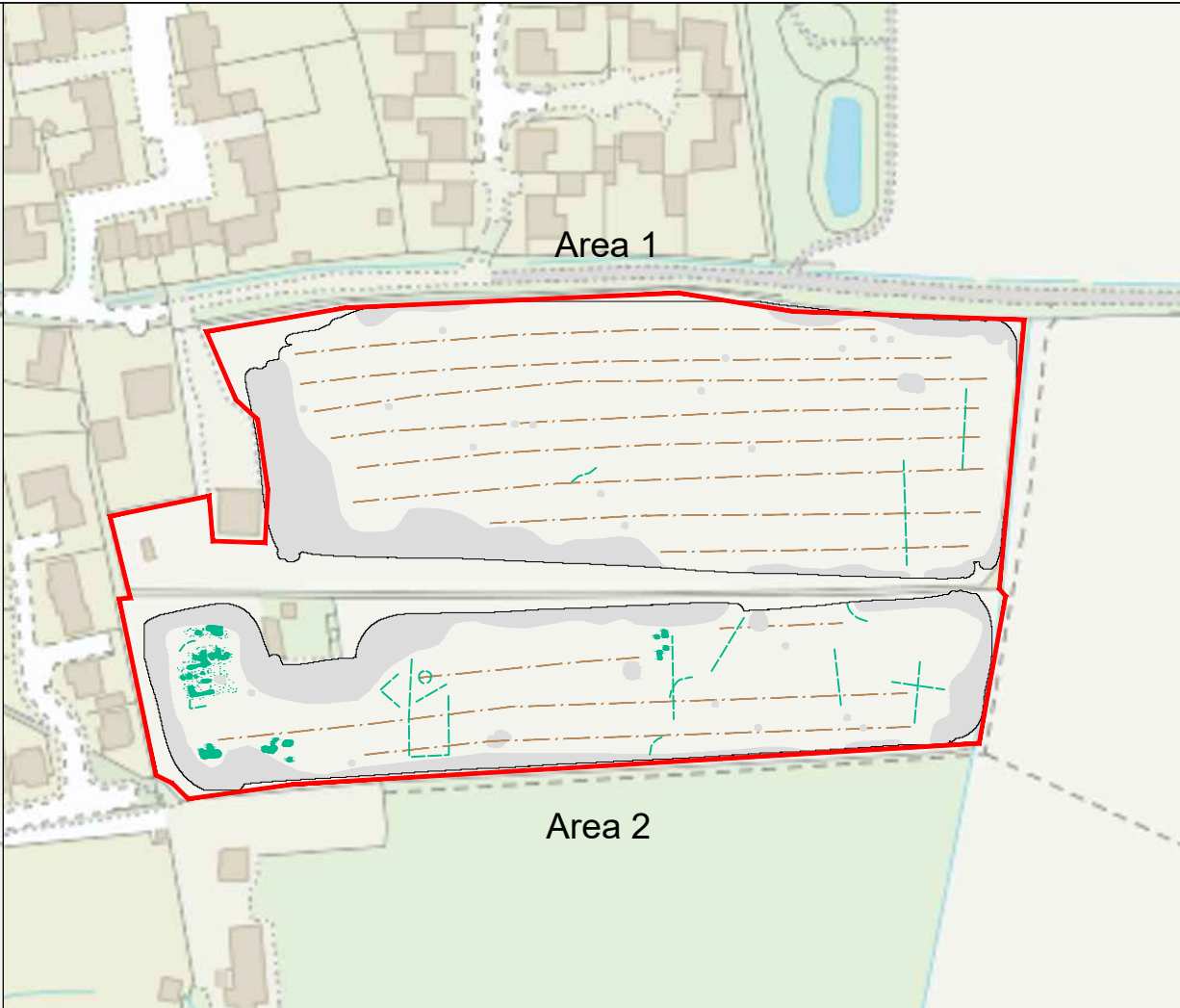
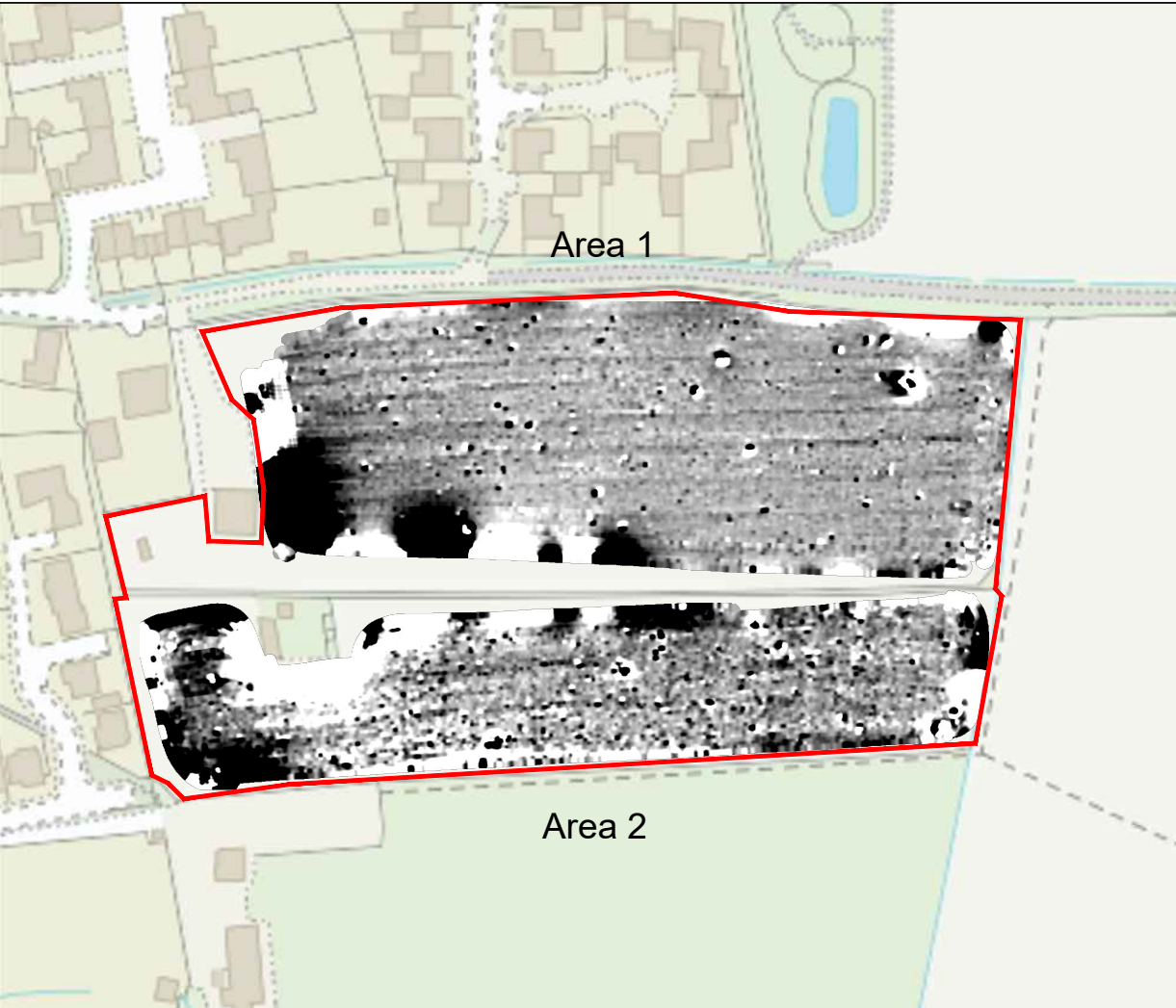


KEY

	Ridge and furrow
	Uncertain Origin (discrete anomaly / trend / increased response)
	Ferrous



Title: Greyscale Plots / Interpretation / 1830-1840 (bottom left) & 1892-1914 (bottom right) Ordnance Survey Mapping	
Client: Cotswold Archaeology	
Project: 20027 - Land south of Hambridge Way, Pirton, Hertfordshire	
Scale: NOT TO SCALE	Fig No: 05

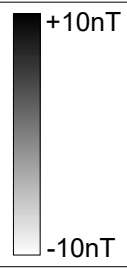
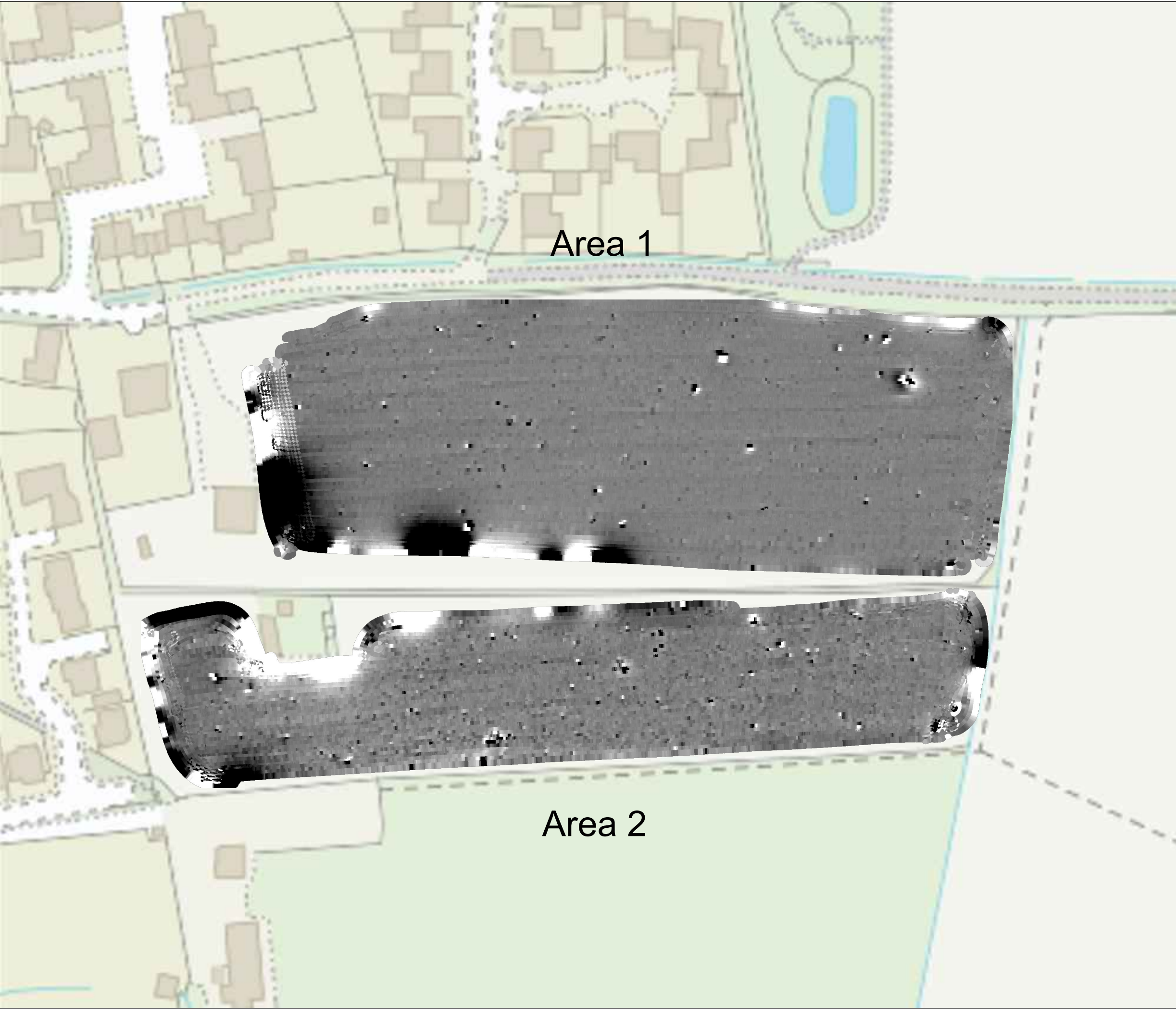


KEY

	Ridge and furrow
	Uncertain Origin (discrete anomaly / trend / increased response)
	Ferrous



Title: Greyscale Plots / Interpretation / 2016 (bottom left) & 2022 (bottom right) Aerial Imagery	
Client: Cotswold Archaeology	
Project: 20027 - Land south of Hambridge Way, Pirton, Hertfordshire	
Scale: NOT TO SCALE	Fig No: 06



Title: Minimally Processed Data - Greyscale Plots	
Client: Cotswold Archaeology	
Project: 20027 - Land south of Hambridge Way, Pirton, Hertfordshire	
Scale: 0 50 metres 1:1000 @ A3	Fig No: 07



Title: XY Trace Plots (clipped at +/-15nT)	
Client: Cotswold Archaeology	
Project: 20027 - Land south of Hambridge Way, Pirton, Hertfordshire	
Scale: 0 50 metres 1:1000 @ A3	Fig No: 08

Appendix A - Technical Information: Magnetometer Survey Method

Grid Positioning

For hand held gradiometers the location of the survey grids has been plotted together with the referencing information. Grids were set out using a Trimble R8 Real Time Kinematic (RTK) VRS Now GNSS GPS system.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. This results in an accuracy of around 0.01m.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1.0m	0.25m
Magnetometer	Bartington Cart System	1.0m	0.125m
Magnetometer	MACS Cart System (Foerster)	1.0m	0.125m

Instrumentation:

Bartington instruments operate in a gradiometer configuration which comprises fluxgate sensors mounted horizontally, set 1.0m apart. The fluxgate gradiometer suppresses any diurnal or regional effects. The instruments are carried, or cart mounted, with the bottom sensor approximately 0.1-0.3m from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is measured in nanoTesla (nT). The sensitivity of the instrument can be adjusted; for most archaeological surveys the most sensitive range (0.1nT) is used. Generally, features up to 1m deep may be detected by this method, though strongly magnetic objects may be visible at greater depths.

Bartington Grad 601-2

Hand-Held: Data will be collected using a Bartington Grad 601-2. The instrument consists of two paired sensors and readings are logged at 0.25m centres along traverses 1.0m apart across 30m grids. The collection of data at 0.25m centres provides an appropriate methodology balancing cost and time with resolution as per Historic England guidelines

Bartington Cart System

Data will be collected using a cart carrying four paired Bartington magnetic sensors. Each data point is geographically referenced using an on-board Trimble RTK survey grade GPS system. Readings will be taken at 0.125m centres along traverses 1.0m apart.

MACS Cart System (Foerster)

A multi-sensor array cart system (MACS) utilising 4 Foerster 4.032 Ferex CON 650 gradiometers, spaced at 1m intervals, with a control unit and data logger was used for the magnetic survey. Each data point is geographically referenced using an on-board RTK GNSS system. Readings will be taken at 0.125m centres along traverses 1.0m apart.

Data Processing

Zero Mean	This process sets the background mean of each traverse within each grid to zero.
Traverse	The operation removes striping effects and edge discontinuities over the whole of the data set.
Step Correction (De-stagger)	When gradiometer data are collected in 'zig-zag' fashion, stepping errors can sometimes arise. These occur because of a slight difference in the speed of walking on the forward and reverse traverses. The result is a staggered effect in the data, which is particularly noticeable on linear anomalies. This process corrects these errors.

Display

Greyscale/
Colourscale Plot

This format divides a given range of readings into a set number of classes. Each class is represented by a specific shade of grey, the intensity increasing with value. All values above the given range are allocated the same shade (maximum intensity); similarly, all values below the given range are represented by the minimum intensity shade. Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. The assigned range (plotting levels) can be adjusted to emphasise different anomalies in the data-set.

Interpretation Categories

In certain circumstances (usually when there is corroborative evidence from desk-based or excavation data) very specific interpretations can be assigned to magnetic anomalies (for example, *Roman Road, Wall, etc.*) and where appropriate, such interpretations will be applied. The list below outlines the generic categories commonly used in the interpretation of the results.

<i>Archaeology / Probable Archaeology</i>	This term is used when the form, nature and pattern of the responses are clearly or very probably archaeological and /or if corroborative evidence is available. These anomalies, whilst considered anthropogenic, could be of any age.
<i>Possible Archaeology</i>	These anomalies exhibit either weak signal strength and / or poor definition, or form incomplete archaeological patterns, thereby reducing the level of confidence in the interpretation. Although the archaeological interpretation is favoured, they may be the result of variable soil depth, plough damage or even aliasing as a result of data collection orientation.
<i>Industrial / Burnt-Fired</i>	Strong magnetic anomalies that, due to their shape and form or the context in which they are found, suggest the presence of kilns, ovens, corn dryers, metal-working areas or hearths. It should be noted that in many instances modern ferrous material can produce similar magnetic anomalies.
<i>Former Field Boundary (probable & possible)</i>	Anomalies that correspond to former boundaries indicated on historic mapping, or which are clearly a continuation of existing land divisions. Possible denotes less confidence where the anomaly may not be shown on historic mapping but nevertheless the anomaly displays all the characteristics of a field boundary.
<i>Ridge & Furrow</i>	Parallel linear anomalies whose broad spacing suggests ridge and furrow cultivation. In some cases, the response may be the result of more recent agricultural activity.
<i>Agriculture (ploughing)</i>	Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with existing boundaries, indicating more recent cultivation regimes.
<i>Land Drain</i>	Weakly magnetic linear anomalies, quite often appearing in series forming parallel and herringbone patterns. Smaller drains may lead and empty into larger diameter pipes, which in turn usually lead to local streams and ponds. These are indicative of clay fired land drains.
<i>Natural</i>	These responses form clear patterns in geographical zones where natural variations are known to produce significant magnetic distortions.
<i>Magnetic Disturbance</i>	Broad zones of strong dipolar anomalies, commonly found in places where modern ferrous or fired materials (e.g. brick rubble) are present.
<i>Service</i>	Magnetically strong anomalies, usually forming linear features are indicative of ferrous pipes/cables. Sometimes other materials (e.g. pvc) or the fill of the trench can cause weaker magnetic responses which can be identified from their uniform linearity.
<i>Ferrous</i>	This type of response is associated with ferrous material and may result from small items in the topsoil, larger buried objects such as pipes, or above ground features such as fence lines or pylons. Ferrous responses are usually regarded as modern.

Individual burnt stones, fired bricks or igneous rocks can produce responses similar to ferrous material.

Uncertain Origin

Anomalies which stand out from the background magnetic variation, yet whose form and lack of patterning gives little clue as to their origin. Often the characteristics and distribution of the responses straddle the categories of *Possible Archaeology / Natural* or (in the case of linear responses) *Possible Archaeology / Agriculture*; occasionally they are simply of an unusual form.

Where appropriate some anomalies will be further classified according to their form (positive or negative) and relative strength and coherence (trend: weak and poorly defined).

Appendix B - Technical Information: Magnetic Theory

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock. Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.1 nanoTeslas (nT) in an overall field strength of 48,000 (nT), can be accurately detected.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremanent* material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns; material such as brick and tile may be magnetised through the same process.

Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried feature. The difference between the two sensors will relate to the strength of a magnetic field created by this feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity and disturbance from modern services.

Appendix C - OASIS Summary

OASIS ID (UID)	sumogeop1-529144
Project Name	Geophysical Survey at Land south of Hambridge Way, Pirton, Hertfordshire
Sitename	Land south of Hambridge Way, Pirton, Hertfordshire
Sitecode	20027
Project Identifier(s)	20027
Activity type	Geophysical Survey, MAGNETOMETRY SURVEY
Planning Id	
Reason For Investigation	Planning requirement
Organisation Responsible for work	SUMO Geophysics Ltd.
Project Dates	29-Nov-2024 - 29-Nov-2024
Location	Land south of Hambridge Way, Pirton, Hertfordshire NGR: TL 15095 31617 LL: 51.97111748601198, -0.32593829326034 12 Fig: 515095,231617
Administrative Areas	Country: England County/Local Authority: Hertfordshire Local Authority District: North Hertfordshire Parish: Pirton
Project Methodology	A temporary grid system was established over the site and marked out using canes. The location of the grid was set out using an RTK GPS system theoretically accurate to some 0.01m and referenced to OS co-ordinates. Data was collected using a cart carrying four paired Bartington magnetic sensors. Four sensors mounted 1m horizontally apart and very accurately aligned to nullify the effects of the earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background. Each data point is geographically referenced using an on-board Trimble RTK survey grade GPS system. Readings were taken at 0.125m centres along traverses 1.0m apart. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background.
Project Results	The magnetometer survey has not recorded any magnetic responses that could be interpreted as being of definite archaeological interest except for ridge and furrow cultivation that is visible in both survey areas. A number of uncertain responses have been detected in Area 1. They have probably been caused by past land uses or underlying natural variations. However, archaeological origins cannot be entirely discounted for the anomalies.

Keywords	Ridge And Furrow - MEDIEVAL - FISH Thesaurus of Monument Types
Funder	Private or public corporation Cotswold Archaeology
HER	Hertfordshire HER - unRev - STANDARD
Person Responsible for work	Thomas Cockcroft
HER Identifiers	
Archives	

Report generated on: 09-12-2024:1639

Appendix D – Data Management Plan & Archive Selection Strategy

Data Management Plan

Project ID / OASIS ID

SUMO-20027 / sumogeop1- 529144

Project Name

Land south of Hambridge Way, Pirton, Hertfordshire

Project Description

Detailed magnetic survey over approx. 2.5ha

Client

Cotswold Archaeology

Project Manager

Thomas Cockcroft

Field Leader

Simon Lobel

Date DMP created

29.10.2024

Date DMP last updated

09.12.2024

Version

2

Technique - data

Detailed magnetic survey.

Manual – cart - other

ATV/Cart magnetometers.

Documentation and metadata

All documentation and data produced are stored on SUMO servers in a specific job file.

Data storage, access and back-up

- SUMO Secure server during the project life set up in a RAID configuration (a RAID configuration incorporates a level of data redundancy meaning if a single hard drive in fails data can still be restored).

- Snap shots of the data will be made at several intervals during the day to allow data to be restored for up to 30 days if changed / deleted.
- Once the final report has been completed data will be moved onto NAS drive set up in a RAID configuration.
- All data is backed up to an off-site location (Cloud storage).

Archive Selection Strategy

Digital Data

Selection

It is proposed that only the final version of all born digital documents (reports, images and CAD files) will be selected for inclusion in the Preserved Archive. All raw and processed survey data will be included in the preserved archive. Below is what will constitute the selected archive:

- Raw data in XYZ format .csv and .png plus .pgw world file
- Processed data as .png plus .pgw world file
- Final survey report .pdf
- CAD and Vector graphics (interpretations) in .dwg format

De-selected digital data

The de-selected material will be retained on the SUMO Secure server and Cloud storage.

Documents

Not applicable – no archive

Materials

Not applicable – no archive



- Archaeological Geophysics
- Engineering Geophysics
- Measured Building Services
- Utility and Topographic Services
- Aerial Surveys
- Rail Surveys

SUMO GeoSurveys is a trading name of SUMO Geophysics Ltd.
SUMO Services Ltd, incorporated under the laws of England and Wales,
Company Registration No.4275993.
Registered Office Unit 8 Hayward Business Centre, New Lane, Havant, Hampshire, PO9 2NL