

# **Land at North West Bicester Hawkwell Village**

Geo-Environmental Phase 1 Desk Study

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**Hallam Land Management Ltd**

# Document Control Sheet

**Document Title**            Geo-Environmental Phase 1 Desk Study  
**Document Ref**             10663 DS01 Rv2  
**Project Name**              Land North West Bicester, Hawkwell Village  
**Project Number**          10663  
**Client**                        Hallam Land Management Ltd

## Document Status

Rev	Issue Status	Prepared / Date	Checked / Date	Approved / Date
0	Draft	AM 19.10.21	DN 21.10.21	DN 21.10.21
1	Draft	AM 17.11.21	DN 17.11.21	DN 17.11.21
2	Draft	AM 25.11.21	AM 25.11.21	AM 25.11.21

## Issue Record

Name / Date & Revision	21.10.21	17.11.21	25.11.21			
Ben Meynell – Hallam Land Management Ltd	-	1	2			

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## **Appendices**

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Appendix – Historical Site mapping – Ordnance Survey

# 1 Introduction

- 1.1** Brookbanks is appointed by Hallam Land Management Ltd to complete a Phase 1 Geo-Environmental Desk Study for a proposed mixed development on Land North West Bicester, Hawkwell Village.
- 1.2** The objective of the study is to research the likely geotechnical and chemical characteristics of the soil and ground water environment.

## 2 Background Information

### Location and Details

- 2.1 The proposed development lies to the north-west of the Bicester in Oxfordshire. For the purpose of this description the red line has been spilt into two areas. The eastern area is bound by Bucknell village to the north, agricultural fields to the east, to the A4095 and the Lords Land roundabout to the south and Bicester Road/Bucknell Road to the west. The western area is bound by the railway line to the west, agricultural fields to the north, Bicester Road/ Bucknell Road to the east and Lords Land roundabout to the south.
- 2.2 The site is currently undeveloped agricultural land and is not thought to have been historically subject to any significant built development.
- 2.3 The site location and boundary is shown indicatively on **Figure 2-1**.

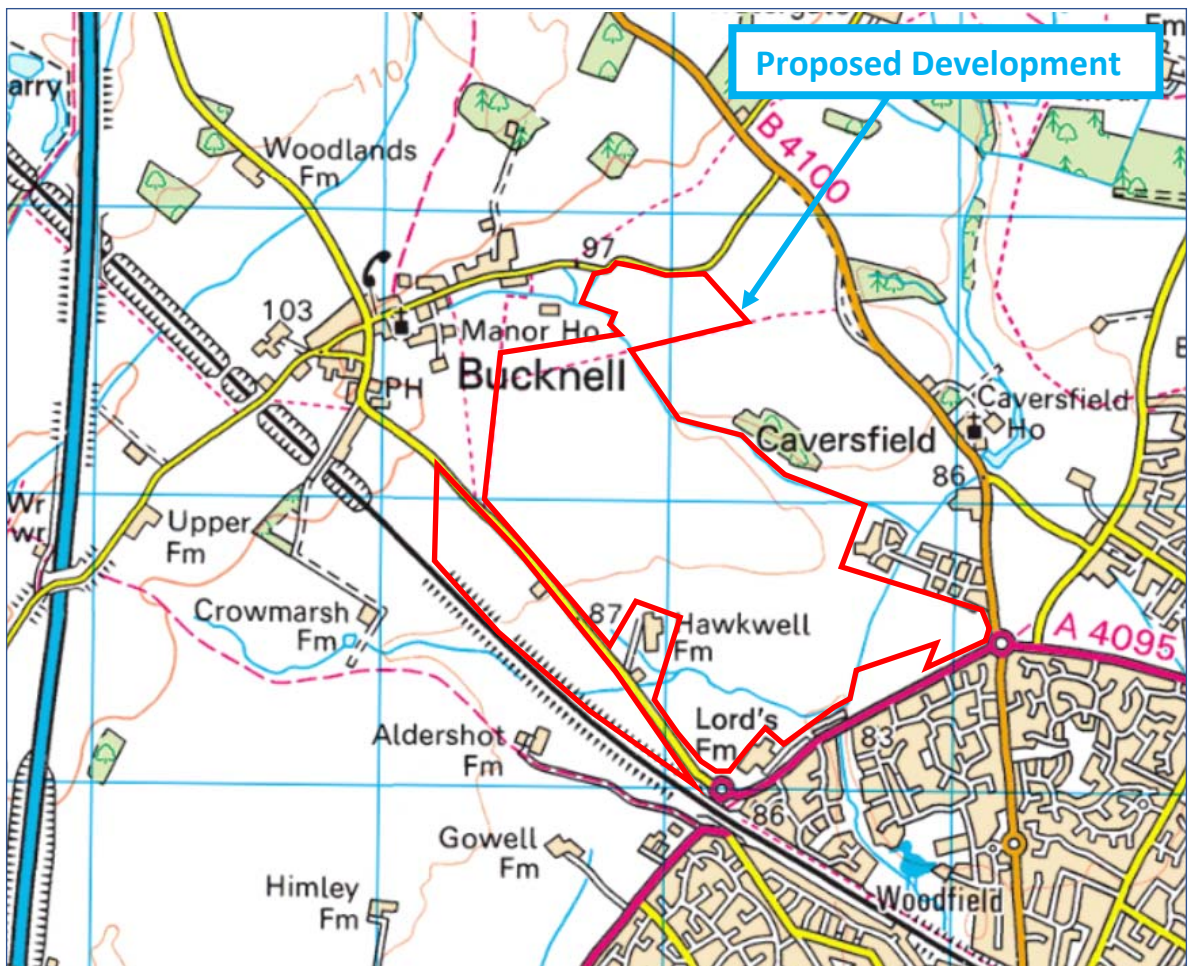


Figure 2-1: Site Location

## Development Criteria

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2.4 The following development is proposed at the site:

- Up to 3100 new homes
- A mixed use local centre
- A school Site
- A school playing field extension to the existing Gagle Brook Primary School
- Extensive green area to the north comprising sports, recreation and play areas and a country park
- Allotments and community farm
- Burial ground
- 4 LEAPs, 2 NEAPs and a MUGA across the Site
- Employment/business use area
- Retention and enhancement of existing hedgerows
- Green corridor alongside the river
- Primary Street

## Sources of Information

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2.5 The following bodies were consulted during the study:

- Environmental Matters - Environment Agency

2.6 The following information has been gathered during the study:

- Environmental Search - Landmark Envirocheck Reports, October 2021
- Published Geology - British Geological Survey
- UXO Pre-desk Study Assessment - Zetica UXO, January 2018

## 3 Historical Site Uses

- 3.1 In appraising the Site history, published Ordnance Survey maps have been reviewed dating from 1884 up to the present day. A selection of large scale maps used in this report, are contained within the **Appendix**.
- 3.2 Inspection of the Ordnance Survey maps has revealed that since 1887, the Site has largely remained undeveloped. Two Farms (Lords Farm and Hawkwell Farm) are identified onsite since 1884, along with a building in 1982 in the south-west. In addition, a Track supplying Hawkwell Farm is shown since 1982 across the Site. Bucknell Road splits the Site in the south, and this has been present since 1884. Two Masts, identified in 2021 mapping are present in the south.
- 3.3 Since 1900, several quarries have been identified in the south, north-east and north-west of the Site, associated with adjacent developments within the vicinity of the Site. However, by the 1970's the majority of these are shown to be disused and built over.
- 3.4 The surrounding area is shown to include a number of potentially contaminative land uses. Since 1923, a railway line is shown to bound the south and south-west of the Site. In addition, expansions of Bicester and Caverfield has allowed for associated existing roads, several dwellings and residential areas to have been built or expanded.
- 3.5 The historical activities described above and further activities shown within the surrounding area are presented in **Table 3-1** (onsite) and **Table 3-2** (offsite).
- 3.6 The following potentially significant contaminative land uses are on or within close proximity of the site and will be further assessed within Section 10: **Agricultural, Existing Farm Buildings, Roads (Bucknell Road, A4095 and Banbury Road), Railway Line, Former Quarries, Former Works and Former Sewage Works**.

Site Use/ Activity	Date First Shown	Date Last Shown	Direction
Bucknell Road	1884	Still Present	South West
Lords Farm	1884	Still Present	South
Hawkwell Farm and Hawkwell Cottages	1884	Still Present	Centre
Building	1982	Still Present	South West
Track (Servicing Hawkwell Farm)	1982	Still Present	Centre
Two Masts	2021	Still Present	South

**Table 3-1: Onsite Historical Site Uses**



Site Use / Activity	Date First Shown	Date Last Shown	Approximate Distance	Direction
Railway Line	1923	Still Present	Bounds	South
A4095	1884	Still Present	Bounds	East
Banbury Road	1884	Still Present	Bounds	North East
Further Expansion of Bicester	2006	Still Present	25	East
Small Filter Bed/Sewage Works	1923	1982 (disused)	25	North West
Caversfield Expansion	2021	Still Present	25	North East
Expansion of Bicester	1982	Still Present	50	South / North East
Pumping Station	1923	1982	100	South
Depot	1982	2006	100	South
Limekiln and Quarry	1923	1970	150	South West
Piggeries	1999	2021	350	South West
Quarry	1900	1923	475	East
Quarry	1900	1970	500	South
Quarry	1884	1982 (disused)	650	North West
Quarry	1900	1970	750	South
Hospital	1900	1970	800	South
Quarry	1923	1958	850	North East
Union Workhouse	1900	1970	900	South
Quarry	1923	1958	900	North East
Quarry	1900	1970	1000	East

**Table 3-2: Offsite Historical Site Uses**

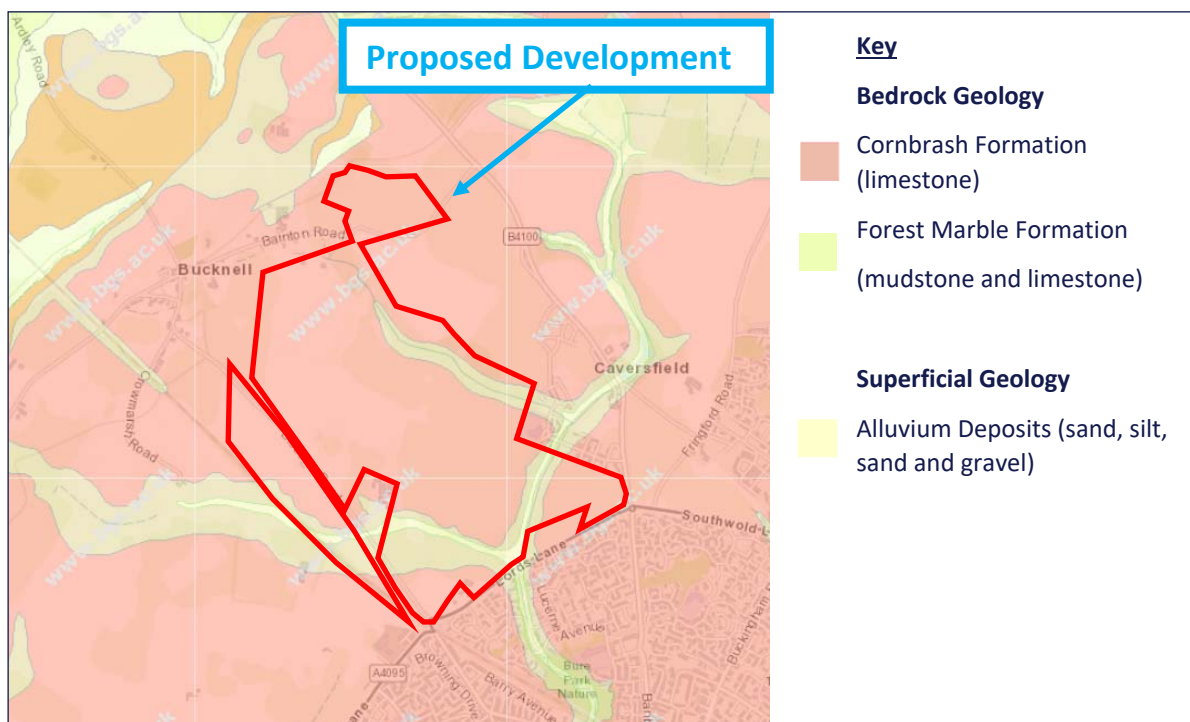
## 4 Recent & Current Site Usage

- 4.1** With the exception of Bucknell Road, two farms, a building in the south-west, a Track and two masts, the Site is currently undeveloped. The historical map search suggests that the land has previously been set as agricultural land, which it remains in.

# 5 Ground Conditions

## Geology

- 5.1 With reference to the British Geological Survey map, the majority of the Site is shown to be underlain by limestone of the Cornbrash Formation. Slithers of interbedded limestone and mudstone of the Forest Marble Formation are shown across the Site north, east and south-east.
- 5.2 The Superficial geology on site includes Alluvium deposits in east and south-east, consisting of clay, silt, sand and gravel. These appear to follow the watercourse.
- 5.3 There are no areas of Artificial Ground/ Made Ground or Landslip areas reported on Site.
- 5.4 The published site geology is illustrated on **Figure 5-1**.



**Figure 5-1: BGS Published Geology**

5.5 BGS records include the following ratings for a number of potential ground stability hazards on or within 250m of the Site boundary:

- |                                 |                        |
|---------------------------------|------------------------|
| • Collapsible ground stability: | No Hazard*/ Very Low*  |
| • Compressible ground:          | No Hazard*/ Moderate*  |
| • Ground Dissolution:           | No Hazard* / Very Low* |
| • Landslide:                    | Very Low*              |
| • Running Sand:                 | No Hazard*/ Low*       |
| • Shrinking & Swelling Clay:    | No Hazard*/ Very Low*  |

\*stability hazard reported on Site

## Mining

- 5.6 The Site is not reported to be in an area affected by **Coal Mining**.
- 5.7 The Envirocheck Report has not highlighted any evidence of **Mining Instability** on site.
- 5.8 The Site is not reported to be in an area affected by **Man-Made Mining Cavities, Natural Cavities or Non Coal Mining Areas of Great Britain**.
- 5.9 There are three **BGS Recorded Mineral Sites** recorded within 1,000m of the Site boundary. These are further detailed in **Table 5-1**

Name	Location	Type / Commodity	Status	Distance (m)	Direction
Gowell Farm	Bicester, Oxford	Opencast / Limestone	Ceased	138	South East
Home Farm	Caversfield, Oxford	Opencast / Limestone	Ceased	437	North
Slade Farm	Bicester, Oxford	Opencast / Limestone	Ceased	549	South East
Crowmarsh Farm	Bucknell, Oxford	Opencast / Limestone	Ceased	643	West
Primrose Cottage	Bicester, Oxford	Opencast / Limestone	Ceased	654	South East
Vicarage House	Caversfield, Oxford	Opencast / Limestone	Ceased	707	South East
Cuckoo Farm	Caversfield, Oxford	Opencast / Limestone	Ceased	794	South East

**Table 5-1: BGS Mineral Sites**

## Radon

- 5.10 The majority of the Site is shown to be situated within an intermediate probability area affected by radon, where between 1 to 3% of homes are estimated to be above the action level. It is reported that no radon protection measures are necessary for the construction of new developments within these areas of the Site. Bicester’s existing built form are also shown to be in an intermediate probability affected by radon.
- 5.11 Areas in the north are shown to be in a lower probability area affected by radon, where less than 1% of homes are above the action level. It is reported that no radon protection measures are necessary for the construction of new developments within these areas of the Site.
- 5.12 There is an area in the north (location not provided) shown to be within an intermediate probability area affected by radon, where between 3 to 5% of homes are estimated to be above the action level. In this location, it is reported that basic radon protective measures are necessary in the construction of new dwellings.

## Estimated Soil Chemistry

- 5.13** The Envirocheck report provides the following estimated soil chemistry\* on Site, whereby the soil is described as 'rural'.

Potentially Harmful Elements	BGS Estimated Soil Chemistry Concentration (mg/kg)
Arsenic	15 - 35
Cadmium	< 1.8
Chromium	60 - 90
Lead	<100
Nickel	30 - 45

**Table 5-2: Estimated Soil Chemistry**

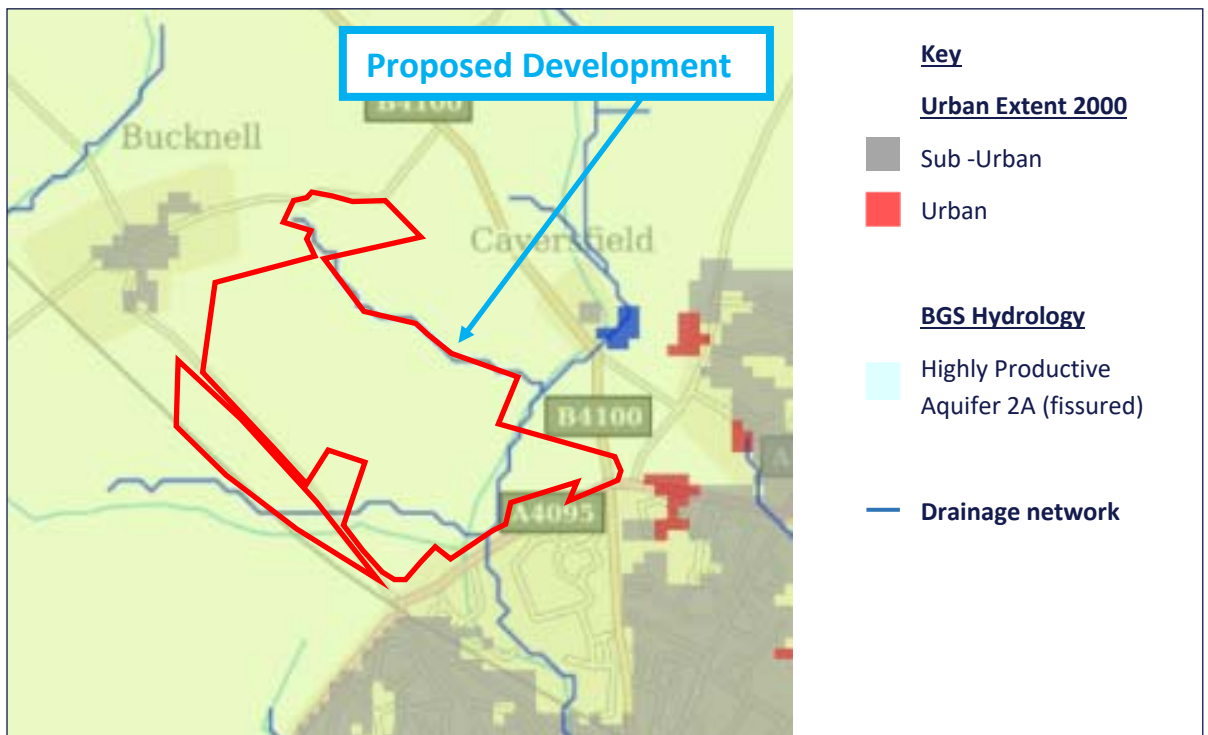
*\* The British Geological Survey (BGS) Estimated Soil Chemistry dataset provides modelled estimates of ambient background concentrations of Potentially Harmful Elements (PHE) in topsoil: Arsenic (As), Cadmium (Cd), Chromium (Cr), Nickel (Ni) and Lead (Pb). The data has been created by combining high resolution geochemical data (from the BGS G-BASE and Imperial College Wolfson geochemical survey database) and the soil parent material maps derived from the BGS DiGMapGB geological data and covers the whole of Great Britain (excluding London).*

- 5.14** If required at the detailed design stage, confirmation of the existing site specific soil chemistry can be established via a Phase II ground investigation.

# 6 Hydrology

## Flooding

- 6.1 The Environment Agency’s (EA) National Generalised Modelling (NGM) Flood Zones Plan indicates predicted flood envelopes of Main Rivers across the UK. In many circumstances, the NGM is based on basic catchment characteristic data and modelling techniques. Where appropriate, more accurate Section 105 / SFRM models are produced using more robust analysis techniques.
- 6.2 Reference to the online Flood Estimation Handbook shows the Site to lie within the catchment of the River Ray south of Bicester. Part of the drainage network belonging to the River Ray flows through the Site.(the River Bure).
- 6.3 **Figure 6-1** illustrates the watercourses and feature described above.



**Figure 6-1: Urban Extent 2000 and BGS Hydrology and Drainage Network**

- 6.4 The mapping below on **Figure 6-2** shows that majority of the site to lie within Flood Zone 1; being an area of Low Probability of flooding and outside both the 1 in 100 (1% AEP) and 1 in 1,000 (0.1% AEP) year flood events.

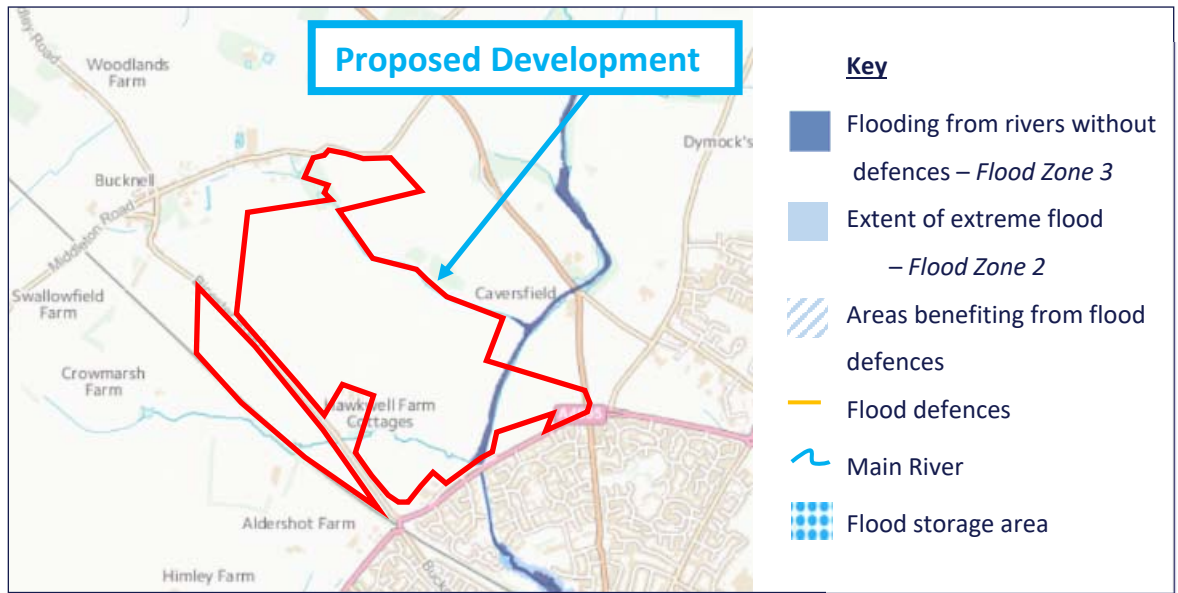


Figure 6-2: EA Flood Zone Plan showing 1 in 100 & 1 in 1,000 year floodplains

6.5 **Figure 6-3** illustrates that most of the Site has a very low risk of surface water flooding. However, there are small areas across the site that are shown to have a Medium Risk from surface water flooding.

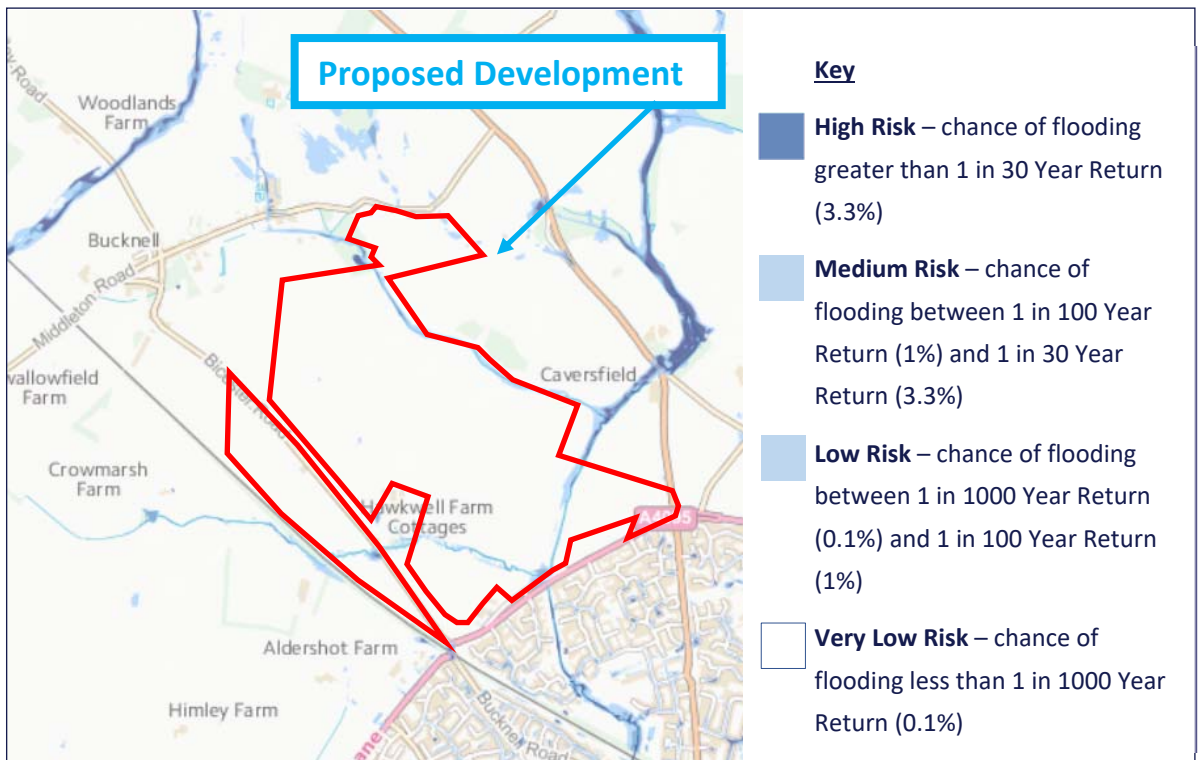


Figure 6-3: EA Long Term Flood Risk Maps – Flood risk from Surface Water (Gov.Uk website)

## Discharge Consents

**6.6** There are seven Discharge Consents, reported within the Envirocheck Report, within 1,000m of the proposed site. Two of these are reported to be on site and are issued to the following:

- Messrs Wej & Tmf Malins, located at Lords Farm, Lords Lane, Bicester in the east of the Site for Trade Effluent Discharge (Site Drainage) into a Tributary of the Town Brook on the 16<sup>th</sup> September 2004. The current status is: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environmental Act 1995).
- Messrs Wej & Tmf Malins, located at Lords Farm, Lords Lane, Bicester in the east of the Site for Sewage Discharges (Final/Treated Effluent – not Water Company) into a Tributary of the Town Brook on the 16<sup>th</sup> September 2004. The current status is: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environmental Act 1995).

**6.7** The remaining five discharge consents are shown in **Table 6-1**.

Operator – Location	Status	Effective Date	Receiving Water	Discharge Type	Distance (m)	Direction
A G Phipps, Esq – Home Farm, Complex Home Farm, Banbury Road, Caversfield	New Consent*	19/11/2002	The Town Brook	Sewage Discharges – Final/Treated Effluent – Not Water Company	275	North West
Mr. M. S. Purewal – The Old Vicarage, Caversfield	Modified**	30/01/2007	Cornbrash	Sewage Discharges – Final/Treated Effluent – Not Water Company	399	North
Mr. M. S. Purewal – The Old Vicarage, Caversfield	Transferred from COPA 1974	27/03/1987	Cornbrash	Sewage Discharges – Final/Treated Effluent – Not Water Company	399	North
Thames Water Utilities Limited – Bucknell Pumping Station, Bucknell	New Consent***	07/05/1992	Town Brook	Sewage Discharges – Pumping Station – Water Company	628	West
Thames Water Utilities Limited – Bucknell Pumping Station, Bucknell	New Consent***	07/05/1992	Town Brook	Public Sewage: Storm Sewage Overflow	628	West

**Table 6-1: Discharge Consents (between 0 – 1,000m of the Site boundary)**

\* (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)

\*\* (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)

\*\*\* (Water Resources Act 1991, Section 88)



## Water Quality

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- 6.8 There are no **River Quality Biology Sampling Points** or **River Quality Chemistry Sampling Points** situated within 1km of the Site boundary.

## Surface Water Abstraction

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- 6.9 There are no **Surface Water Abstractions** within 2,000m of the Site boundary.

## 7 Hydrogeology

### Bedrock and Superficial Aquifer Designations

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7.1 The underlying geology highlighted onsite, is shown to form a Secondary A Aquifer. In addition, the superficial Alluvium Deposits onsite are also shown to form a Secondary A Aquifers.

7.2 The EA provides the following definitions for Principal and Secondary Aquifers:

**Secondary Aquifers** - "These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:

**Secondary A** - 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. These are generally aquifers formerly classified as minor aquifers."

**Secondary B** - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

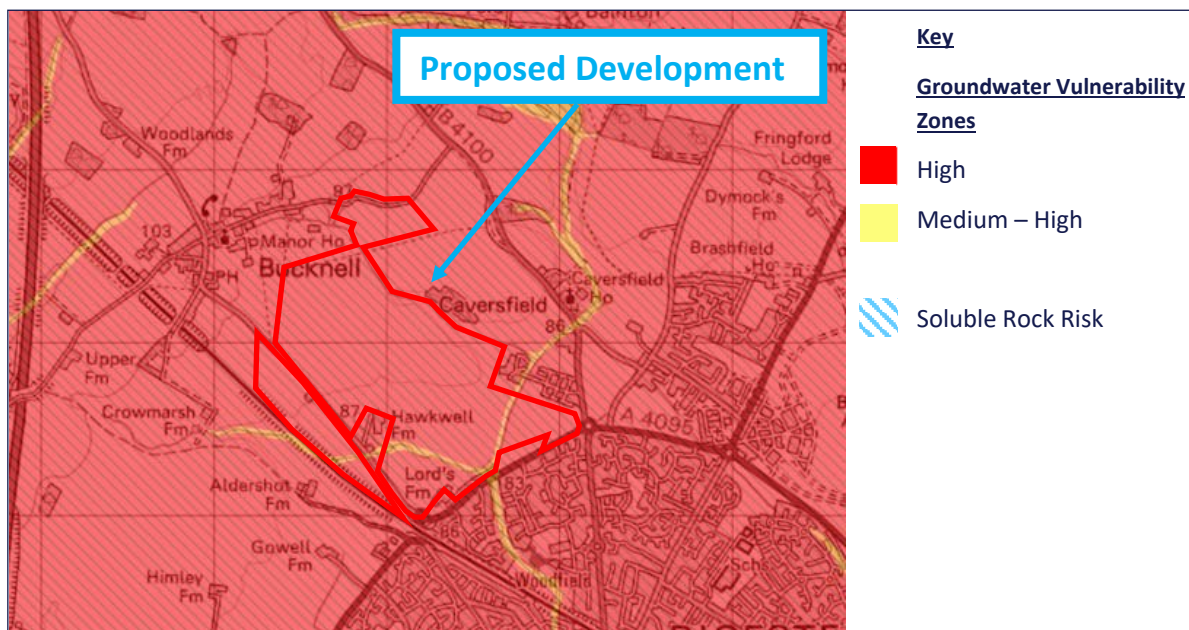
**Secondary Undifferentiated** - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

### Groundwater Vulnerability

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7.3 The EA has recently updated their Groundwater Vulnerability Zones (GVZ) Map, this now includes 5 risk categories (High, Medium – High, Medium, Medium – Low and Low). The Map summarises the overall risk to groundwater, taking into account groundwater vulnerability, the types of aquifer present (superficial and/or bedrock) and their designation status.

7.4 **Figure 7-1** is an extract of their simplified GVZ map, in which the indicative risks on Site vary across the Site. The majority of the Site highlights high vulnerability (Secondary Aquifer) for the Bedrock Geology, with a slither of High Vulnerability (Secondary Aquifer) for the Superficial Deposits.



**Figure 7-1: The EA’s Groundwater Vulnerability Zones Map**

7.5 The EA provides the following definitions for the five GVZs:

**High** – These are high priority groundwater resources that have very limited natural protection. This results in a high overall pollution risk to groundwater from surface activities. Operations or activities in these areas are likely to require additional measures over and above good practice pollution prevention requirements to ensure that groundwater isn’t impacted.

**Medium-high** - These are high priority groundwater resources that have limited natural protection. This results in a medium-high overall pollution risk to groundwater from surface activities. Activities in these areas may require additional measures over and above good practice to ensure they do not cause groundwater pollution.

**Medium** – these are medium priority groundwater resources that have some natural protection resulting in a moderate overall groundwater risk. Activities in these areas should as a minimum follow good practice to ensure they do not cause groundwater pollution.

**Medium-low** - these are lower priority groundwater resources that have some natural protection resulting in a moderate to low overall groundwater pollution risk. Activities in these areas should follow good practice to ensure they do not cause groundwater pollution.

**Low** – these are low priority groundwater resources that have a high degree of natural protection. This reduces their overall risk of pollution from surface activities. However, activities in these areas may be a risk to surface water due to increased run-off from lower permeability soils and near-surface deposits. Activities in these areas should be adequately managed to ensure they do not cause either surface or groundwater pollution.

## Groundwater Abstractions

7.6 There are sixteen **Groundwater Abstraction** permits recorded within 2,000m of the Site boundary, these are outlined in **Table 7-1**:

Operator - Location	Abstraction	Permit Start	Permit End Date	Distance (m)	Direction
W V Malins & Son – Lords Farm (Borehole)	General Farming and Domestic	April 2018	Not Supplied	Onsite	East
W V Malins & Son – Lords Farm (Borehole)	General Farming and Domestic	April 2008	Not Supplied	Onsite	East
W & W Malins – Lords Farm (Borehole)	General Farming and Domestic	May 1967	Not Supplied	Onsite	North East
W & W Malins – Lords Farm (Borehole)	General Farming and Domestic	May 1967	Not Supplied	Onsite	North East
Sunlight Service Group Ltd – Buckingham Road, Bicester (Borehole 'A')	Laundry: General Use (Medium Loss)	December 1996	Not Supplied	974	South
Gibbs Holdings Ltd – Buckingham Road, Bicester	Other Industrial / Commercial / Public Services: General Use (Medium Loss)	July 1996	Not Supplied	987	South
Mr J Hunter – Watergate Farm, Bainton (A)	General Farming and Domestic	April 1996	Not Supplied	1151	North East
Mrs C M Hedges & Mrs E Milligan – Manor Farm, Bucknell (A)	General Farming and Domestic	January 1967	Not Supplied	1204	North West
Brashfield Management Ltd – Brashfield House, Nr Bicester	Household Water Supply: Drinking; Cooking; Sanitary; Washing; (Small Garden)	January 1987	Not Supplied	1362	East
Mr R Thompson – Home Farm, Bainton (A)	General Farming and Domestic	October 1966	Not Supplied	1469	North
Mr N Deeley – Moat Farm, Caversfield (A)	General Farming and Domestic	November 1992	Not Supplied	1520	North East
A D Woodley Ltd – Whitelands, Bicester	General Farming and Domestic	January 1967	Not Supplied	1862	South
Mrs S Elworthy – Fringford Lodge Farm, Bicester	General Farming and Domestic	June 2003	Not Supplied	1881	East
Mrs S Elworthy – Fringford Lodge Farm, Bicester	Household Water Supply: Drinking; Cooking; Sanitary; Washing; (Small Garden)	June 2003	Not Supplied	1881	East
Mrs S Haines – Fringford Lodge Farm, Bicester	General Farming and Domestic	March 1992	Not Supplied	1881	East

Mrs S Haines – Fringford Lodge Farm, Bicester	Household Water Supply: Drinking; Cooking; Sanitary; Washing; (Small Garden)	March 1992	Not Supplied	1881	East
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**Table 7-1: Groundwater Abstractions**

## Source Protection Zones

**7.7** There are no **Source Protection Zones** within 1000m of the site boundary.

## 8 Potential Contaminative Uses & Statutory Registers

- 8.1** There is one **Integrated Pollution Prevention and Control** within 1,000m of the Site Boundary. This is issued to SSE Heat Networks Limited at Elmsbrook Energy Centre, Epr/Mp3809bm, Elmsbrook Energy Centre, Bramley Aevnue, Elmsbrook, Bicester, approximately 32m north-west of the Site for the activity of New Medium Combustion Plant. The effective date given for the permit is the 27<sup>th</sup> May 2020.
- 8.2** One **Local Authority Pollution Prevention and Controls** have been identified within 1000m of the Site Boundary. This is to Teslayne Engineering, located at Unit 4, The Courtyard, Caversfield, Bicester, approximately 318m north-west of the Site. The current status is “Not Yet Authorised” for Waste Oil Burners, less than 0.4MW net rated thermal input.
- 8.3** There are three **Pollution Incidents to Controlled Waters** recorded within 1,000m of the Site boundary, these are further detailed in **Table 8-1**:

Property Type - Location	Incident Date	Pollutant	Incident Severity	Receiving Water	Distance (m)	Direction
Not Given – Bicester	16/12/97	General	Category 3 – Minor Incident	Not Given	345	East
Not Given – Barry Avenue	18/11/95	Agricultural: General	Category 3 – Minor Incident	Not Given	661	South East
Not Given – Bucknell	05/03/97	Oils – Unknown	Category 3 – Minor Incident	Not Given	751	West

**Table 8-1: Pollution Incidents to Controlled Waters**

- 8.4** None of the following have been recorded within 1,000m of the Site boundary:
- Contaminated Land Register Entries and Notices
  - Enforcement and Prohibition Notices
  - Integrated Pollution Controls
  - Local Authority Integrated Pollution Prevention and Control
  - Local Authority Pollution Prevention and Control Enforcement
  - Prosecutions Relating to Authorised Processes
  - Prosecutions Relating to Controlled Waters
  - Registered Radioactive Substance
  - Substantiated Pollution Incident Register
  - Water Industry Act Referrals

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## Hazardous Substances

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- 8.5 There are no records of the following on or within a 1,000m radius of the Site boundary:
- Control of Major Accident Hazards Sites (COMAH)
  - Explosive Sites
  - Notification of Installations Handling Hazardous Substances (NIHHS)
  - Planning Hazardous Substance Consents
  - Planning Hazardous Substance Enforcements
- 8.6 There are sixty-one **Contemporary Trade Directory Entries** recorded within 1,000m of the Site boundary. One Trade Directory is identified on-site. This is to Turney Groundcare & Garden Machinery (Western-on-the-Green Depot) at Western-on-the-Green, Bicester in the east of the Site. The classification for the directory is for Agricultural Engineers with a current "Inactive" status. Blanchford Building Supplies have now taken over this old unit onsite, which is an active warehouse. There are likely to be additional trade directories from this location.
- 8.7 Fifteen Trade Directory Entries are identified between 250m from the Site boundary. These are further detailed in **Table 8-2**.

<b>Name – Location</b>	<b>Classification</b>	<b>Status</b>	<b>Distance (m)</b>	<b>Direction</b>
Balco – 1 Germander Way, Bicester	Garage Equipment	Inactive	7	East
<b>Daisy Dusters – 69 Germander Way, Bicester</b>	<b>Cleaning Services – Domestic</b>	<b>Active</b>	<b>19</b>	<b>West</b>
Oven Genie – 14 Oxlip Leyes, Bicester	Oven Cleaning	Inactive	42	East
Genie – 14 Oxlip Leyes, Bicester	Commercial Cleaning Services	Inactive	42	East
Genie Property Maintenance – 14 Oxlip Leyes, Bicester	Commercial Cleaning Services	Inactive	42	East
4b'S Carpet – 55 Juniper Gardens, Bicester	Carpet, Curtain & Upholstery Cleaners	Inactive	79	North West
Stardust – 55 Juniper Gardens, Bicester	Cleaning Services – Domestic	Inactive	79	North West
Drinkwell – 56 Mullein Road, Bicester	Water Coolers	Inactive	87	West
<b>Ravensburger – Unit 1 Avonbury Business Park, Howes Lane, Bicester</b>	<b>Toys, Games &amp; Sporting Goods – Manufacturers</b>	<b>Active</b>	<b>101</b>	<b>South East</b>
Bracco - Unit 1 Avonbury Business Park, Howes Lane, Bicester	Pharmaceutical Manufacturers & Distributors	Inactive	101	South East
<b>Salunda - Unit 6 Avonbury Business Park, Howes Lane, Bicester</b>	<b>Oil &amp; Gas Exploration Supplies &amp; Services</b>	<b>Active</b>	<b>124</b>	<b>South East</b>
Rational Windows & Doors - Unit 7 Avonbury Business Park, Howes Lane, Bicester	Window Frame Manufacturers	Inactive	136	South East
Thames Valley Police – Police Station, Howes Lane, Bicester	Mot Testing Centres	Inactive	202	South East
D Ricketts – Howes Lane, Bicester	Commercial Vehicle Dealers	Inactive	210	West
<b>Bicester Launderette – 9 Kingsley Road, Bicester</b>	<b>Dry Cleaners</b>	<b>Active</b>	<b>235</b>	<b>South East</b>

**Table 8-2: Contemporary Trade Directory Entries located between 0 and 250m**

- 8.8** A further forty-five Trade Directory Entries are located between 251m and 1,000m from the Site boundary, and these are listed in **Table 8-3**.



Active	Inactive
Cleaning Services – Domestic (x2)	Cleaning Services – Domestic (x5)
Road Haulage Services	Agricultural Merchants
Garage Services	Commercial Cleaning Services
Car Breakdown & Recovery Services	Waste Disposal Services
Domestic Appliances – Servicing, Repairs & Parts	Domestic Appliances – Servicing, Repairs & Parts
Candle Manufacturers & Suppliers	Electronic Engineers
Classic Car Specialists (x3)	Carpet, Curtain & Upholstery Cleaners
Car Body Repairs	Printers (x2)
Roller Shutter Manufacturers	Boilers – Servicing, Replacements & Repairs
Car Dealers - Used	Carbon Products
-	Swimming Pool Contractors, Repairers & Service (x2)
-	Garage Services (x2)
-	Cleaning Materials & Equipment
-	Car Dealers (x3)
-	Lubrication Services
-	Classic Car Specialists
-	Air Conditioning, Equipment & Systems
-	Fascias and Soffits
-	Waste Disposal Services
-	Precision Engineers
-	Engineering Services
-	Ironing & Home Laundry Services
-	Blinds, Awnings & Canopies

**Table 8-3: Contemporary Trade Directory Entries between 251 and 1,000m**

**8.9** There are no **Fuel Station Entries** located within 1,000m of the Site boundary.

## Waste

**8.10** The Site is shown to be situated within the **Local Authority Landfill Coverage** of Cherwell District Council and Oxfordshire County Council, who have both supplied landfill data.

**8.11** One **Historical Landfill Site** is recorded within 1,000m of the Site boundary. This is to Gowell Farm, approximately 36m south-east of the Site for Deposited Waste, including Inert, Industrial, Commercial and Household Waste. The first and last input dates are not provided.

- 8.12** One **Local Authority Recovered Landfill Site** is recorded within 1,000m of the Site boundary. This is located at Gowell Farm, approximately 40m south-east of the Site. The waste in the landfill is defined as Ash, Glass, Brick and Pottery, with an 'Unknown' last reported status. The boundary quality has been defined as 'Good'.
- 8.13** There are ten **Potentially Infilled Land (Non-Water)** recorded within 1,000m of the Site Boundary, and these are further detailed below in **Table 8-4**:

Use	Date of Mapping	Distance (m)	Direction
Unknown Filled Ground (Pit, Quarry, etc.)	1996	Onsite	East
Unknown Filled Ground (Pit, Quarry, etc.)	1996	Onsite	East
Unknown Filled Ground (Pit, Quarry, etc.)	1996	97	South East
Unknown Filled Ground (Pit, Quarry, etc.)	1982	407	North East
Unknown Filled Ground (Pit, Quarry, etc.)	1982	440	North
Unknown Filled Ground (Pit, Quarry, etc.)	1996	453	South East
Unknown Filled Ground (Pit, Quarry, etc.)	1996	617	South East
Unknown Filled Ground (Pit, Quarry, etc.)	1982	710	South East
Unknown Filled Ground (Pit, Quarry, etc.)	1982	799	South East
Unknown Filled Ground (Pit, Quarry, etc.)	1996	982	South

**Table 8-4: Potentially Infilled Land (Non-Water)**

- 8.14** There are five **Potentially Infilled Land (Water)** recorded within 1,000m of the Site Boundary, and these are further detailed below in **Table 8-5**:

Use	Date of Mapping	Distance (m)	Direction
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1923	664	North East
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1955	664	West
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1955	704	North West
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1885	923	East
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1996	956	South

**Table 8-5: Potentially Infilled Land (Water)**

**8.15** There are no provided reports of the following within 1,000m of the Site boundary:

- BGS Recorded Landfill Sites
- Historical Landfill Sites
- Integrated Pollution Control Registered Waste Sites
- Licensed Waste Management Facilities (Landfill Boundaries)
- Licensed Waste Management Facilities (locations)
- Local Authority Recorded Landfill Sites
- Registered Landfill Sites
- Registered Waste Transfer Sites
- Registered Waste Treatment or Disposal Sites

## Unexploded Ordnance (UXO)

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**8.16** The Zetica Regional Unexploded Bomb Risk Map for the Site has outlined the proposed development is potentially located within a low Bomb Risk area affected by UXO activity.

**8.17** A 'Pre-Desk Study Assessment' (PDSA) Bomb Search has been requested from Zetica UXO Site, in which the risk of encountered items of UXO during intrusive works on Site will be assessed. This is outstanding.

## 9 Environmental Setting

**9.1** There are two **Ancient Woodlands**, identified within 1,000m of the Site boundary, and are further detailed below in **Table 9-1**.

Name	Area (m <sup>2</sup> )	Distance (m)	Direction
Grunthill Copse	5,427.92	528	North West
Not Supplied	3,222.17	746	North West

**Table 9-1: Ancient Woodlands**

**9.2** There is one **Local Nature Reserve** located within 1,000m of the Site Boundary. This is Bure Park, and is shown to be situated onsite in the south-east, comprising of 84,041.01m<sup>2</sup> since the designation on the 5<sup>th</sup> December 2005.

**9.3** There are two **Nitrate Vulnerable Zones** within 1000m of the Site. These are both situated on-site, with one zone for surface water (Cherwell (Ray to Thames) and Woodeaton Brook Nitrate Vulnerable Zone), and one zone for groundwater (Bicester North).

**9.4** There is one **Site of Special Scientific Interest** within 1000m of the Site. This is Ardley Cutting and Quarry, situated 404m north-west of the Site, comprising of 401,224.43m<sup>2</sup> total area, since the designation date on the 12<sup>th</sup> May 1988.

**9.5** None of the following are reported within 1,000m of the Site boundary:

- Areas of Adopted Green Belt
- Areas of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Areas
- Forest Parks
- Marine Nature Reserves
- National Nature Reserves
- National Parks
- Nitrate Sensitive Areas
- Ramsar Sites
- Special Areas of Conservation
- Special Protection Areas

## 10 Site Conceptual Model

**10.1** Guidance has been published by the Department of the Environment, Transport and the Regions (DETR Circular 02/2000) 'Environmental Protection Act 1990: Part 11A – Contaminated Land (20th March 2000) which promotes the 'suitable for use approach'. This has since been replaced by the DEFRA: Contaminated Land Statutory Guidance (April 2012). The DEFRA note 'The "suitable for use" approach focuses on the risks caused by land contamination. The approach recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Risks therefore need to be assessed on a site-by-site basis.

**10.2** The "suitable for use" approach consists of three elements:

- Ensuring that land is suitable for its current use - in other words, identifying land where contamination is causing unacceptable risks to human health and the environment, assessed on the basis of the current use and circumstances of the land, and returning such land to a condition where such risks no longer arise ("remediating" the land). The new contaminated land regime provides general machinery to achieve same.
- Ensuring that land is made suitable for any new use, as planning permission is given for that new use - in other words, assessing the potential risks from contamination, on the basis of the proposed future use and circumstances, before official permission is given for the development and, where necessary to avoid unacceptable risk to human health and the environment, remediating the land before the new use commences; this is the role of the town and country planning and building control regimes.
- Limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought - in other words, recognising that the risks from contaminated land can be satisfactorily assessed only in the context of specific uses of the land (whether current or proposed), and that any attempt to guess what might be needed at some time in the future for other uses is likely to result either in premature work (thereby risking distorting social, economic and environmental priorities) or in unnecessary work (thereby wasting resources).

**10.3** Also addressed within the DEFRA guidance is the issue of 'contaminated land'. 'Before the Local Authority can make the judgement that any land appears to be Contaminated Land on the basis that Significant Harm is being caused, or that there is a Significant Possibility of such harm being caused, the authority must therefore identify a Significant Pollutant Linkage.

**10.4** This means that each of the following has been identified:

- A Contaminant Source
- A Pathway
- A Receptor

and that:

- The Contaminant is causing Significant Harm to that Receptor.

Or

- There is a Significant Possibility of such harm being caused by the Contaminant to the Receptor.

**10.5** Where any of the three elements of the Source-Pathway-Receptor (SPR) are not present, there is no risk and therefore land cannot be classified as statutory 'contaminated land'.

**10.6** In terms of controlled waters, DEFRA: Contaminated Land Statutory Guidance (April 2012) notes the following:

*A.35 Section 78A (9) defines the pollution of controlled waters as: 'The entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'.*

*A.36 Before determining that pollution of controlled waters is being, or is likely to be, caused, the local authority should be satisfied that a substance is continuing to enter controlled waters or is likely to enter controlled waters. For this purpose, the local authority should regard something as being "likely" when they judge it more likely than not to occur.*

*A.37 Land should not be designated as contaminated land where:*

- (a) A substance is already present in controlled waters;*
- (b) Entry into controlled waters of that substance from land has ceased; and*
- (c) It is not likely that further entry will take place.*

*A.38 Substances should be regarded as having entered controlled waters where:*

- (a) They are dissolved or suspended in those waters; or*
- (b) If they are immiscible with water they have direct contact with those waters on or beneath the surface of the water.*

*A.39 The term "continuing to enter" should be taken to mean any entry additional to any which has already occurred."*

**10.7** In 2004 the Environment Agency published the 'Model Procedures for the Management of Land Contamination', CLR11, which provides the technical framework for applying a risk management process, based on the 'suitable for use' approach, when dealing with land affected by contamination.

**10.8** In 2008, to enable the practical application of good practice of the EA's Model Procedures CLR11, R&D Publication 66 'Guidance for the Safe Development of Housing on Land Affected by Contamination' was published by the National House Builders Council (NHBC), the EA and the Chartered Institute of Environmental Health. Whilst written to be relevant to housing development it is also applicable to other forms of development where sites are land affected by contamination. The guidance describes in detail the process and activities involved for the identification and assessment of hazards for a Phase 1 assessment.

**10.9** At Phase 1 stage, it is necessary to develop an initial conceptual site model to understand the possible relationships between contaminants, pathways and receptors. If a hazardous source, via an exposure pathway to a potential receptor can be established then there is a 'pollutant linkage', which is preliminarily risk assessed using parameters summarised in Table 10a, below. At this stage, the conceptual model is prepared without site specific soils, groundwater or gas testing and as such, the findings should be treated only as first and general indications of possible SPR linkages.

**10.10** The primary potential sources of contamination on Site are indicated below:

<b>Agricultural Use</b>	-	Soil and Water Contamination
<b>Bucknell Road / Track</b>	-	Soil and Water Contamination
<b>Existing Farm Buildings</b>	-	Soil and Water Contamination

**10.11** The primary potential sources of contamination off Site are indicated below:

<b>Agricultural Use</b>	-	Soil and Water Contamination
<b>Roads (A4095 and Banbury Road)</b>	-	Soil and Water Contamination
<b>Railway Line</b>	-	Soil and Water Contamination
<b>Former Quarries</b>	-	Soil and Water Contamination
<b>Existing Works</b>	-	Soil and Water Contamination
<b>Former Sewage Works</b>	-	Soil and Water Contamination

**10.12** The potential receptors at the site are:

- End users / site occupiers
- Adjacent users / occupiers
- Controlled waters
- Flora and fauna
- Buildings & construction materials

**10.13** The potential pathways at the site are primarily:

- Direct ingestion of soil / water / fruit or vegetable
- Inhalation of dust / vapours
- Direct skin contact with the ground / water
- Regression of plant growth due to phytotoxic contamination
- Vertical and lateral migration of contamination

**10.14** While limited information is available at this stage methodology has been developed to help identify the potential contamination risk and linkages. The severity of damaging effects and the likelihood of any linkage have been considered.

**10.15** Given the potential consequence and likelihood, a risk rating is given, based on the following matrix:

		Consequence			
		Severe	Moderate	Mild	Minor
Probability (Likelihood)	Highly Likely	Very High	High	Medium	Low
	Likely	High	Medium	Medium/Low	Low
	Possible	Medium	Medium/Low	Low	Very Low
	Unlikely	Medium/Low	Low	Very Low	Very Low

**Table 10-1: Risk Ratings**

**10.16** The risk ratings are described on the next page.

- Very High:** There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without appropriate remediation action.
- High:** Harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remediation action.
- Medium:** It is possible that without appropriate remediation action harm could arise to a designated receptor. It is relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely that such harm would be relatively mild.
- Low:** It is possible that harm could arise to a designated receptor from an identified hazard. It is likely that, at worst if any harm was realised any effects would be mild.
- Very Low:** The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor.

**10.17** A summary of the potential SPR linkages on site and within close proximity of the site are detailed in **Table 10-2**.

Source	Pathway	Receptor	Risk Rating	Potential Mitigation	
<b>Contaminated soils</b> <b>On-site:</b> <ul style="list-style-type: none"> <li>• Agricultural</li> <li>• Bucknell Road/Track</li> <li>• Existing Farm Buildings</li> </ul> <b>Off-site:</b> <ul style="list-style-type: none"> <li>• Agricultural</li> <li>• Roads</li> <li>• Railway Line</li> <li>• Former Quarries</li> <li>• Existing Works</li> <li>• Former Sewage Works</li> </ul>	Direct Ingestion & contact <sup>(1)</sup>	Site workers & occupiers	Low-Moderate	-	
	Inhalation of dust <sup>(2)</sup>		Low	-	
	Direct skin contact <sup>(3)</sup>		Low	-	
		Vertical & lateral migration <sup>(4)</sup>	Controlled waters	Moderate	-
		Direct uptake <sup>(5)</sup>	Flora	Low	-
		Direct contact <sup>(6)</sup>	Building materials	Low	-
		<b>Contaminated groundwater</b> <b>On-site:</b> <ul style="list-style-type: none"> <li>• Agricultural</li> <li>• Bucknell Road/Track</li> <li>• Existing Farm Buildings</li> </ul> <b>Off-site:</b> <ul style="list-style-type: none"> <li>• Agricultural</li> <li>• Roads</li> <li>• Railway Line</li> <li>• Former Quarries</li> <li>• Existing Works</li> <li>• Former Sewage Works</li> </ul>	Direct Ingestion & contact <sup>(7)</sup>	Site workers & occupiers	Low-Moderate
Direct skin contact <sup>(8)</sup>	Low-Moderate		-		
	Vertical & lateral migration <sup>(9)</sup>		Controlled waters	Low-Moderate	-
	Direct uptake <sup>(10)</sup>		Flora	Low-Moderate	-
	Direct contact <sup>(11)</sup>		Building materials	Low-Moderate	-

**Table 10-2: Site SPR Summary**



Source	Pathway	Receptor	Risk Rating	Potential Mitigation
<u>Elevated gas</u> <b>On-site:</b> None <b>Off-site:</b> None	Vertical & Lateral Mitigation (12)	Site workers & occupiers	Low	-
		Adjacent occupiers	Low	-

**Table 10-3 (Continued): Site SPR Summary**

**10.18** The following paragraphs outline the comments from the pathways identified in **Table 10-2** above.

**10.19 (1) Direct Ingestion & Contact** - Historically undeveloped Site, (with the exception of Bucknell Road, a Track, existing Farm buildings and two masts) is currently in agricultural use. Potential contamination threats within the Site include activities associated with the existing Farm Building which may have led to previous contamination, along with leakage from Bucknell Road. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.

**10.20 (2) Inhalation of Dust** - Historically undeveloped Site, (with the exception of Bucknell Road, a Track, existing Farm buildings and two masts) is currently in agricultural use. Potential contamination threats within the Site include activities associated with the existing Farm Building which may have led to previous contamination, along with leakage from Bucknell Road. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.

**10.21 (3) Direct Skin Contact** - Historically undeveloped Site, (with the exception of Bucknell Road, a Track, existing Farm buildings and two masts) is currently in agricultural use. Potential contamination threats within the Site include activities associated with the existing Farm Building which may have led to previous contamination, along with leakage from Bucknell Road. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.

**10.22 (4) Vertical and Lateral Migration** - The bedrock geology for the Site is situated on a Secondary A Aquifer with the superficial deposits also forming a Secondary A Aquifer. The Site shows groundwater vulnerability of mainly high. The off-site potential contaminative sources identified have been judged to not have the potential to cause detrimental impact on the Site, via migration.

**10.23 (5) Direct Uptake** - Historically undeveloped Site, (with the exception of Bucknell Road, a Track, existing Farm buildings and two masts) is currently in agricultural use.

**10.24 (6) Direct Contact** - Historically undeveloped Site, (with the exception of Bucknell Road, a Track, existing Farm buildings and two masts) is currently in agricultural use. Agricultural land uses are not considered to have a detrimental impact on building materials.

**10.25 (7) Direct Ingestion & Contact** - The bedrock geology for the Site is situated on a Secondary A Aquifer with the superficial deposits also forming a Secondary A Aquifer. The Site shows groundwater vulnerability of mainly high. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.

**10.26 (8) Direct Skin Contact** - The bedrock geology for the Site is situated on a Secondary A Aquifer with the superficial deposits also forming a Secondary A Aquifer. The Site shows groundwater vulnerability of mainly high.

- 10.27 (9) Vertical & Lateral Migration** - The bedrock geology for the Site is situated on a Secondary A Aquifer with the superficial deposits also forming a Secondary A Aquifer. The Site shows groundwater vulnerability of mainly high. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.28 (10) Direct Uptake** - The bedrock geology for the Site is situated on a Secondary A Aquifer with the superficial deposits also forming a Secondary A Aquifer. The Site shows groundwater vulnerability of mainly high. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.29 (11) Direct Contact** - The bedrock geology for the Site is situated on a Secondary A Aquifer with the superficial deposits also forming a Secondary A Aquifer. The Site shows groundwater vulnerability of mainly high. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.30 (12) Vertical and Lateral Migration: Site Workers & Occupiers** - Historically undeveloped Site, (with the exception of Bucknell Road, a Track, existing Farm buildings and two masts) is currently in agricultural use. The bedrock geology for the Site is situated on a Secondary A Aquifer with the superficial deposits also forming a Secondary A Aquifer. The Site shows groundwater vulnerability of mainly high. No potential sources for gassing have been identified within an influencing distance of the proposed development.
- 10.31 (12) Vertical and Lateral Migration: Adjacent Occupiers** - Historically undeveloped Site, (with the exception of Bucknell Road, a Track, existing Farm buildings and two masts) is currently in agricultural use. The bedrock geology for the Site is situated on a Secondary A Aquifer with the superficial deposits also forming a Secondary A Aquifer. The Site shows groundwater vulnerability of mainly high. No potential sources for gassing have been identified within an influencing distance of the proposed development.

# 11 Discussion & Summary

## Discussion

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- 11.1** A review of readily available Site environmental data, including historical mapping and statutory registers and consultation with appropriate authorities has identified the following:

### On-Site and Offsite

- 11.2** The Site comprises **Agricultural Land** which may include the following typical contaminants: Nitrogen, potassium and phosphorous contained within fertilisers; chemicals from pesticides and herbicides; coliform and non-coliform bacteria from livestock waste and manure application; and hydrocarbons from oil and fuel leakages from machinery. Taking into consideration the existing underlying geology and groundwater vulnerability, this feature generally provides a low rating for risk. However, this may vary depending on persistence of the chemicals used and further assessment of the Site's soils may be required at the detailed design stage to establish baseline ground conditions.

### On-Site

- 11.3** **Bucknell Road** is shown to bisect the Site to the south, along with the **Track** supplying Hawkwell Farm is shown across the Site. Potential contaminants from leakages and spillages from vehicles on the roads may include: heavy metals, oils, fuels and Polycyclic Aromatic Hydrocarbons. Further assessment of the Site's soils may be required at the detailed design stage to establish baseline conditions. However, as the road only bisects the Site, and the access track would only be utilised locally, the risk rating has been considered to be **Low**.
- 11.4** **Two farm buildings and an additional building** are shown in the south, central and south-west of the Site, respectively. Potential contaminants associated with agricultural activities may include Nitrogen, potassium and phosphorous contained within fertilisers; chemicals from pesticides and herbicides; coliform and non-coliform bacteria from livestock waste and manure application: Further assessment of the Site's soils may be required at the detailed design stage to establish baseline conditions. However, due to the land-use, it is not expected to give rise to any major contamination and is considered to be a **low** risk rating.

### Off-Site

- 11.5** Potential contaminants from leakages and spillages from vehicles on the **A4095 and Banbury Road** may include: heavy metals, oils, fuels and Polycyclic Aromatic Hydrocarbons. Further assessment of the site's soils will be required at the detailed design stage to establish baseline conditions. The risk rating is considered to be **Low** as the site being separated by highway ditches which would intercept any potential contaminated runoff.
- 11.6** An **existing Railway Line** is shown to bound the proposed development in the south and south-west. Potential contaminants may include: degreasing solvents, PCBs from engines and electrical equipment, heavy metals, oils, fuels, waste ash and clinker. The Railway line, although in close proximity to the Site, is considered to be a Low rating for risk, due to the separation from the Site with existing hedgerows. Which act as a barrier for contamination.
- 11.7** The historical mapping has identified **several Former Quarries** between 150m south (including a former Limekiln) and 1,000m east of the Site. Potential contaminants may include: metals, acids, highly corrosive mineralised waters, metal sulphides and hazardous / non-hazardous chemicals. Further assessment of the site's soils will be required at the detailed design stage to establish baseline conditions. All of the quarries are no longer identified by 1982 mapping, with the majority disused and built over by the 1970's. Due to the

distance and long period of time of inactivity, it has been assessed that the Former Quarries provide a **Low** risk rating.

- 11.8** A **former Union Workhouse** is identified 900m south of the Site. Potential contaminants may have included: heavy metals, inorganic acids, VOCs, diesel fuels, solvents and oils. Further assessment of the site's soils may be required at the detailed design stage to establish baseline conditions. This is considered to be a **Low** risk rating due to the former works no longer shown in the 1970 mapping and the former works being a significant distance from the Site.
- 11.9** A **small former Sewage Works with associated filter beds** is shown approximately 25m north-west of the site. Potential contaminants may have included: metals, inorganic/organic compounds, acids/alkalis, asbestos, pathogenic micro-organisms, methane, carbon dioxide and hydrogen sulphide. The Sewage Works is shown to be disused by 1982 and due to the relatively small size of sewage works, it has been considered to be a **Low** risk rating.

## Summary

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- 11.10** After reviewing the historical mapping, geological data, hydrological data, sensitive land uses, industrial land uses, waste and hazardous substances, there are no uses identified on or within close proximity of the Site that are potentially contaminative and are likely to be prohibitive to the planned development.
- 11.11** The underlying ground conditions are considered to be sensitive, as the Site is situated on a limestone bedrock geology (with outcrops of interbedded limestone and mudstone) which forms a Secondary A Aquifer, with the superficial Alluvium deposits also forming a Secondary A Aquifer. In terms of groundwater vulnerability the Site lies on an area of high risk.
- 11.12** Despite the Site situated on Secondary A Aquifers, the overall contaminative risk at the site is considered to be **Low**, when considering the potential sources of contamination across the Site and in proximity to the Site. In order to confirm the baseline ground conditions, it is recommended that a Phase II ground investigation is carried out across the Site.

## 12 Limitations

- 12.1** The benefits of this report are provided solely to Hallam Land Management Ltd. The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the Site. Brookbanks do not confer any third party rights for the information contained in the report.
- 12.2** All distances referred to in this report are measured from the boundary of the planned development Site unless otherwise advised.
- 12.3** Third party information has been used in the preparation of this report, which Brookbanks, by necessity assume is correct at the time of writing.

## Appendix – Historical Site mapping – Ordnance Survey

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# 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		
	<b>-285</b> 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		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

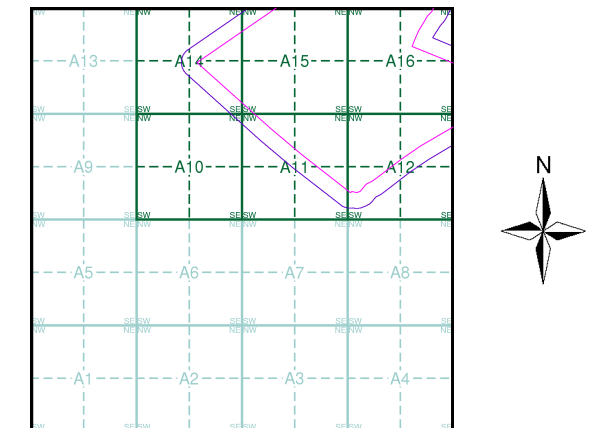
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, 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

# Brookbanks Consulting

## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Oxfordshire	1:10,560	1884 - 1885	2
Oxfordshire	1:10,560	1900	3
Oxfordshire	1:10,560	1923	4
Oxfordshire	1:10,560	1938	5
Historical Aerial Photography	1:10,560	1947	6
Oxfordshire	1:10,560	1952	7
Ordnance Survey Plan	1:10,000	1955	8
Ordnance Survey Plan	1:10,000	1966	9
Ordnance Survey Plan	1:10,000	1970	10
Ordnance Survey Plan	1:10,000	1982 - 1988	11
Ordnance Survey Plan	1:10,000	1996	12
10K Raster Mapping	1:10,000	1999	13
10K Raster Mapping	1:10,000	2006	14
VectorMap Local	1:10,000	2021	15

## Historical Map - Slice A



## Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

## Site Details

Land North West Bicester, Oxfordshire

**Landmark**  
 INFORMATION GROUP

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

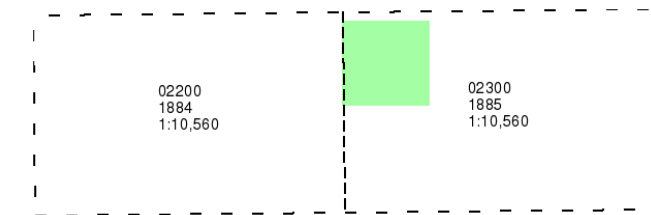
Oxfordshire

Published 1884 - 1885

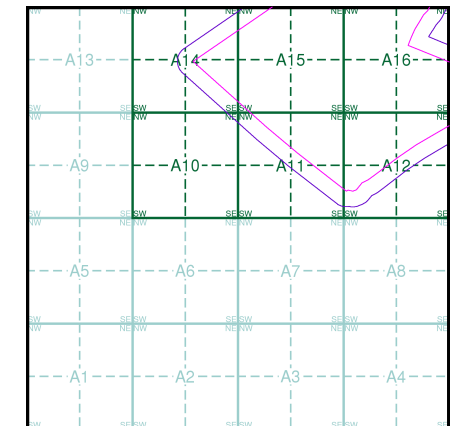
Source map scale - 1:10,560

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

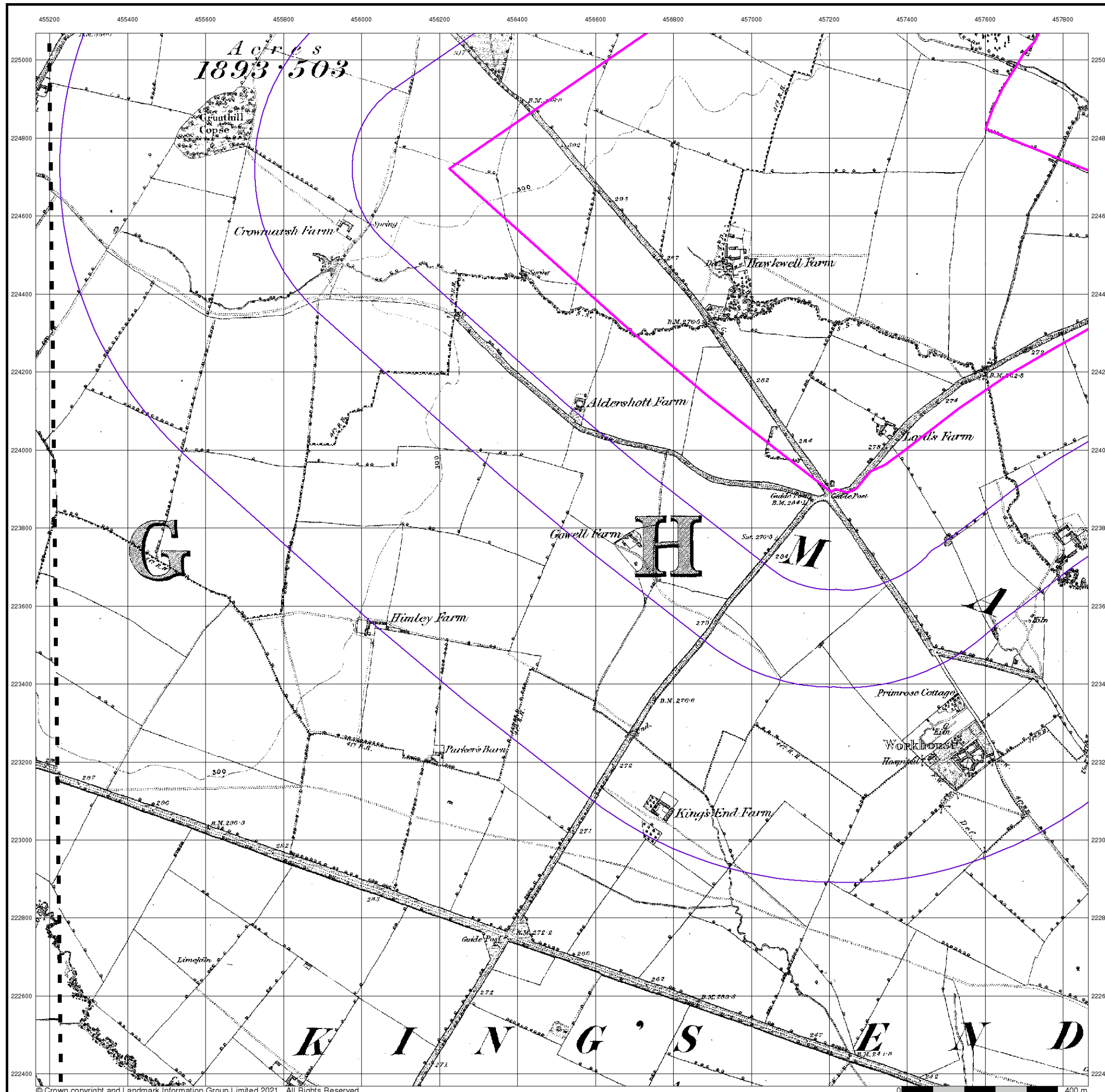


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire





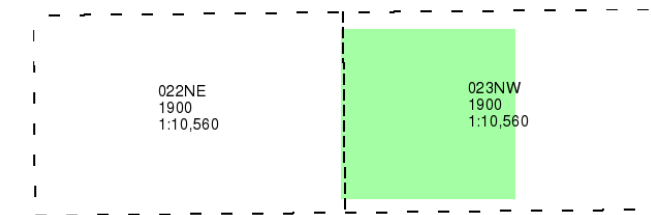
Oxfordshire

Published 1900

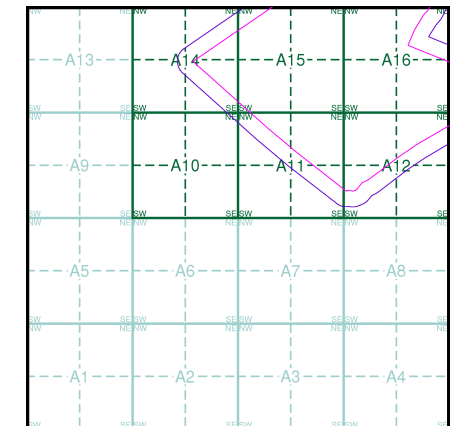
Source map scale - 1:10,560

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

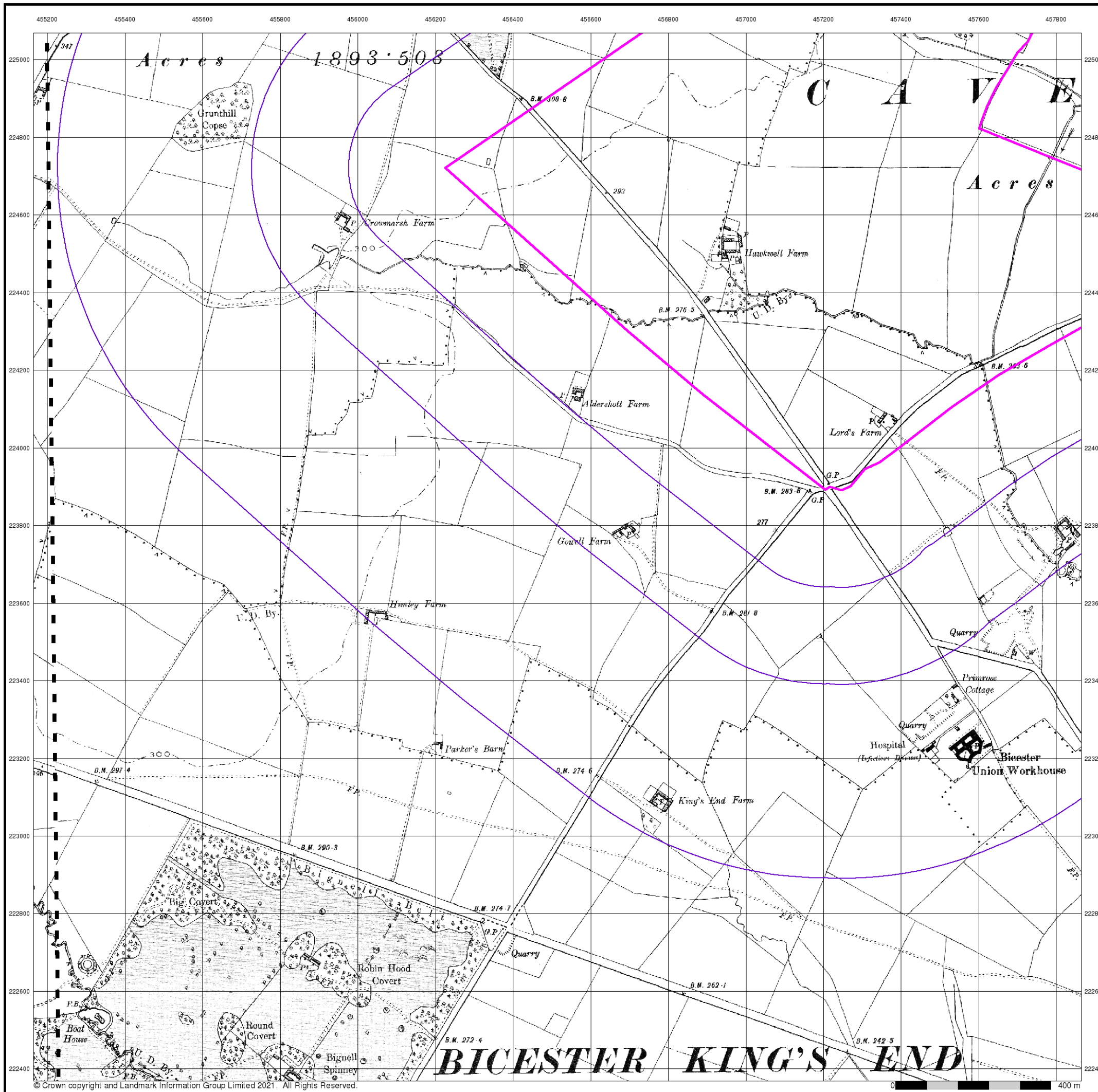


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire



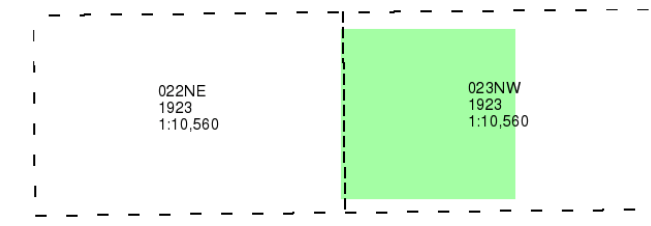
Oxfordshire

Published 1923

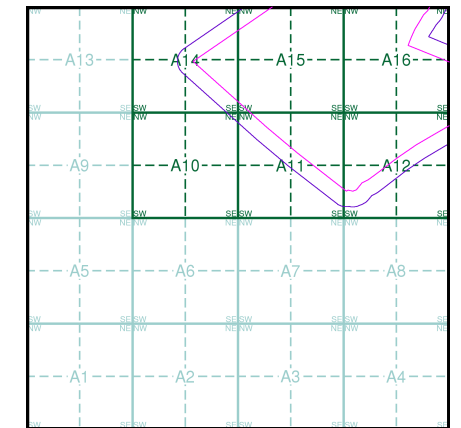
Source map scale - 1:10,560

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

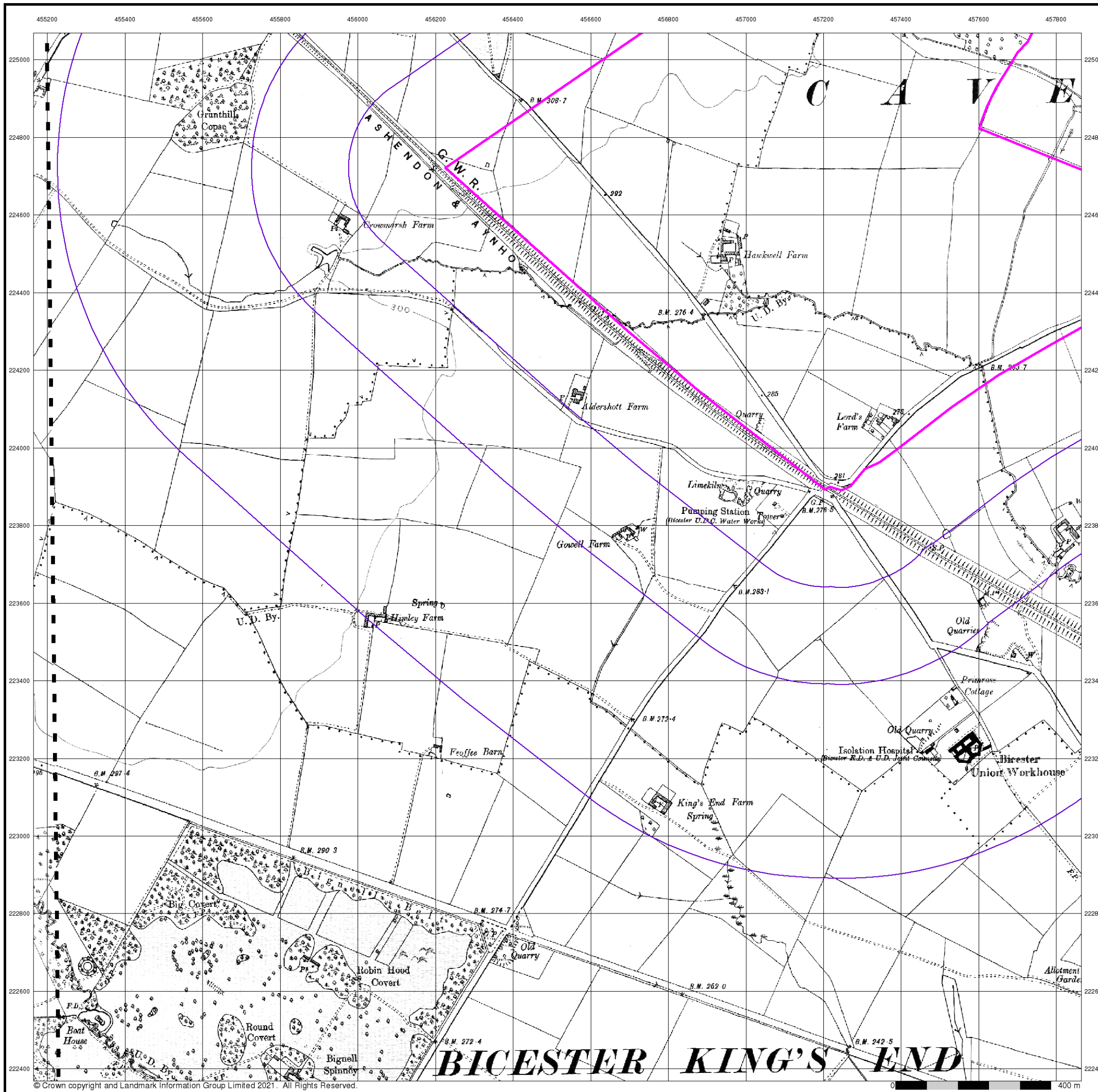


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire



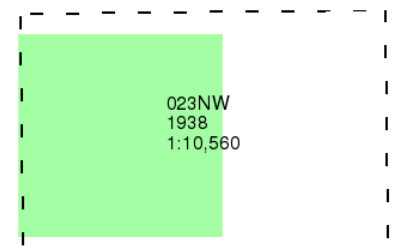
Oxfordshire

Published 1938

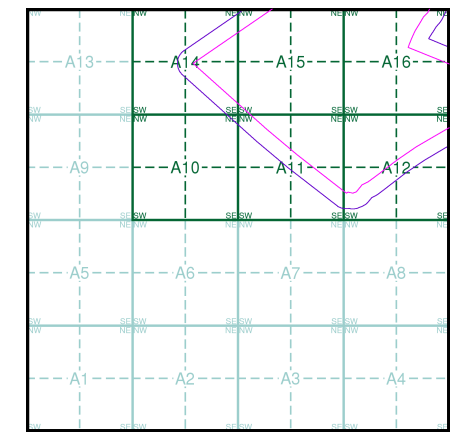
Source map scale - 1:10,560

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

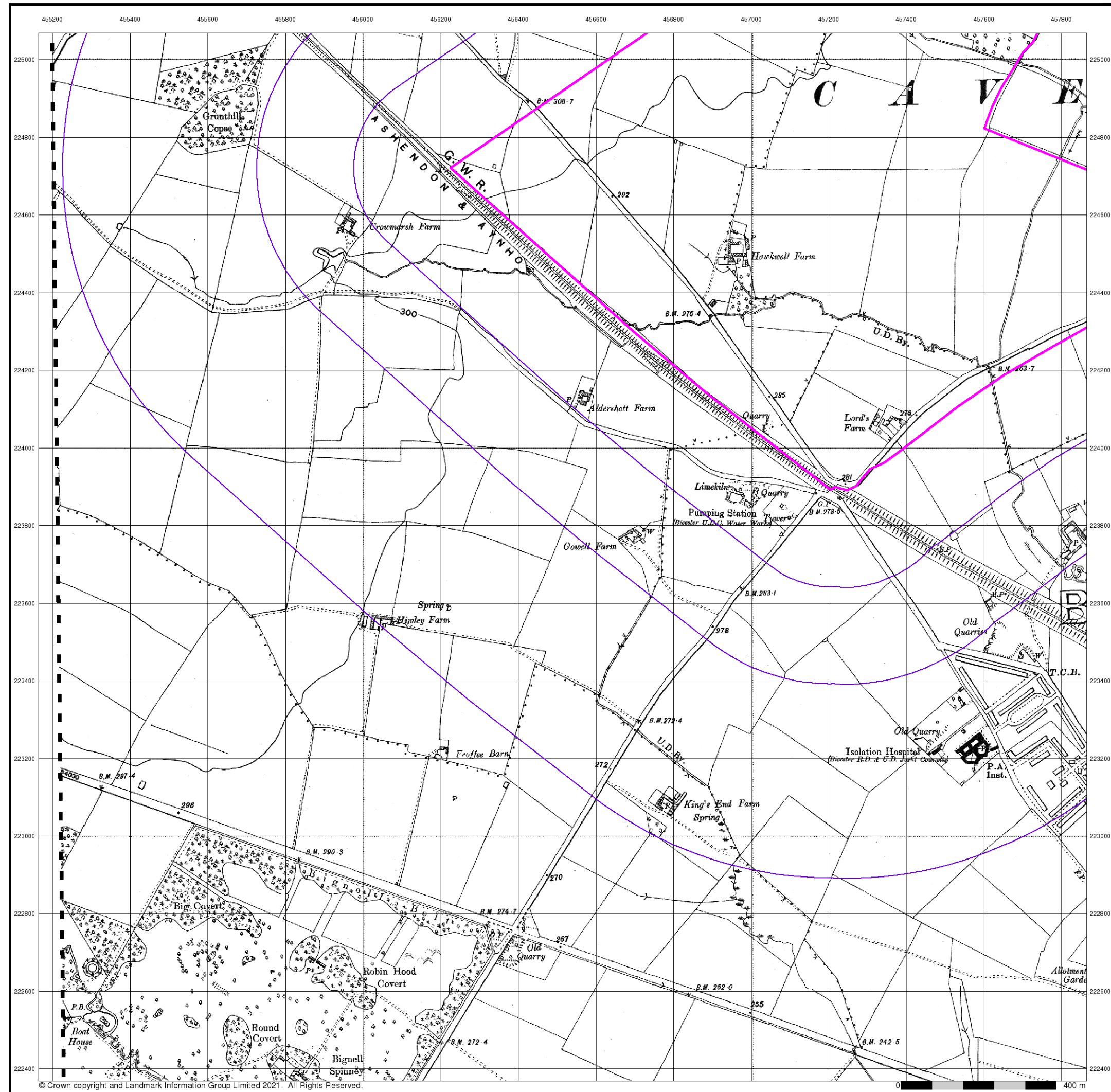


Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

Site Details

Land North West Bicester, Oxfordshire



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# Brookbanks

## Consulting

### Historical Aerial Photography

Published 1947

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.

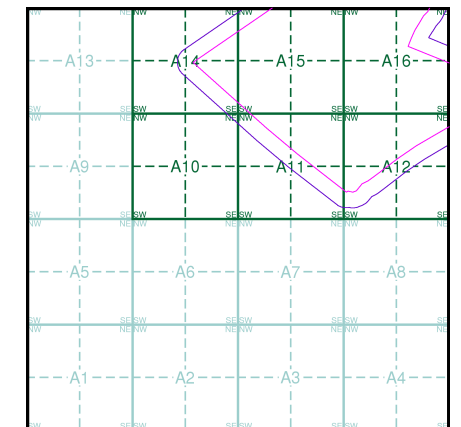
© Landmark Information Group and/or Data Suppliers 2010.

### Map Name(s) and Date(s)

SP52NE  
1947  
1:10,560

SP52SE  
1947  
1:10,560

### Historical Aerial Photography - Slice A



LIBRARY  
HSILIRB

### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire

**Landmark**  
 INFORMATION GROUP

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



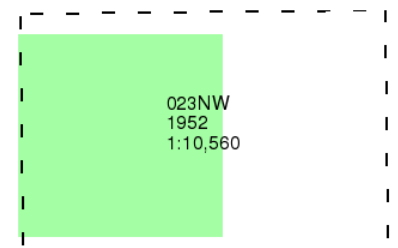
Oxfordshire

Published 1952

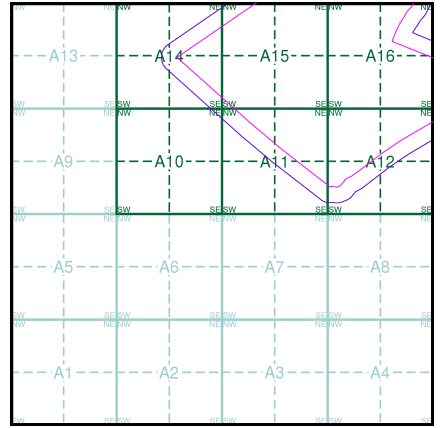
Source map scale - 1:10,560

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

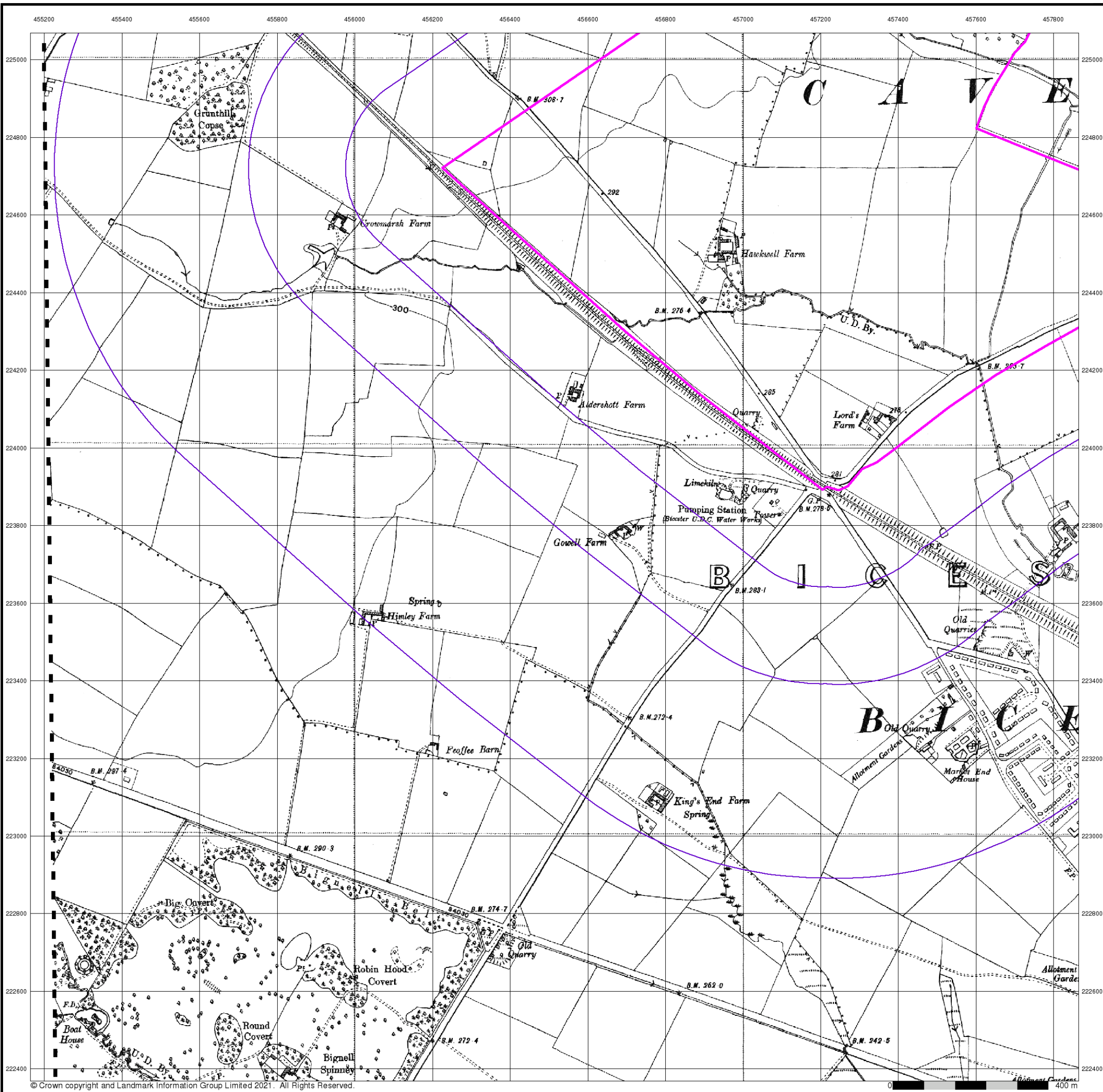


Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

Site Details

Land North West Bicester, Oxfordshire



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## Ordnance Survey Plan

Published 1955

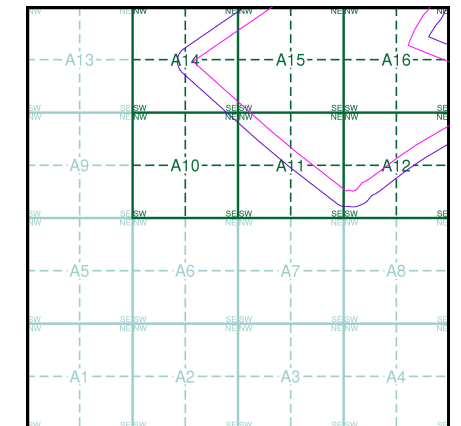
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

SP52NE	1955	1:10,560
SP52SE	1955	1:10,560

### Historical Map - Slice A

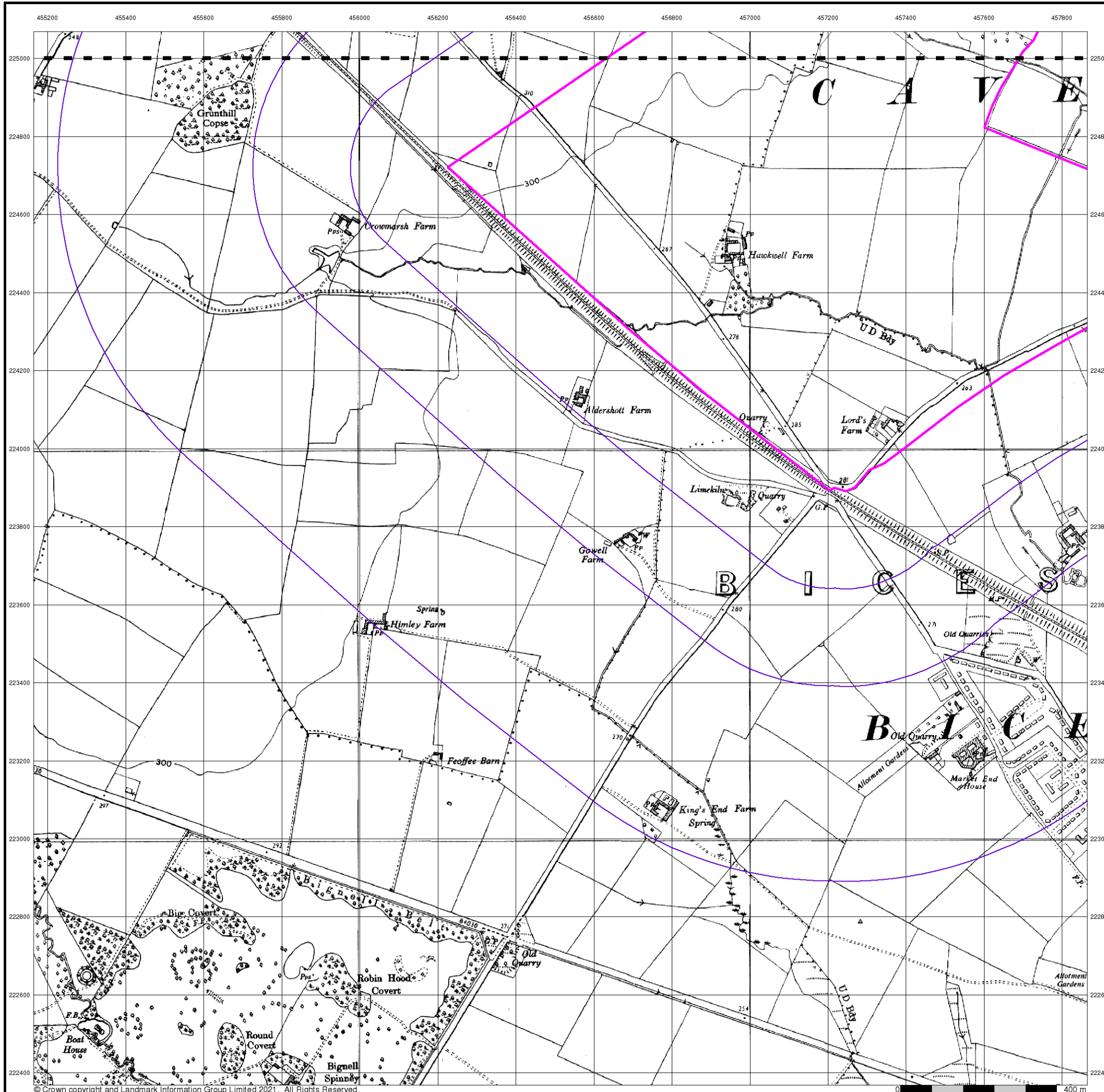


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire



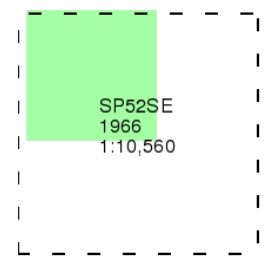
## Ordnance Survey Plan

Published 1966

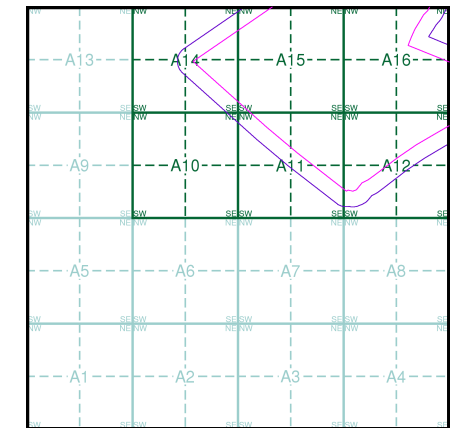
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)



### Historical Map - Slice A

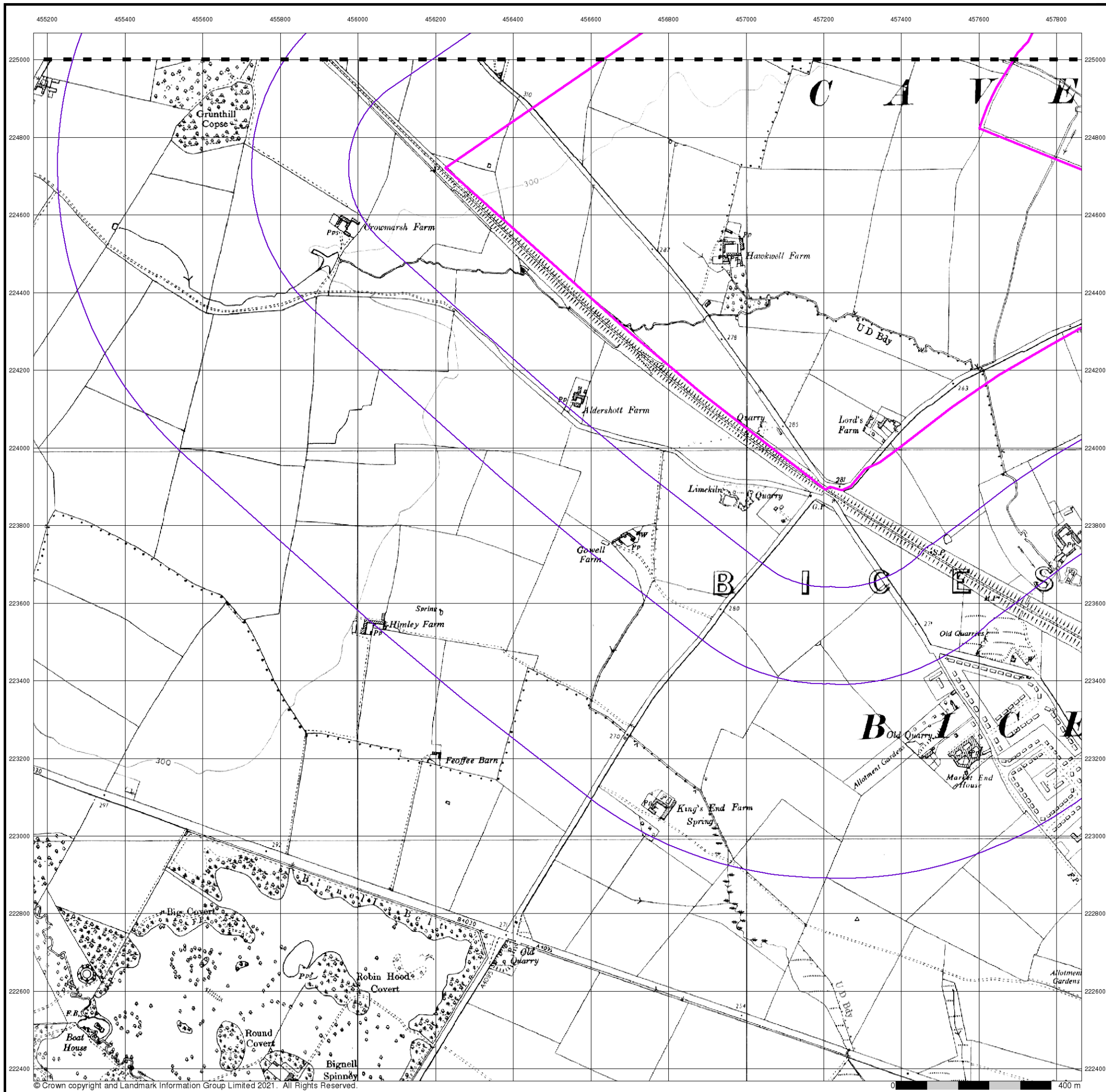


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire



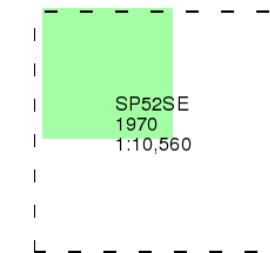
## Ordnance Survey Plan

Published 1970

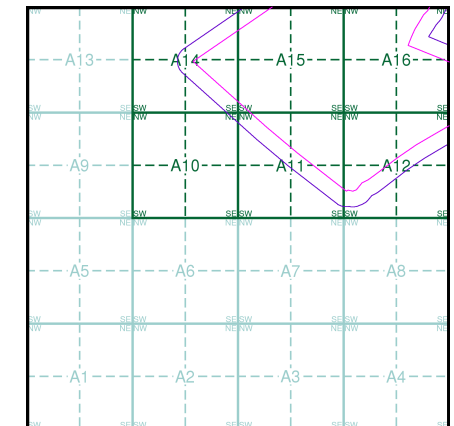
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)



### Historical Map - Slice A

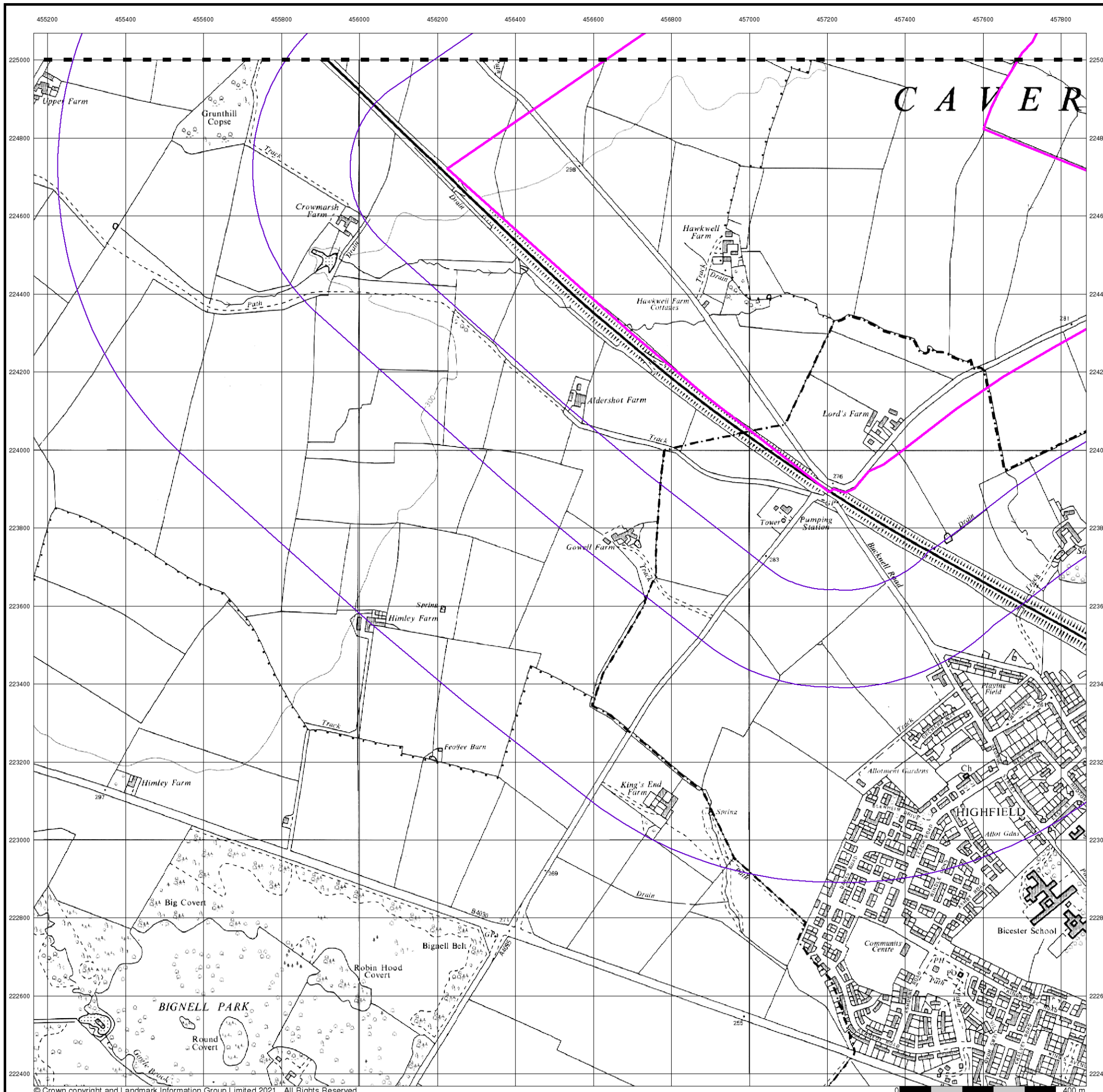


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
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 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire





## Ordnance Survey Plan

Published 1982 - 1988

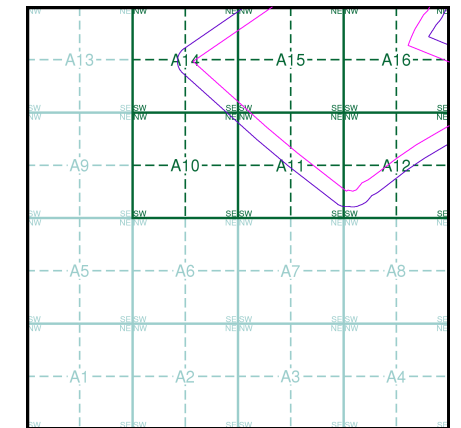
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

SP52NE	1982	1:10,000
SP52SE	1988	1:10,000

### Historical Map - Slice A

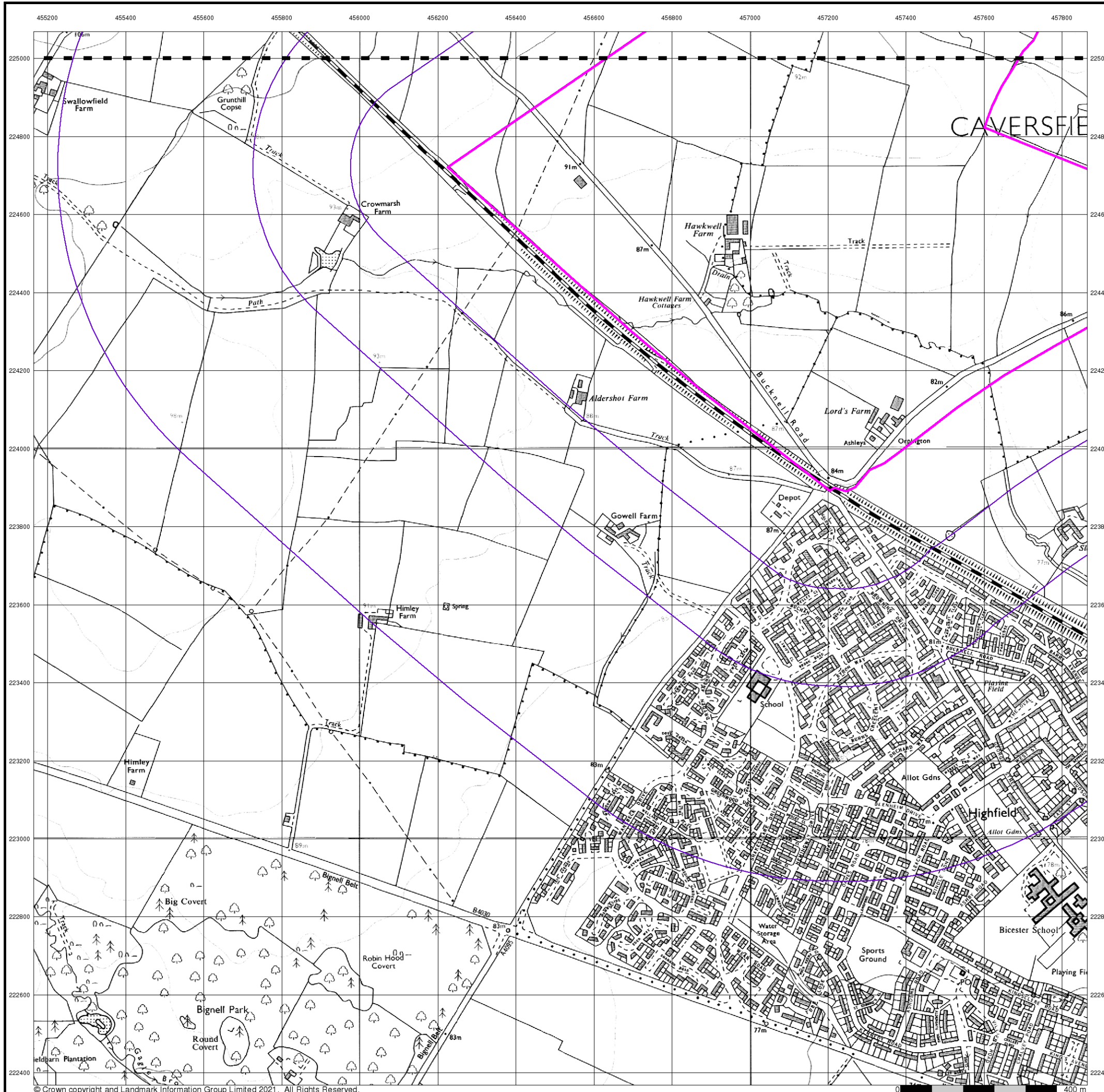


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
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 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire



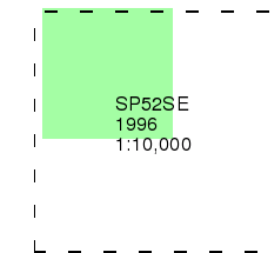
## Ordnance Survey Plan

Published 1996

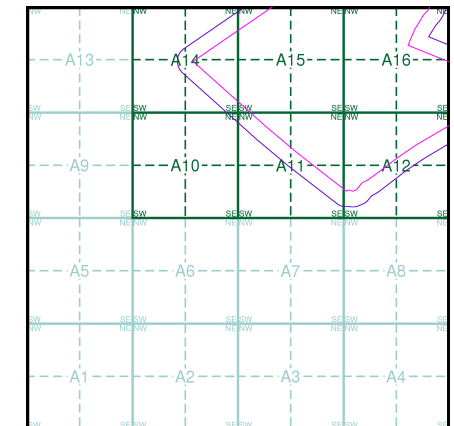
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)



### Historical Map - Slice A

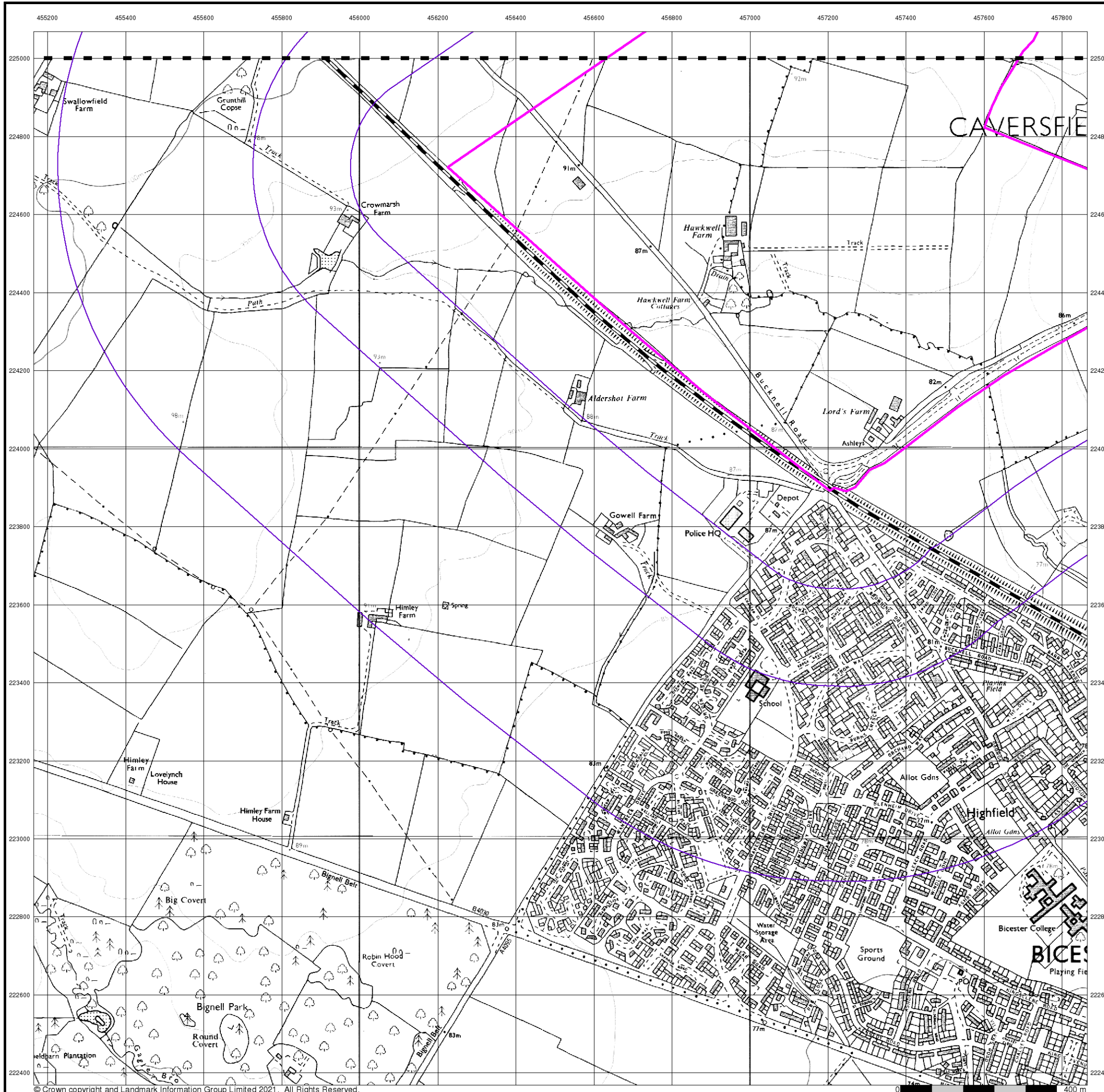


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire



## 10k Raster Mapping

Published 1999

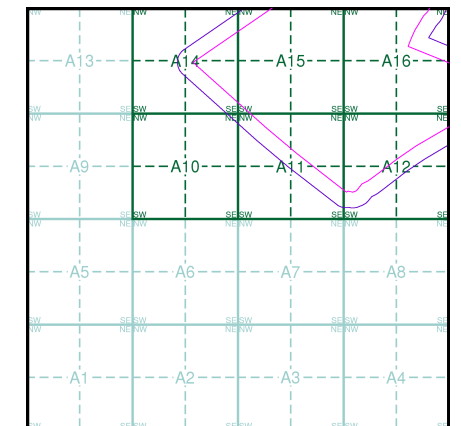
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

### Map Name(s) and Date(s)

SP52NE	1999	1:10,000
SP52SE	1999	1:10,000

### Historical Map - Slice A

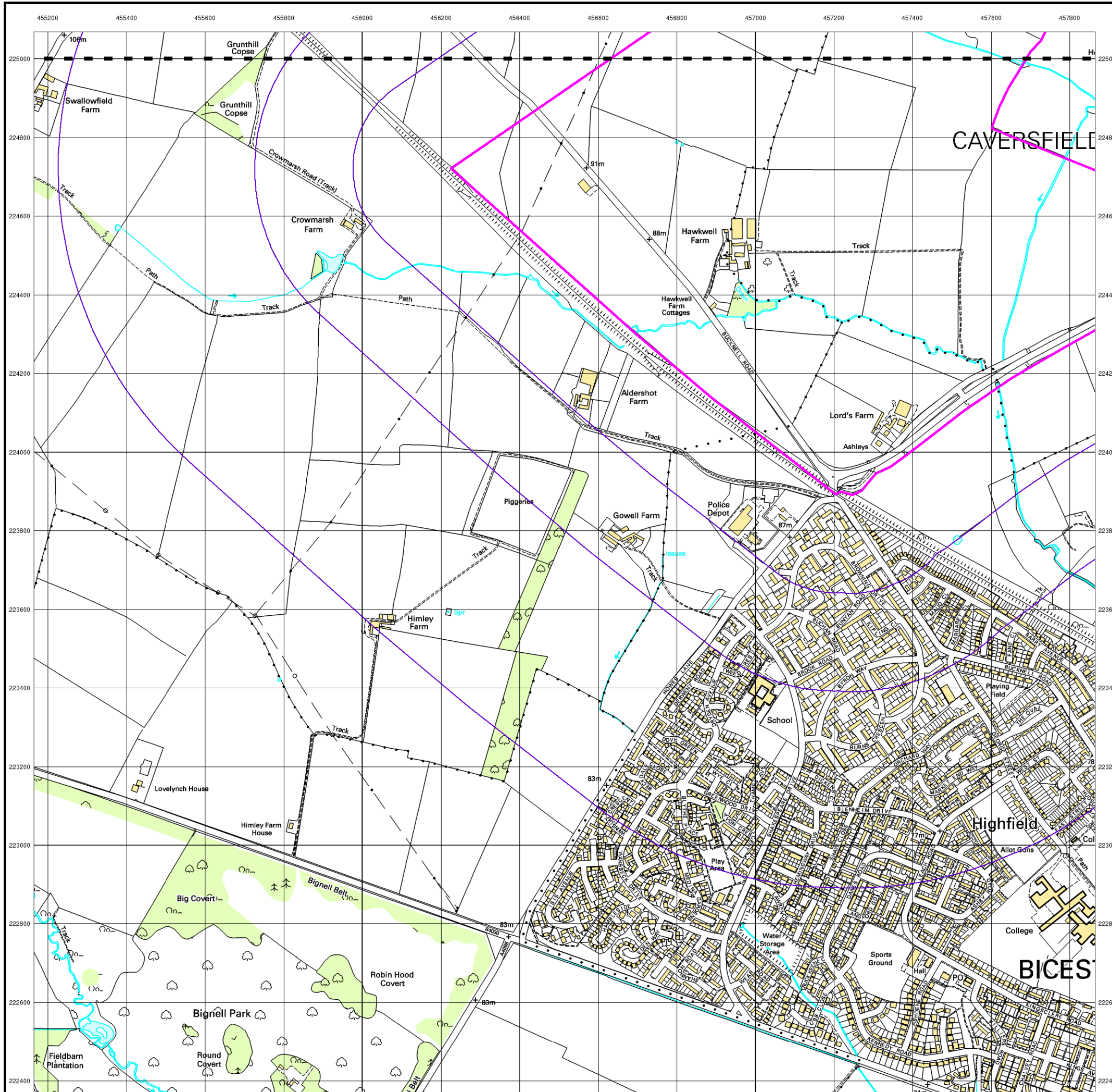


### Order Details

Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire



# Brookbanks Consulting

10k Raster Mapping

Published 2006

Source map scale - 1:10,000

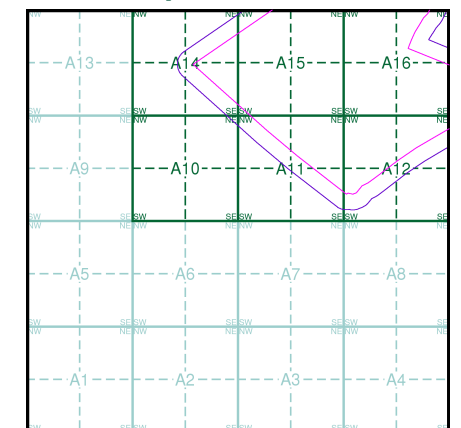
The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

## Map Name(s) and Date(s)

SP52NE |  
2006 |  
1:10,000 |

SP52SE |  
2006 |  
1:10,000 |

## Historical Map - Slice A



## Order Details

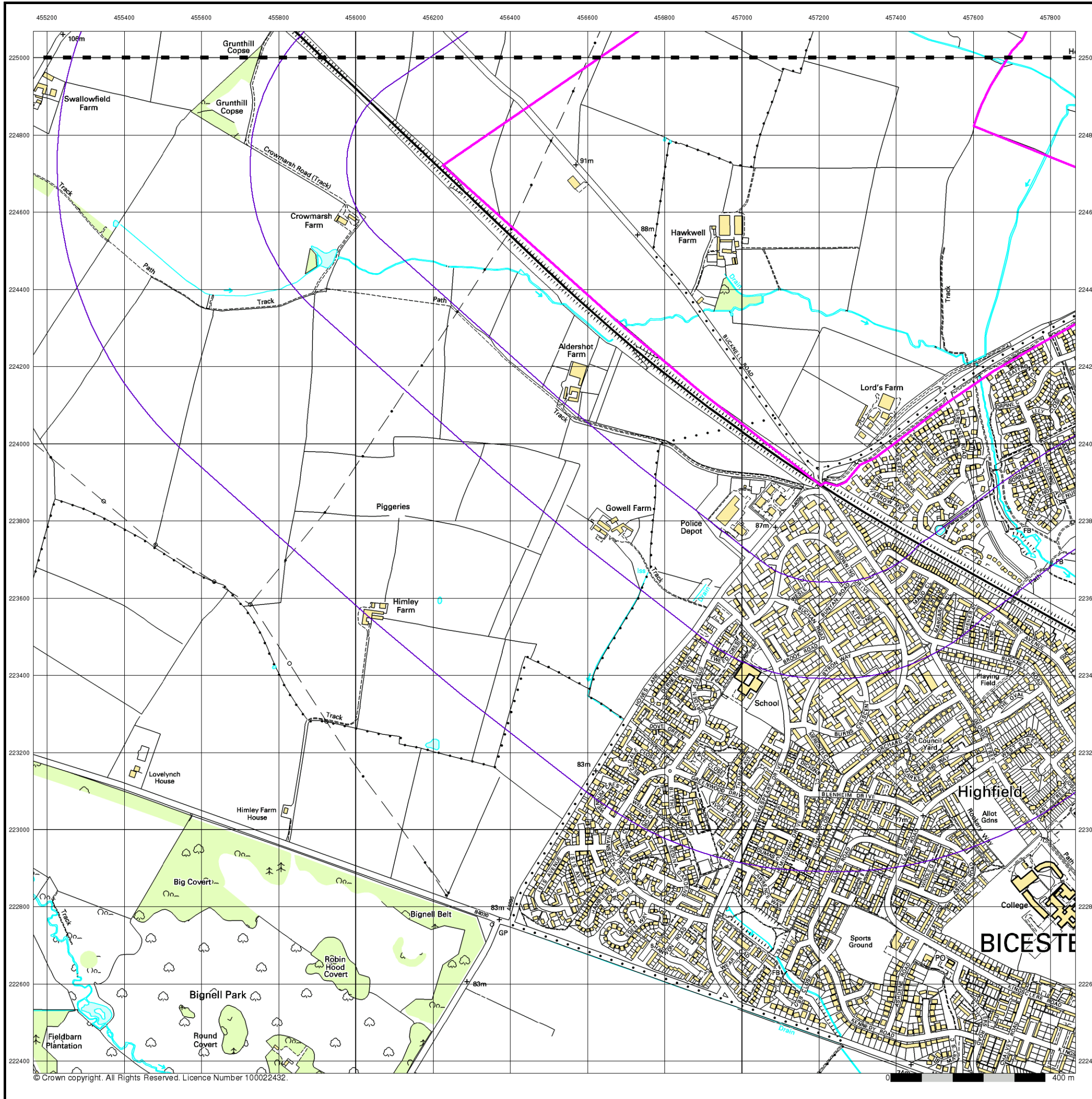
Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

## Site Details

Land North West Bicester, Oxfordshire

**Landmark**  
 INFORMATION GROUP

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



# Brookbanks Consulting

## VectorMap Local

Published 2021

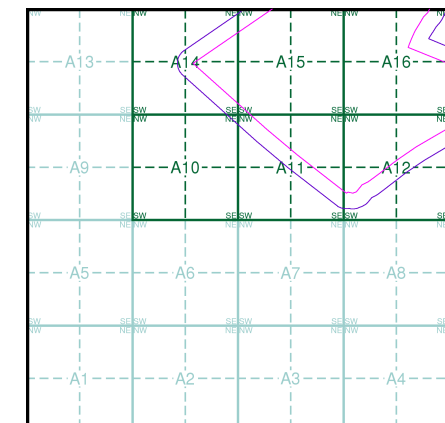
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

### Map Name(s) and Date(s)

- SP52NE | 2021 | Variable
- SP52SE | 2021 | Variable

### Historical Map - Slice A



### Order Details

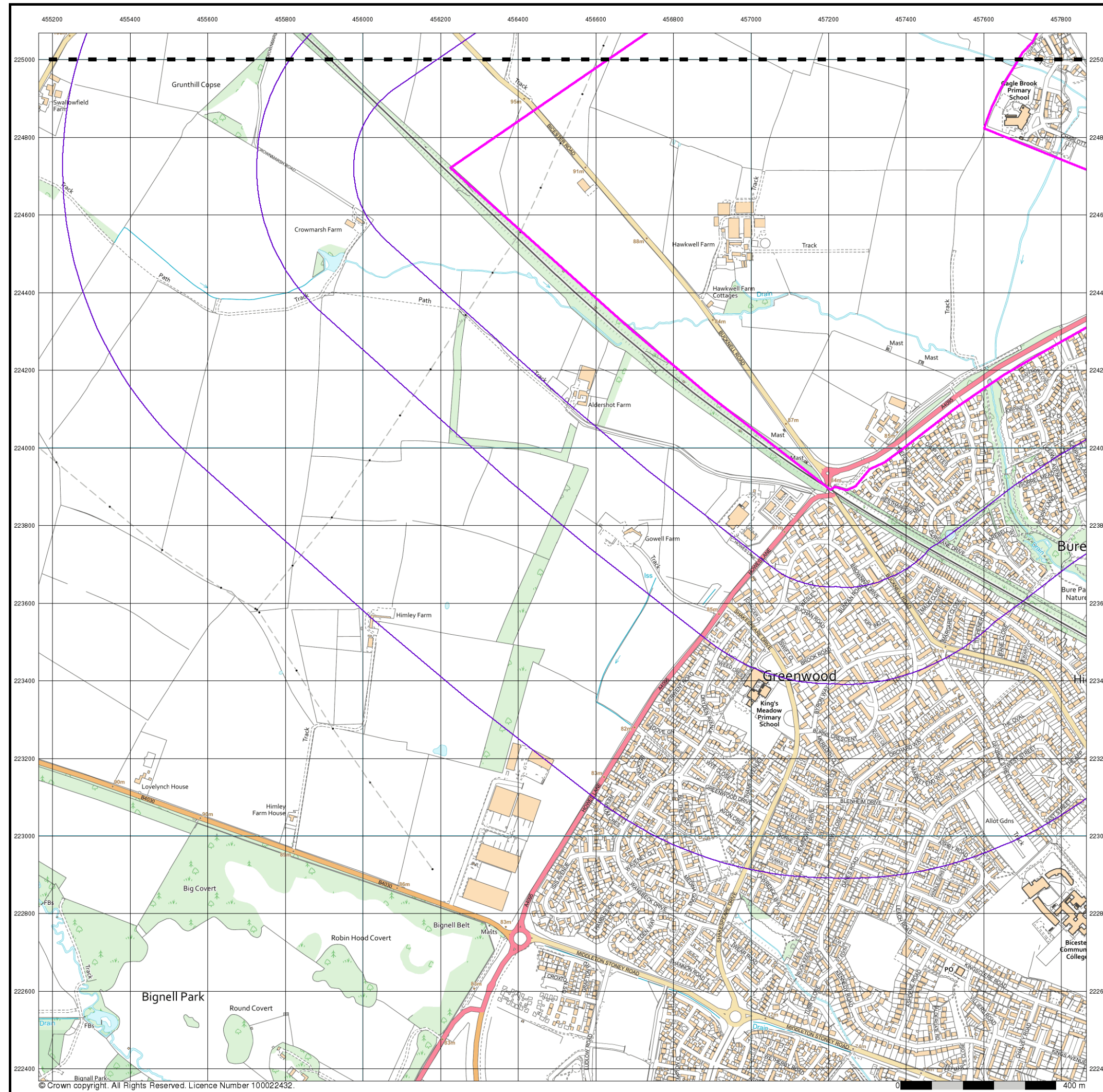
Order Number: 286520344\_1\_1  
 Customer Ref: 00436  
 National Grid Reference: 456730, 224140  
 Slice: A  
 Site Area (Ha): 158.46  
 Search Buffer (m): 1000

### Site Details

Land North West Bicester, Oxfordshire

**Landmark**  
 INFORMATION GROUP

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



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

## 1:10,000 Raster Mapping

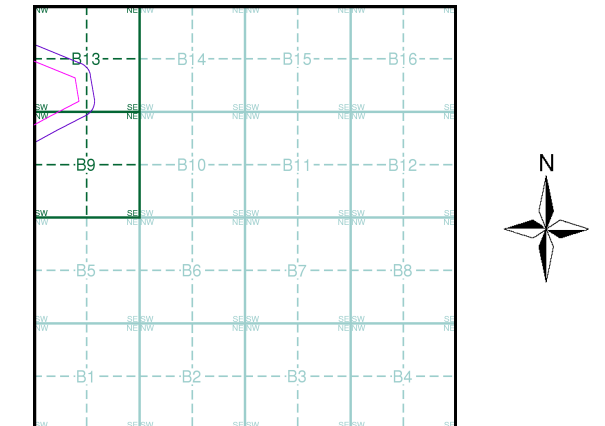
- Gravel Pit
- Rock
- Boulders
- Shingle
- Sand
- Slopes
- General detail
- Overhead detail
- Multi-track railway
- County boundary (England only)
- District, Unitary, Metropolitan, London Borough boundary
- Area of wooded vegetation
- Non-coniferous trees (scattered)
- Coniferous trees (scattered)
-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

# Brookbanks Consulting

## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Oxfordshire	1:10,560	1885	2
Oxfordshire	1:10,560	1900	3
Buckinghamshire	1:10,560	1900	4
Oxfordshire	1:10,560	1923	5
Buckinghamshire	1:10,560	1923	6
Buckinghamshire	1:10,560	1923	7
Oxfordshire	1:10,560	1938	8
<b>Historical Aerial Photography</b>	<b>1:10,560</b>	<b>1947</b>	<b>9</b>
Buckinghamshire	1:10,560	1952	10
Oxfordshire	1:10,560	1952	11
Ordnance Survey Plan	1:10,000	1955 - 1958	12
Ordnance Survey Plan	1:10,000	1966	13
Ordnance Survey Plan	1:10,000	1970	14
Ordnance Survey Plan	1:10,000	1982 - 1988	15
Ordnance Survey Plan	1:10,000	1996	16
10K Raster Mapping	1:10,000	1999	17
10K Raster Mapping	1:10,000	2006	18
VectorMap Local	1:10,000	2021	19

## Historical Map - Slice B



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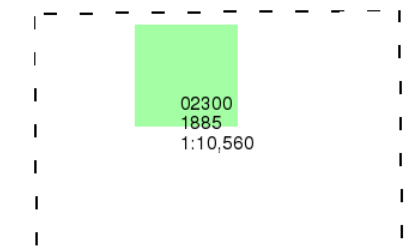
Oxfordshire

Published 1885

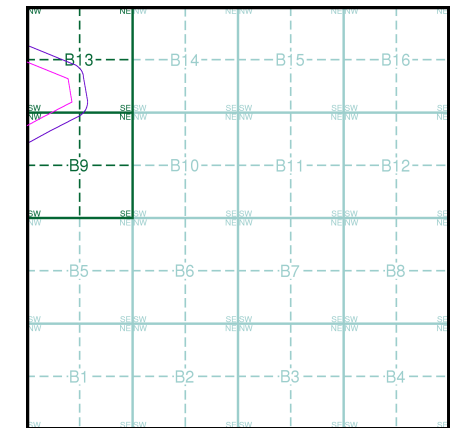
Source map scale - 1:10,560

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 B

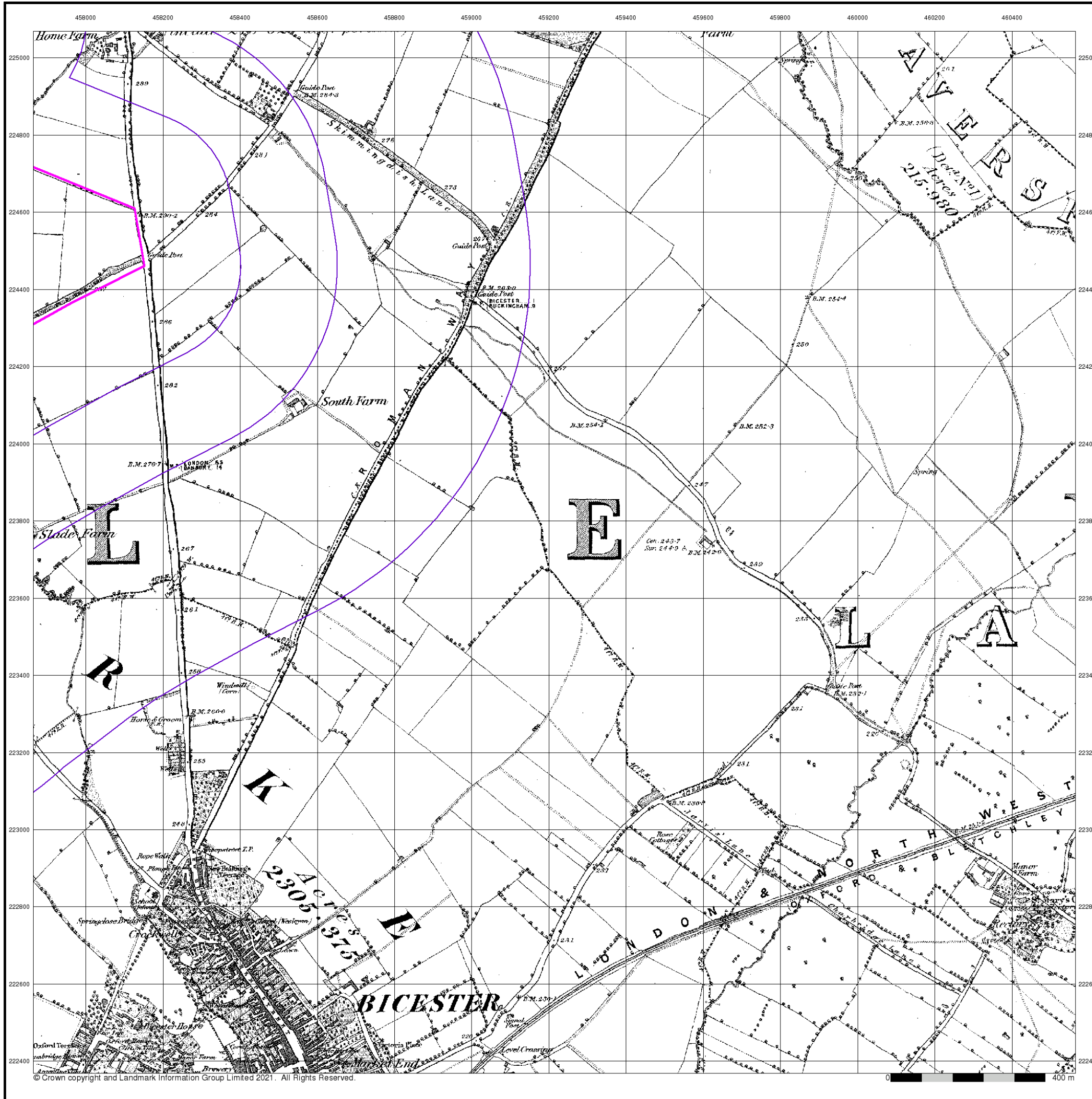


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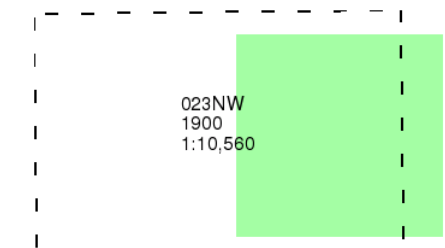
Oxfordshire

Published 1900

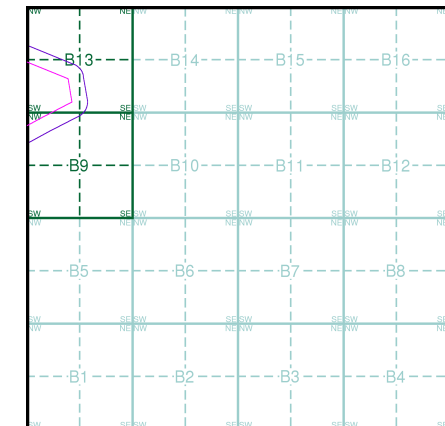
Source map scale - 1:10,560

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.

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### Historical Map - Slice B

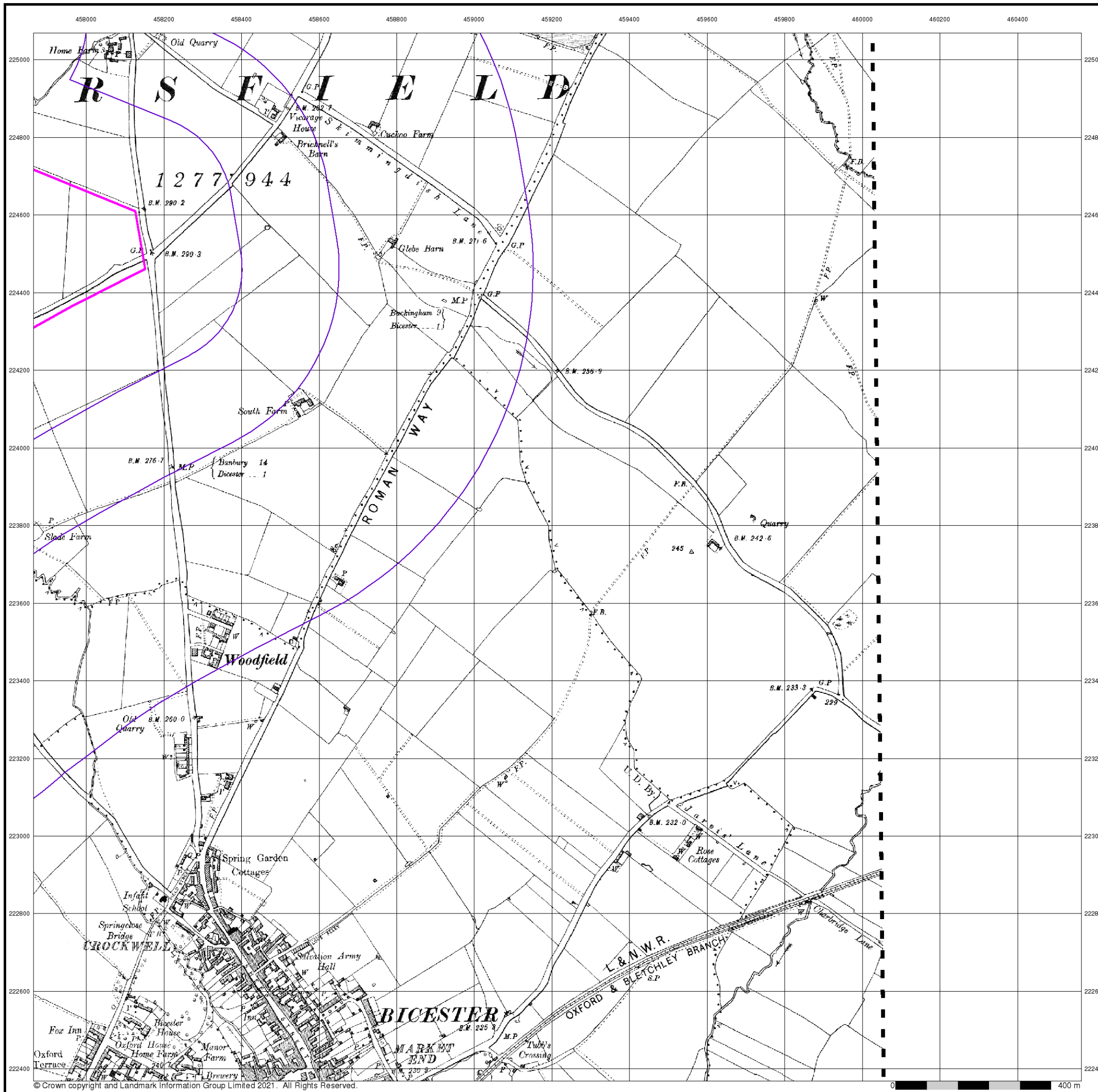


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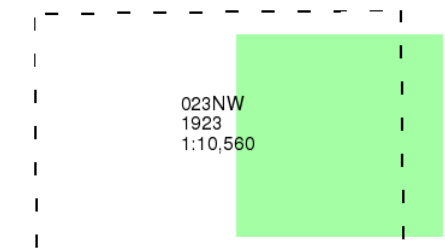
Oxfordshire

Published 1923

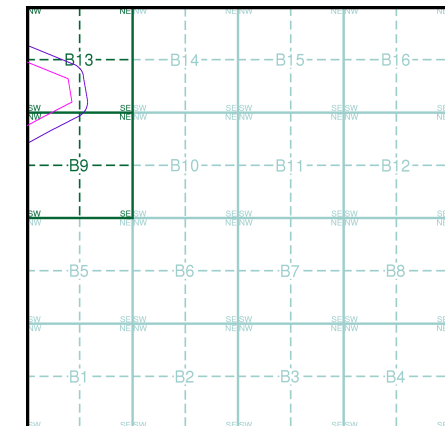
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps.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

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