soils LIMITED

Preliminary Investigation Report

at
Padnell Grange, Padnell Road, Cowplain, Waterlooville, Hampshire PO8 8ED

for
Stonebond Properties (Guildford) Limited and the Borrow Foundation

Reference: 22035/PIR Rev1.1
August 2025

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This is not a valid document for use in the design of the project unless it is titled Final in the document status box.

Current regulations and good practice were used in the preparation of this report. The recommendations given in this report must be reviewed by an appropriately qualified person at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

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Commission

This document comprises the Preliminary Investigation Report (PIR) and incorporates the results, discussion, and conclusions to this intrusive works. General site data is recorded below:

Commission Record	
Client	Stonebond Properties (Guildford) Limited and the Borrow Foundation
Site Name	Padnell Grange, Padnell Road, Cowplain, Waterlooville, Hampshire PO8 8ED
Grid Reference	SU699111
Soils Limited Quotation Ref	Q29811rev2 dated 4th June 2025.
Clients Consultant Long Form Appointment	ST0186-1560439 version 4, dated 10th July 2025

The record of revision is presented below:

Record Of Revisions		
Revision	**Date**	**Reason**
1.0	August 25	First Issue to Client
1.1	March 26	Updated with proposed plan

Note: The latest revised document supersedes all previous revisions of the PIR produced by Soils Limited.

Documents associated with this development that must be referred to are given below.

Record Of Associated Documents			
Reference	**Type**	**Date**	**Creator**
24143/C101	Coloured Site Layout	March 2026	OSP Architecture

Caveats

Whilst reasonable skill and care has been taken to determine the site history and the environmental setting within the time constraints applied by the project, it should be appreciated that uncertainties may occur owing to the natural variability of soil material within a defined area or as a result of unknowns that are associated with contaminated land assessment in general. The site conditions may be different from that indicated by this Preliminary Investigation, particularly on a site with a history of past development. No responsibility can be accepted should such conditions alter the recommendations made in this report.

Without a drainage survey it is not possible to establish if the surface water drainage is to the main drainage system or soakaways. If there are soakaways on-site, they could act as a potential source. The geology on-site to an extent may determine if soakaways were likely to have been adopted.

Ordinary watercourses (OWs) are defined as rivers (which are not designated as main rivers), streams, ditches, drains, culverts, cuts and sewers (other than public sewers). This includes all OWs that are not mapped. Ordinary watercourse consent (OWC) is required from the Lead Local Flood Authority (LLFA) when changing/adapting/adding to the cross sections of OWs. Installations of any structure or obstruction into an OW that

impedes the flow without consent is prohibited by the Land Drainage Act 1991 Section 23.

Failure to remove obstructions may result in legal action by the LLFA with powers under Section 25 of the Land Drainage Act 1991.

Soils Limited suggest surveying the site for OW usually seen in rural areas as boundary ditches in order to avoid potential impacts to residents downstream and prosecution. OWC can be applied for from your LLFA.

This Preliminary Investigation does not include a detailed UXO risk assessment, it does however contain a basic assessment in accordance with CIRIA C681 and C785. In preparing a Preliminary Investigation reference is made to historical maps and web based sources to assess the risk of the site potentially having been impacted by bombing during the World Wars. The data readily available is not necessarily definitive. Certain areas were bombed heavily such as centres of industrial manufacture, airfields, shipyards, docklands, railways sidings and junctions. The assessment is based on the likely area risk, bomb patterns (i.e. lines of recorded bomb impacts with gaps where an impact would be anticipated) and the age of structures on and in close proximity to the site.

Explanations

The Preliminary Investigation Report was undertaken to advise the client on the risk pertaining to the site, with special reference to historic and current potential contaminative activities and processes. This also included the assessment of their impact on current and future sensitive receptors such as human health, controlled waters, ecological features, building structures and services.

During the site walkover observations were made in relation to current activities, evidence of historical activities, sources of potential contamination such as fuel storage tanks, oil drums and chemical storage and evidence of contamination. The walkover also looked for evidence of soil contamination in the form of staining odours and stressed or discoloured vegetation.

To assess the vulnerability of groundwater to contamination, consideration must be given to the leaching characteristics of the overlying soils and the characteristics of the strata in the unsaturated zone. Information on the geological strata such as lithological type and permeability characteristics has been combined with the physical properties of the soil to produce varying degrees of vulnerability.

The object of the historic map study was to report on the evidence of site history and redevelopment of the site and its environs from available County Series and Ordnance Survey Maps dating from the mid to late 19th Century to the present day as downloaded from Landmark Environmental.

The published maps only represent a “snap shot” of the site and its environs at the date of the survey. The detail of the information recorded can vary between epochs, map scale and county areas. It should be noted that changes in land uses, processes or activities may have occurred outside of published epochs and these may not have been recorded on subsequent epochs. Also note that as methods of projection, production and recording have changed over time, this can result in geo-reference errors that may indicate the established site boundary is off-centre from its true location on older historical maps. Where this is potentially significant it will be noted.

Any distances quoted for features remote from the site have been scaled from the maps and are only approximate. Where dates have been noted in brackets, these are the actual dates applicable to the map editions and may not reflect the date of the original survey it is based on. The information reported might not represent all pertinent information that could be obtained. The interpretation of the maps and/or other data commented on in this report is subjective.

As part of the review of the historical plans, only features considered to have or to have had a potential contaminative impact on the site and usually within a notional 250m radius are discussed. The north point and approximate extent of the site are indicated on each figure.

Dataset survey is undertaken, and the extent of the search has initially been limited to a radius of 250m as it is considered that sources of contamination beyond 250m are unlikely to impact on the site.

The BGS soil chemistry for environmental assessments dataset coverage, was developed from BGS G-BASE and Imperial College Wolfson Atlas data. It contains estimated ambient As, Cd, Cr, Ni and Pb background concentrations for rural topsoils across Great Britain. It also contains the locations and measured concentrations (mg kg-1) of As, Cd, Cr, Cu, Ni, Pb, Sn and Zn in urban topsoil samples, collected from geochemical surveys in 23 major urban centres.

In accordance with CIRIA C681 and C785 a review has been undertaken of the historic maps and the Zetica UXO risk website.

Legislation and Liability

The primary legislative mechanism for contaminated land management in the UK is Part 2A of the Environmental Protection Act, 2021 (EPA). Part 2A was introduced into the EPA under Section 57 of the Environment Act 1995 to help deal with the substantial legacy of land contamination. The legislation provides powers in relation to the identification, remediation and apportionment of liability for contaminated land. Part 2A applies where there is unacceptable risk, assessed on the basis of the current use and the relevant circumstances of the land. It is not directed to assessing risks in relation to a future use of the land that would require a specific grant of planning permission.

Under Part IIA of the Environment Act 2021, Local Authorities are required to identify contaminated land and serve on every person who is an appropriate person a remediation notice setting out what is to be done by way of remediation and the period within which it must be done.

If the person who caused, or knowingly permitted, the contaminating substance cannot be found, the owner and/or, occupier for the time being, of the property can be the appropriate person.

Under the legislation, Contaminated Land is defined as: -

"Land which is in such a condition by reason of substances in, on or under the land that significant harm is being caused or that there is a significant possibility of such harm being caused or that pollution of controlled waters is being, or is likely to be caused."

Where the Act defines harm as:

"harm to the health of living organisms or other interference with the ecological systems of which they form a part and, in the case of man, includes harm to his property."

and pollution of controlled waters is defined as: -

"the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter."

In addition, The Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006 introduced the supplementary definition of harm to include: lasting exposure to any person resulting from the after-effects of a radiological emergency, past practice or past work activity.

With regard to contaminated waters, the Environment Act 1995 amends the Water Resources Act 1991 and provides the Environment Agency with the power to force clean-up of historical contamination by issuing a Works Notice, with remediation paid for by the responsible parties.

The Groundwater Regulations (1998) stated that entry of List 1 substances into groundwater must be prevented, and List II substances must be controlled.

This PIR was made to comply with planning requirements and only covers contaminative land issues unless otherwise specifically noted.

Limitations and Disclaimers

This Preliminary Investigation Report relates to the site located at Padnell Grange, Padnell Road, Cowplain, Waterlooville, Hampshire, PO8 8ED and was prepared for the sole benefit of the Client for the brief described in the Commission of this report.

The contents, recommendations and advice given in the report are subject to the Terms and Conditions given in the Soils Limited Quotation and the subsequent Clients Purchase Order.

Soils Limited disclaims any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report has been prepared by Soils Limited, with all reasonable skill, care and diligence within the terms of the contract with the Client, incorporation of our General Conditions of Contract of Business and taking into account the resources devoted to us by agreement with the Client.

The report is personal and confidential to the Client and Soils Limited accept no responsibility of whatever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report wholly at its own risk.

The Client may not assign the benefit of the report or any part to any third party without the written consent of Soils Limited.

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief. As such these do not necessarily address all aspects of ground behaviour at the site.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

There may be other sources of information not included in those listed that hold data relevant to the Preliminary Investigation Report undertaken at the site that could materially affect the conclusions made in this report.

It should be noted that a detailed survey of the possible presence or absence of invasive species, such as Japanese Knotweed, is outside of the scope of investigation.

Ownership of land brings with it onerous legal liabilities in respect of harm to the environment. “Contaminated Land” is defined in Section 57 of the Environment Act 2021.

Where a contaminative use is identified in the Preliminary Investigation Report this does not determine whether contamination has actually occurred, or if it has the degree to which it may have taken place. An intrusive investigation(s) and analysis is required to establish the nature and degree of any contamination present.

All works are undertaken in the context of, and in compliance with, BS10175+A2 2017 and LCRM (EA 2021) and all other pertinent planning, standards, documentation and guidance appropriate to the site at the time of production which may include, but are not necessarily limited to, documents provided by BS/CEN/ISO, NHBC, AGS, CIEH, CIRIA, SoBRA and CLAIRE.

Ownership of copyright of all printed material including reports, survey data, drawings, laboratory test results, trial pit and borehole log sheets, including drillers log sheets remains with Soils Limited. License is for the sole use of the client and may not be assigned, transferred or given to a third party. This license is only valid once we have been paid in full for this engagement. In the event of non-payment for our services, we reserve the right to retract the license for all project data, preventing their use and any reliance upon such data by the client or any other third party. We may also contact parties other than the client to notify them of this retraction.

Contents

Commission ..... **i**

Caveats ..... **i**

Explanations ..... **ii**

Legislation and Liability ..... **iii**

Limitations and Disclaimers ..... **iv**

Section 1 Site Conditions and Proposed Development **1**

1.1 Site Walkover 1

1.2 Site Drainage 1

1.3 Site Photographs 1

1.4 Proposed Development 2

Section 2 Geology, Hydrogeology, Hydrology and Radon **3**

2.1 Anticipated Geology 3

2.1.1 Made Ground 3

2.1.2 London Clay Formation 3

2.1.3 Lambeth Group 3

2.2 Hydrogeology 4

2.3 Hydrology 4

2.4 Radon Gas 4

Section 3 Site History **5**

3.1 Historic Map Study 5

3.2 Bomb damage and the potential for Unexploded Ordnance 7

Section 4 Environmental Records and Consultation **8**

4.1 Dataset Information 8

4.2 Site Sensitivity Maps 9

4.3 Regulatory Enquires 9

4.4 Soil Geochemistry 9

Section 5 Data Collection Summary **11**

5.1 General 11

Section 6 Preliminary Conceptual Site Model **13**

6.1 Sources and Pathways of Contamination 13

6.2 Potential Pathways 13

6.3 Potential Sources of On-site Contamination. 13

6.4 Potential Off-site Sources of Contamination 14
6.5 Potential Contaminants 16
6.6 Potential Exposure Receptors 16
6.7 Preliminary Conceptual Site Model and Risk Assessment 16
Section 7 Recommendations 18
7.1 General 18
7.2 UXO 18
7.3 Radon 18
7.4 Proposed Further Site Works 18
7.5 Discovery Strategy 18

List of Figures

Figure 1 – Site Location Map 20

List of Tables

Table 1.1 Site Walkover Record (On-site) 1
Table 1.2 Site Walkover Record (Off-site) 1
Table 2.1 Hydrogeological Assessment 4
Table 2.2 Hydrological Assessment 4
Table 3.1 Historic Development of the Site 5
Table 3.2 Historic Off-site Development 6
Table 3.3 Potential Sources of Pollution Indicated from Historic Maps 6
Table 4.1 Environmental Significance of Data 8
Table 4.2 Contemporary Trade Directory 8
Table 4.3 Geological Hazards 9
Table 4.4 Soil Geochemistry 9
Table 5.1 Site Environs 11
Table 5.2 Summary of Potential Contamination Sources 12
Table 6.1 Applicable Pathways 13
Table 6.2 On-site Potential Contamination Sources 13
Table 6.3 Off-site Potential Contamination Sources 14
Table 6.4 Potential Contaminants 16

Table 6.5 Potential Receptors 16
Table 6.6 Preliminary Conceptual Site Model and Risk Assessment Methodology 17
Table 7.1 Proposed Further Environmental Investigation 18

Table G.1. Classification of Consequence
Table G.2. Classification of Probability
Table G.3. Comparison of Consequence Against Probability
Table G.4. Risk Classifications

List of Appendices

Appendix A **Proposed Development Plans**
Appendix B **Country Series and Ordnance Survey Maps**
Appendix C **Landmark Envirocheck Report**
Appendix D **Site Sensitivity Maps**
Appendix E **Local Authority Search Data**
Appendix F **Site Photographs**
Appendix G **Risk Assessment Criteria**

Section 1 Site Conditions and Proposed Development

1.1 Site Walkover

A site walkover was undertaken in July 2025, by Soils Limited. The notes of the site walkover are presented in Table 1.1 and Table 1.2.

Table 1.1 Site Walkover Record (On-site)

Use of Site	The site comprised the main former residential house, Padnell Grange set within large gardens. There was a disused courtyard to the rear (south) of the site and converted farm buildings currently being used by a charitable trust. The grounds surrounding Padnell Grange comprised predominantly open land but with wooded locations of mature trees.
Structures	Main structures included the main house (Photo 1), a building to it's rear (west) and a courtyard surrounded with dilapidated buildings (Photo's 2 and 3) on the south of the site.
Site Topography	The site topography was undulating, most notably with a dip down to the southeast of the site by 2 – 3 degrees varying with the topography.
Site Covering	Majority of the site was grass topped (Photo 4), with mature trees dotted about the site (Photo 5), and hedgerows/soft landscaping around the former house (Photo 6). There was a tarmac roadway and hardstanding around the former house and farm buildings (Photo's 2 and 3). A gravel topped area featured towards the northwest onsite (Photo 5).
Vegetation	Majority of the site was grass topped (Photo 4), with mature trees dotted about the site (Photo 5), and hedgerows/soft landscaping around the former house (Photo 6).
Potential Contamination Sources	Potential Asbestos containing roofing materials on dilapidated farm buildings (Photo 7).
Odour	None noted.
Drainage	Mains drainage runs were observed onsite (Photo 8).

Table 1.2 Site Walkover Record (Off-site)

Use of Land	N – Small woodland followed by residential houses within private gardens. E – Golf course. S - Residential houses within private gardens. W - residential houses within private gardens, school playing field beyond with primary school and Cowplain Activity Centre.
Area Topography	Undulating, most notably with a dip down to the southeast by <2 – 3 degrees varying with the topography.
Vegetation	Very green surrounding area with high levels of vegetation, grass/shrubs in gardens and public open spaces, and mature trees and shrubs, in gardens, golf course etc.
Potential Contamination Sources	None observed.

1.2 Site Drainage

Via surface drainage, which are anticipated to be connected to the mains system.

1.3 Site Photographs

The site photographs have been included within Appendix F.

1.4 Proposed Development

The proposal comprised the demolition of the existing dilapidated farm buildings and ancillary buildings pertaining to the former house of Padnell Grange, and the erection of multiple buildings to create a housing development with 90No. residential dwellings, the majority of which are to be semi-detached and short terrace blocks.

In compiling this report reliance was placed on drawing 24143/C101 dated March 2026, produced by OSP Architecture. The recommendations provided within this report are made exclusively in relation to the scheme outlined above, and must not be applied to any other scheme without further consultation with Soils Limited. Soils Limited must be notified about any change or deviation from the scheme outlined.

The proposed development plans have been provided in Appendix A.

Section 2 Geology, Hydrogeology, Hydrology and Radon

2.1 Anticipated Geology

The 1:50,000 BGS Geology map showed the main part of the site to be situated on the London Clay Formation bedrock, and on the northwest corner the site was situated on the underlying soils of the Lambeth Group. There was anticipated to be some Made Ground overlying part of the site as noted in the Artificial Ground and Landslip Map found in Appendix D.

2.1.1 Made Ground

Made Ground comprises material that has been placed by man or spread by man. It can comprise demolition material from former structures on the site or imported material placed to raise levels. Its composition can be very variable both laterally and with depth and may contain putrescible matter and voids.

2.1.2 London Clay Formation

The London Clay Formation in the Hampshire region comprises silty and sandy clay, clayey and sandy silt, silty sand; sporadic claystones and thin beds of flint pebbles. The formation includes the Bognor Sand, Whitecliff Sand, Durley Sand, Portsmouth Sand and Nursling Sand Members. Crystals of gypsum (Selenite) are often found within the weathered part of the London Clay, and precautions against sulphate attack to concrete are sometimes required.

The lowest part of the London Clay Formation rests on the Reading Formation (Lambeth Group).

2.1.3 Lambeth Group

The Lambeth Group (formerly the Woolwich and Reading Beds) occurs in the London and Hampshire Basins, where it directly overlies the Chalk or Thanet Sand Formation, and is succeeded by the Harwich and London Clay Formations. The Lambeth Group comprises vertically and laterally variable sequences mainly of clay, some silty or sandy, with some sands and gravels, minor limestones and lignites and occasional sandstone and conglomerate.

The top of the Lambeth Group is marked by the eroded or interburrowed surface at the base of the overlying Thames Group. The uppermost part of the Lambeth Group can be the Reading Formation or the Woolwich Formation, depending on the local succession, or the Upnor Formation, depending on the depth of pre-Thames Group erosion. The Lambeth Group is overlain by sands, silts, clays or gravel beds of the Harwich Formation, depending on the local sequences, or gravelly sandy clays at the base of the London Clay Formation.

The base of the Lambeth Group is taken at the base of the Upnor Formation. In the Hampshire Basin and the west of the London Basin, the Lambeth Group overlies the Chalk Group. In the centre and east of the London Basin it overlies the Thanet Formation, and in Suffolk the Ormesby Clay Member of the Lista Formation.

2.2 Hydrogeology

Table 2.1 presents the hydrological data that is relevant to the site.

Table 2.1 Hydrogeological Assessment

Hydrogeological Data		Comment
On-site Aquifers	Superficial	None recorded
	Bedrock	London Clay Formation: Unproductive Aquifer[2] Lambeth Group: Secondary Bedrock Aquifer[1] - Productive Bedrock Aquifer
Groundwater Vulnerability		Majority of the site Unproductive Aquifer. North west corner Secondary Bedrock Aquifer - Medium Vulnerability.
Source Protection Zones (SPZ)		Inner Zone 1c (inner protection Zone) onsite Zone III (Total Catchment) zone of special interest onsite associated with the underlying chalk at depth.
Abstraction	Potable	None
	Non-potable	945m E
Sensitive Land Uses		None
Surface Water Features		73m E
Flood Risk from Rivers or Seas		None
Flood Risk from Surface Water		None
Flood Risk from Groundwater		Limited Potential for Groundwater Flooding to Occur on Northwest Corner Onsite Remaining Site No Potential.

Note(s): [1]Secondary A are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. [2] Unproductive strata are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

Any works or development which has the potential to have an impact on surface water, aquifer or groundwater quality must be approved by the Environment Agency prior to implementation.

2.3 Hydrology

The approximate elevation of the site was ~60 - 65m Above Ordnance Datum (AOD). The anticipated groundwater flow direction is given in Table 2.2.

Table 2.2 Hydrological Assessment

Type	Direction	Notes
Surface water	SE	In line with overall topography of the area sloping down by <2 – 3 to the southeast.
Groundwater	SE/E	In line with overall topography of the area sloping down by <2 – 3 degrees to the southeast

2.4 Radon Gas

The site is in a lower probability radon area where less than 1% of homes are estimated to be at or above the Action Level. Therefore, no radon protective measures are necessary in the construction of new dwellings or extensions.

Section 3 Site History

3.1 Historic Map Study

The historic maps referred to are appended to this report (Appendix B).

Table 3.1 Historic Development of the Site

Site History	Date Range	
	From	To
The earliest published plan of the site shows Padnell Brick and Tile Works located on the south of the site with associated buildings arranged around a courtyard (possibly Farm Buildings), a main L shaped building of Padnell Grange was around 20m north of the courtyard and buildings, facing east with a rectangular building to its rear (west). A Clay Mill and small buildings were located within the northeast corner, and a Clay Pit on the northwest corner. There was a Pond 20 x 15m on the southeast and a Pond 15 x 8m on the east.	1868	1870
The Brick and Tile Works had been extended over the eastern part of the site near the Clay Mill. The original buildings around the courtyard were now labelled Padnell.	1870	1897
There was a Pond 60 x 20m across the southwest boundary (this was no longer in place on the 1909 map). A Kiln was noted within the northwest corner onsite (no longer in this location on the 1909 map).	1897	1932
The Brick and Tile Works was now labelled as Disused. The Clay Pit onsite was no longer labelled as such, it did not appear to have been filled in on the map which showed a change in level around the perimeter. A 35 x 13m rectangular shape potentially a building was located north of the centre of site, this was no longer present on the 1953 map – potential for associated Made Ground. A small rectangular building was immediately to its north (no longer present after the 1973 map).	1932	1942
An approximately 17 x 10m building was on the map west of the courtyard buildings, this was confirmed on the 1947 aerial photograph.	1942	1953
The 1953 map showed the old Brick Kiln and Tile Works machinery on the east of the site to have been dismantled and removed.	1953	1960
The 1960 map showed a Glasshouse around 30 x 17m south of the courtyard buildings, this appeared as a normal building structure without glass on the 1973 map.	1960	1932
The 1962 map showed a building measuring around 30m x 5m, southeast of the main courtyard buildings.	1962	1970
The courtyard buildings appeared to have been extended to the north.	1970	1973
The site was labelled Padnelll Grange on the 1973 map. The 1973 map showed the Ponds (20 x 15m and 15 x 8m) east on site were no longer present – this was corroborated by the site walkover which showed that there are still natural depressions in these locations, and they do not appear to have been infilled.	1973	1992
The 1992 map showed the buildings south and east of the courtyard buildings to have become adjoined, this was confirmed by the 1999 aerial photograph.	1992	2025
The 2025 aerial photograph shows the main former house of Padnell Grange to be adjoined with the building to its west.	2025	Present

Table 3.2 Historic Off-site Development

Off-site Development	Date Range	
	From	To
The earliest published plan of the area shows the wider area predominantly comprised open land, with woodland to the north/northeast. A Clay Pit was labelled 25m northeast (labelled Old Clay Pit and therefore disused on the 1897 map). The Clay Pit onsite extended 15m to the west. Machinery for the Padnell Brick and Tile Works extended 130m to the east from site, with a Brick Kiln 120m east. There was a Pond 25m diameter 75m southeast and a Pond 20m diameter 110m west (no longer recorded after the 1949 aerial photograph). Orchards were noted 85m east.	1868	1870
A Clay Pit was labelled in Padnell Cuts Wood 140m north (labelled Old Clay Pit on subsequent maps and therefore disused).	1870	1897
The 1897 map showed the onsite Clay Pit to have extended to 75m west. Old Clay Pits were labelled immediately north of site in Padnell Cuts Wood. A Pond 10m diameter was noted in the Clay Pit 15m northwest (no longer present on the 1970 map).	1897	1909
The 1909 map showed a new Kiln located 50m northwest, not present after the 1953 map. The onsite Clay Pit had extended 120m to the west.	1909	1932
The 1932 map showed a polygonal Pond around 50m x 20m <5m north (no longer present after the 1954 map. A Pond was 100m west of the Clay Pit (no longer recorded after the 1970 map due to housing developments). The Orchards were no longer present 85m east.	1932	1953
The 1953 map showed the old Brick Kiln and Tile Works machinery on the east of the site to have been dismantled and removed.	1953	1960
Continued residential development was shown on the map from 100m west.	1960	1969
The 1969 map showed residential development of private houses with private gardens on Padnell Cuts Wood from 40m northeast. The Clay Pit was no longer present in this location. An Electrical Sub-Station was noted on this development, 230m northeast. The 1970 map showed this development to have continued west, at a minimum distance of 60m. There were Electrical Sub-Stations 85m northwest, and 190m northwest.	1969	1973
Further residential development had encroached to the immediate west and southern boundaries.	1973	1982
A Golf Course was noted immediately east of the site boundary and extending to the northeast and southwest.	1982	2016
A Pumping Station was noted 220m northeast.	2016	Present

Table 3.3 Potential Sources of Pollution Indicated from Historic Maps

Source	Direction	Distance (m)	Date Range	
			From	To
On Site				
Padnell Brick and Tile Works	0	0	1868	1932
Clay Mill (and workings)	0	0	1868	1953
Clay Pit – Potential Made Ground	0	0	1868	Present
Pond 20 x 15m	0	0	1868	1973
Pond 15 x 8m	0	0	1868	1973
Pond 60 x 20m	0	0	1897	1909
Kiln	0	0	1897	1909
Potential Made Ground – 13 x 35m	0	0	1933	Present
Made Ground (small building)	0	0	1933	Present
Potential ACM on dilapidated buildings	0	0	Unknown	Present

Source	Direction	Distance (m)	Date Range	
			From	To
Off Site				
Old Clay Pits	N	<5	1897	1969
Pond 50m x 20m	N	<5	1932	1954
Pond 10m diameter	NW	15	1897	1970
Clay Pit	NE	25	1868	1897
Kiln	NW	50	1897	1953
Pond/Old Chalk Pit 25m diameter	SE	75	1868	1942
Electrical Sub-Station	NW	85	1969	Present
Pond	W	100	1932	1970
Pond 20m diameter/Old Chalk Pit	W	110	1868	1949
Orchards	E	110	1868	1932
Brick Kiln	E	120	1868	1953
Clay Pit onsite extending to maximum 120m west	W	0 - 120	1868	1962
Padnell Brick and Tile Works Machinery	E	130	1868	1953
Clay Pit	N	140	1870	1897
Electrical Sub-Station	NW	190	1969	Present
Pumping Station	NE	220	2016	Present
Electrical Sub-Station	NE	230	1969	Present

3.2 Bomb damage and the potential for Unexploded Ordnance

Based on the assessment of the historical maps, and the ZeticaUXO Risk Maps [online, accessed 6th August 2025], the site is in a moderate bombing density area from WW2 ordnance (areas indicated as having a bombing density of 15 to 49 bombs per 1000acre).

It is therefore recommended that a specialist UXO risk assessment is undertaken to determine the risk to the proposed construction phase of the development.

Section 4 Environmental Records and Consultation

4.1 Dataset Information

A copy of the report is appended to this report in Appendix C and summarised in Table 4.1, Table 4.2 and Table 4.3.

Table 4.1 Environmental Significance of Data

Source	Direction	Distance (m)
Contaminated Land Register Entries and Notices	None	None
Discharge Consents [1]	NE	169
Integrated Pollution Prevention and Control	None	None
Local Authority Pollution Prevention and Controls	None	None
Local Authority Pollution Prevention and Control Enforcements	None	None
Nearest Surface Water Feature	E	73
Pollution Incidents to Controlled Waters (Significant Incidents only)	None	None
Prosecutions Relating to Authorised Processes	None	None
Registered Radioactive Substances	None	None
Substantiated Pollution Incident Register [2]	S	251
Nearest Potable Abstraction Point	None	None
Nearest Non-Potable Abstraction Point	E	945
Water Industry Act Referrals	None	None
Source Protection Zones[3]	Onsite	0
Extreme Flooding from Rivers or Sea Without Defences	None	None
Flooding from Rivers or Sea Without Defences	None	None
Areas Benefiting from Flood Defences	None	None
Flood Water Storage Areas	None	None
Flood Defences	None	None
BGS Recorded Landfill Sites	None	None
Historical Landfill Sites	None	None
Licensed Waste Management Facilities	None	None
Local Authority Recorded Landfill Sites	None	None
Potentially Infilled Land (Non-Water) [4]	Onsite	0
Potentially Infilled Land (Water) [5]	Onsite	0
Registered Landfill Sites	None	None
Registered Waste Transfer Sites	None	None
Registered Waste Treatment or Disposal Sites	None	None
Control of Major Accident Hazards Sites (COMAH)	None	None
Notification of Installations Handling Hazardous Substances	None	None
Planning Hazardous Substance Consents	None	None

Note(s): [1] Sewage Discharges - Pumping Station - Water Company. [2] Sewage Materials: Grey Water. [3] Inner Zone1c (inner protection Zone) onsite Zone III (Total Catchment) zone of special interest onsite. [4] Multiple onsite. [5] Multiple onsite.

The contemporary trades listed in Table 4.2 are only those considered to be viable potential sources of contamination that could impact the site.

Table 4.2 Contemporary Trade Directory

Contemporary Trade Directory within 250m	Direction	Distance (m)	Status
Albany Engineering Services Ltd	N	82	Inactive

Contemporary Trade Directory within 250m	Direction	Distance (m)	Status
Oliver Richard Motor Vehicle Engineer	SW	86	Active
Widen Electronic Solutions - Manufacturers & Assemblers	W	114	Inactive
Down To Earth Drainage & Guttering - Commercial Cleaning Services	NW	224	Inactive

Table 4.3 Geological Hazards

Source	Onsite Type
Coal Mining Affected Areas	None noted
Mining Instability	None noted
Natural and Mining Cavities	Mining Cavity 25m NE [1] 169m NE (Unknown x 15) 222m NE (Sinkhole x 1) [2]
Potential for Collapsible Ground Stability Hazards	Very Low Hazard Potential
Potential for Compressible Ground Stability Hazards	Very Low Hazard Potential
Potential for Ground Dissolution Stability Hazards	No Hazard potential
Potential for Landslide Ground Stability Hazards	Very Low Hazard Potential
Potential for Running Sand Ground Stability Hazards	Low Hazard Potential
Potential for Shrinking or Swelling Ground Stability Hazards	Moderate Hazard Potential

Notes: [1] Historical brick and tile works. [2] Natural cavities likely to be associated with Chalk underlying the Lambeth Group.

4.2 Site Sensitivity Maps

No other significant potential sources of contamination were shown on the Landmark Envirocheck Site Sensitivity Maps, which have not been listed in Table 4.1, Table 4.2 and Table 4.3, and copies of which are appended to this report (Appendix C).

4.3 Regulatory Enquires

As part of the Preliminary Investigation Report the local authority was contacted and asked to provide any information on potential risks pertaining the site. The information provided by the local authority has been presented in Appendix E. A summary of pertinent information is outlined below:

> *At the time of report writing, a Local Authority enquiry was in progress and will be updated into a future revision of this report. Appendix E has therefore been left blank at this stage.*

4.4 Soil Geochemistry

The results of this survey are contoured on the Landmark Environmental check report (Appendix D). The results of the local soil chemistry are presented in Table 4.4.

Table 4.4 Soil Geochemistry

Determinant	Indicated Soil Geochemistry (mg kg^{-1})
Arsenic	<15
Cadmium	<1.8

Determinant	Indicated Soil Geochemistry (mg kg^{-1})
Chromium	60 - 90
Lead	100 - 200
Nickel	15 - 30

No exceedances above the recommended GAC for the 'residential with homegrown produce' end user.

Section 5 Data Collection Summary

5.1 General

Table 5.1 summarises the site Environs, which include geology, hydrogeology, the risk from radon and potential risk from flooding.

Table 5.1 Site Environs

Environs	Summary
Geology	London Clay Formation Bedrock over majority of site and underlying Lambeth Group to northwest corner of site.
Hydrogeology	The London Clay Formation bedrock was unproductive strata and act as an aquiclude to the deep groundwater regime. Lambeth Group classed as Secondary Bedrock Aquifer - Productive Bedrock Aquifer.
Source Protection Zone (SPZ)	Inner Zone1c (Inner protection Zone) onsite associated with the sub-surface chalk. Zone III (Total Catchment) zone of special interest onsite associated with the sub-surface chalk.
Surface Water Flow	SE in line with overall topography of the area.
Groundwater Flow	SE in line with overall topography of the area
Radon	The site is in a lower probability radon area where radon protective measures are necessary in the construction of new dwellings or extensions.
Flooding	The site had Limited Potential for Groundwater Flooding to Occur on the Northwest Corner Onsite Remaining Site No Potential.
Geological Hazard	Natural and Mining Cavities - 169m NE (Unknown x 15) Natural 25m NE 222m NE (Sinkhole x 1) Potential for Collapsible Ground Stability Hazards - Very Low Hazard Potential Potential for Compressible Ground Stability Hazards - Very Low Hazard Potential Potential for Ground Dissolution Stability Hazards - No Hazard potential Potential for Landslide Ground Stability Hazards - Very Low Hazard Potential Potential for Running Sand Ground Stability Hazards - Low Hazard Potential Potential for Shrinking or Swelling Ground Stability Hazards - Moderate Hazard Potential
Local Authority Response	At the time of report writing, a Local Authority enquiry was in progress and will be updated into a future revision of this report.
Soil Chemistry	No exceedances above the recommended GAC for the 'residential with homegrown produce' end user.
Ecological	General woodland and vegetation in private gardens.

Table 5.2 provides a summary of potential on-site and off-site contamination sources identified during the study of the historic maps, the Landmark Envirocheck Dataset Report and the Site Walkover.

Table 5.2 Summary of Potential Contamination Sources

Contaminative Source	Direction	Distance (m)	Date Range		Data Source
			From	To	
On-Site					
Padnell Brick and Tile Works	0	0	1868	1932	HM
Clay Mill (and workings)	0	0	1868	1953	HM
Clay Pit – Potential Made Ground	0	0	1868	Present	HM/DS
Pond 20 x 15m	0	0	1868	1973	HM
Pond 15 x 8m	0	0	1868	1973	HM
Pond 60 x 20m	0	0	1897	1909	HM
Kiln	0	0	1897	1909	HM
Potential Made Ground – 13 x 35m	0	0	1933	Present	HM
Made Ground (small building)	0	0	1933	Present	HM
Potentially Infilled Land (Non-Water) Multiple Onsite	-	0	Unknown	Present	DS
Potentially Infilled Land (Water) Multiple Onsite	-	0	Unknown	Present	DS
Potential ACM on dilapidated buildings	0	0	Unknown	Present	SW
Off-Site					
Old Clay Pits	N	<5	1897	1969	HM
Pond 50m x 20m	N	<5	1932	1954	HM
Pond 10m diameter	NW	15	1897	1970	HM
Clay Pit	NE	25	1868	1897	HM
Kiln	NW	50	1897	1953	HM
Pond	SE	75	1868	Present	HM
Albany Engineering Services Ltd	N	82	Inactive	Unknown	DS
Electrical Sub-Station	NW	85	1969	Present	HM
Oliver Richard Motor Vehicle Engineer	SW	86	Active	Present	DS
Pond	W	100	1932	1970	HM
Pond 20m diameter/Old Chalk Pit 25m diameter	W	110	1868	1949	HM
Orchards	E	110	1868	1932	HM
Widen Electronic Solutions - Manufacturers & Assemblers	W	114	Inactive	Unknown	DS
Brick Kiln	E	120	1868	1953	HM
Clay Pit onsite extending to maximum 120m west	W	0 - 120	1868	1962	HM
Padnell Brick and Tile Works Machinery	E	130	1868	1953	HM
Clay Pit	N	140	1870	1897	HM
Electrical Sub-Station	NW	190	1969	Present	HM
Pumping Station	NE	220	2016	Present	HM
Down To Earth Drainage & Guttering - Commercial Cleaning Services	NW	224	Inactive	Unknown	DS
Electrical Sub-Station	NE	230	1969	Present	HM
Substantiated Pollution Incident Register	S	251	Unknown	Unknown	DS

Note(s): SW – Site walkover, HM – Historic Maps, DS – Datasheet, GC – Geochemistry, LA – Local Authority, GE Google Earth

Section 6 Preliminary Conceptual Site Model

6.1 Sources and Pathways of Contamination

The Landmark Site Specific Envirocheck Report and Site Walkover have been used to identify potential contaminative sources. These sources have been presented in Table 5.2. An assessment of the likely pathways and the likelihood of each contaminative source that was considered a risk has been presented in Sections 6.2 to 6.4.

6.2 Potential Pathways

A review of the potential pathways on and off the site has been undertaken based on the site, ground conditions, hydrology and scientific knowledge of the behaviour of the contaminants in the ground. The pathways applicable to the site and the proposed development have been marked in Table 6.1.

Table 6.1 Applicable Pathways

Pathway	Present	Comment
Inhalation of dust	✓	Future users of the site (End Users) Construction workers on-site (Site Workers) Service and maintenance workers (Site Maintenance) Site neighbours and wider public (Off-site Users)
Inhalation of vapour/gases	✓	
Ingestion and absorption via direct contact	✓	
Migration via surface runoff	✓	Surface Water
Migration in solution via groundwater	✓	Shallow Aquifer Deep Aquifer
Migration of gases via permeable soils	✓	Future users of the site (End Users) Construction workers on-site (Site Workers) Service and maintenance workers (Site Maintenance) Site neighbours and wider public (Off-site Users) Buildings and Confined Spaces
Direct contact with construction material	✓	Buried Structures
Services and utilities	✓	Buried Services

6.3 Potential Sources of On-site Contamination.

The sources are presented in Table 6.2.

Table 6.2 On-site Potential Contamination Sources

Source	Likely	Reasoning
Padnell Brick and Tile Works	✓	Onsite, duration of operation.
Clay Mill (and workings)	✓	

Source	Likely	Reasoning
Clay Pit – Potential Made Ground	✓	
Pond(s)	✓	Appear to be natural soils from site walkover without infill but needs confirmation.
Pond 60 x 20m	✓	Short duration, now under building on site. but needs confirmation.
Kiln	✓	Potential waste/clinker.
Potential Made Ground – 13 x 35m	✓	Unknown fill material.
Made Ground (small building)		
Potentially Infilled Land (Non-Water) Multiple Onsite		
Potentially Infilled Land (Water) Multiple Onsite		
Potential ACM on dilapidated buildings	✓	Fragments of ACM.

6.4 Potential Off-site Sources of Contamination

These sources have been presented in given in Table 6.3.

Table 6.3 Off-site Potential Contamination Sources

Source	Direction	Distance (m)	Likely	Reasoning
Old Clay Pits	N	<5	✓	Proximity to site, unknown fill material.
Pond 50m x 20m	N	<5	✓	
Pond 10m diameter	NW	15	✓	
Clay Pit	NE	25	✓	
Kiln	NW	50	✓	Up hydraulic gradient
Pond	SE	75		Remains a Pond presently.
Albany Engineering Services Ltd	N	82		Topographically distant. Off hydraulic gradient.
Electrical Sub-Station	NW	85		Topographically distant.
Oliver Richard Motor Vehicle Engineer	SW	86		Off hydraulic gradient.
Pond	W	100		
Pond 20m diameter/Old Chalk Pit 25m diameter	W	110		
Orchards	E	110		
Widen Electronic Solutions - Manufacturers & Assemblers	W	114		
Kiln	E	120		
Clay Pit onsite extending to maximum 120m west	W	0 - 120	✓	Proximity to site.
Padnell Brick and Tile Works Machinery	E	130		Off hydraulic gradient.
Clay Pit	N	140		
Electrical Sub-Station	NW	190		Topographically distant.
Pumping Station	NE	220		Off hydraulic gradient.
Down To Earth Drainage & Guttering - Commercial Cleaning Services	NW	224		Topographically distant.
Electrical Sub-Station	NE	230		Off hydraulic gradient.

Source	Direction	Distance (m)	Likely	Reasoning
Substantiated Pollution Incident Register	S	251		

6.5 Potential Contaminants

Table 6.4 presents the range of possible contaminants associated with the onsite and off-site activities and sources identified following a review of historical maps and datasets.

Table 6.4 Potential Contaminants

Potential Contaminative Sources	Contaminants / Chemical Properties
Potential ACM	Asbestos
Padnell Brick and Tile Works; Clay Mill (and workings)	Metals, Semi-metals and non-metals, PAHs, TPHs, pH, Asbestos, Ground Gas
Potentially Infilled Land (multiple, water and non-water, onsite)/ Clay Pit – Potential Made Ground Onsite	Metals, Semi-metals and non-metals, PAHs, TPHs, pH, Asbestos, Ground Gas
Kilns on and off site	Metals, Semi-metals and non-metals, PAHs, TPHs, pH, Asbestos, Ground Gas
Made Ground/ Potentially Infilled Land (multiple, water and non-water, off site)/ Old Clay Pits/Ponds offsite	Metals, Semi-metals and non-metals, PAHs, TPHs, pH, Asbestos, Ground Gas

6.6 Potential Exposure Receptors

The assessment for potential receptors is presented in Table 6.5.

Table 6.5 Potential Receptors

Potential Receptor		Present
Human Health	Future users of the site (End Users)	✓
	Construction workers on-site (Site Workers)	✓
	Service and maintenance workers (Site Maintenance)	✓
	Site neighbours and wider public (Off-site Users)	✓
Groundwater / Controlled Waters	Surface Water	✓
	Shallow Aquifer	✓
	Deep Aquifer	✓
Buildings & Materials	Buildings and Confined Spaces	✓
	Buried Structures	✓
	Buried Services	✓
Ecosystems	Flora and fauna	✓

6.7 Preliminary Conceptual Site Model and Risk Assessment

A preliminary risk assessment has been undertaken based on the proposed development. The assessment has been based on the likelihood of the presence of a pollutant linkage.

A pollutant linkage is the relationship between a contaminant source, a pathway and a receptor. Unless all three elements of a pollutant linkage are present, a risk is not considered to exist. Each of the three elements has been considered within Table 6.1 to Table 6.5. The preliminary conceptual site model and risk assessment is presented in Table 6.6. The classification tables on which the level of risk has been determined have been modified from 'Contaminated land risk assessment: A guide to good practice, 2001, CIRIA C552' and are presented in Appendix G.

Table 6.6 Preliminary Conceptual Site Model and Risk Assessment Methodology

Source (Table 6.2 & Table 6.3)	Potential Contaminant (Table 6.4)	Exposure Pathway (Table 6.1)	Receptor (Table 6.5)	Initial Assessment from Preliminary Investigation Report Information			Comments	Proposed Investigation
				Severity	Probability	Risk		
Potential ACM on dilapidated buildings Padnell Brick and Tile Works; Clay Mill (and workings) Potentially Infilled Land (multiple, water and non-water, onsite)/ Clay Pit – Potential Made Ground Onsite Kiln On-site historic and current site usage.	Metals, Semi-metals and non-metals, PAHs, Asbestos	Inhalation of dust	Site Workers/Site Maintenance	Medium	Low	Moderate/Low	Site located on bedrock of the London Clay Formation on the majority of the site apart from the northwest corner, which was classified as unproductive strata and would act as an aquiclude to the groundwater receptors. Northwest of site overlying the Lambeth Group which was classed as a Secondary Bedrock Aquifer and could support shallow groundwater.	Phase II ground investigation to confirm the ground conditions present and chemical testing prior to undertaking a generic quantitative risk assessment.
			End Users	Medium	Low	Moderate/Low		
			Off-site Users	Medium	Unlikely	Low		
	PAHs, TPHs, Ground Gas	Inhalation of vapour/gases	Site Workers/Site Maintenance	Mild	Unlikely	Very low		
			End Users					
			Off-site Users	Minor	Unlikely	Very low		
	Metals, Semi-metals and non-metals, PAHs, TPHs, pH	Ingestion and absorption via direct contact	Site Workers/Site Maintenance	Medium	Low	Moderate/Low		
			End Users	Medium	Unlikely	Low		
	Metals, Semi-metals and non-metals, PAHs, TPHs, pH	Migration via surface runoff	Surface Water	Minor	Unlikely	Very low		
		Migration in solution via groundwater	Surface Water	Minor	Unlikely	Very low		
			Shallow Aquifer	Medium	Unlikely	Low		
			Deep Aquifer	Minor	Unlikely	Very low		
		Direct contact with construction material	Buried Structures	Mild	Low	Low		
			Buried Services					
	PAHs, TPHs, Ground Gas	Migration of gases via permeable soils	Site Workers/Site Maintenance	Mild	Low	Low		
			End Users					
			Off-site Users	Minor	Unlikely	Very low		
			Building and Confined Spaces					
Made Ground/ Potentially Infilled Land (multiple, water and non-water, offsite)/ Old Clay Pits/Ponds offsite Kiln Off-site sources from which potential contamination would have migrated onto the site.	Metals, Semi-metals and non-metals, PAHs, Asbestos	Inhalation of dust	Site Workers/Site Maintenance	Medium	Low	Moderate/Low	Site located on bedrock of the London Clay Formation on the majority of the site apart from the northwest corner, which was classified as unproductive strata and would act as an aquiclude to the groundwater receptors. Northwest of site overlying the Lambeth Group which was classed as a Secondary Bedrock Aquifer and could support shallow groundwater.	Phase II ground investigation to confirm the ground conditions present and chemical testing prior to undertaking a generic quantitative risk assessment.
			End Users	Medium	Low	Moderate/Low		
			~~Off-site Users~~	-	-	-		
	PAHs, TPHs, Ground Gas	Inhalation of Vapour/gases (including Radon)	Site Workers/Site Maintenance	Mild	Low	Low		
			End Users	Minor	Unlikely	Very low		
			~~Off-site Users~~	-	-	-		
	Metals, Semi-metals and non-metals, PAHs, TPHs, pH	Ingestion and absorption via direct contact	Site Workers/Site Maintenance	Mild	Unlikely	Very low		
			End Users	Mild	Unlikely	Very low		
	Metals, Semi-metals and non-metals, PAHs, TPHs, pH	Migration via surface runoff	Surface Water	Minor	Unlikely	Very low		
		Migration in solution via groundwater	Surface Water	Minor	Unlikely	Very low		
			Shallow Aquifer	Mild	Low	Low		
			Deep Aquifer	Minor	Unlikely	Very low		
		Direct contact with construction material	Buried structures	Minor	Unlikely	Very low		
			Buried Services	Minor	Unlikely	Very low		
	PAHs, TPHs, Ground Gas	Migration of gases via permeable soils	Site Workers/Site Maintenance	Medium	Unlikely	Low		
			End Users	Medium	Unlikely	Low		
			~~Off-site Users~~	-	-	-		
			Building and confined spaces	Mild	Low	Low		

Section 7 Recommendations

7.1 General

Based on the information obtained during the compilation of this Preliminary Investigation and the preliminary conceptual site model, a potential for a **very low, to moderate/low** risk of contamination has been identified.

7.2 UXO

It is recommended that a specialist UXO risk assessment is undertaken to determine the risk to the proposed construction phase of the development.

7.3 Radon

The site is in a lower probability radon area where less than 1% of homes are estimated to be at or above the Action Level. Therefore, no radon protective measures are necessary in the construction of new dwellings or extensions.

7.4 Proposed Further Site Works

The general requirements for further environmental investigation are presented in Table 7.1.

Table 7.1 Proposed Further Environmental Investigation

Proposed Works	General Purpose	Required
Investigatory Holes	To collect sufficient samples for a robust assessment	✓
Laboratory Testing	To quantify the risks identified in the Conceptual Site Model	✓
Risk Assessment	Assess pollutant linkages based on current contaminated land guidance and screening criteria's	✓
Borehole well installation	To allow for continued groundwater and/or gas monitoring	✓
Remediation	If the site-specific risk assessment reveals that the site was contaminated	TBC
Validation & Verification	To validate and verify the remedial objectives based on the site-specific risk assessment	TBC

Note(s): TBC – To be confirmed

7.5 Discovery Strategy

There may be areas of contamination not identified during the course of the investigation. Such occurrences may also be discovered during the demolition and construction phases for the redevelopment of the site.

List of Figures

Figure 1 – Site Location Map 20

List of Appendices

Appendix A **Proposed Development Plans**
Appendix B **Country Series and Ordnance Survey Maps**
Appendix C **Landmark Envirocheck Report**
Appendix D **Site Sensitivity Maps**
Appendix E **Local Authority Search Data**
Appendix F **Site Photographs**
Appendix G **Risk Assessment Criteria**

Figure 1 – Site Location Map

Job Number 22035	**Project** Padnell Grange, Padnell Road, Cowplain, Waterlooville, Hampshire, PO8 8ED
Client Stonebond Properties (Guildford) Limited	**Date** August 2025

Appendix A Proposed Development Plans

PADNELL ROAD

CHERRY TREE AVENUE

PADNELL CUTS WOOD

WATERLOOVILLE GOLF COURSE

Primary Route

Secondary Route

Building 1
Plots 5-15

Building 2
Plots 82-90

PLAY AREA

Turning head

Grave

SuDS

BCP

Protective netting

Plot 01
Plot 02
Plot 03
Plot 04
Plot 16
Plot 17
Plot 18
Plot 19
Plot 20
Plot 21
Plot 22
Plot 23
Plot 24
Plot 25
Plot 26
Plot 27
Plot 28
Plot 29
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Plot 71
Plot 72
Plot 73
Plot 74
Plot 75
Plot 76
Plot 77
Plot 78
Plot 79
Plot 80
Plot 81

N
W
E
S

0 10m 20m

KEY

Site boundary

Site access

architecture

Coloured Site Layout
Padnell Grange, Waterlooville
24143 / C101

Scale 1:500 @ A1 March 2026

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Appendix B Country Series and Ordnance Survey Maps

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
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
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
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. 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
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
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
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

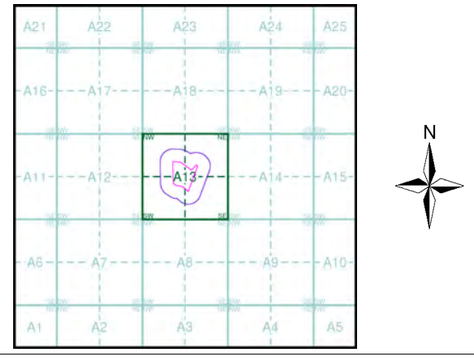
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community 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
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m 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

soils LIMITED
Geotechnical & Environmental Consultants

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Hampshire & Isle Of Wight	1:10,560	1870	3
Sussex	1:10,560	1880	4
Hampshire & Isle Of Wight	1:10,560	1897 - 1898	5
Sussex	1:10,560	1899	6
Hampshire & Isle Of Wight	1:10,560	1909 - 1910	7
Sussex	1:10,560	1914	8
Sussex	1:10,560	1914	9
Sussex	1:10,560	1914	10
Hampshire & Isle Of Wight	1:10,560	1931 - 1933	11
Hampshire & Isle Of Wight	1:10,560	1931	12
Hampshire & Isle Of Wight	1:10,560	1942	13
Historical Aerial Photography	1:10,560	1947 - 1949	14
Ordnance Survey Plan	1:10,000	1962 - 1963	15
Ordnance Survey Plan	1:10,000	1966	16
Ordnance Survey Plan	1:10,000	1975	17
Ordnance Survey Plan	1:10,000	1980 - 1982	18
Havant	1:25,000	1983	19
Portsmouth	1:10,000	1988	20
Ordnance Survey Plan	1:10,000	1991 - 1992	21
10K Raster Mapping	1:10,000	2000	22
10K Raster Mapping	1:10,000	2006	23
VectorMap Local	1:10,000	2025	24

Historical Map - Slice A



Order Details

Order Number: 382729154_1_1
Customer Ref: 22035/DEE
National Grid Reference: 469950, 111130
Slice: A
Site Area (Ha): 2.84
Search Buffer (m): 1000

Site Details

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Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Fireproof Building
- Prominent Fireproof Building
- Non-fireproof Building
- Non-fireproof Building (non-dwelling)
- Factory, mill, and flour mill, with chimneys
- Factory, mill, and flour mill, without chimneys
- Power Station, drawn to scale
- Hydroelectric Power Station
- Radio Station, drawn to scale
- Telephone Station, drawn to scale
- Abandoned Open-pit Mine or Quarry
- Open-pit Salt Mine
- Pit
- Oil Deposit or Well
- Oil Seepage
- Tailings Pile
- Fuel Storage Tanks
- Natural Gas Tank
- Bench Mark
- Drill Hole
- Burial Mound
- Triangulation Point on Burial Mound
- Single-track Railroad
- Double-track Railroad and Station Building
- Coniferous Forest
- Deciduous Forest
- Mixed Forest
- Lawns
- Citrus Orchard
- Wet Ground
- Scattered Vegetation

243,8 Values for prominent elevations

186.0 Numbers for spot elevations, depth soundings, contour lines, etc.

0,2 Velocity of the current, width of river bed, depth of river

Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	ъ (–)
Д д (D)	Л л (L)	У у (U)	ы (Y)
Е е (E)	М м (M)	Ф ф (F)	ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Partly Demolished Buildings
- Demolished Buildings
- Built-Up Area with Fireproof Buildings Predominant
- Built-Up Area with Non-Fireproof Buildings Predominant
- Individual Fireproof Building
- Prominent Industrial Building
- Individual Dwelling, Fireproof
- Ruins of an Individual Dwelling
- Factory or Mill Chimney
- Factory or Mill with Chimney
- Factory or Mill without Chimney
- Mine or Open Pit Mine
- Operating Shaft or Mine
- Non-Operating Shaft or Mine
- Salt Mine
- Tailings Pile
- Pit
- Stone Quarry
- Gas Pump or Service Station
- Fuel Storage or Natural Gas Tank
- Oil or Natural Gas Derrick
- Small Hydroelectric Power Station
- Power Station
- Transformer Station
- Cemetery
- Burial Mound (height in metres)
- Triangulation Point on Burial Mound
- Triangulation Point
- Bench Mark
- Bench Mark (monumented)
- Telegraph Office
- Telephone Station
- Radio Station
- Radio Tower
- Airfield or Seaplane Base
- Landing Strip
- Main Highway
- Highway under Construction
- Improved Dirt Road (former truck road)
- Double-track Railroad with First Class Station
- Dismantled Railroad
- Railroad Under Construction
- Shore Embankment
- River or Ditch with Embankment
- Well
- Water Reservoir or Rain Water Pit
- Spring
- Isobath with value
- Heavy (Index) Contour Line
- Contour Line and Value
- Half Contour Line
- Spot Elevation Value
- Coniferous
- Deciduous
- Mixed
- Scrub

Key to Numbers on Mapping

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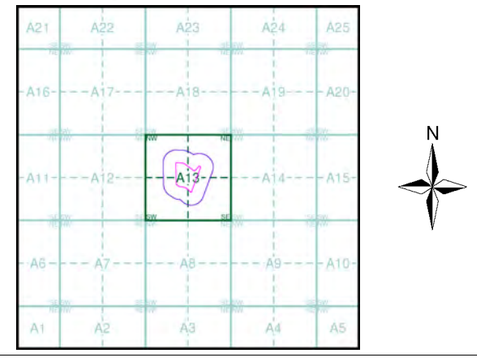
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Hampshire & Isle Of Wight	1:10,560	1870	3
Sussex	1:10,560	1880	4
Hampshire & Isle Of Wight	1:10,560	1897 - 1898	5
Sussex	1:10,560	1899	6
Hampshire & Isle Of Wight	1:10,560	1909 - 1910	7
Sussex	1:10,560	1914	8
Sussex	1:10,560	1914	9
Sussex	1:10,560	1914	10
Hampshire & Isle Of Wight	1:10,560	1931 - 1933	11
Hampshire & Isle Of Wight	1:10,560	1931	12
Hampshire & Isle Of Wight	1:10,560	1942	13
Historical Aerial Photography	1:10,560	1947 - 1949	14
Ordnance Survey Plan	1:10,000	1962 - 1963	15
Ordnance Survey Plan	1:10,000	1966	16
Ordnance Survey Plan	1:10,000	1975	17
Ordnance Survey Plan	1:10,000	1980 - 1982	18
Havant	1:25,000	1983	19
Portsmouth	1:10,000	1988	20
Ordnance Survey Plan	1:10,000	1991 - 1992	21
10K Raster Mapping	1:10,000	2000	22
10K Raster Mapping	1:10,000	2006	23
VectorMap Local	1:10,000	2025	24

Russian Map - Slice A



Order Details

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Customer Ref:	22035/DEE
National Grid Reference:	469950, 111130
Slice:	A
Site Area (Ha):	2.84
Search Buffer (m):	1000

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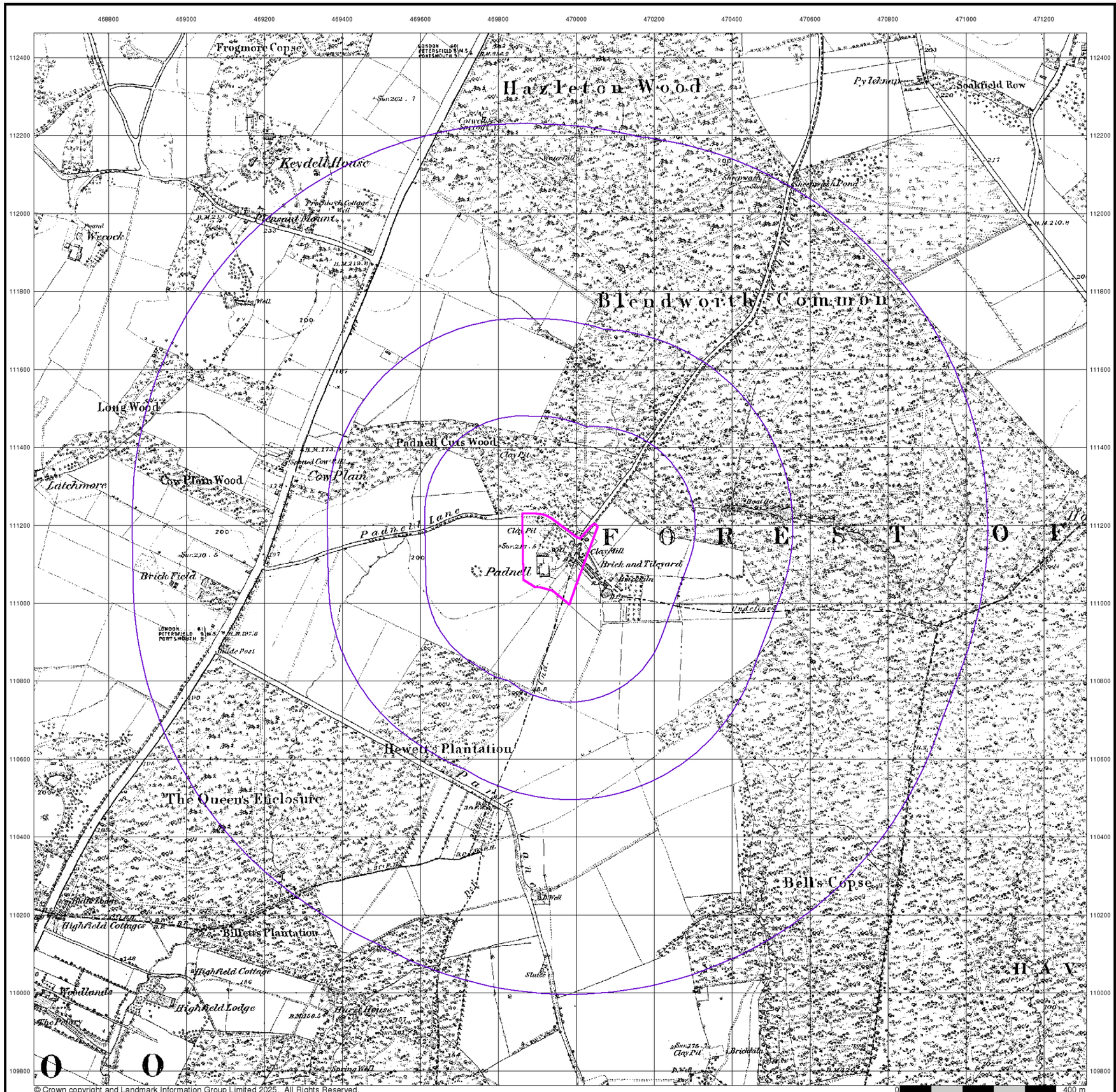

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Hampshire & Isle Of Wight

Published 1870

Source map scale - 1:10,560

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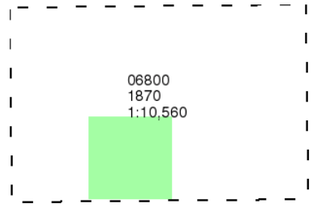
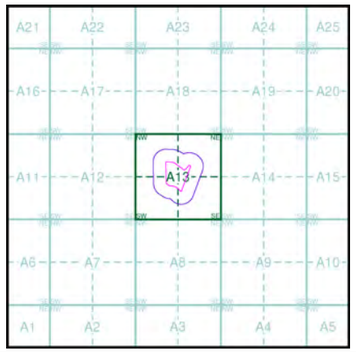
Map Name(s) and Date(s)



Historical Map - Slice A



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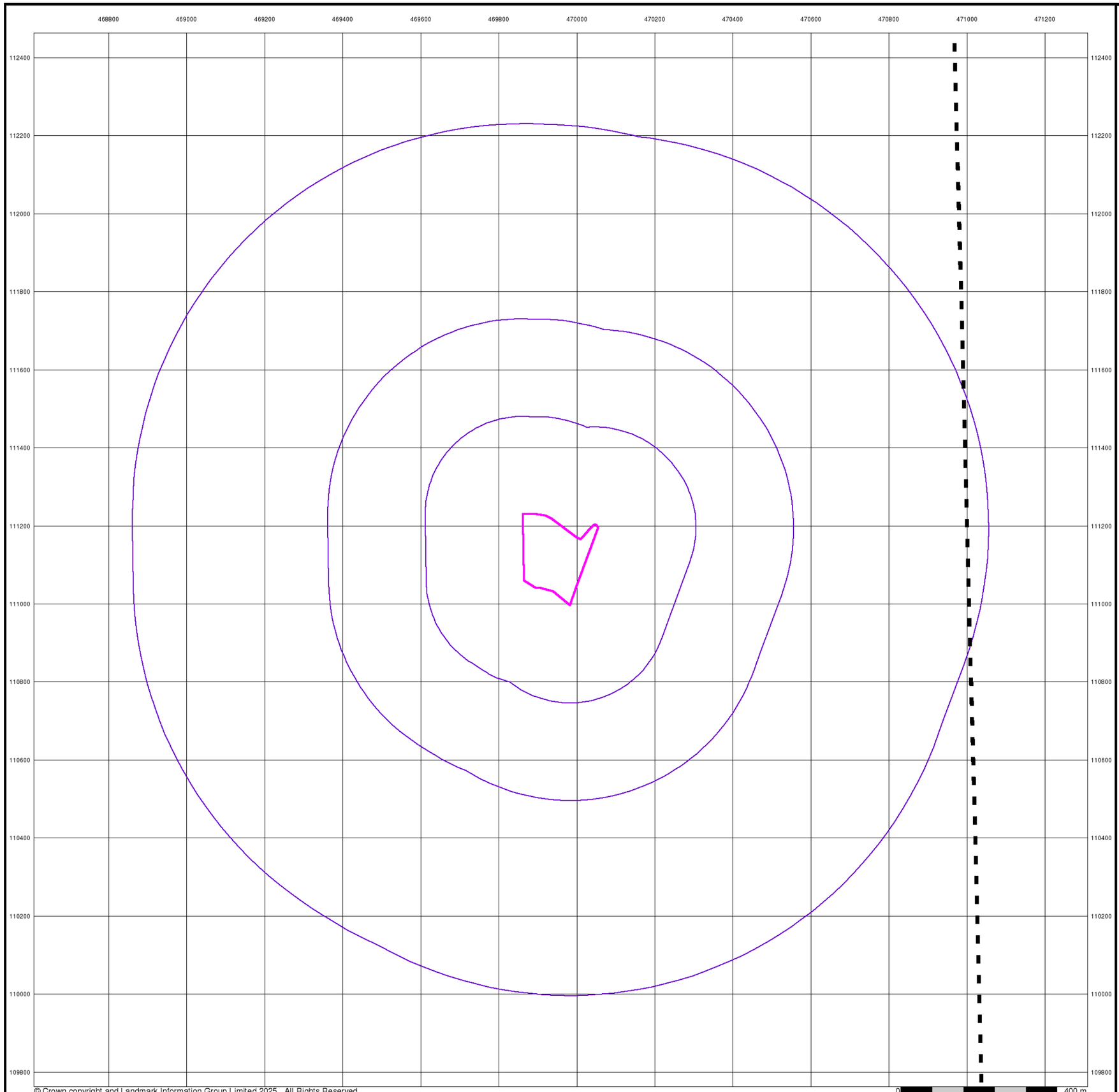

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Sussex

Published 1880

Source map scale - 1:10,560

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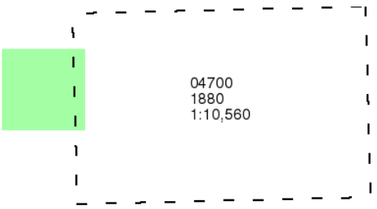
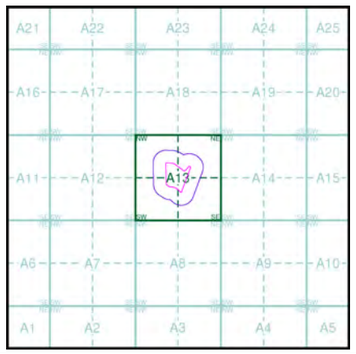


Historical Map - Slice A



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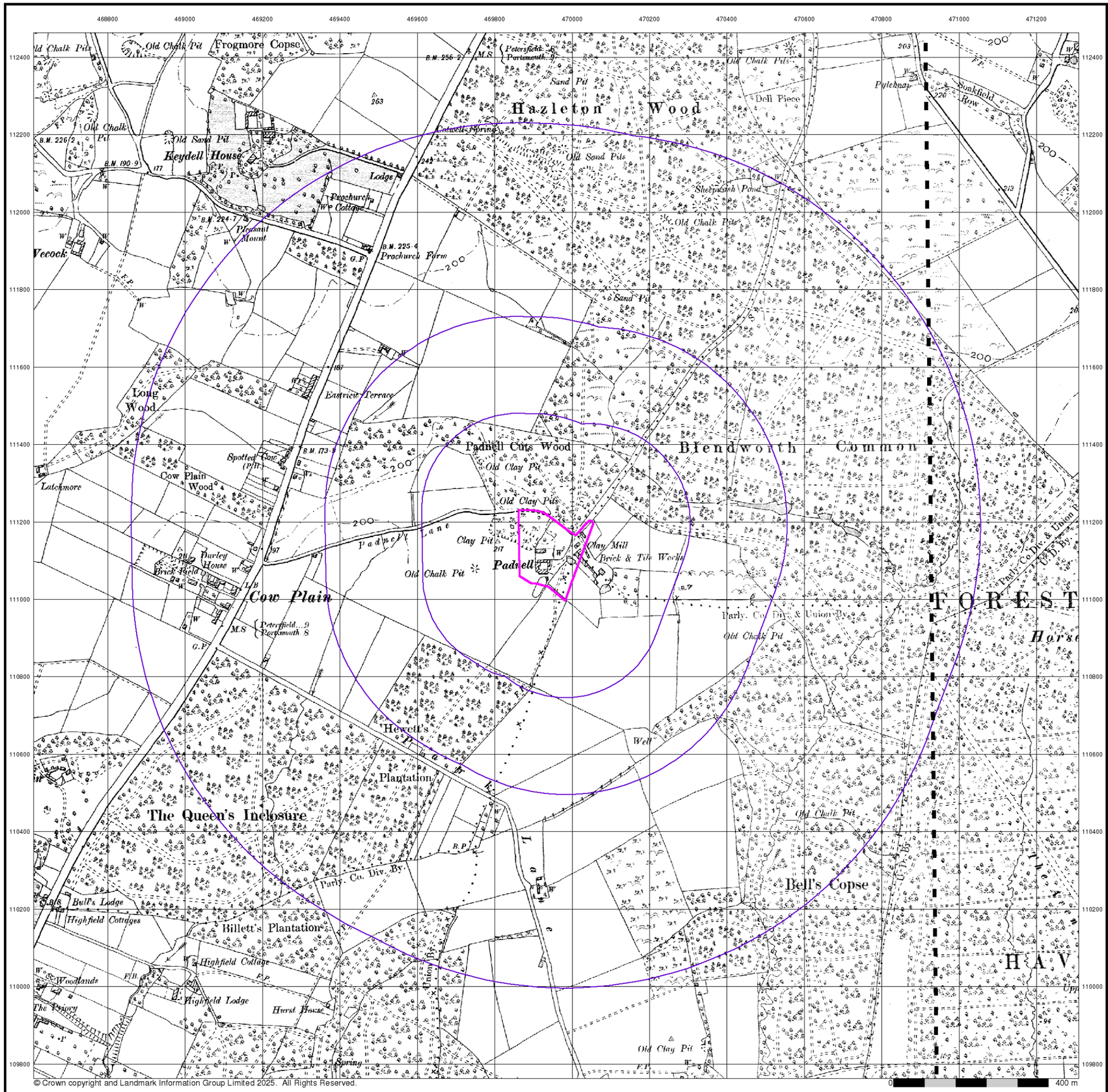

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Hampshire & Isle Of Wight

Published 1897 - 1898

Source map scale - 1:10,560

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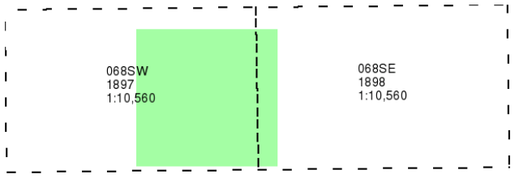
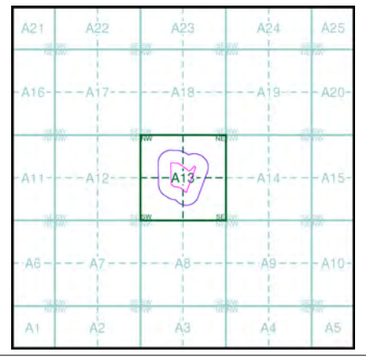


Historical Map - Slice A



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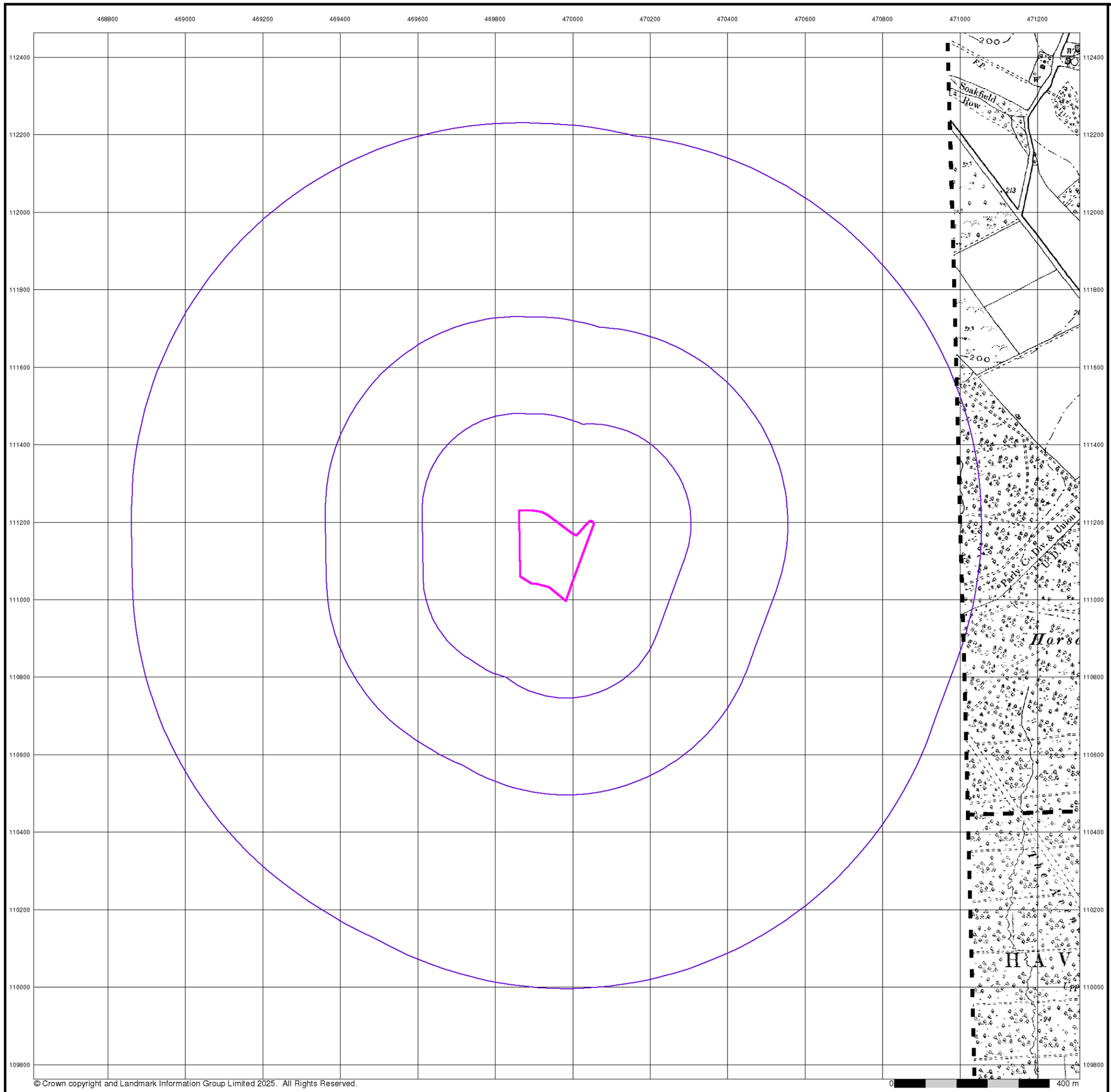

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Sussex

Published 1899

Source map scale - 1:10,560

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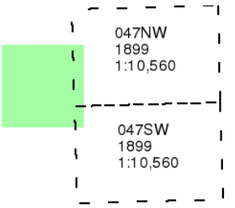
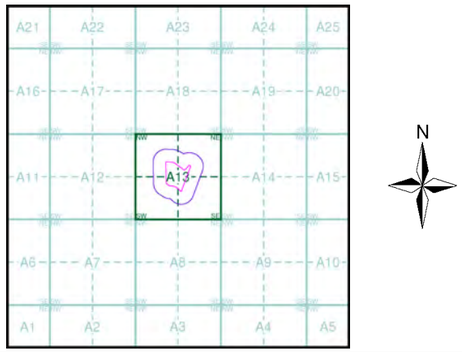


Historical Map - Slice A



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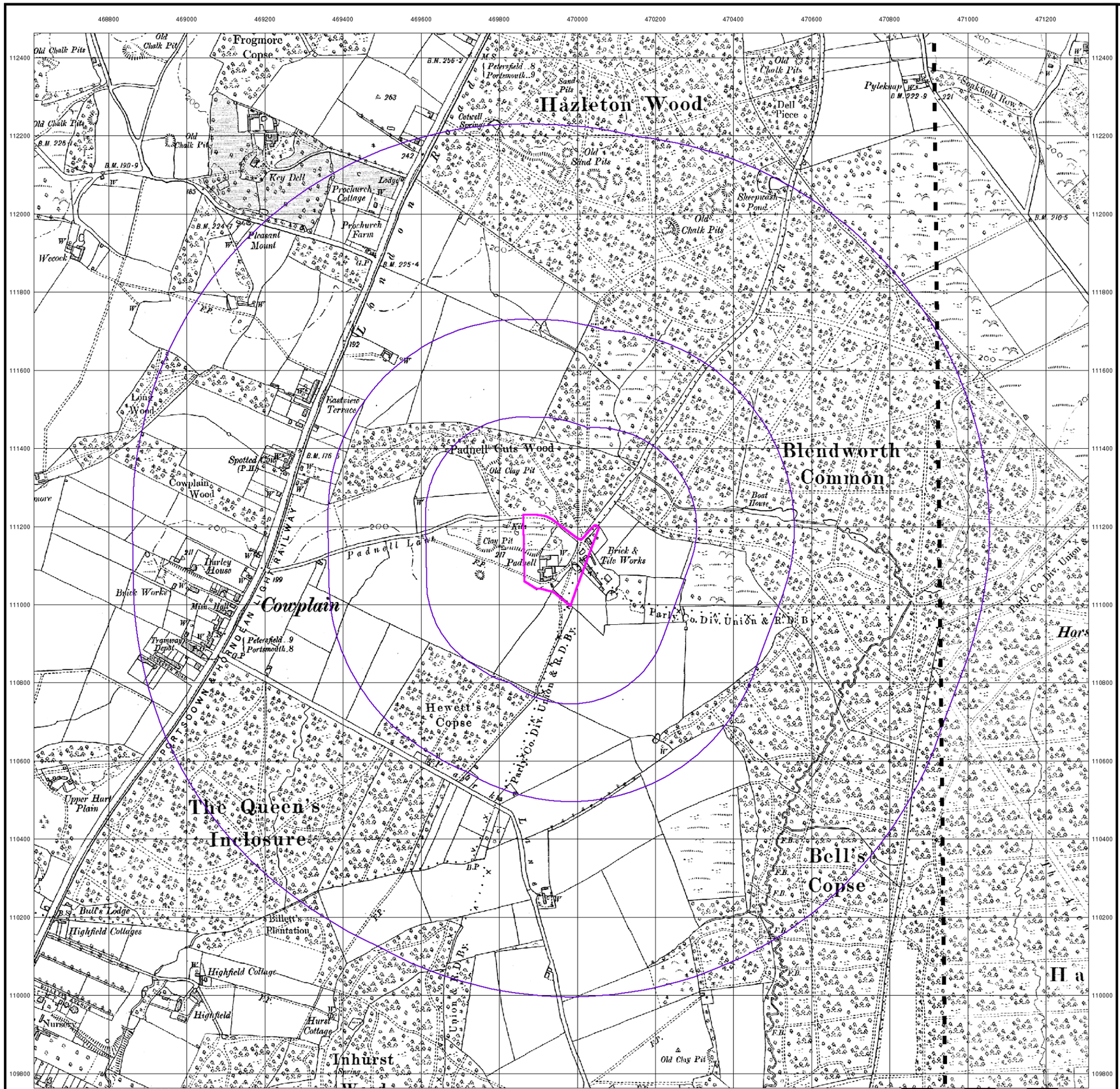

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Hampshire & Isle Of Wight

Published 1909 - 1910

Source map scale - 1:10,560

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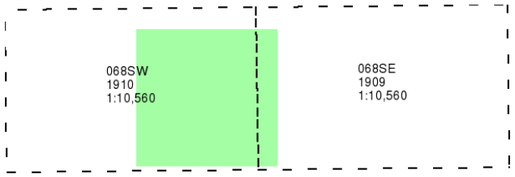
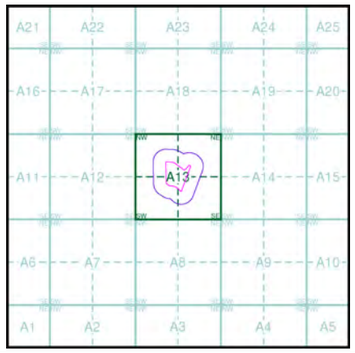


Historical Map - Slice A



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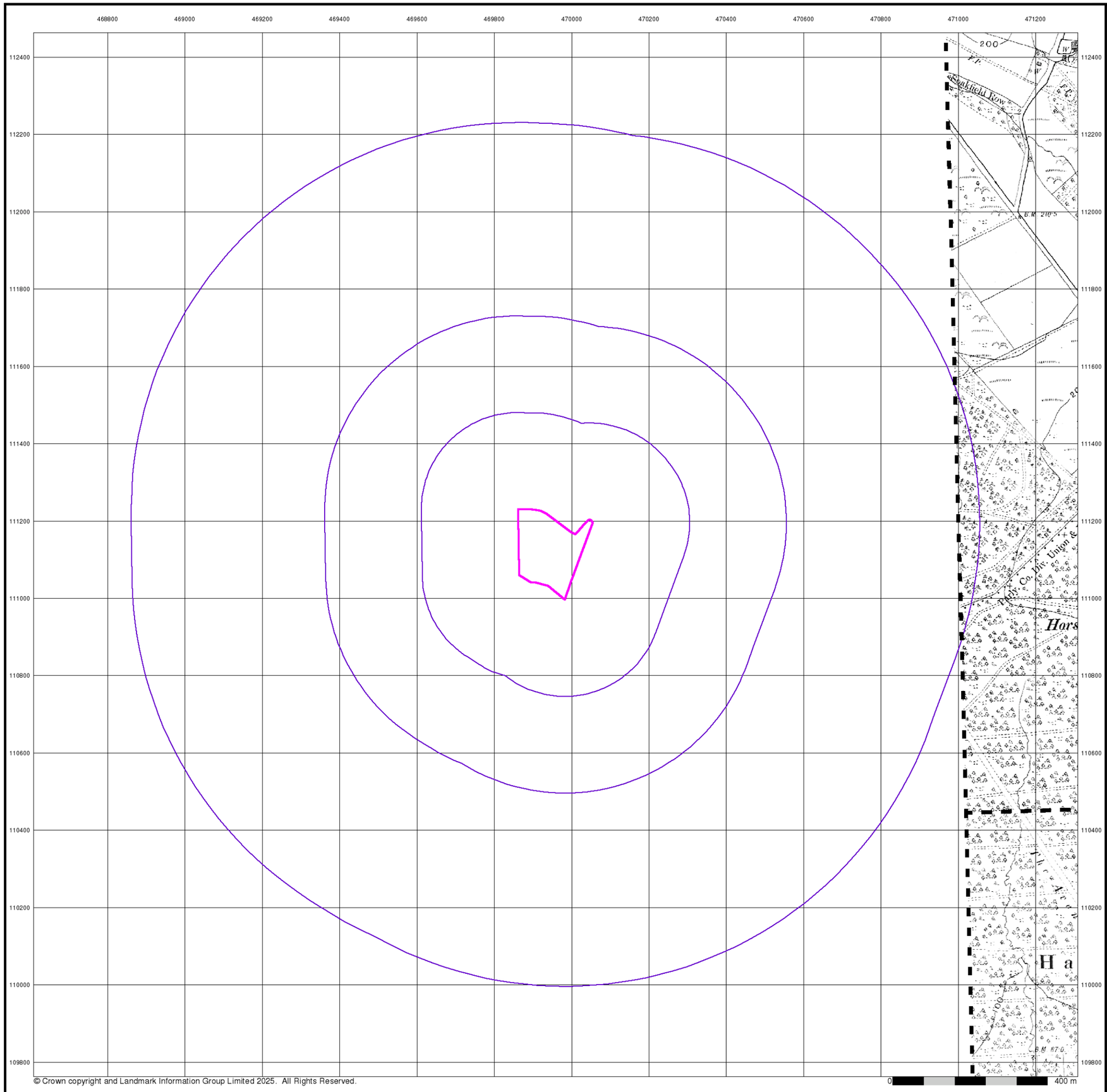

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Sussex

Published 1914

Source map scale - 1:10,560

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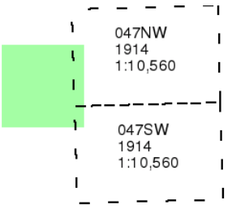
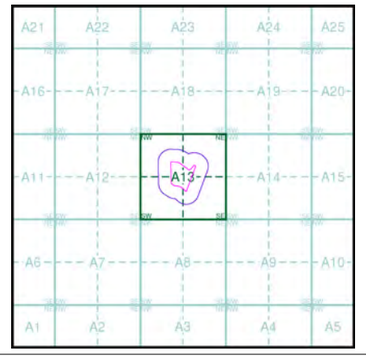


Historical Map - Slice A



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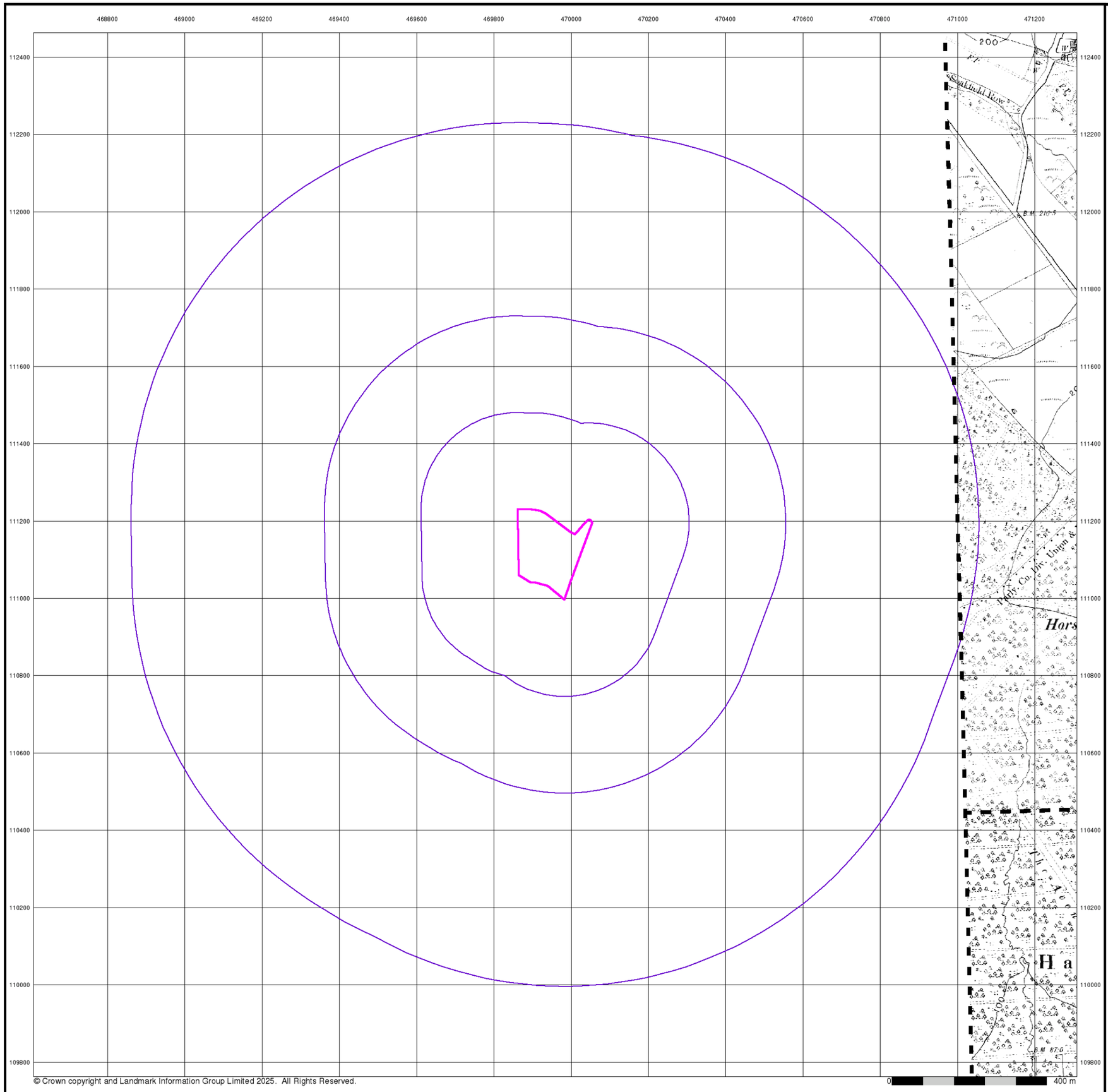

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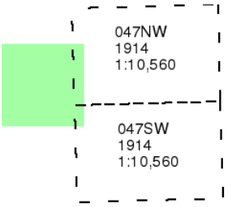
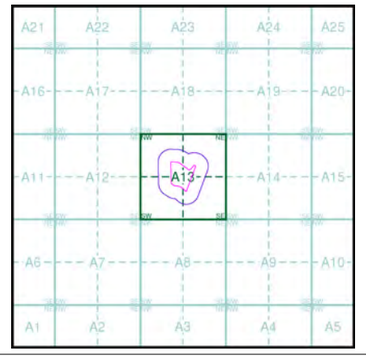


Historical Map - Slice A



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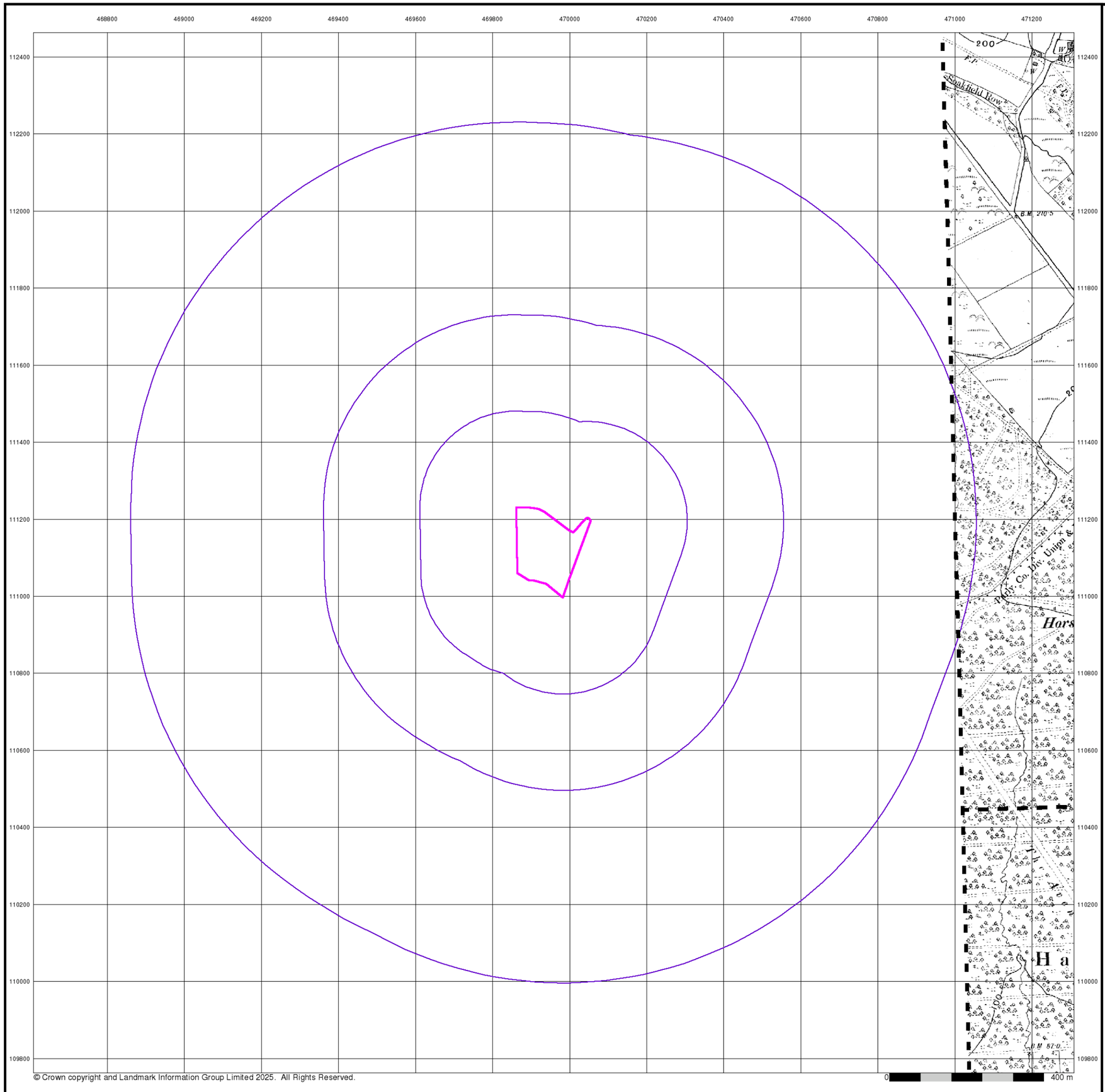

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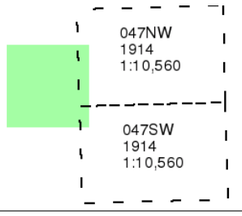
Sussex

Published 1914

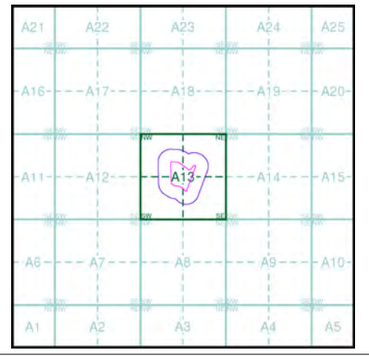
Source map scale - 1:10,560

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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Customer Ref:	22035/DEE
National Grid Reference:	469950, 111130
Slice:	A
Site Area (Ha):	2.84
Search Buffer (m):	1000

Site Details

Padnell Grange, Padnell Road, Cowplain, Waterlooville, Hampshire, PO8 8ED

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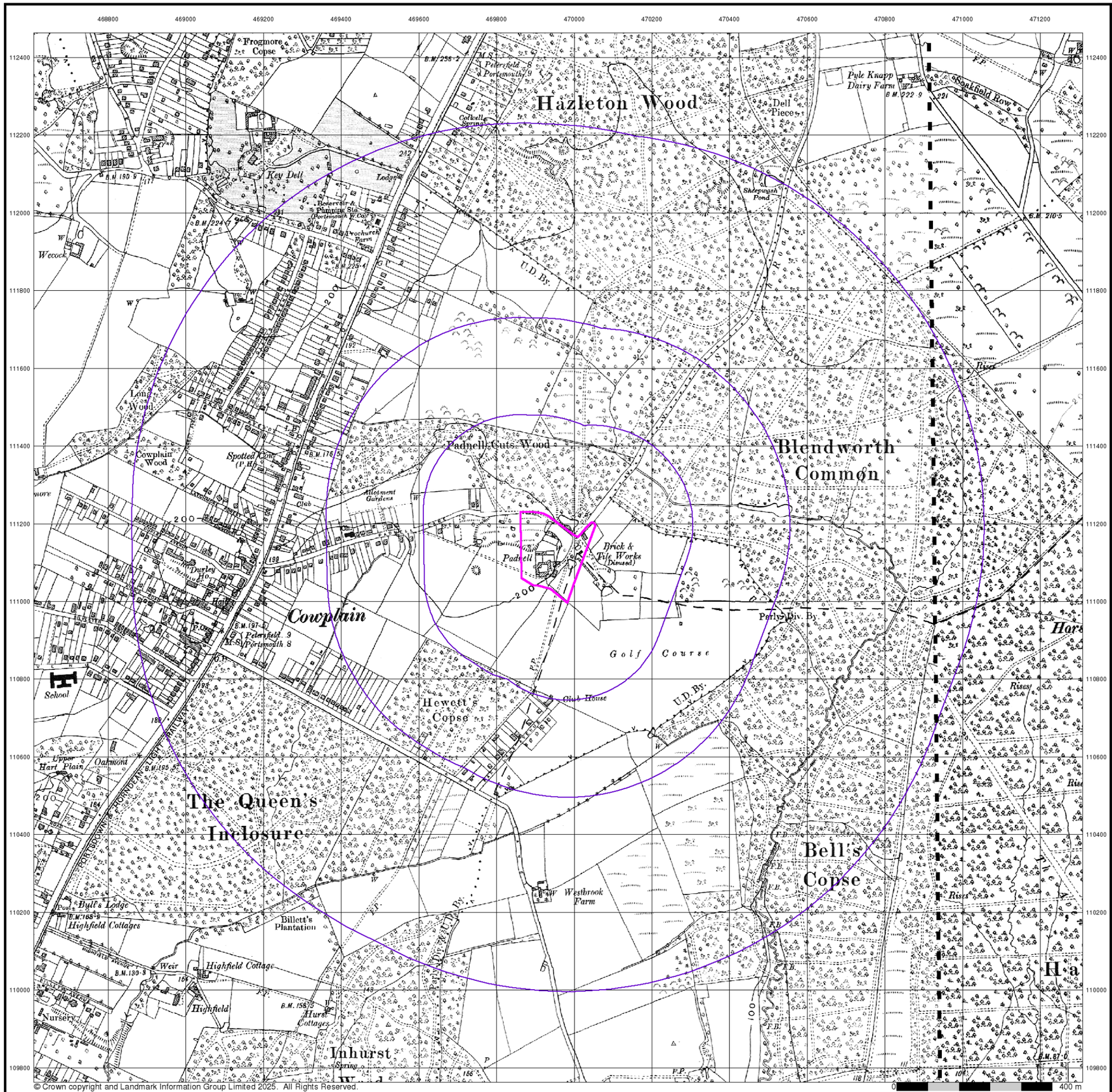

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Hampshire & Isle Of Wight

Published 1931 - 1933

Source map scale - 1:10,560

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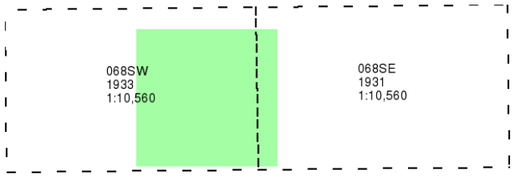
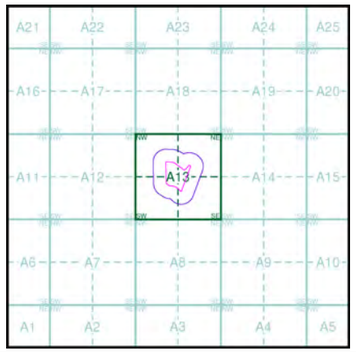


Historical Map - Slice A



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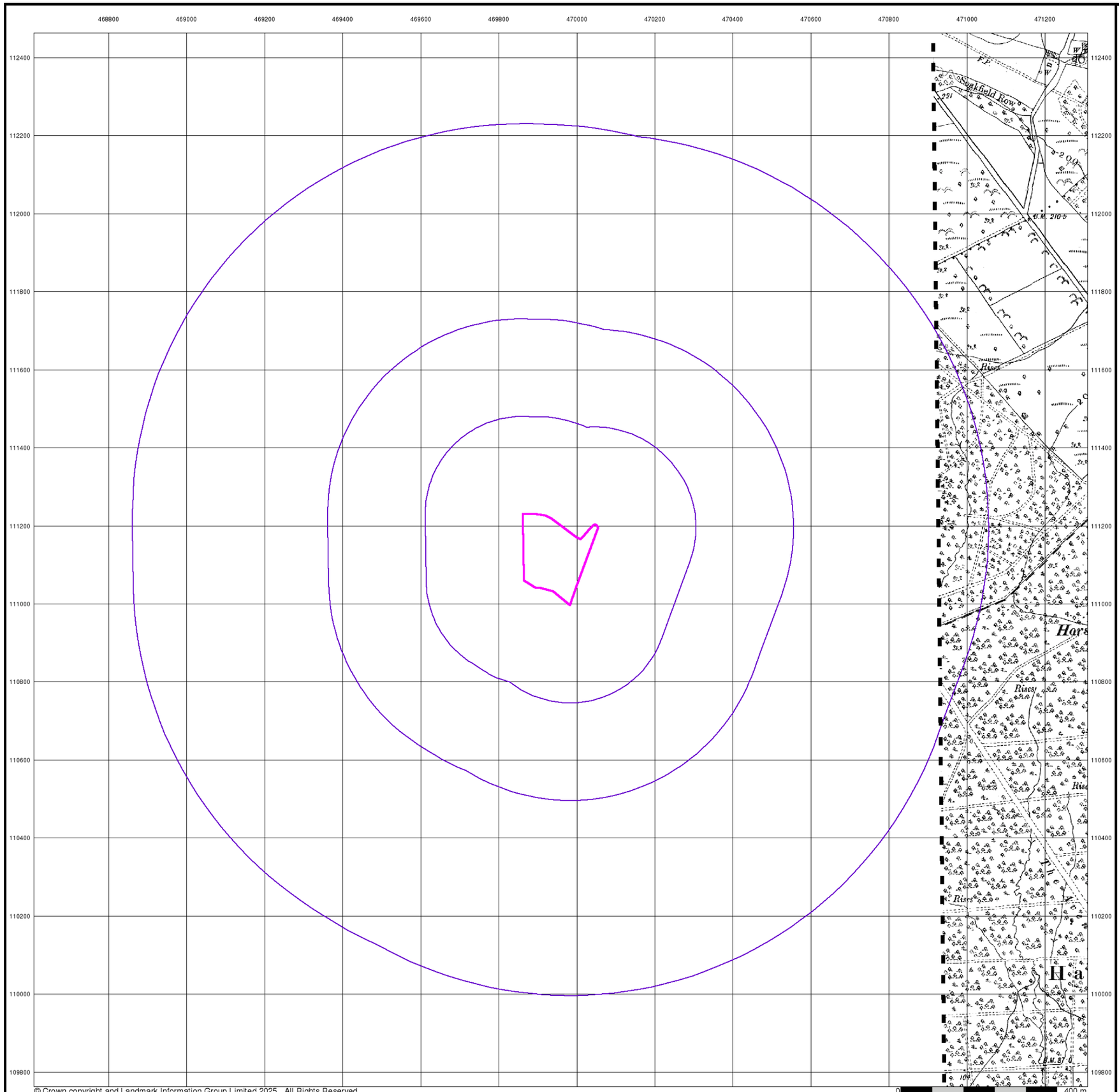

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Hampshire & Isle Of Wight

Published 1931

Source map scale - 1:10,560

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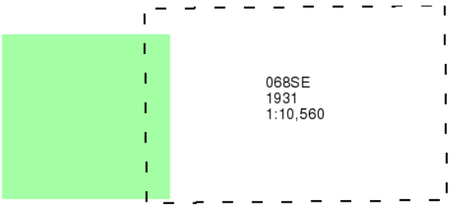
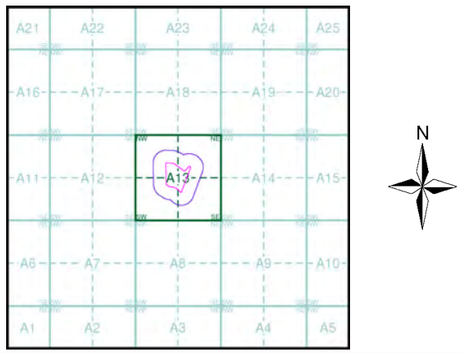


Historical Map - Slice A



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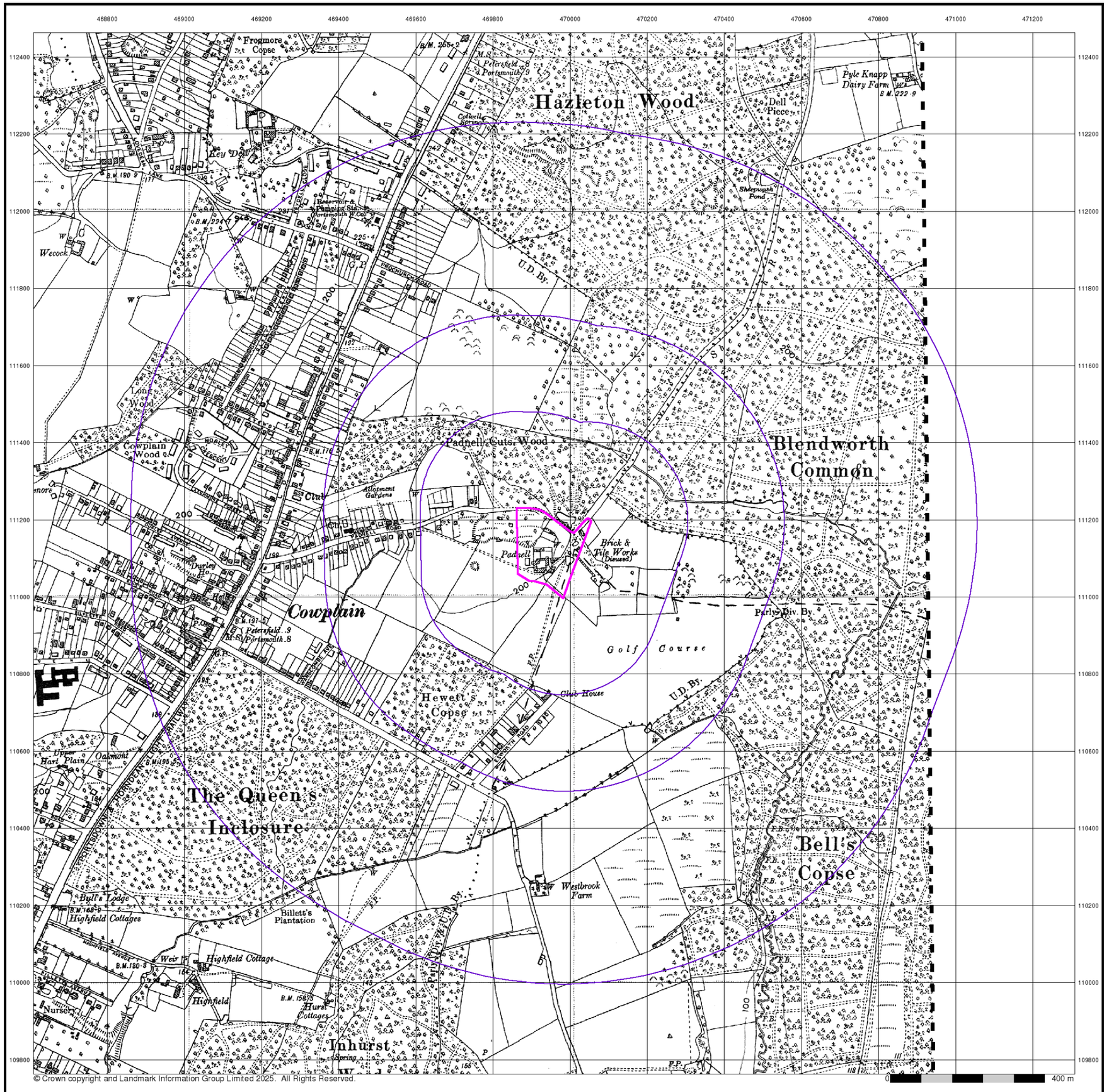

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Hampshire & Isle Of Wight

Published 1942

Source map scale - 1:10,560

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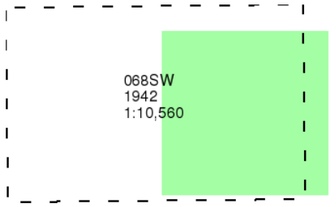
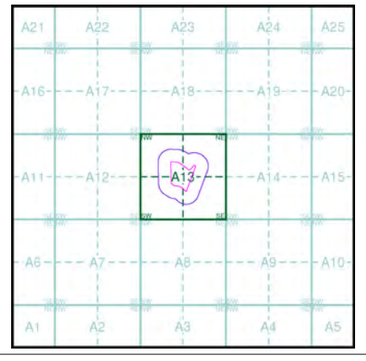


Historical Map - Slice A



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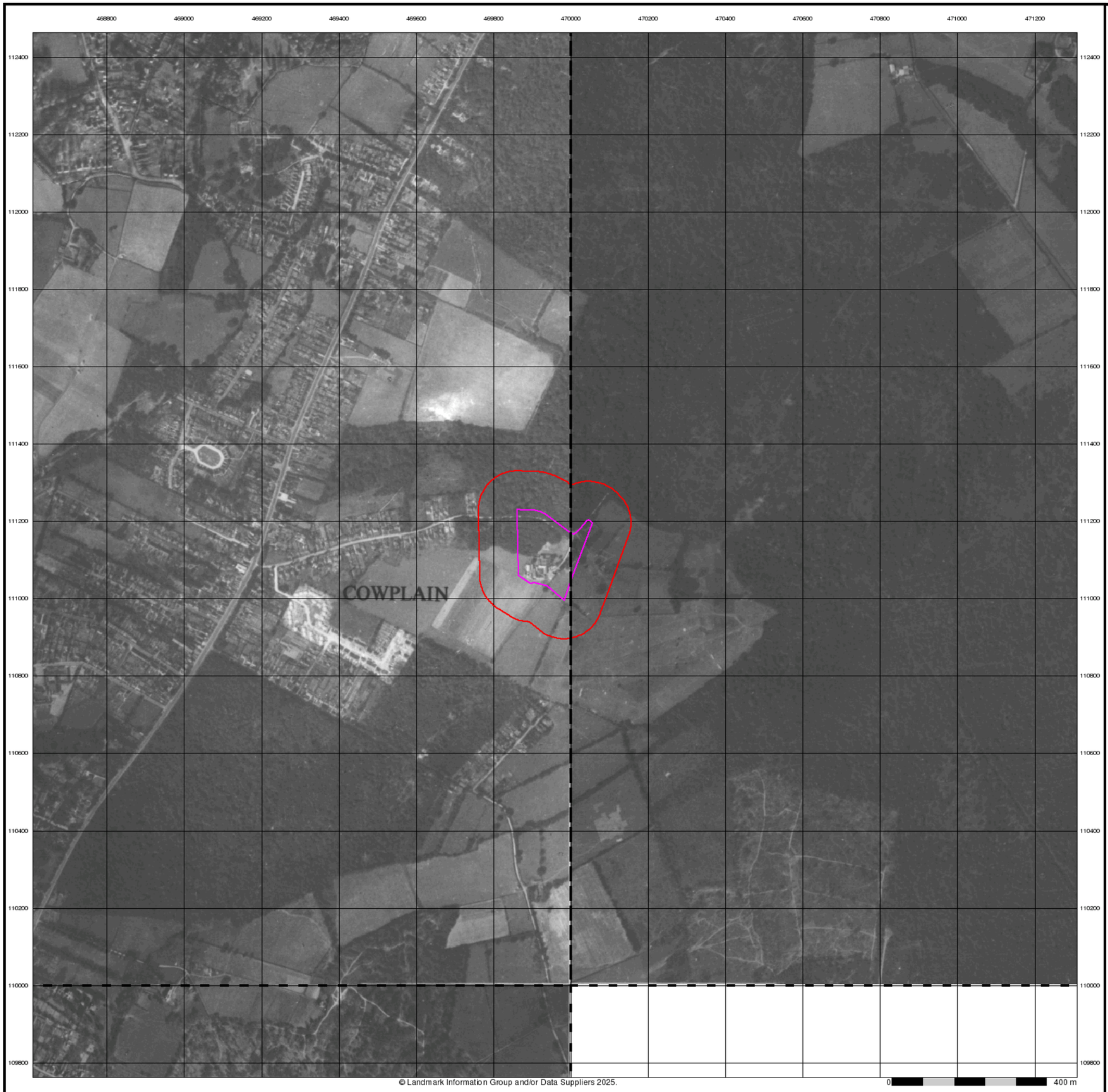

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Historical Aerial Photography

Published 1947 - 1949

Source map scale - 1:10,560

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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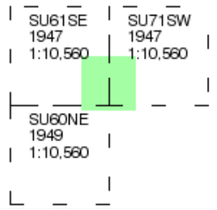
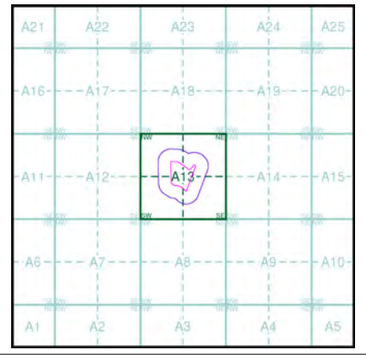
Map Name(s) and Date(s)



Historical Aerial Photography - Slice A



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