



Geotechnical and Geo-environmental Consultants

**PHASE 1 GEO-ENVIRONMENTAL
DESK STUDY AND PRELIMINARY RISK ASSESSMENT**

**OAK HILL FARMHOUSE
COXES FARM ROAD
BILLERICAY
CM11 2UA**

**Reference Number 3015/Rpt 4v1
November 2023**

Prepared for

J Keeling and Sons
Oak Hill Farm
Coxes Farm Road
Billericay
CM11 2UA

By

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Report Title	Phase 1 Geo-environmental Desk Study and Preliminary Risk Assessment: Oak Hill Farmhouse, Coxes Farm Road, Billericay, CM11 2UA
Reference Number	3015/Rpt 4v1
Date	November 2023

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EXECUTIVE SUMMARY

This report describes the findings of a Geo-environmental Desk Study and Preliminary Risk Assessment of Oak Hill Farmhouse, Coxes Farm Road, Billericay, CM11 2UA. It is proposed to redevelop the site for residential usage.

At the time of the walk-over the site was the garden of the existing dwelling. The area was covered with grass, a brick paved patio and a parking area covered with asphalt road scalplings. An off-site tank was noted. The site walk-over did identify potential sources of contamination.

The review of the historical maps identified that the site remained undeveloped until the construction of a dwelling in the late 1960s. This was later extended in the 1990s.

The review of the industrial setting did not identify any potential sources of contamination.

A review of the environmental setting indicated the site to be underlain by solid geology of the Claygate Member. The Claygate Member is classified as an Secondary A Aquifer. A pond was identified 170m south east of the site.

The conceptual model prepared for the site has not identified active pollution linkage between the current land use of the site and the future use as residential.

No recommendations for further site investigation have been made.

1 INTRODUCTION

1.1 Background

Brown 2 Green Associates Ltd have been commissioned by J Keeling and Sons to undertake a Phase I Geo-Environmental Desk Study and Preliminary Risk Assessment of Oak Hill Farmhouse, Coxes Farm Road, Billericay, CM11 2UA. The site is centred on National Grid Reference 569571, 193702 The site location is presented in Figure 1.

1.2 Proposed Development

The work was commissioned to provide information for a planning application to redevelop the subject site for residential usage. It is proposed to demolish the existing dwelling and construct a new two storey dwelling with off-street parking. The proposed development is shown on drawing number H899/05 prepared by Munday and Cramer. The proposed development layout is presented in Appendix II.

1.3 Objectives

The objectives of the work are to provide an assessment of risk from contaminated land to inform about potential re-development of the site, address the requirements of the National Planning Policy Framework¹ and Planning Practice Guidance. These objectives are achieved by:

- Undertake a site inspection to identify any current areas of potential environmental concern;
- Review historical plans, geology, hydrogeology, site sensitivity, flood-plain issues, mining records and any local authority information available in order to complete a Desk Study in line with Environment Agency Contaminated Land Risk Management.

The information obtained in this study has been used to develop an initial Conceptual Site Model (CSM) and outline potential risks from contamination at the site. This CSM examines potential Source-Pathway-Receptor contaminant linkages in relation to identified or potential contamination issues at the site and vicinity, incorporating them into a Preliminary Risk Assessment. This report has been completed in accordance with Environment Agency Contaminated Land Risk Management.

The Preliminary Risk Assessment seeks to establish firstly whether unacceptable risk as defined in Part 2A of the Environmental Protection Act 1990 is present and secondly whether a possibility of harm to controlled waters, human health or property is present and further investigation is therefore needed to better inform about risk assessment.

Consideration of geotechnical/engineering aspects of the proposed development falls outside the scope of this assessment.

1.4 Sources of Information

Background information relating to the site was acquired and referenced from the following sources:

- Historical mapping (Appendix IV);
- Environmental Database Search. All relevant data is summarised in the text of the report. A

¹ National Planning Policy Framework, Department for Communities and Local Government, September 2023.

full copy is presented in Appendix V;

- On-line planning records held by Basildon Borough Council;
- British Geological Survey website.
- DEFRA Magic website.
- UK Soil Observatory website.

A site walkover was carried out by a Geo-environmental Consultant from Brown 2 Green Associates on the 30th October 2023.

2 SITE LOCATION AND DESCRIPTION

2.1 Site Location and Surrounding Area

The site is located in a rural area on the east side of Coxes Farm Road. The land uses immediately adjacent to the site are summarised below:

Direction	Land Use
North	Pasture
East	Pasture
South	Pasture
West	Pasture, farm yard and residential

The topography of the surrounding area slopes down towards the River Crouch, located towards the south east.

The site location is presented in Figure 1.

2.2 Site Descriptions and Reconnaissance

The site layout is presented in Figure 2. A photographic record of the site is included in Appendix III.

The subject parcel of land is L-shaped and covers <0.1 hectares. Access to the site is via a gated driveway between Oak Hill Barn and Rose Farm on Coxes Farm Road.

The northern boundary to the site consists of the driveway to the existing dwelling which is lined with oak trees. The existing dwelling defines part of the western boundary. The rest of this, as well as the eastern and southern boundaries, are open pasture.

At the time of the site walkover, the site was the garden of the existing dwelling. A brick paved patio occupied the centre of the site, and a parking area consisting of asphalt road scalplings was present at the northern end of the site. The remaining land area was short grass. The patio was approximately 0.3m higher than the garden, this distance was bridged by three steps, also paved with bricks.

The topography of the site slopes down towards the southeast.

2.2.1 Storage of Chemicals and Hazardous Substances

Above Ground Storage Tanks (ASTs)

No above ground storage tanks (ASTs) or evidence of former ASTs were observed on the site, however a heating oil tank was present off site, 13m to the north west. This appeared to be empty.

Underground Storage Tanks (USTs)

No underground storage tanks (USTs) or evidence of USTs were observed at the site.

Other Chemical Storage

No significant storage of chemicals was noted at the time of the walkover.

Polychlorinated Biphenyls

No equipment that may potentially contain polychlorinated biphenyls (PCBs) was observed at the site.

2.2.2 Asbestos Containing Materials

The existing dwelling was constructed in the late 1960s to early 1970s so it is expected that it will include asbestos containing materials. The building was in good condition.

No asbestos survey reports were made available.

2.2.3 Waste Disposal

No waste disposal activities were identified.

2.2.4 Site Drainage

A formal drainage survey has not been completed but it is assumed the site is connected to the foul sewer which is likely to be located within Coxes Farm Road, to the west.

No trade effluent is generated by the site.

No oil/water interceptors were identified.

No soakaways were identified.

Rainwater will either infiltrate into the ground or is lost through surface water run-off or evapotranspiration.

Visual and Olfactory Evidence of Contamination

No specific visual or olfactory evidence of contamination was noted.

2.3 Potential Sources of Contamination

During the review of the site setting and reconnaissance no plausible potential sources of contamination were identified.

3 HISTORICAL LAND USE

3.1 Historical Mapping

The maps at scales of 1:1,250, 1: 2,500, 1:10,000 and 1:10,560 were reviewed to determine the history of the site. A summary of the site history is presented below. The historical maps are included in Appendix IV.

Date	Site	Surrounding Area
1875 1:2,500	Site is agricultural land.	Generally agricultural land. Bowtell's Farm is located 200m to the north.
1881 1:10,560	As 1875.	No relevant changes noted.
1896 1:2,500	As 1875.	Bowtell's Farm has been renamed to Rose Farm.
1898 1:10,560	As 1875.	No relevant changes noted.
1922 1:2,500	As 1875.	An H-shaped building has been constructed 100m to the southwest.
1923 1:10,560	As 1875.	No relevant changes noted.
1938 1:10,560	As 1875.	Several buildings constructed along Coxes Farm Road.
1955 1:2,500	As 1875.	Further development 100m to the southwest, now labelled as Browns Farm. Buildings constructed between Rose Farm and Browns Farm. Buildings opposite Browns Farm on Coxes Farm Road labelled as The White Farm.
1960 1:2,500	As 1875.	Buildings between Rose Farm and Browns Farm named as Hillcroft, Broadacre, Highclear and The Lodge (north to south).
1968 1:2,500	Rectangular building constructed on site with track to connect it with Browns Farm.	No relevant changes noted.
1972 1:10,000	As 1968.	No relevant changes noted.
1983 1:10,000	As 1968.	No relevant changes noted.
1993 1:2,500	Building now L-shaped. Likely that dwelling was extended.	Small rectangular building constructed immediately north of site.
1996 1:2,500	As 1993.	Browns Farm renamed to Oak Hill Farm.
1999 1:10,000	As 1993.	No relevant changes noted.
2022 1:10,000	As 1993.	Pond shown, 175m to the southeast.

3.2 Listed Buildings and Historical Sites

No world heritage site, scheduled monuments or registered battlefields are present within a 250m radius the site.

The nearest listed building is Oak Hill Farm Barn which is Grade II listed and located 225m to the northwest.

3.3 Local Authority – Planning

A review of on-line planning records from Basildon Borough Council was completed on 1st November 2023.

Planning application 22/00625 made in 2022 sought permission to demolish the existing building and erect a new dwelling with separate detached garage. This was denied on the grounds that the proposed development would have a greater impact on the openness of the Green Belt than the existing development.

Planning application 21/01605 made in 2021 sought permission for the construction of a single storey side and rear extension. This was granted although the development has not commenced at time of writing.

3.4 Other Sources

A review has been made of satellite photographs contained on Google Earth. In imagery dated pre-2020, a tree and what appears to be a small pond were present in the garden of the existing house, 12m from the site boundary. In imagery post-2020, these are no longer shown.

3.5 Potential Sources of Contamination

During the review of the historical land use of the site and surrounding area, no potential sources of contamination were identified where it is considered that there is a plausible pollution pathway.

4 INDUSTRIAL SETTING

4.1 Contemporary Trade Directory Entries

There are no contemporary trade directory entries for the site, nor within 250m radius of the site. The nearest is for a blacksmith and forgemaster, located 400m to the south west.

Within 500m radius of the site there are no entries for filling stations.

4.2 Landfill Sites and Waste Disposal Facilities

There are no historical or operational landfill sites or waste management facilities within 250m radius of the site.

4.3 Environmental Permits, Incidents and Registers

The following information is a summary of the data contained Environmental Database presented in Appendix V.

	On Site	0 – 250m	Details of Nearest	Potential Risk to Site
Authorised industrial processes (IPC/IPPC/LAPPC)	0	0	-	No
Radioactive Substances Authorisations	0	0	-	No
Licensed Discharge Consents	0	1	Discharge of treated sewage from a private dwelling, located 100m to the south west.	No
Consents issued under the Planning (Hazardous Substances) Act 1990	0	0	-	No
Control of Major Accident Hazard (COMAH/NIHHS/Explosive) sites	0	0	-	No
Pollution Incidents	0	0	-	No
Contaminated Land Register Entries and Notices (Part 2A EPA 1990)	0	0	-	No

4.4 Ground Workings, Mining and Natural Cavities

There are no BGS recorded mineral site on or within 250m radius of the subject site.

The database states that the site is not located in a Cheshire Salt Brine Subsidence Compensation Board District.

The database states that the site is not located in an area affected by coal mining.

The data base indicates that the site is not located within an area where there is the potential for mining instability.

The database states that there are no non-coal mining areas within 1000m of the site.

5 ENVIRONMENTAL SETTING

5.1 Geology and Hydrogeology

The British Geological Survey mapping indicates that the site sits directly on solid geology of the Claygate Member, consisting of clay, silt and sand.

Geological logs held by the British Geological Survey were reviewed. The nearest is located 900m to the south west. The log indicates the area is underlain by the following geological conditions:

Unit	Description	Thickness (m)	Depth to base (m)
Soil	Soil	0.3	0.30
Terrace Gravel	Gravel	2.14	2.44
London Clay Formation	Clay (red)	4.61	7.01
	Gray clay	97.54	104.55
	Sandy clay	5.18	109.73
Blackheath Beds	Sand and pebbles	4.47	114.20
Woolwich Beds	Dark sand	0.71	114.91
	Light coloured sand	1.83	116.74
	Green sand and flint pebbles	11.40	128.14
Thanet Beds	Fine loamy sand	23.80	151.94
	Flints and greenish sand	0.26	152.20
Upper Chalk	Chalk with flint	79.4	231.60
	Grey chalk	42.70	274.30

The borehole drilled in 1910 for the abstraction of groundwater by Southend Water Company. At the time standing groundwater after the completion of drilling was at 29.7m below ground level. This groundwater level is likely to be the hydraulic head of groundwater within the chalk and other aquifers beneath the London Clay Formation.

The solid geology is classified as Secondary (A) aquifer.

The groundwater vulnerability for the site is classified as Medium with a low pollutant speed.

There are no licenced groundwater abstraction points within 1km radius of the site. There are no Source Protection Zones within the vicinity of the site.

5.2 Geochemistry

The British Geological Survey estimates of the geochemistry of the soils beneath the site are:

Determinants	Soil Type	Concentration (mg/kg)
Arsenic	Rural	15 - 25
Cadmium		<1.8
Chromium		90 - 120
Nickel		15 - 30
Lead		<100

5.3 Hydrology

The Ordnance Survey Water Network Lines indicates the nearest surface water feature is a pond located 170m to the south east. A stream is located 230m to the west.

There are no licensed surface water abstraction points within 500m radius of the site.

The database indicates that the site does not lie in a fluvial or tidal floodplain. Flood risk rating from flooding from rivers and the sea (RoFRaS) is Very Low.

5.4 Ecologically Sensitive Areas

There are no ecologically sensitive sites within 250m radius of the site.

5.5 Radon

The site is located in an area where less than 1% of homes are above the Action Levels and Radon protective measures are not necessary in the construction of new dwellings or extensions.

5.6 Natural Hazards

BGS GeoSure Data presented within the Environmental Database presented in Appendix V identifies the following ground conditions:

Hazard	Designation	Hazard
Potential for Shrinking or Swelling of Clays	Moderate	Ground conditions predominantly medium to high plasticity
Potential for Landslide Ground	Very Low	Slope instability problems are unlikely to be present
Potential for Ground Dissolution	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions
Potential for Compressible Ground	Negligible	No indicators for compressible ground identified
Collapsible Ground	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
Potential for Running Sands	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water.

6 PREVIOUS REPORT

No previous site investigation reports were identified or made available.

7 INITIAL CONCEPTUAL MODEL

Brown 2 Green Associates Ltd has developed a conceptual model to identify potential sources, migration pathways and receptors within the study area. Assuming there is an active pollution pathway linkage between the source and receptor an assessment has been made of the level of risk. The level of risk is a consideration of both:

- the likelihood of an event (probability) [takes into account both the presence of the hazard and receptor and the integrity of the pathway]; and
- the severity of the potential consequence [takes into account both the potential severity of the hazard and the sensitivity of the receptor].

The classifications of the probability of an event occurring based on C552 CIRIA, 2001² are presented below:

Probability		Definition
High Likelihood	> 90% of hazard receptor linkage	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor that there is harm or contamination
Likely	45-90% of hazard receptor linkage	There is a pollution linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term
Low likelihood	10-50% of hazard receptor linkage	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	10% of hazard receptor linkage	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

The classification of the severity of an event is presented below:

Severity	Category	Definition	Examples
Severe: It is likely that the hazard source could cause harm to a designated receptor and harm would be significant.	Humans	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA.	High concentrations of cyanide on the surface of an informal recreation area.
	Controlled Water	Short term risk of pollution of sensitive water resource.	Major spillage of contaminants from site into controlled water.
	Property	Catastrophic damage to building or property	Explosion causing building to collapse.
	Ecological systems	A short term risk to a particular ecosystem, or organism forming part of such an ecosystem.	Loss of ecosystem.
Medium: It is possible that the hazard source could cause harm to a designated receptor, but it is unlikely that the harm would be significant	Humans	Chronic damage to human health ("significant harm" as defined in the DETR, 2000).	Concentrations of a contaminant from site exceeds the generic, or site specific assessment criteria
	Controlled Water	Pollution of sensitive water resources.	Leaching of contaminants from a site to a Principal Aquifer.
	Ecological systems	A significant change in a particular ecosystem, or organism forming part of such an ecosystem.	Death of a species within a designated nature reserve.

² Contaminated land risk assessment. A guide to good practice (C552), D J Rudland, R M Lancefield and P N Mayell.

Severity	Category	Definition	Examples
Mild: It is possible that the hazard source could cause significant harm to a designated receptor, however it is likely to be mild	Controlled Waters	Pollution of non-sensitive water resource.	Pollution of non-classified groundwater
	Property	Significant damage to buildings/structures and crops ("significant harm" as defined in the DETR, 2000). Damage to sensitive buildings/structures or the environment.	Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor: The potential hazard source cannot cause significant harm to the receptor.	Financial or project	Harm, although not necessarily significant harm, which may result in a financial loss, or an expenditure to resolve.	
	Humans	Non-permanent health effects to human health (easily prevented by means such as Personal Protective Clothing, etc).	The presence of contaminants at such concentrations that protective equipment is required during site works.
	Property	Easily repairable effects of damage to buildings/structures	The loss of plants in landscaping scheme. Discolouration of concrete.

The comparison of Likelihood against Severity is presented below:

		Severity			
		Severe	Medium	Mild	Minor
Likelihood	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

The potential consequence of risk classifications is presented below:

Very High Risks	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risks	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate Risks	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Moderate / Low Risks	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be medium to mild and professional judgement is required. Some remediation works may be required in the long term where high sensitivity receptors are involved.
Low Risks	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risks	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

7.1 Potential Sources of Contamination

On-site Potential Sources

No potentially significant on-site sources of ground contamination have been identified that may plausibly result in impact to the site.

Off-site Potential Sources

Based on the findings of the site walk-over and the desk study information review the following potential off-site sources of contaminants that may plausibly impact the site were identified:

- An above ground heating oil tank was located 13m to the north west of the site.

7.2 Potential Pathways

Plausible pathways identified for each contaminant are presented in the initial conceptual model detailed overleaf.

7.3 Potential Receptors

Brown 2 Green Associates Ltd has identified the following possible receptors:

- Human health - future users of the site (residential with private garden).
- Human health - construction workers
- Controlled water (groundwater and surface water).
- Buildings and construction materials (concrete).
- Water supply pipework.

7.4 Discussion of Potential Pollutant Linkages

Potential pollution linkages identified are presented in the initial conceptual model detailed overleaf.

Initial Conceptual Model and Risk Assessment

<i>Potential Contaminant</i>	<i>Potential migration pathway</i>	<i>Potential Receptors</i>	<i>Likelihood</i>	<i>Severity</i>	<i>Risk Classification</i>	<i>Comments</i> <i>Active/Inactive</i>
Off-site Sources						
Heating oil tank located to the north west						
Heating oil	Contact with contaminated soils	Future site users, Water supply infrastructure	Unlikely	Mild	Very low	Inactive. Presence of clay breaks pollution pathway. Gradient of the land is such that any spillage would flow away from the site.
	Movement through soil	Groundwater Surface Water	Unlikely	Minor	Very low	Inactive. Presence of clay breaks pollution pathway. Gradient of the land is such that any spillage would flow away from the site.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

This report describes the findings of a Geo-environmental Desk Study and Preliminary Risk Assessment of Oak Hill Farmhouse, Coxes Farm Road, Billericay, CM11 2UA. It is proposed to redevelop the site for residential usage.

At the time of the walk-over the site was the garden of the existing dwelling. The area was covered with grass, a brick paved patio and a parking area covered with asphalt road scalplings. An off-site tank was noted. The site walk-over did identify potential sources of contamination.

The review of the historical maps identified that the site remained undeveloped until the construction of a dwelling in the late 1960s. This was later extended in the 1990s.

The review of the industrial setting did not identify any potential sources of contamination.

A review of the environmental setting indicated the site to be underlain by solid geology of the Claygate Member. The Claygate Member is classified as an Secondary A Aquifer. A pond was identified 170m south east of the site.

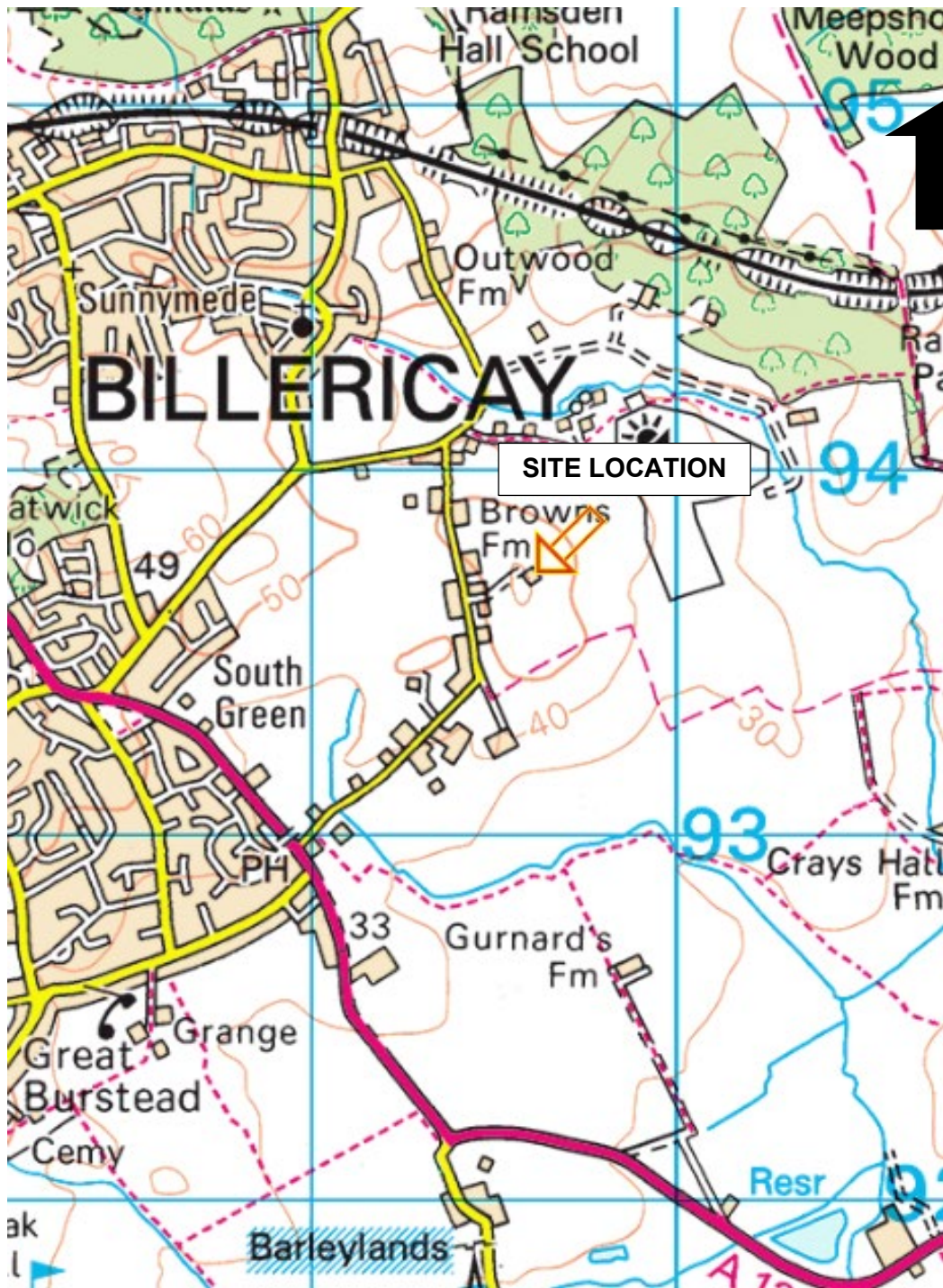
The conceptual model prepared for the site has not identified active pollution linkage between the current land use of the site and the future use as residential.

8.2 Recommendations


From the results of the Desk Study and Preliminary Risk Assessment no recommendations are made.

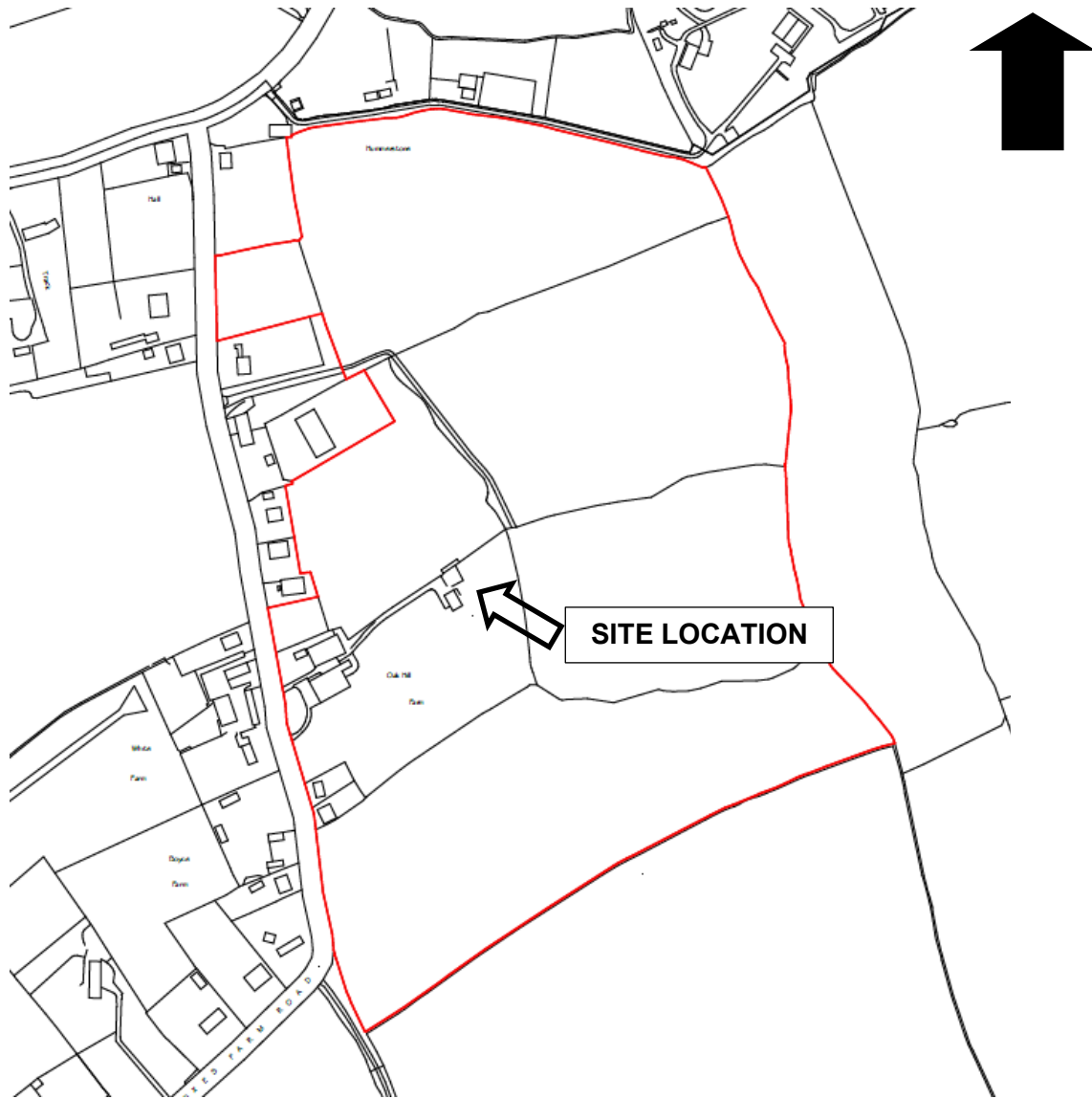
During the development of the site, should any evidence of contamination be identified contact should be made with a Contaminated Land Consultant. Should any evidence of contamination be identified in the area surrounding the heating oil tank present off-site to the north west, further investigation to determine the extent of this would be required.



FIGURES



Based on an Ordnance Survey map with permission of HMSO. Crown copy right reserved. Licence number 100053399

<p>Project Number: 3015</p>	<p>Project: Oak Hill Farm, Coxes Farm Road, Billericay</p>	<p>Scale: NTS</p>
<p>Figure 1</p>	<p>Site Location Plan</p>	



Project Number: 3015	Project: Oak Hill Farm, Coxes Farm Road, Billericay	Scale: 
Figure 2	Site Layout Plan	

APPENDIX I
LIMITATIONS AND CONSTRAINTS

Brown 2 Green Associates Limited has prepared this report in accordance with our standard Terms and Conditions solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

Brown 2 Green Associates Ltd cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The client cannot place reliance on the report until full payment has been made. The copyright in this report and other plans and documents prepared by Brown 2 Green Associates Ltd is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of the report may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by Brown 2 Green Associates Ltd in this connection without their explicit written agreement thereto by Brown 2 Green Associates Ltd.

For the work, reliance has been placed on publicly available data obtained from the sources identified and data supplied by other parties. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information, it has been assumed it is correct. No attempt has been made to verify the information. Brown 2 Green Associates Ltd does not warrant work / data undertaken / provided by others.

Due to the short timescales associated with these projects, responses may not have been received from all parties. Brown 2 Green Associates Limited cannot be held responsible for any disclosures that are provided post production of our report and will not automatically update our report.

This report has been produced in accordance with UK policy and legislative requirements for land and groundwater contamination at the time the report was commissioned. Should changes in legislation or policy occur the report findings may need revisiting once the development layout is confirmed.

During the site walkover/reconnaissance reasonable effort has been made to obtain an overview of the site conditions. However, during the site walk-over/ reconnaissance no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown or the location of the area has not been made known, or where access has not been permitted.

This report presents an interpretation of the information and observation. It should be noted that when investigating, or developing land it is important to recognise that sub-surface conditions may vary spatially and also with time. Groundwater conditions are dependent on seasonal and other factors. Consequently there may be conditions present not revealed by this investigation.

The scope of the work is based on the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.

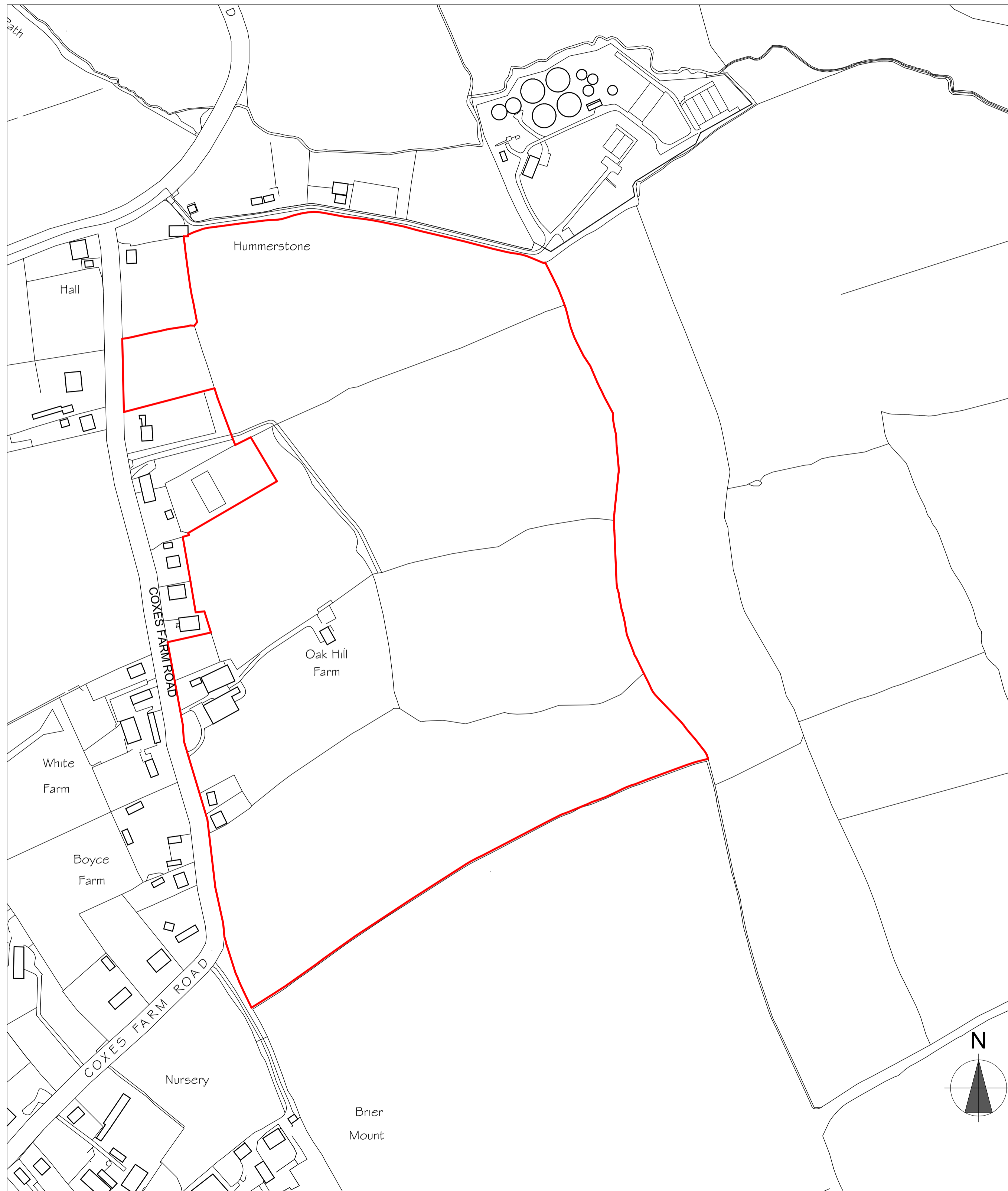
Rather, this investigation has been undertaken to provide a characterisation of the existing site and sub-surface geo-environmental characteristics and make up and the findings of this study are our best interpretation of the data collected, within the scope of work and agreed budget. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

During any development programme Brown 2 Green Associates Limited should be consulted if alternative ground conditions are encountered. It assumes during any site works that the contractor

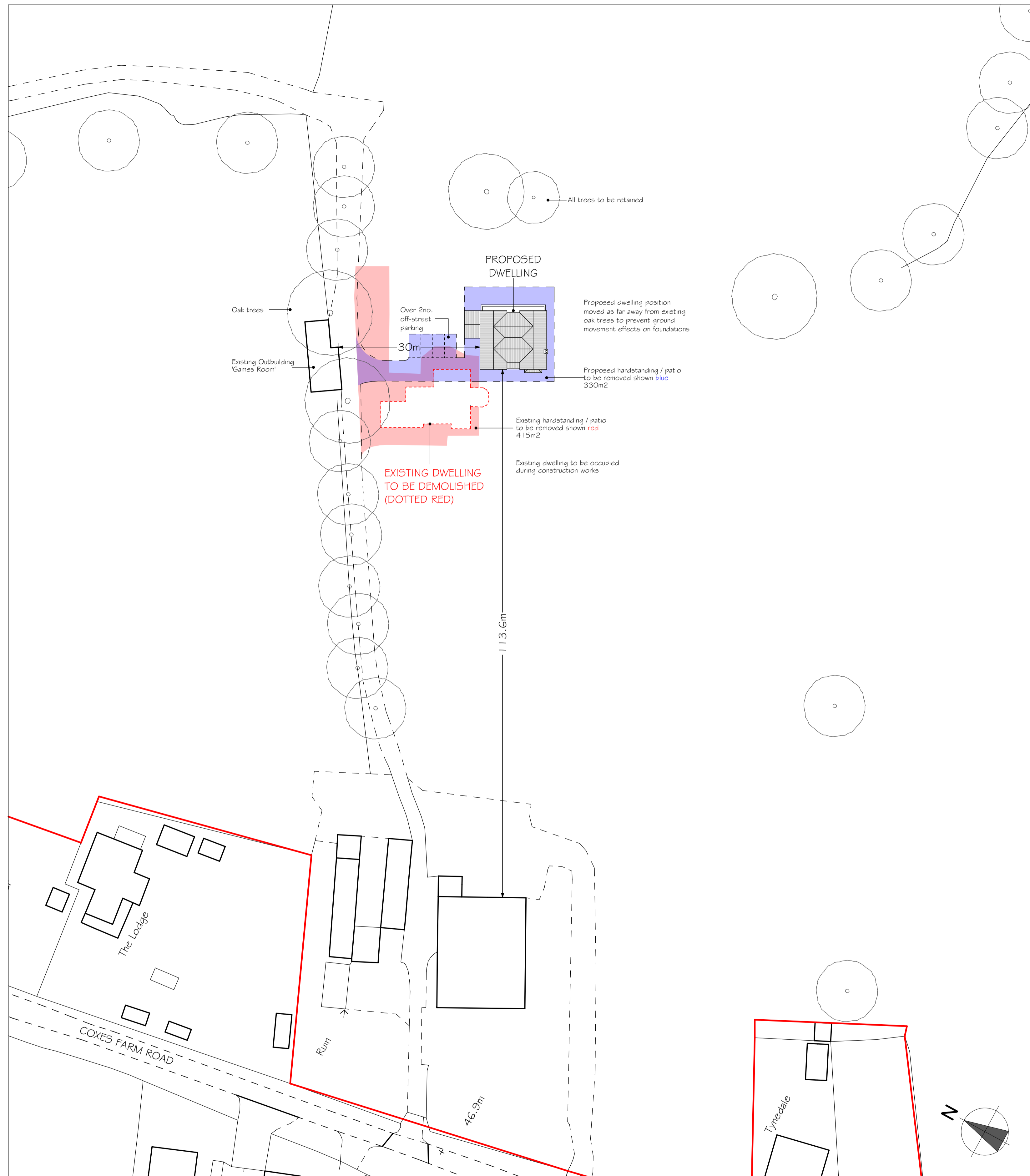
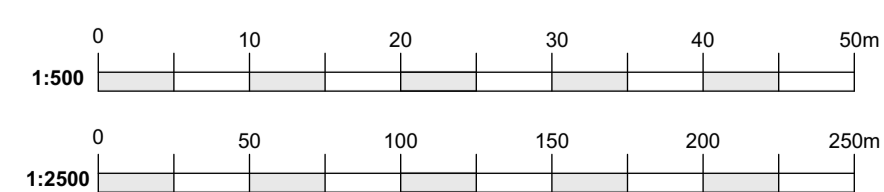
will use their best endeavours to manage and control groundwater and other unforeseen ground conditions. Brown 2 Green Associates Limited will not be liable for actions taken prior to consultation.

Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and does not constitute or replace full and proper surveys.

APPENDIX II
PROPOSED DEVELOPMENT LAYOUT



LOCATION PLAN 1:2500



PROPOSED SITE PLAN 1:500

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Date	Rev	Description	© copyright
19.01.2023	G	Client issue	
01.11.2022	F	Client issue	
31.10.2022	E	Client issue	
10.10.2022	D	Client issue	
25.04.2022	C	Client issue	
10.02.2022	B	Client issue	
20.07.2021	A	Client issue	
20.07.2021	-	Client issue	

Drawing title: LOCATION & PROPOSED SITE PLANS	
Project:	REPLACEMENT DWELLING
Address:	OAK HILL FARM COYES FARM ROAD ESSEX, CM11 2UA
Note	All Scales relate to A1 paper size - (Do not print at fit to page)

Client:	KEELING		MUNDAY + CRAMER 39 KNIGHT STREET SOUTH WOODHAM FERRERS ESSEX CM3 5ZL 01245 326200 www.mcessex.co.uk
Drawn by:	J.P. Allum		
Drawing No.:	Revision	G	
H899/05			

APPENDIX III
SITE PHOTOGRAPHS



The existing dwelling



Area used for parking



North east corner of proposed building footprint, looking south west



South east corner of proposed building footprint, looking north west



South west corner of proposed building footprint, looking north east



South east corner of proposed building footprint, looking east



Off-site heating oil tank

APPENDIX IV
HISTORICAL MAPS

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500

Quarry **Gravel Pit** **Sand Pit**
Clay Pit **Shingle** **Refuse Heap**
Sloping Masonry **Flat Rock**
Marsh **Reeds** **Osiers**
Rough Pasture **Furze** **Wood**
Mixed Wood **Brushwood** **Orchard**
Fir **Ford** **Stepping Stones**
Ferry **Waterfall** **Lock**
Trig. Station **Altitude at Trig. Station**
B.M. 325.9 **Bench Mark** **Surface Level**
Arrow denotes flow of water **Antiquities (site of)**
Cutting **Embankment**
Railway crossing Road **Level Crossing** **Road crossing Railway**
Railway crossing River or Canal **Road over single stream** **Road over River or Canal**
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
County Borough Boundary (England)
County Burgh Boundary (Scotland)
Co. Boro. Bdy.
Co. Burgh Bdy.
BP BS Boundary Post or Stone **P.C.B** Police Call Box
B.R. Bridle Road **P** Pump
E.P Electricity Pylon **S.P** Signal Post
F.B. Foot Bridge **SL** Sluice
F.P. Foot Path **Sp.** Spring
G.P Guide Post or Board **T.C.B** Telephone Call Box
M.S Mile Stone **Tr.** Trough
M.P M.R Mooring Post or Ring **W** Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

Inactive Quarry, Chalk Pit or Clay Pit **Active Quarry, Chalk Pit or Clay Pit**
Rock **Boulders**
Cliff **Slopes** **Top**
Roofed Building **Glazed Roof Building**
Sloping Masonry **Archway**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Bench Mark** **Antiquity (site of)**
Cave Entrance **Triangulation Station** **Electricity Pylon**
Electricity Transmission Line
County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
London Borough Boundary
Symbol marking point where boundary mereing changes
BH Beer House **P** Pillar, Pole or Post
BP, BS Boundary Post or Stone **PO** Post Office
Cn, C Capstan, Crane **PC** Public Convenience
Chy Chimney **PH** Public House
D Fn Drinking Fountain **Pp** Pump
EI P Electricity Pillar or Post **SB, S Br** Signal Box or Bridge
FAP Fire Alarm Pillar **SP, SL** Signal Post or Light
FB Foot Bridge **Spr** Spring
GP Guide Post **Tk** Tank or Track
H Hydrant or Hydraulic **TCB** Telephone Call Box
LC Level Crossing **TCP** Telephone Call Post
MH Manhole **Tr** Trough
MP Mile Post or Mooring Post **Wr Pt, Wr T** Water Point, Water Tap
MS Mile Stone **W** Well
NTL Normal Tidal Limit **Wd Pp** Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250

Cliff **Slopes** **Top**
Rock **Rock (scattered)**
Boulders **Boulders (scattered)**
Positioned Boulder **Scree**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Triangulation Station** **Antiquity (site of)**
Electricity Transmission Line **Electricity Pylon**
B.M. 231.60m **Bench Mark** **Buildings with Building Seed**
Roofed Building **Glazed Roof Building**
Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)
Bks Barracks **P** Pillar, Pole or Post
Bty Battery **PO** Post Office
Cemy Cemetery **PC** Public Convenience
Chy Chimney **Pp** Pump
Cis Cistern **Ppg Sta** Pumping Station
Dismtd Rly Dismantled Railway **PW** Place of Worship
EI Gen Sta Electricity Generating Station **Sewage Ppg Sta** Sewage Pumping Station
EI P Electricity Pole, Pillar **SB, S Br** Signal Box or Bridge
EI Sub Sta Electricity Sub Station **SP, SL** Signal Post or Light
FB Filter Bed **Spr** Spring
Fn / D Fn Fountain / Drinking Ftn. **Tk** Tank or Track
Gas Gov Gas Valve Compound **Tr** Trough
GVC Gas Governor **Wd Pp** Wind Pump
GP Guide Post **Wr Pt, Wr T** Water Point, Water Tap
MH Manhole **Wks** Works (building or area)
MP, MS Mile Post or Mile Stone **W** Well

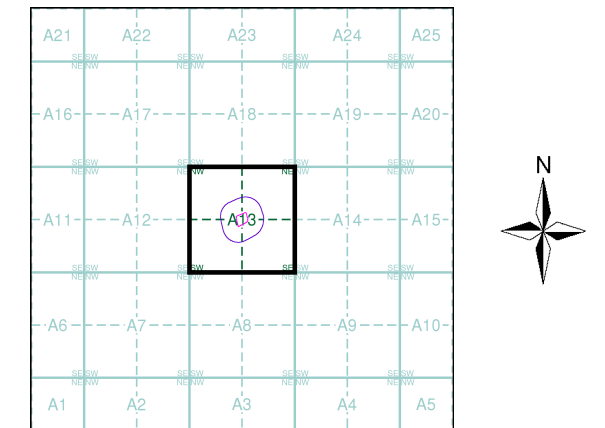
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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Essex	1:2,500	1875	2
Essex	1:2,500	1896	3
Essex	1:2,500	1922	4
Additional SIMs	1:2,500	1955	5
Ordnance Survey Plan	1:2,500	1960	6
Ordnance Survey Plan	1:2,500	1968	7
Large-Scale National Grid Data	1:2,500	1993	8
Large-Scale National Grid Data	1:2,500	1996	9

Historical Map - Segment A13



Order Details

Order Number: 290655541_1_1
 Customer Ref: 3015
 National Grid Reference: 569450, 193640
 Slice: A
 Site Area (Ha): 0.44
 Search Buffer (m): 100

Site Details

Oak Hill Farm, Coxes Farm Road, BILLERICAY, CM11 2UA

Landmark
 INFORMATION GROUP

Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk

Essex

Published 1875

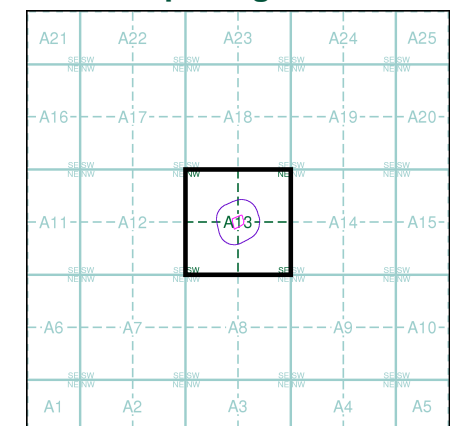
Source map scale - 1:2,500

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)

068_03	1875	1:2,500
068_07	1875	1:2,500

Historical Map - Segment A13

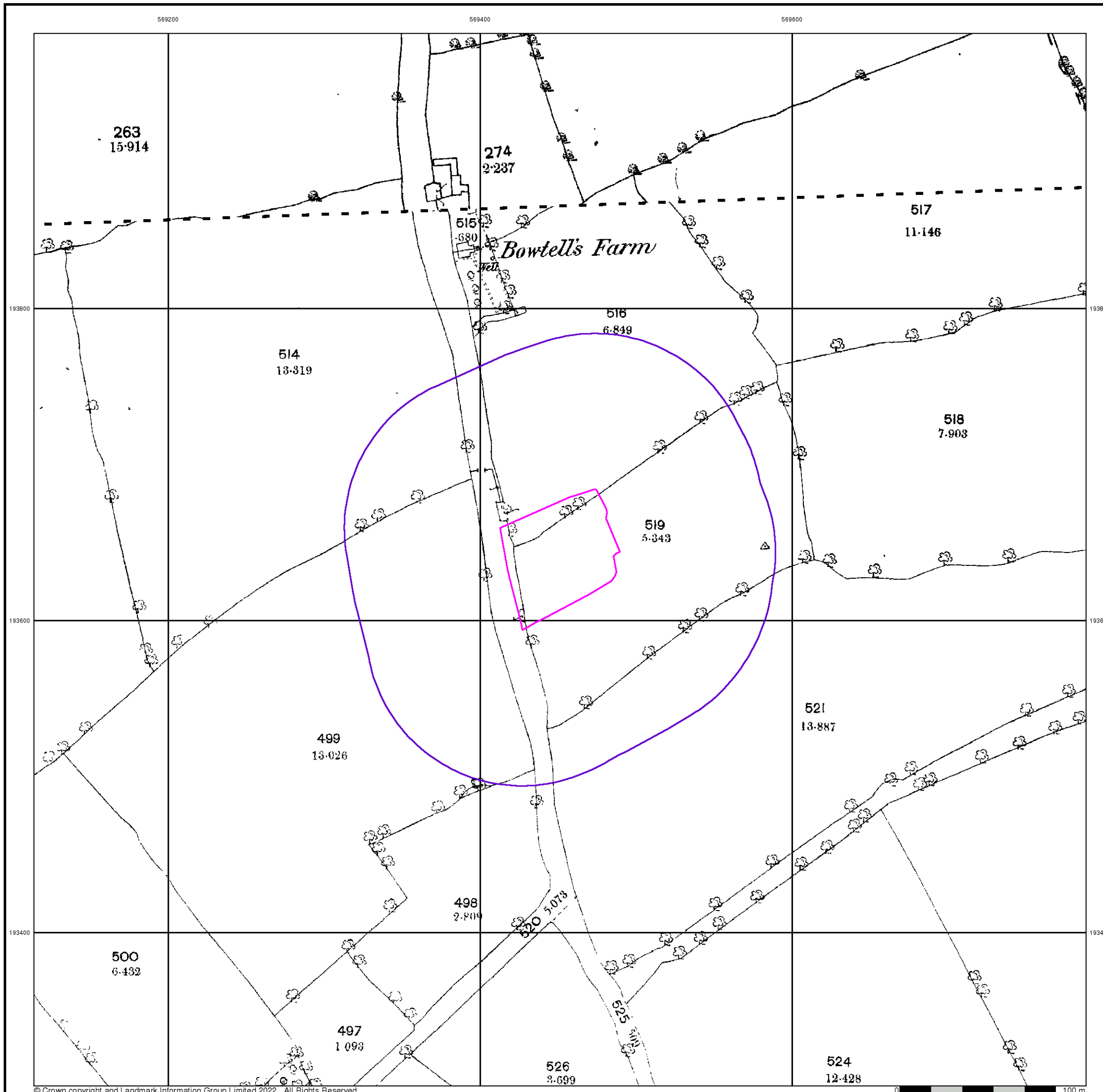


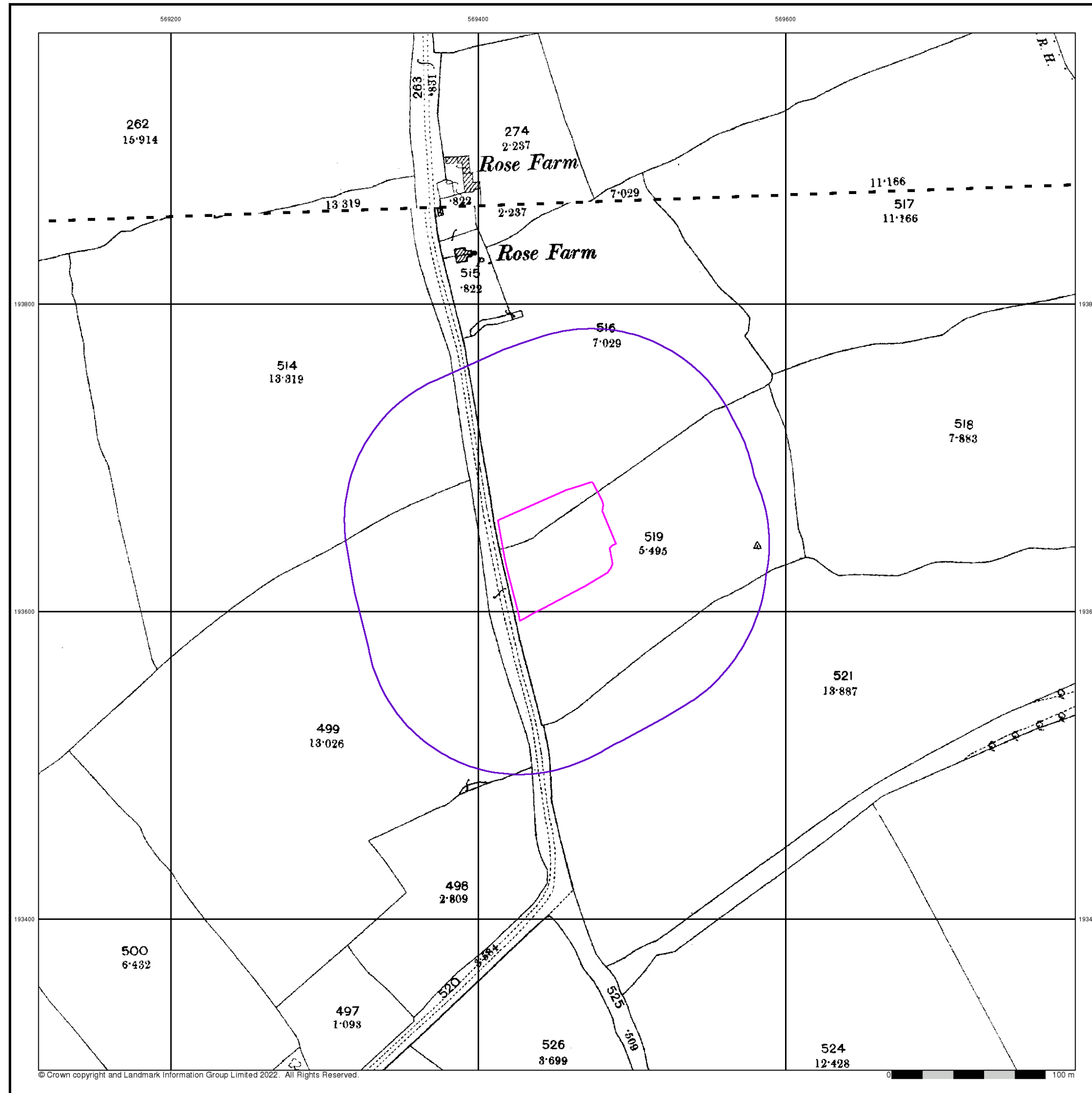
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Site Details

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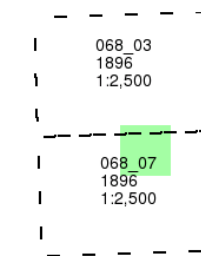
Essex

Published 1896

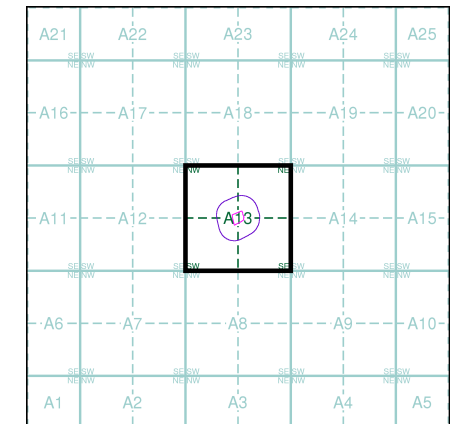
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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Site Details

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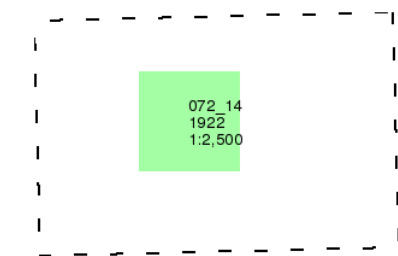
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Published 1922

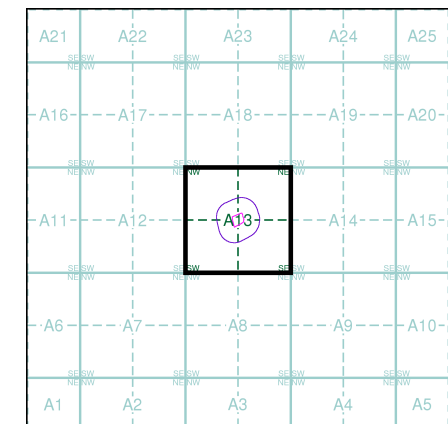
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Map Name(s) and Date(s)



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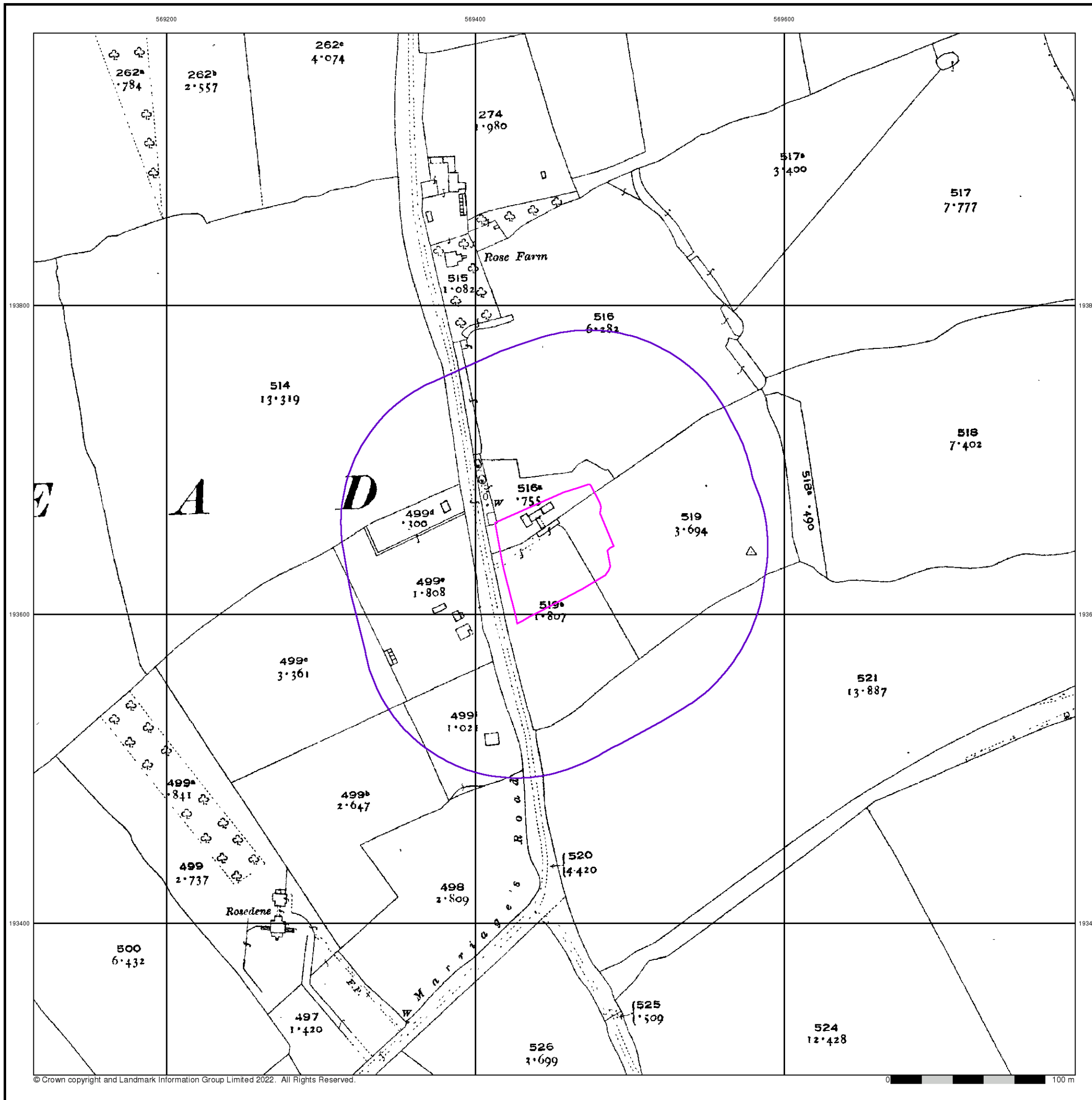


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Site Details

Oak Hill Farm, Coxes Farm Road, BILLERICAY, CM11 2UA



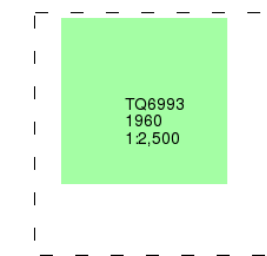
Ordnance Survey Plan

Published 1960

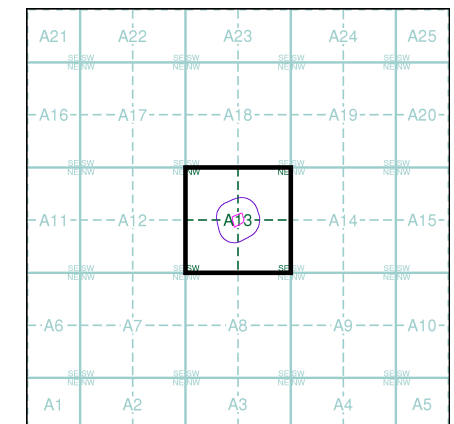
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Map Name(s) and Date(s)



Historical Map - Segment A13

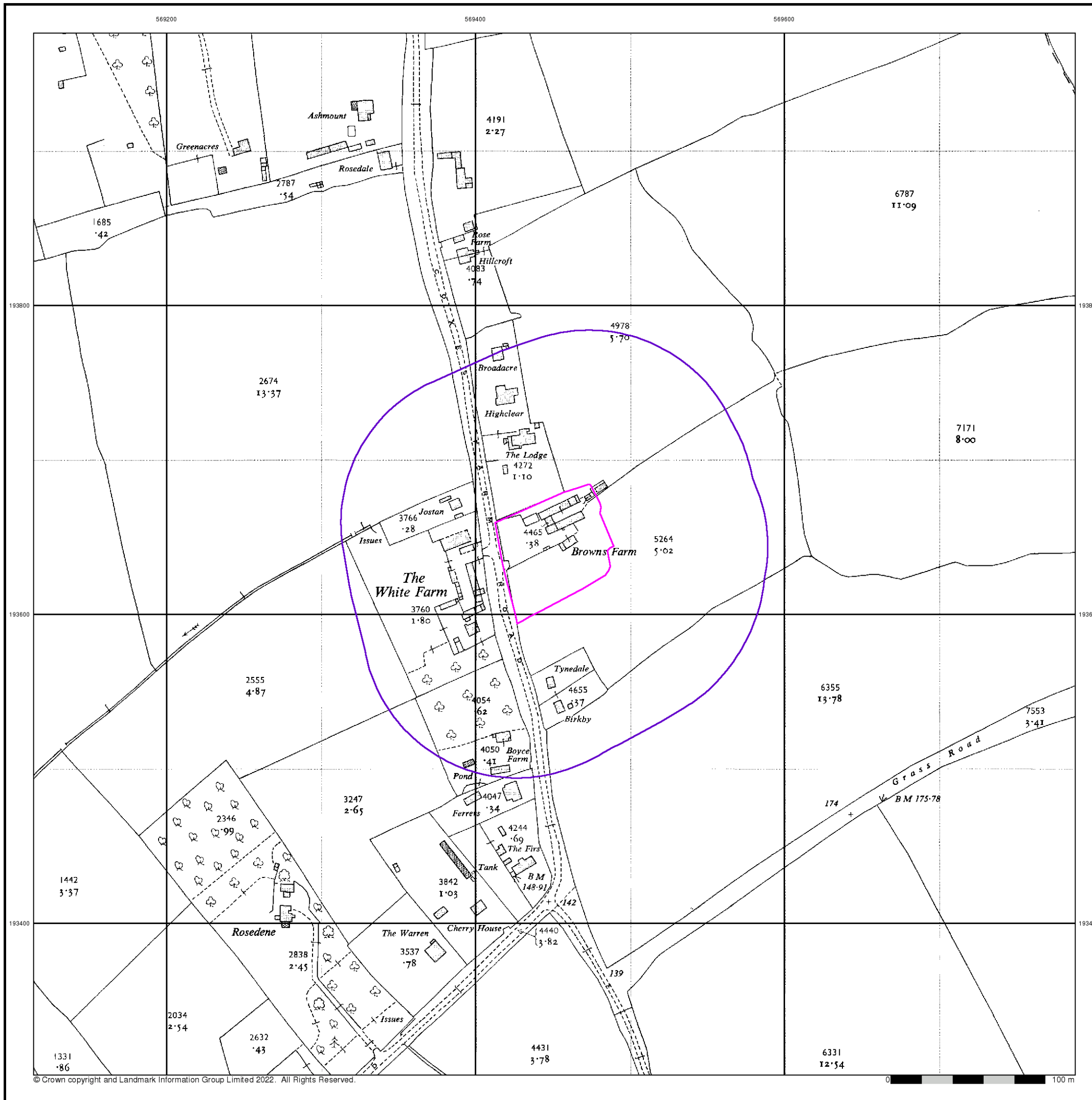


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Site Details

Oak Hill Farm, Coxes Farm Road, BILLERICAY, CM11 2UA



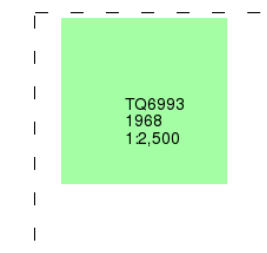
Ordnance Survey Plan

Published 1968

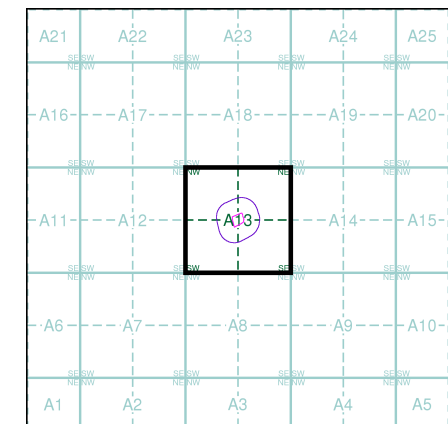
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Map Name(s) and Date(s)



Historical Map - Segment A13



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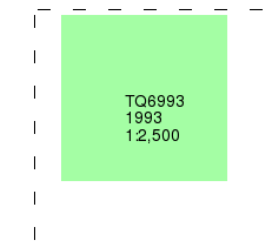
Large-Scale National Grid Data

Published 1993

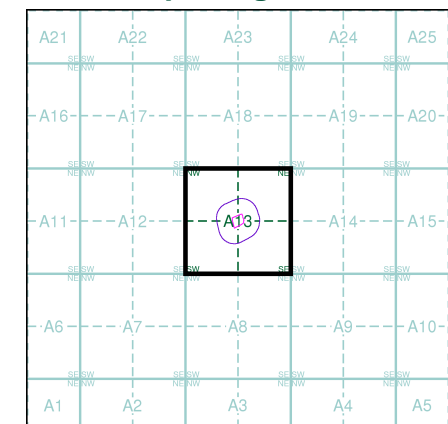
Source map scale - 1:2,500

'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)



Historical Map - Segment A13

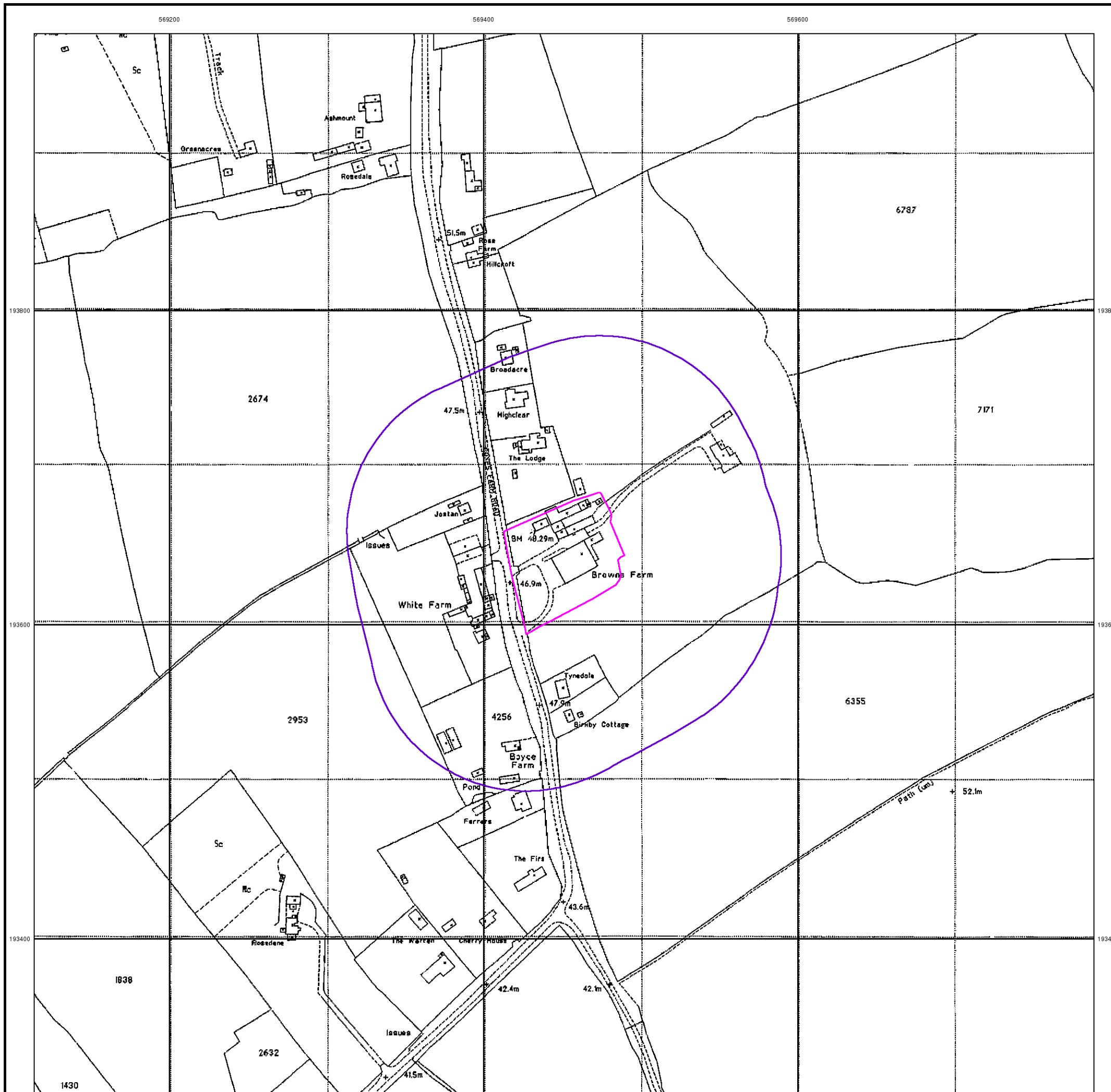


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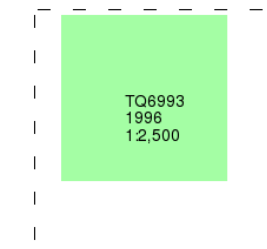
Large-Scale National Grid Data

Published 1996

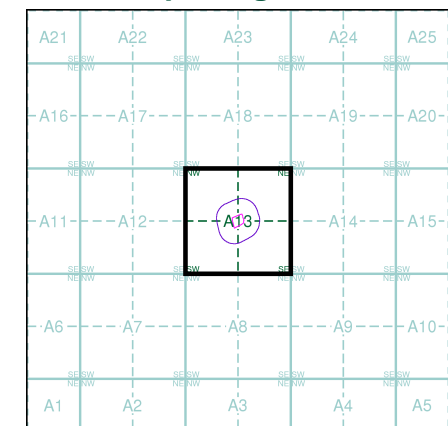
Source map scale - 1:2,500

'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)



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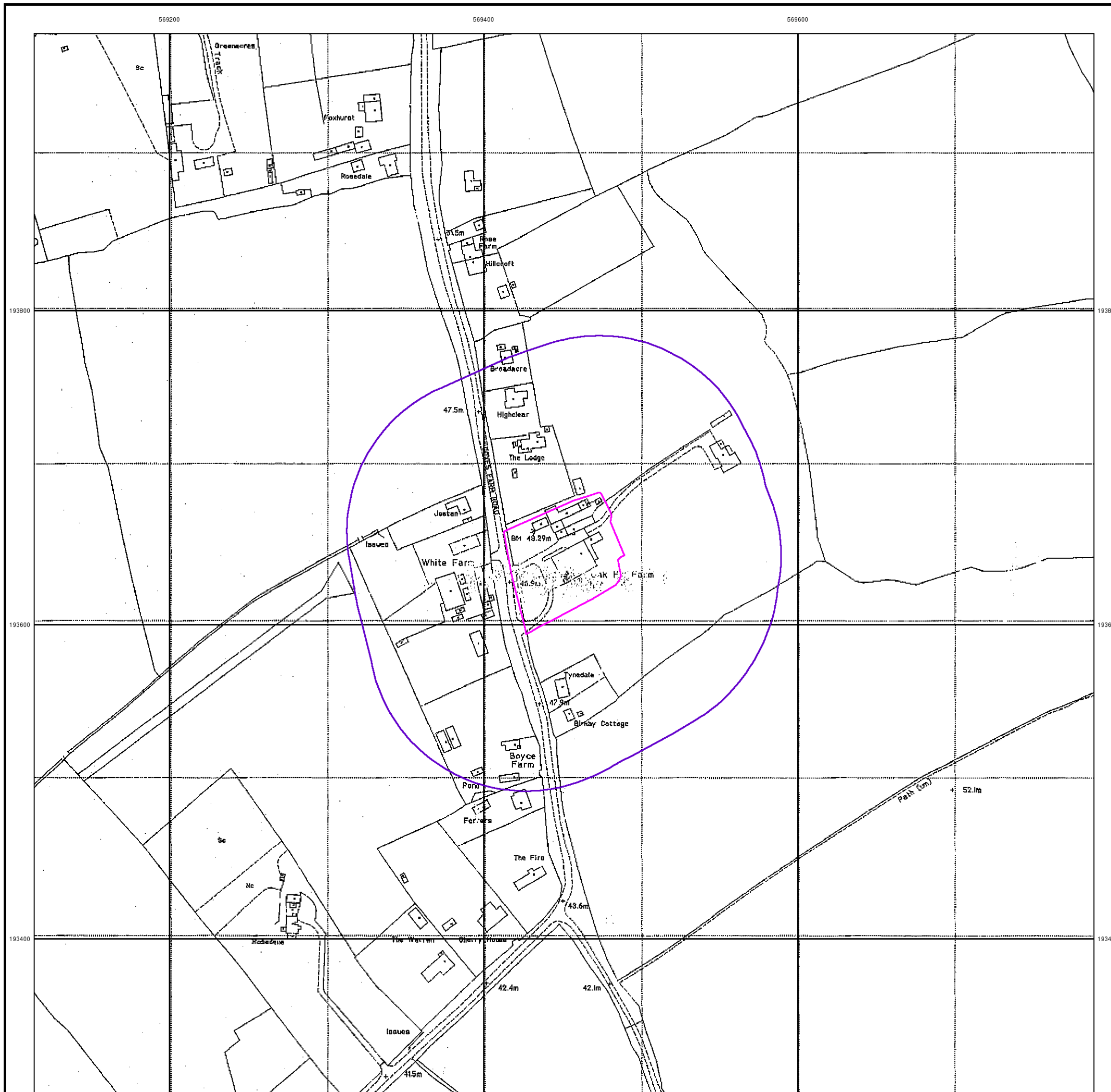


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 National Grid Reference: 569450, 193640
 Slice: A
 Site Area (Ha): 0.44
 Search Buffer (m): 100

Site Details

Oak Hill Farm, Coxes Farm Road, BILLERICAY, CM11 2UA



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
	Coppice		Bracken
	Heath		Rough Grassland
	Marsh		Reeds
	Saltings		
	Building		Glasshouse
	Sloping Masonry		Pylon
	Electricity Transmission Line		Pole
	Cutting		Embankment
	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 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)
	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

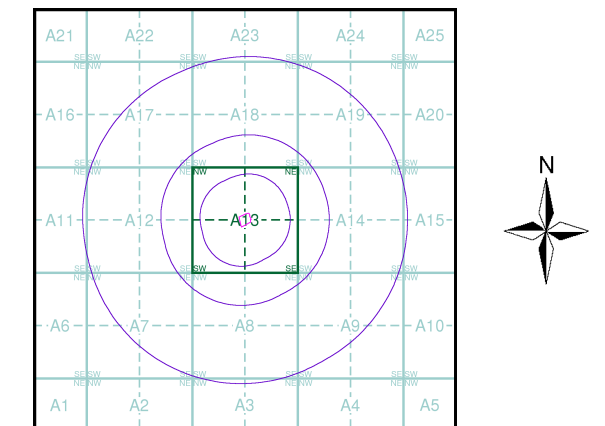
Envirocheck®

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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Essex	1:10,560	1881	2
Essex	1:10,560	1898	3
Essex	1:10,560	1923 - 1924	4
Essex	1:10,560	1938	5
Ordnance Survey Plan	1:10,000	1960	6
Ordnance Survey Plan	1:10,000	1968	7
Ordnance Survey Plan	1:10,000	1972	8
Ordnance Survey Plan	1:10,000	1983	9
Ordnance Survey Plan	1:10,000	1993	10
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Street View	Variable		12

Historical Map - Slice A



Order Details

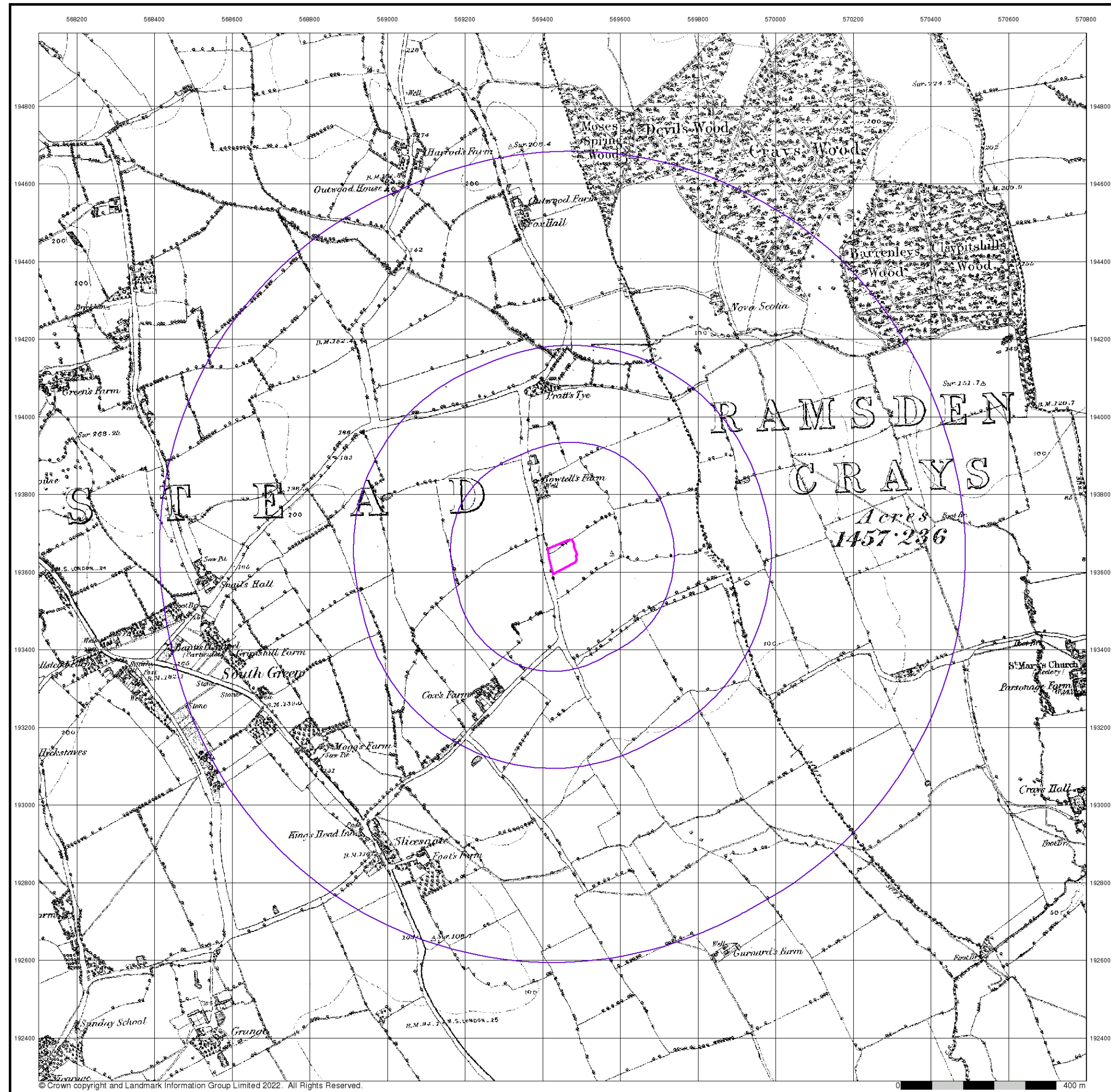
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 Customer Ref: 3015
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 Slice: A
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 Search Buffer (m): 1000

Site Details

Oak Hill Farm, Coxes Farm Road, BILLERICAY, CM11 2UA

Landmark
 INFORMATION GROUP

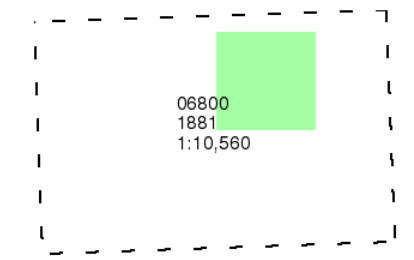
Tel: 0844 844 9952
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 Web: www.envirocheck.co.uk



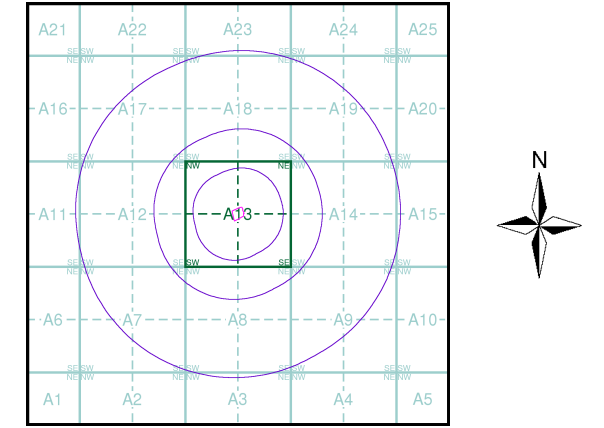
Essex
Published 1881
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details
 Order Number: 290655541_1_1
 Customer Ref: 3015
 National Grid Reference: 569450, 193640
 Slice: A
 Site Area (Ha): 0.44
 Search Buffer (m): 1000

Site Details
 Oak Hill Farm, Coxes Farm Road, BILLERICAY, CM11 2UA

Essex

Published 1898

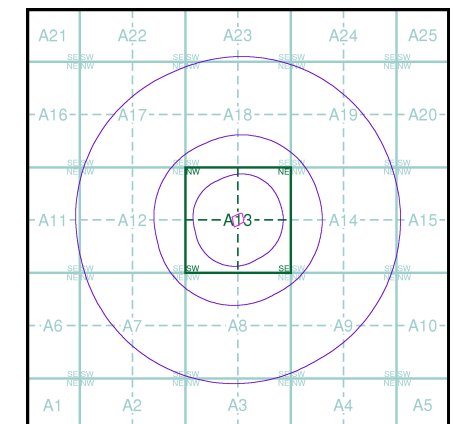
Source map scale - 1:10,560

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)

068NE	1898	1:10,560
068SE	1898	1:10,560

Historical Map - Slice A

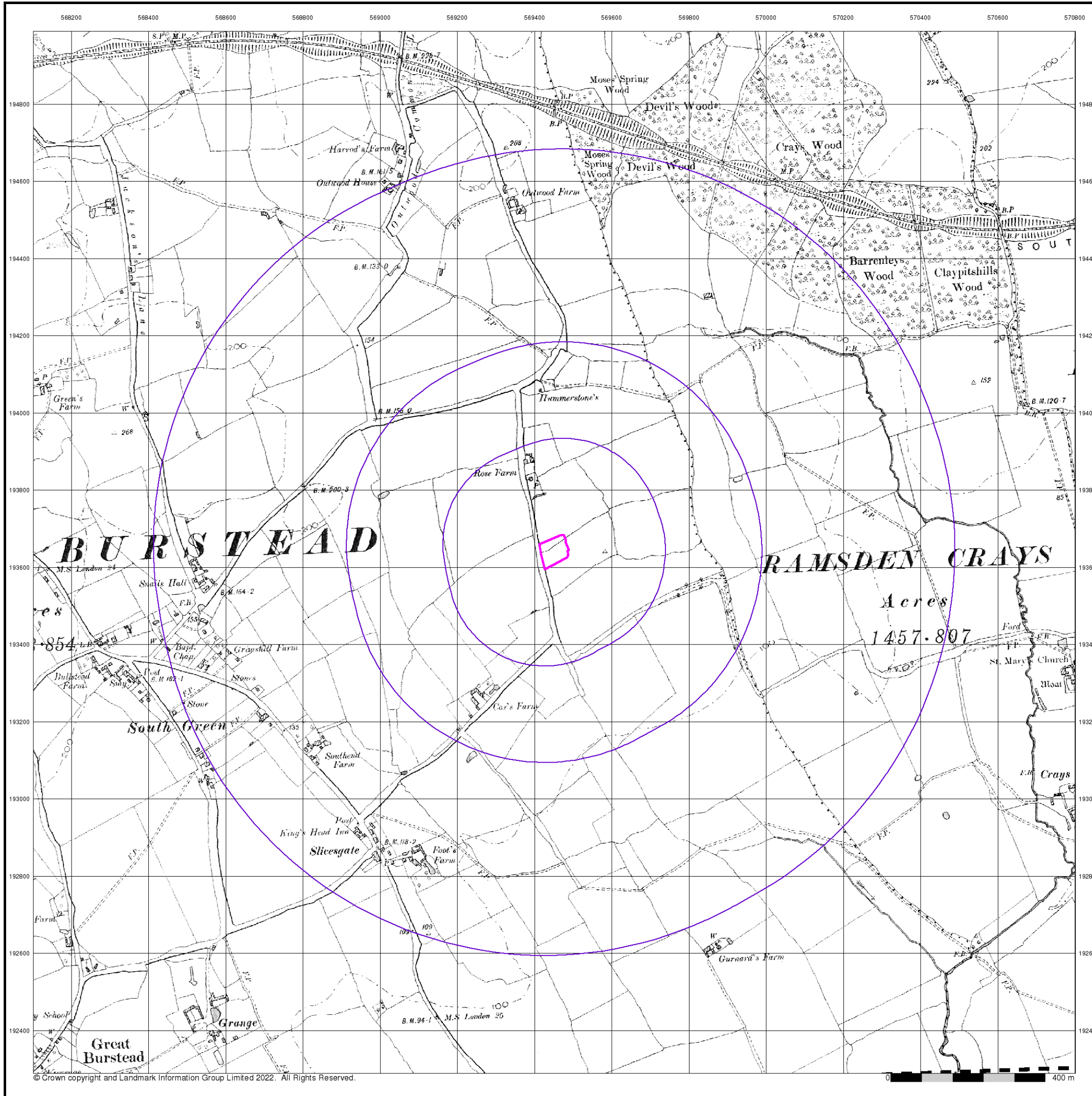


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Site Details

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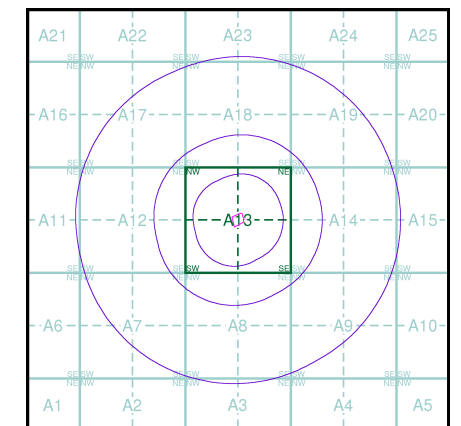


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Map Name(s) and Date(s)

072SW	1923	1:10,560
081NW	1924	1:10,560

Historical Map - Slice A

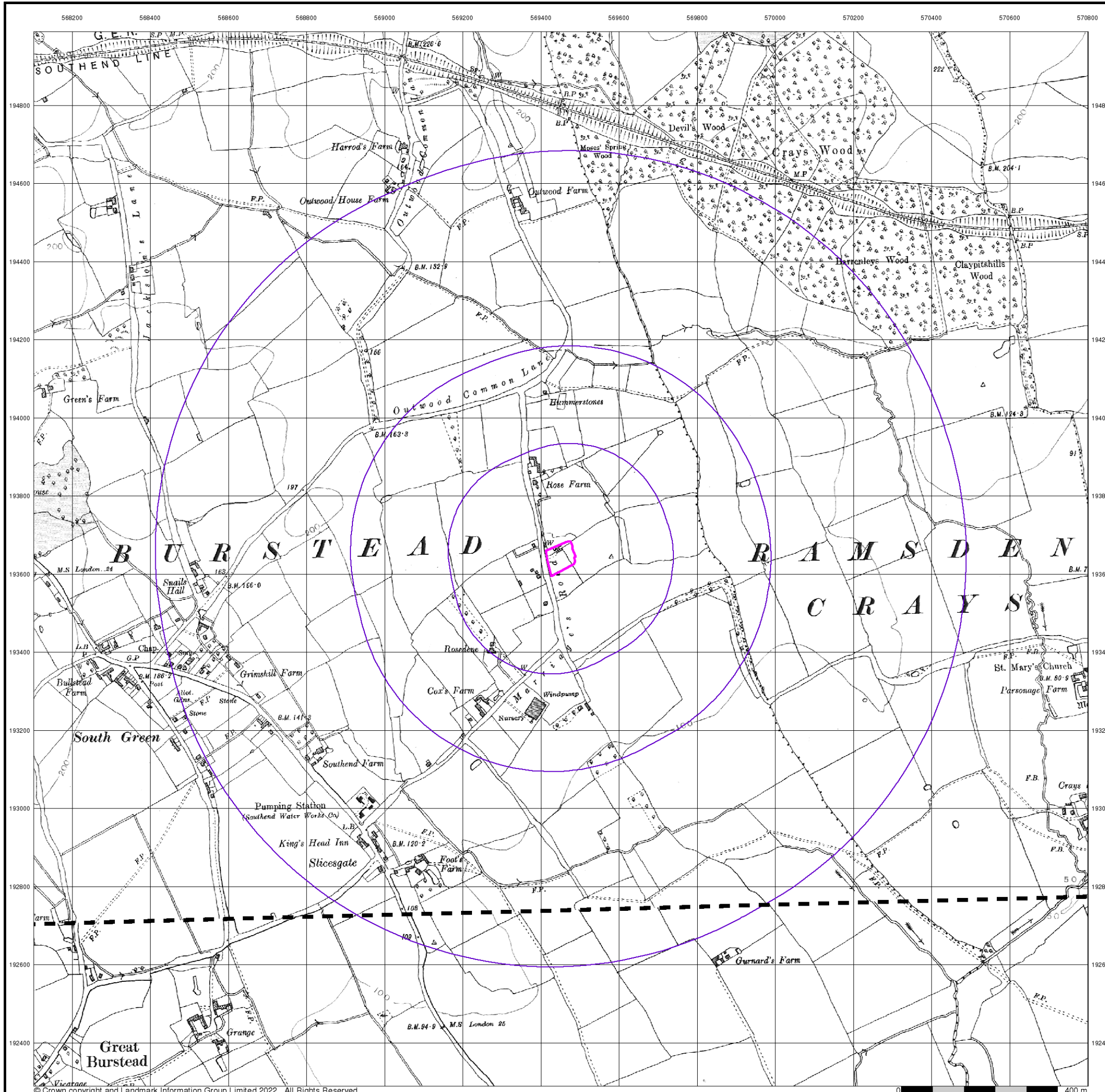


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Site Details

Oak Hill Farm, Coxes Farm Road, BILLERICAY, CM11 2UA



Essex

Published 1938

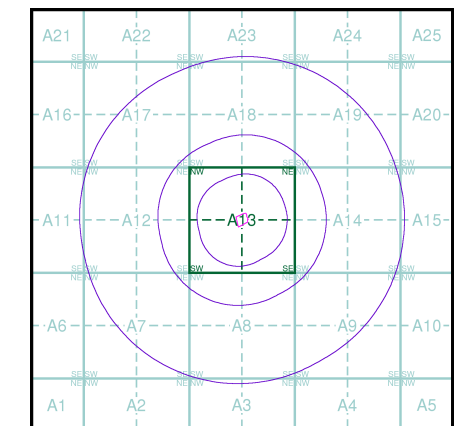
Source map scale - 1:10,560

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Map Name(s) and Date(s)

072SW	1938	1:10,560
081NW	1938	1:10,560

Historical Map - Slice A

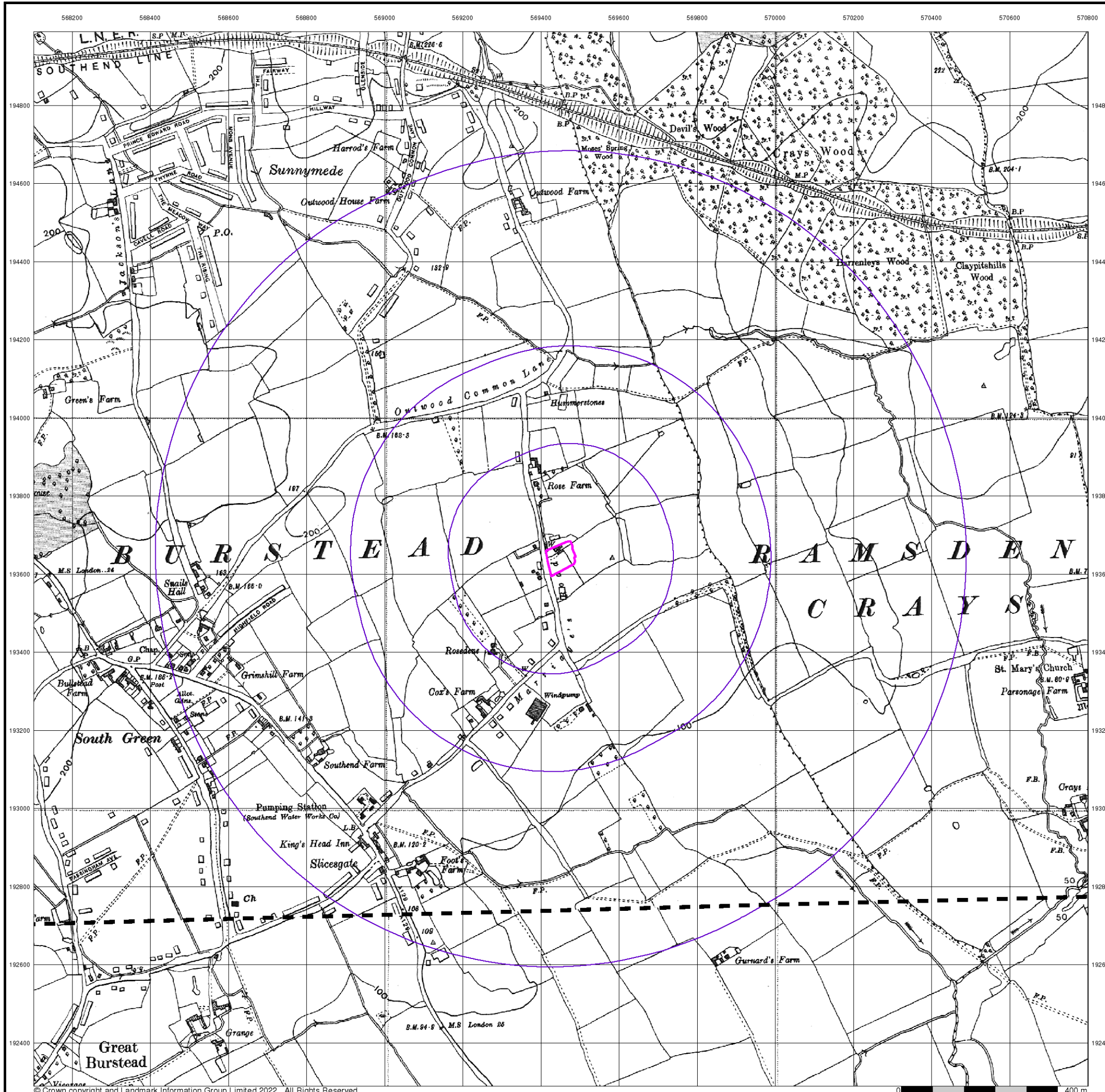


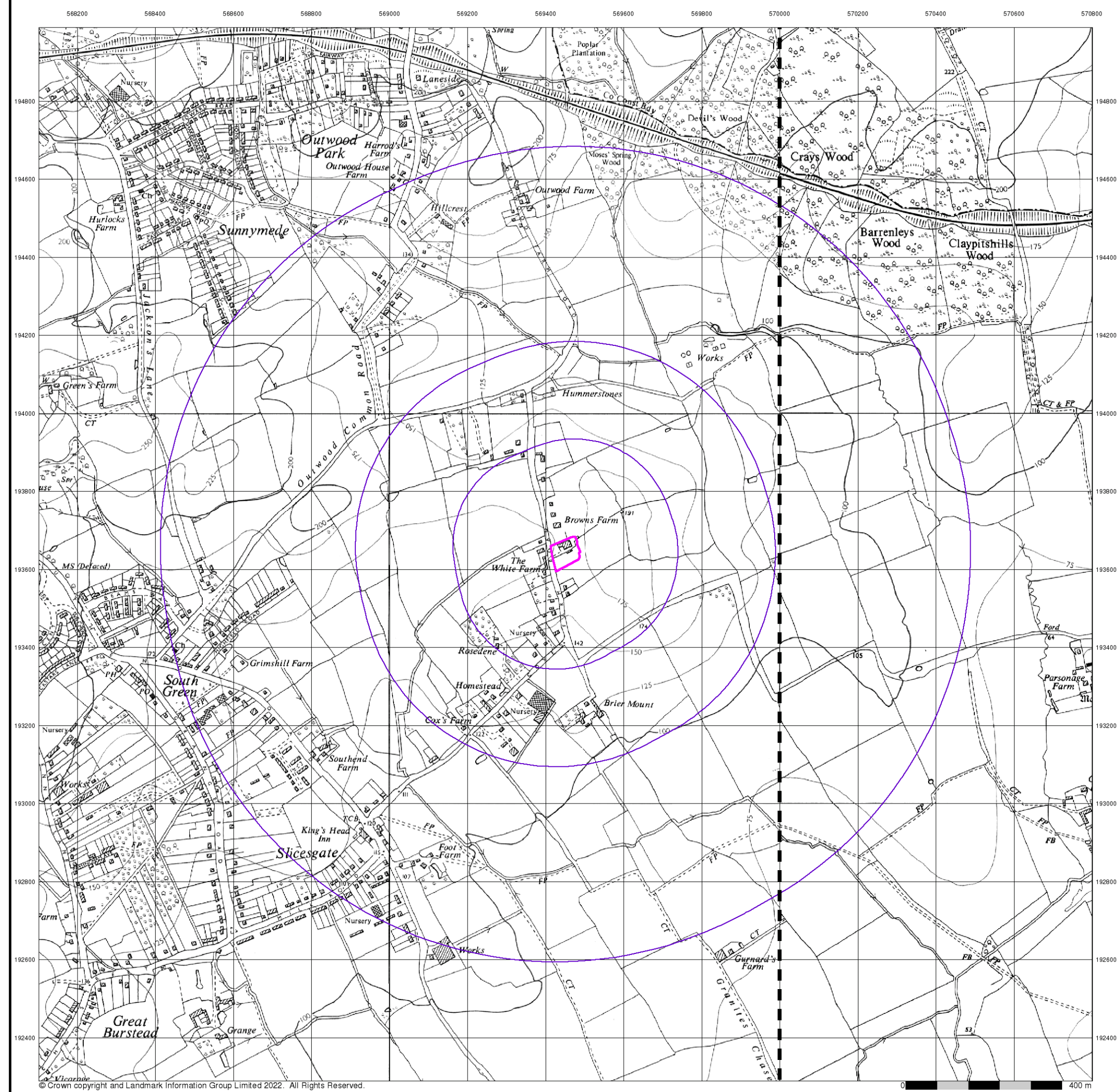
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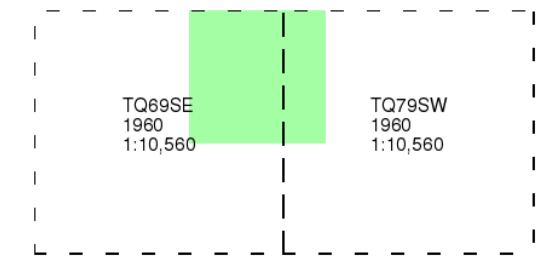




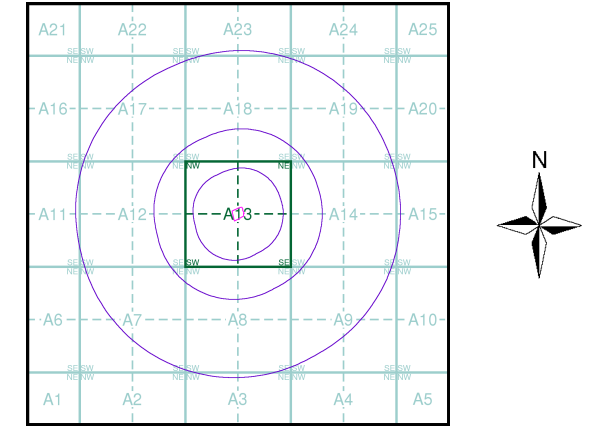
Ordnance Survey Plan Published 1960 Source map scale - 1:10,000

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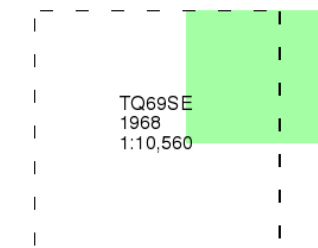
Ordnance Survey Plan

Published 1968

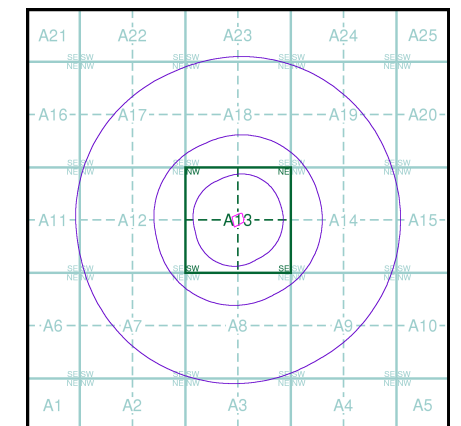
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A

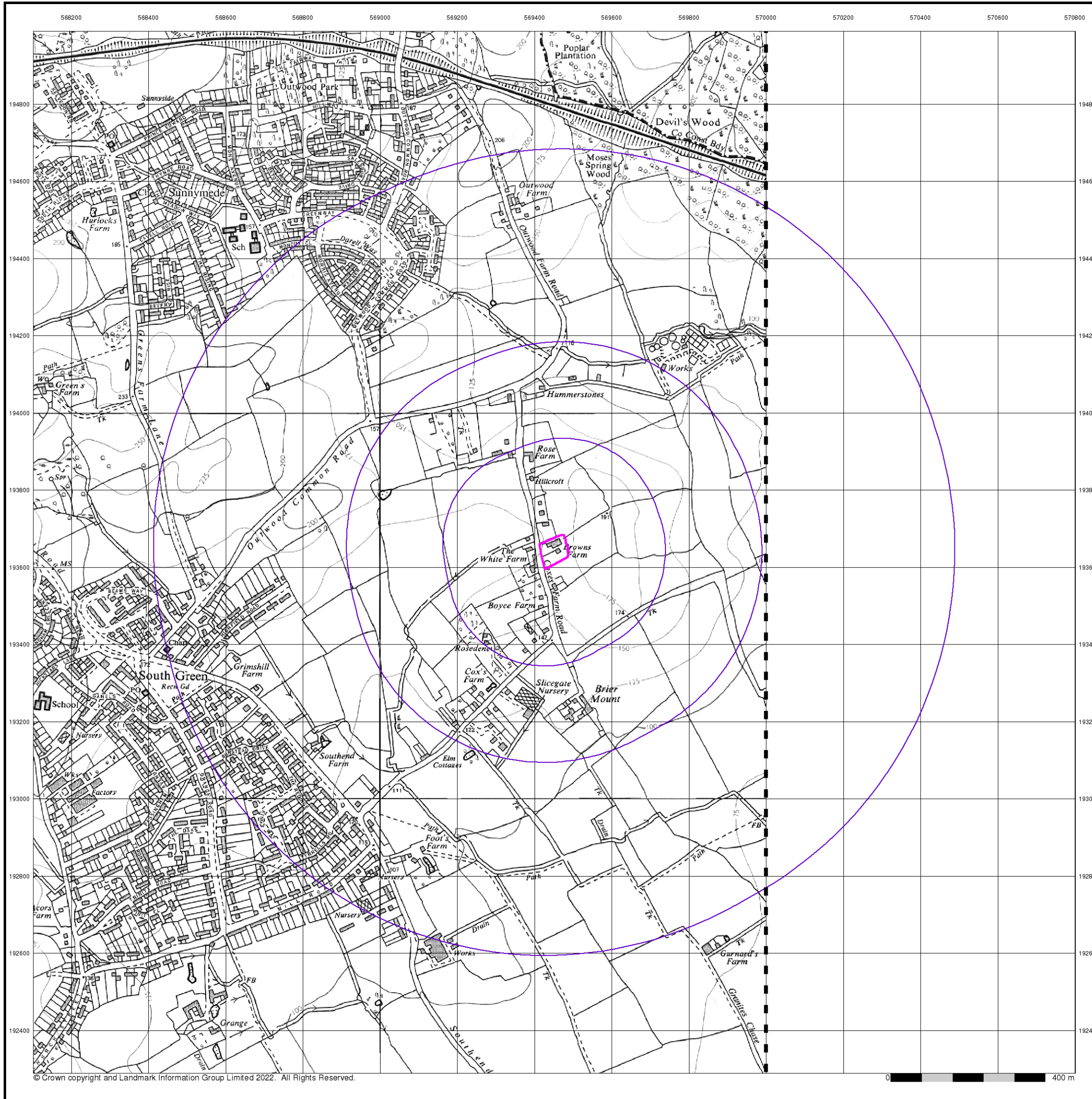


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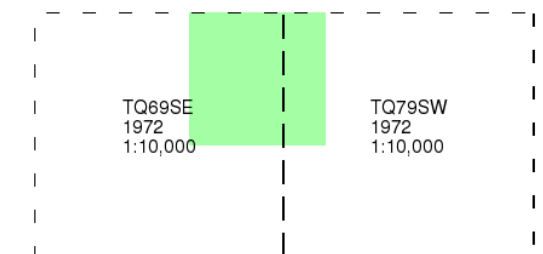
Ordnance Survey Plan

Published 1972

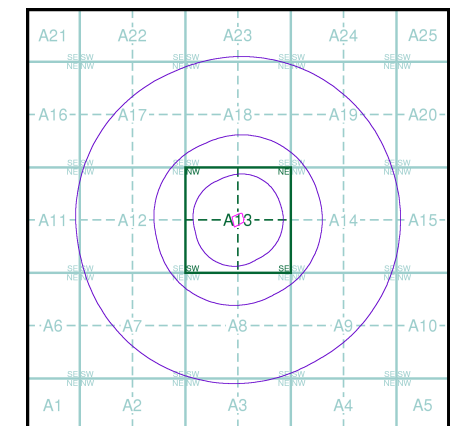
Source map scale - 1:10,000

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