



## **Phase 1 Desk Study**

**Land Adjacent Lynchmead Farm  
Ebdon Road  
Weston Super Mare  
Somerset**

**Report: GCE00939/R1**

**February 2019**

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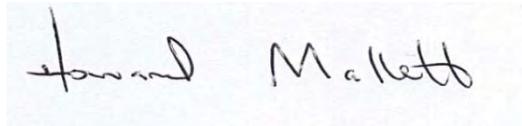
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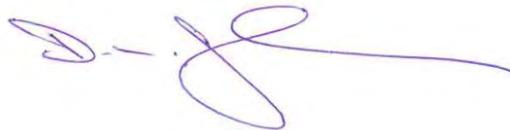
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## **1.0 INTRODUCTION**

### **1.1 Instruction**

Geo Consulting Engineering Ltd was commissioned by Walsingham Planning on behalf of Mead Realisations Ltd, to undertake a Phase 1 Desk Study on a site located at land at Lynchmead Farm, Ebdon Road, Weston Super Mare, Somerset.

### **1.2 Background**

The site comprises agricultural grass covered fields that are being considered for residential development.

An assessment of potential geo-environmental liabilities associated with the current and former site uses is therefore required by the Planning Authority to identify possible issues that would need to be addressed or could affect the development process.

Vectos is preparing a Flood Risk Assessment for the site on behalf of Walsingham Planning.

### **1.3 Objective**

The objective of this report is to review the site history, geomorphology and current/adjacent site uses in order to identify any particular constraints on the proposed development in relation to risk of pollution or harm with regard to demonstrating the likely acceptability of the site for the proposed re-use.

## **1.4 Methodology**

A phased investigation approach has been recommended, the first stage of which is this Phase 1 Desk Study and walkover survey for development of site characterisation, conceptual model, and sampling and analysis plan.

Eurocode 7 EN 1997-1:2004 identifies the requirements of a ground investigation report, which shall form part of the Geotechnical Design Report. This document is not a Geotechnical Design Report.

## **1.5 Limitations**

Subsoils are inherently variable and by their very nature are hidden from view such that no investigation can be exhaustive to the extent that all soil conditions are revealed. Conditions may therefore be present beneath the site that were not apparent from the data available for review. Similarly, this assessment has been based in part on third party data with particular respect to the Phase 1 information. This data has been taken at face value and has not been subjected to any external validation.

Where areas of a site are overgrown, it may not be possible for a walkover inspection to identify features that may subsequently come to light when site clearance is carried out. It should be noted that identification of invasive species falls outside our area of expertise and appropriately qualified professionals should be employed to consider this issue if it is of concern.

Assessment of asbestos in the ground is outside the scope of our report and expertise. The potential for asbestos or other hazardous or deleterious substances in structures and substructures should be assessed by a competent person.



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Unless specifically noted to the contrary, it should be assumed that this report has not been submitted to any regulatory authorities for approval.

Recommendations made in this report in respect of land contamination are based on guidance values that are current at the time of writing. Should any extended period of time elapse between the date of this report and the commencement of construction it would be prudent to confirm that the screening values used are current.

## **2.0 SITE DATA**

### **2.1 Site Location**

The site is located at Lynchmead Farm, off Ebdon Road, on the north side of Worle to the north-east of Weston Super Mare, Somerset. The closest postcode to the site is BS22 9NY. The National Grid Reference for the approximate centre of the site is 335860, 164250.

A site location plan is presented in Figure 1.

### **2.2 Site Description**

A description of the site summarised in the table below. Observations are based on the site walkover carried out on the 27th November 2018. The site has been subdivided into four areas for ease of description as below:

Area A: field fronting onto Ebdon Road with property “Lynchmead” to the west and Oxhouse Industrial Estate to the east.

Area B: southern part of field to the north of Area A and the Oxhouse Industrial Estate.

Area C: field fronting onto Ebdon Road situated to the west of Nut Tree Cottage.

Area D: southern part of field to the north of Area C and north-west Stroud Cottage.

Site Photographs are enclosed within Appendix A.

Features	Descriptions
Area, shape and size	<p>Area A is generally level with a slightly undulate grass surface covering approximately 0.8ha in a roughly rectangular shape. The north-east to south-west axis is approximately 120m at its longest. The north-west to south-east axis is approximately 75m at its longest.</p> <p>Area B is the southern part of a larger field and again is a generally level but slightly undulate and roughly rectangular parcel covering an area of approximately 1.9ha. The north-east to south-west axis is approximately 200m at its longest. The north-west to south-east axis is approximately 90m at its longest.</p> <p>Area C is generally level with a slightly undulate grass surface covering approximately 0.9ha in a roughly rectangular shape. The north-east to south-west axis is approximately 130m at its longest. The north-west to south-east axis is approximately 60m at its longest.</p> <p>Area D again forms the southern part of a larger field and is a roughly square area of approximately 1.1ha measuring approximately 100m north-south and a maximum of 130m east-west.</p>
Topography	<p>The overall site area is essentially level with incised drainage ditches/rhynes on field boundaries that, at the time of the walkover, had a rest water level estimated at between 0.6m and 1m below adjacent ground level. The wider topography indicates gently rising ground to the south and south-east with continuing level ground to the north and west.</p>
Site Surfaces	<p>At the time of the site walkover all four parcels of land were grass covered with nettle patches evident in Areas A and C and patches of scrub in Areas C and D. There are mature hedgerows to the south, west and north margins of Area A; east, south and west margins of Area B, all boundaries of Area C, and the east, south and west boundaries of Area D.</p> <p>To the north of the main buildings within the industrial estate is an area of blacktop surfaced ground which is indicated to become part of the redevelopment site.</p>
Buildings / Structure / Services	<p>There are no buildings within the four parcels. Immediately east of Area A is the Oxhouse Industrial estate which contains a number of warehouse type buildings surrounded by hard surfacing.</p> <p>Overhead power lines cross the site in a roughly east-west direction approximately on the line of the filed boundaries between areas A and B, and between areas C and D.</p>
Proposed construction	<p>It is proposed to develop the site for residential use. At the time of the investigation proposed layout plans were not available.</p>

Features	Descriptions
Geotechnical Hazards	<ul style="list-style-type: none"> <li>• Tidal Flat deposits underlying the site indicating potential for long-term secondary settlement and medium-term consolidation settlement resulting from increased ground levels likely to be required for development. This may require pre-loading surcharge to build in projected consolidation and secondary settlement. Structures likely to require pile foundations due to potential for differential settlement.</li> <li>• Potential for shallow sub-surface water and groundwater.</li> <li>• Fine grained soils with volume change potential.</li> <li>• Variable depth to competent strata.</li> <li>• Potential for ground gas from underlying alluvium.</li> <li>• Potential for flooding.</li> <li>• Soakaways unlikely to be viable on site due to likely shallow groundwater and alluvial strata expected.</li> <li>• Drainage and service trenches may be prone to instability due to shallow sub-surface water requiring trench support.</li> </ul>
Potential sources of contamination	<ul style="list-style-type: none"> <li>- Possible minor spills of fuels/oils/herbicides/pesticides from agricultural use.</li> <li>- Possible minor Polyaromatic Hydrocarbons (PAH) from stubble burning.</li> <li>- Possible metals from sewage sludge/slurry spreading.</li> <li>- Possible migration of contaminants from industrial estate to south-east.</li> </ul>

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Neighbouring land uses are summarised in the table below:

Direction	Features
North	Continuation of low-lying fields separated by rhyes and hedgerows.
East	Industrial Estate, rhyne and further low lying fields Field immediately east of Area B may have formerly been an orchard.
Central Area	Residential properties Three cottages and a bungalow) are located in the central southern area between Areas A and C/D. A stable block is located in the northern part of this central zone. A track that leads to the cottages from Ebdon Lane appears to carry on northwards beyond the cottages/stables although it has become overgrown and is apparently unused. There is a rhyne to the west side of the track.
South	Ditches/rhyne on south boundary of the site adjacent Ebdon Road. Housing of Wick St Lawrence to the south side of Ebdon Road To the south east of the south eastern end of the site are industrial buildings which are part of an Industrial Estate.
West	Further low-lying fields separated by rhyes.

### 2.3 Geology

The following table summarises the strata likely to be encountered at the site location.

Strata	Type	Source of data
Superficial Deposits	Tidal Flat Deposits. Clay, Silt and Sand (may also contain Peat beds)	British Geological Survey (BGS).
Bedrock Geology	Jurassic Blue Lias Formation comprising Mudstone and Limestone.	British Geological Survey (BGS).
Superficial Drift Deposits	Head weathered from the bedrock.	Not mapped but may be present overlying the bedrock, anticipated from experience of the area.

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## 2.4 Hydrogeology

The following table summarises the available data regarding the hydrogeological classification of the soils, rock and Source Protection Zones.

Data	Description	Source of data
Groundwater Vulnerability	Soils of Intermediate and High Leaching Potential (I1 to H1)	Envirocheck report – Agency and Hydrogeological Data
Bedrock Aquifer Designations	Secondary Aquifer - A	Envirocheck report – Agency and Hydrogeological Data
Superficial	Secondary Aquifer-Undifferentiated.	Envirocheck report – Agency and Hydrogeological Data
Source Protection Zones	None on site or within 1000m of site.	Envirocheck report – Agency and Hydrogeological Data
Water abstractions	None on site or within 1000m of site.	Envirocheck report – Agency and Hydrogeological Data

## 2.5 Hydrology

The following table summarises the available data regarding the nearest surface water feature and discharge consent records.

Data	Description	Source of data
Nearest surface water feature	Unnamed drains on site.	Envirocheck report – Agency and Hydrogeological Data
Discharge Consents	None recorded within 250m of the site.	Envirocheck report – Agency and Hydrogeological Data

## 2.6 Site History

The following table sets out the site history as derived from the available historic Ordnance Survey mapping. Copies of the historic maps are included in Appendix B.

Mapping Date	On-site	Off-site
1884-86	<p>The site is occupied by all or part of 5 fields. Areas A and C are essentially complete fields as per present day with the exception of a small enclosure in the north-east corner of Area C</p> <p>Area B is shown as part of two fields separated by a roughly north-south trending rhyne that occurs approximately two-thirds of the way across the parcel from west to east.</p> <p>Area D is the southernmost three-quarters of a field.</p> <p>Rhynes are mapped on the east and north boundaries of Area A; east, south and west of Area B, east of Area D.</p> <p>Sporadic trees are mapped along the filed boundaries.</p>	<p>A road, much on the alignment of the present Ebdon Lane, is mapped immediately south of the site.</p> <p>Orchards are mapped to the east of Areas A and B; the orchard to the east of Area A also appears to contain two small buildings (cottages?)</p> <p>The zone between Areas A/B and C/d is mapped as orchards with cottages within.</p> <p>An orchard is mapped to the north of Area D.</p> <p>A small pond is mapped approximately 100m north-west of Area D.</p>
1903-04	As above	Largely as above.
NB: there is an unusually large gap in the mapping coverage between 1904 and 1962.		
1961-63	Filed boundaries and wider area look largely as per 1903-04 mapping.	Largely as per 1903-04 mapping
1972-74	Largely as above although drains/rhynes now mapped on the western margin of Areas C and D	<p>Central area between Areas A/B and C/D no longer shown as an orchard, possible additional buildings in this area.</p> <p>The residential property "Lynchmead" is marked in the area immediately south-west of Area A. The land to the east of Area A is no longer shown as an orchard and the former buildings in this area are no longer marked.</p> <p>A small pond is marked approximately 5m south west of the south west corner of the western field.</p> <p>Cemetery and Crematorium mapped approximately 150m south-west of Area C.</p>
1983	As above	Largely as above

Mapping Date	On-site	Off-site
1989	As above.	The field boundaries on the northern edge of the field containing Area D have been removed and the rhyme part filled creating a larger rectangular field as present. The orchard in the northern part of this field is no longer mapped. The pond 100m west of the north west corner of the site has been enlarged. Residential development shown approximately 250m south and south west of the site.
1990-92	As above	Buildings are marked in the industrial estate to the east of Area A south east of the site. The field to the east of Area B is no longer marked as an orchard. Residential development shown approximately 220m south and 250m south east of the site.
1996-99	As above	Residential development is shown immediately south and south east of the site south of Ebdon Road.
1999 Aerial photo	Site marked as fields. Area C appears to have winter furrows running south east to north west. Possible earthworks alongside the drain that bisects Area B. Possible spoil mound is located in the south east corner of Area A.	Further residential development south and south east of the site, south of Ebdon Road. Area immediately to the south east appears to be industrial/commercial buildings with parking.
2006	The drainage channel previously marked in Area B running approximately south to north is no longer marked.	The drain immediately north east of Area B is no longer marked. Buildings marked as Industrial Estate immediately south east of the site. The drainage channels beyond the site are marked.
2018	As above	Largely as above.

## 2.7 Environmental Database

An Envirocheck® report was generated on the 14<sup>th</sup> January 2019. The following table summarises the findings where more detail can be found within the Envirocheck report on the identified page numbers:

Data type	Page number	On-site	0-250m	251-500m	501-1000 (*up to 2000)	Remarks
Discharge Consent	1			3	6	None located within 250m.
Nearest surface water feature	3	Yes				Drainage ditches located on site.
Pollution incidents to Controlled Waters						None located within 1000m
Water Abstractions						None located within 1000m
Flooding from Rivers and Sea without defences	4	Yes				<b>On site. See Landmark Envirocheck Agency and Hydrological Flood Map. Flood Risk Assessment required.</b>
Extreme Flooding from Rivers and Sea without defences	4	Yes				<b>On site. See Landmark Envirocheck Agency and Hydrological Flood Map. Flood Risk Assessment required.</b>
BGS Groundwater Flooding Susceptibility	1	Yes	Yes	Yes	N/A	<b>Potential for Groundwater Flooding to occur at site.</b>

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Data type	Page number	On-site	0-250m	251-500m	501-1000 (*up to 2000)	Remarks
Waste-Historic landfill/LA Recorded Landfill/BGS Recorded Landfill	53					None in 250m of the site.
Potentially Infilled Land (Water)	53		2	12	48	200m south Unknown filled ground-1962 mapping. 250m east Unknown filled ground-1962 mapping.
BGS Recorded Mineral Sites	59				2	None within 250m.
Coal mining affected areas						None recorded in 1000m of the site.
Hazardous Substances						None recorded in 1000m of the site.
Contemporary Trade Directory Entries	61		12	11	55	None recorded as active within 100m of the site.
Fuel Stations						None located within 1000m of the site.
Areas of Outstanding Natural Beauty (AONB)						None located within 1000m of the site.

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The following table summarises the available data regarding potential sources of contamination.

Data	Description	Data Source
Contaminated land entries	None recorded within 1000m.	Envirocheck Report
Pollution Incidents	None recorded within 1000m.	Envirocheck Report
Landfills	None recorded within 1000m	Envirocheck Report
Fuel Stations	None recorded within 1000m.	Envirocheck Report
Contemporary Trades	None recorded as active within 100m.	Envirocheck Report

The Envirocheck report is included in Appendix C.

## 2.8 Radon

According to the Envirocheck® report, no radon protection measures are necessary in the construction of new dwellings or extensions.

### **3.0 PRELIMINARY CONCEPTUAL MODEL**

#### **3.1 Introduction**

The site characterisation attempts to identify potential previous and existing site sources of contamination. The conceptual model links the identified sources likely to cause significant possibility of significant harm via pathways to identified critical receptors. The conceptual model is therefore based on a number of identified source-pathway-receptor scenarios. For land to be classified as contaminated a significant pollutant linkage will need to be identified which will include each component of the conceptual model. The absence or removal of a source or interception of a pathway will 'break' the pollutant linkage.

The conceptual model is characterised by identification of the following:

- On-site sources which may impact on-site receptors via plausible pathways
- On-site source which may impact off-site receptors via plausible pathways
- Off-site sources which may impact on-site receptors via plausible pathways

Potential change of land use will require assessment of the new site development layout within the context of introducing new exposure pathways. The planning regime may require assessment of the site to ensure the new development will not be classed as contaminated land under the definition provided by the Part 2A of the Environment Act 1990 as defined in the Environment Protection Act 1995.

Guidance issued in April 2012 provides four categories of land. New development will aim to be within Category Four where the potential risk of land contamination is assessed to be low or to not exist.

## **Normal Presence of Contaminants**

The revised Statutory Guidance for Part 2A of the Environmental Protection Act 1990 came into force in April 2012. This provides the following:

*3.21 The Part 2A regime was introduced to help identify and deal with land which poses an unacceptable level of risk. It is not intended to apply to land with levels of contaminants in soil that are commonplace and widespread throughout England or parts of it, and for which in the very large majority of cases there is no reason to consider that there is an unacceptable risk.*

*3.22 Normal levels of contaminants in soil should not be considered to cause land to qualify as contaminated land, unless there is particular reason to consider otherwise. Therefore, if it is established that land is at or close to normal levels of particular contaminants, it should usually not be considered further in relation to the Part 2A regime and the local authority should have regard to paragraphs 5.2 and 5.4 of this Guidance.*

*3.23 For the purpose of this Guidance, 'normal' levels of contaminants in soil may result from:*

*a) The natural presence of contaminants (e.g. caused by soil formation processes and underlying geology) at levels that might reasonably be considered typical on a given area and have not been shown to pose an unacceptable risk to health or the environment.*

*b) The presence of contaminants caused by low level diffuse pollution, and common human activity other than specific industrial processes. For example, this would include diffuse pollution caused by historic use of leaded petrol and the presence of benzo(a)pyrene from vehicle exhausts, and the spreading of domestic ash in garden at levels that might reasonably be considered typical.*

## **The Use of Generic Assessment Criteria**

The revised Statutory Guidance for Part 2A of the Environmental Protection Act 1990 that came into force in April 2012 further provides:

*3.27. It is common practice in contaminated land risk assessment to use generic assessment criteria (Soil Guideline Values SGV) (GACs) as screening tools in generic quantitative risk assessment to help assessors decide when land can be excluded from the need for further inspection and assessment, or when further work may be warranted.*

*3.29. GACs relating to human health risk assessment represent cautious estimates of levels of contaminants in soil at which there is considered to be no risk or, at most, a minimal risk to health. With regard to such GACs:*

*a) They may be used to indicate when land is very unlikely to pose a significant possibility of significant harm to human health. This is on the basis that they are designed to estimate levels of contamination at which risks are likely to be negligible or minimal and far from posing a significant possibility of significant harm.*

*b) They should not be used as direct indicators of whether a significant possibility of significant harm to health may exist. Also, the local authority should not view the degree by which the GACs are exceeded (in itself) as being particularly relevant to this consideration, given that the degree of risk posed by land would normally depend on many factors other than simply the amount of contaminants in soil.*

*c) They should not be seen as screening levels which describe the boundary between Categories 3 and 4 in terms of Section 4 (i.e. the two Categories in which land would not be contaminated land on grounds of risks to human health). In the very large majority of cases, these SGVs/GACs describe levels of contamination from which risks should be considered to be comfortably within Category 4.*

*d) They should not be viewed as indicators of levels of contamination above which detailed risk assessment would automatically be required under Part 2A.*

*e) They should not be used as generic remediation targets under the Part 2A regime. Nor should they be used in this way under the planning system, for example in relation*

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*to ensuring that land affected by contamination does not meet the Part 2A definition of contaminated land after it has been developed.*

### **Categories of Contaminated Land**

There are four categories of contaminated Land. The NHBC summarise these as follows:

Category 1 – Land where it is clear that there is a significant possibility of significant harm to human health, and intervention under Part 2A is required.

Category 2 – Land where there is a considerable concern that there may be a significant possibility of significant harm to human health and there is a strong case for a precautionary action or intervention being taken under Part 2A.

Category 3 – Land where there may be a possibility of harm to human health but this is not significant, and regulatory intervention under Part 2A is not warranted, but those affected could consider civil action.

Category 4 – Land which should not pose a measurable risk to human health.

New screening values will be required to determine the boundary of Category 4 land. These are likely to be higher than current screening SGV/GAC values.

### **3.2 On-site to On-site**

#### **Source**

The sources are divided into primary and secondary. The primary source is defined as the generic land use and the secondary source is the likely constituents of concern relating to the primary source, which may be affecting the soil, groundwater or soil gas.

The historic data review indicates the site to have been in agricultural use since before the first edition Ordnance Survey mapping of 1884 to the present. There is a large gap in the historic mapping from 1904 to 1961, however, there is no obvious change shown on the mapping between the two surveys. There is evidence of relatively recent infilling of former drainage ditches that traversed Area B; the nature and provenance of the material used as fill is not known. The 1999 aerial photograph indicates a possible spoil mound on the eastern edge of Area A; again, the nature of the material is not known.

Investigation across this area is therefore required with sampling and analysis requirements informed by the nature of the materials observed.

As with any agricultural site it is possible that stubble burning may give rise to ash and this might contain polycyclic aromatic hydrocarbons, metals and sulphates. Sewage sludge/slurry spreading can result in locally elevated metals/metalloids. Minor presence of hydrocarbons could result from spills and leaks from agricultural machinery.

It would therefore be prudent to confirm the envisaged acceptability of the soils at this site by undertaking a routine analysis for the following:

- Metals/ metalloids
- Polycyclic Aromatic Hydrocarbons (PAH) and petroleum hydrocarbons (TPH)
- Soil pH, sulphate and sulphides

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- Organic carbon
- Pesticides and herbicides.

The Envirocheck report indicates that the site is in an area where no radon protection is required.

### ***Pathways***

Migration pathways requiring consideration include:

- Wind-blown dust
- Vapour phase migration through the unsaturated zone
- Dissolved phase migration within groundwater
- Light non-aqueous phase migration on surface of groundwater
- Dense non-aqueous phase migration

Exposure pathways associated with a potential residential development include:

- Soil and indoors dust ingestion
- Home grown vegetable consumption
- Soil attached to home grown vegetables
- Indoor and Outdoor inhalation of dust
- Indoor and Outdoor inhalation of vapours
- Leaching of mobile contaminants to groundwater
- Permeation through water supply pipes

### ***Receptors***

The potential receptors are identified as follows:

- Human beings (construction workers, future site users)
- Groundwater

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- Eco-systems
- Building fabric

The following table summarises the risk categorisation.

**Degree of risk (R) = Likelihood (L) x Effect (E)**

Likelihood (L)	Description	Probability	Effect (E)	Description	Increase in cost and time
5	Almost certain	>70%			
4	Probable	50-70%	4	Very high	>10%
3	Likely	30-50%	3	High	4-10%
2	Unlikely	10-30%	2	Low	1-4%
1	Negligible	>10%	1	Very low	<1%
Risk (R)	Risk Level	Action			
1-5	Trivial	None			
6-10	Significant	Undertake appropriate mitigation measures to reduce the risk level by appropriate on-site practice at little additional cost.			
>10	Substantial	Designers should take such risks into account and avoid or reduce risk level to acceptable levels. Additional resources required.			

The following table provides a summary of the potential pollutant linkages together with an indication of the hazard, likelihood, severity and degree of risk.

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**On-site to On-site Source – Pathway – Receptor Model**

Source 1	Source 2	Migration Pathway	L	Exposure Pathway	E	Receptor	R
Made Ground in infilled drainage ditch	Metals/ metalloids	Wind-blown, leaching to groundwater.	3	Direct exposure, indoor and outdoor inhalation, leaching to groundwater.	2	Construction workers, future residents, groundwater	6
	ACMs	Wind-blown	3	Dust inhalation	4	Construction workers, surrounding residents	12
	Hydrocarbons (TPH, PAH)	Leaching to groundwater, vapour phase.	3	Direct exposure, migration in or on groundwater, inhalation	3	Construction workers, future residents, wider environment	9
	Biodegradable materials generating ground gas – methane, carbon dioxide, hydrogen sulphide	Vapour phase	3	Inhalation, asphyxiation, explosion	3	Construction workers, future residents	9
Anthropogenic use of near surface soils	Sulphates and sulphides	Potential to oxidise	2	Attack concrete	2	Building Structures	4
	PAH and TPH	Leaching to groundwater, vapour phase migration.	2	Direct exposure, leaching to groundwater	2	Future site users, groundwater, construction workers	4
	Metals/metalloids	Wind-blown, leaching to groundwater.	2	Direct exposure, dust inhalation, leaching to groundwater	2	Future site residents and the wider environment	4
Anthropogenic use of topsoil	Pesticides	Wind-blown, leaching to groundwater.	2	Direct exposure, dust inhalation, leaching to groundwater	2	Future site residents and the wider environment	4

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### **3.3 On-site to Off-site**

The potential on-site sources are identified in Section 3.2. These are not considered to be of significant magnitude to create a credible risk of off-site impact.

### **3.4 Off-site to On-site**

The historic map review has identified widespread orchards surrounding the site. Historically lead-arsenate solutions were used as pesticides in orchards with the resulting risk of elevated metals/metalloids in the near surface soils. As there is potential for wind-drift of such solutions it would be prudent to check near surface soils within the subject site for metals/metalloids.

## 4.0 GEOTECHNICAL RISK ASSESSMENT

The purpose of the geotechnical risk assessment is to focus resources towards site specific ground related hazards likely to affect construction.

***Degree of risk (R) = Likelihood (L) x Effect (E)***

Likelihood (L)	Description	Probability	Effect (E)	Description	Increase in cost and time
5	Almost certain	>70%			
4	Probable	50-70%	4	Very high	>10%
3	Likely	30-50%	3	High	4-10%
2	Unlikely	10-30%	2	Low	1-4%
1	Negligible	>10%	1	Very low	<1%
Risk (R)	Risk Level	Action			
1-5	Trivial	None			
6-10	Significant	Undertake appropriate mitigation measures to reduce the risk level by appropriate on-site practice at little additional cost.			
>10	Substantial	Designers should take such risks into account and avoid or reduce risk level to acceptable levels. Additional resources required.			

The following table provides a summary of the identified hazards together with an indication of the consequence, likelihood, severity and degree of risk.

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Hazard	Consequence	Likelihood	Severity	Degree of risk	Mitigation
Tidal flat deposits	Tidal flat deposits likely to exhibit medium term consolidation settlement associated with increased ground levels necessary for development.	3	4	12	Detailed ground investigation to assess the consolidation and secondary compression characteristics of the strata and the pre-consolidation pressures. Soil likely to be normally consolidated with a seasonally desiccated stiffened crust. Pre-loading surcharge may be required to build in projected consolidation settlement and a portion of the secondary settlement. Pile foundations for structures with consideration of differential settlement for buried services. This may require flexible service connections and rocker junctions of drainage pipes.
Tidal flat deposits	Pile foundations likely to be required	4	3	12	Ground investigation to determine depth to competent strata/bedrock. Piled foundations may be required.
Tidal flat deposits	Unstable foundation trenches and service trenches	4	3	12	Ground investigation to determine ground conditions and depth to groundwater. Consideration for pile foundations. Shallow service trenches where possible.
Tidal flat deposits/Alluvium	Potential for ground gas.	3	3	9	Ground investigation to determine ground conditions and install ground gas monitoring wells to allow ground gas monitoring.
Alluvium and Head deposits of fine grained clay.	Plastic soils with volume change potential resulting in seasonal shrink and swell.	3	2	6	Ground investigation to obtain samples for Plasticity Index testing. Foundation design may need to take account of volume change potential.

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Hazard	Consequence	Likelihood	Severity	Degree of risk	Mitigation
Variable depth to competent bearing stratum.	Abnormal foundation conditions.	3	2	6	Ground investigation to determine depth to competent strata and bearing capacity for strip, trench fill or piled foundations.
Infilled drainage channel on site	Abnormal foundation conditions.	3	2	6	Ground investigation to determine depth to competent strata and bearing capacity for strip, trench fill or pile foundations together with potential implications for roads and drainage.
Groundwater	Inflow into excavations causing basal and side wall instability.	2	3	6	Ground investigation to assess groundwater levels. Provision for trench support and groundwater control.
Groundwater	Shallow groundwater may mean soakaways are not viable	3	3	9	If soakaways are required, ground investigation to include installation of groundwater monitoring wells and soakaway testing in general accordance with BRE 365.
Low permeability strata.	Soil infiltration rate may be too low for soakaways.	3	2	6	If soakaways are required, ground investigation to include soakaway testing in general accordance with BRE 365.
Trees	Water demand may result in volume change of fine grained low permeability soils.	3	2	6	Seasonal volume change potential requires Plastic Index testing to allow foundation design in accordance with NHBC Chapter 4.2.
Sulphatic deposits in underlying natural geology	Aggressive conditions for buried concrete	1	3	3	BRE SD1 testing to determine class of concrete required below ground.

## 5.0 SAMPLING AND ANALYSIS PLAN

The following table summarises the ground investigation methods proposed to allow assessment and quantification of the identified risks:

Techniques	Description	Phase 2A
Dynamic (Windowless) Sampling/ Dynamic Probing	Good for preliminary investigation where poor ground conditions are expected and where ground gas and groundwater monitoring wells are required. Good on an existing developed site, where access is restricted and reinstatement costs are likely to be high. Dynamic Sampling Boreholes allow good depth penetration 4-5m typically, can be more in favourable ground and less in hard strata. Dynamic probes provide depth to bedrock profiles.	2 days – estimated up to 10 dynamic sample boreholes and up to 6 dynamic probes.
Trial Pitting	Applicable on agricultural sites where reinstatement requirements are minimal. Provides best bulk observation of near surface soils. Limited to 3-4m depth, depth limited by groundwater and unstable ground.	1 day to assess backfill to former drainage ditches. Could also allow infiltration testing if required.
Infiltration testing in trial pits	Required to estimate the infiltration rate for soakaway drainage design assuming that such is proposed for the new development. Preliminary investigation should provide an indication of viability. Subsequent investigations may be required to target actual soakaway locations.	May be required.
Rotary Boreholes	These can be combined with Dynamic Sampling techniques to investigate the soils, U100 sampling and in-situ testing. Able to drill through hard strata and recover rock core. Allows installation of deep monitoring wells.	Likely to be required to assist with pile design. Undertake after dynamic sampling and when layout has been proposed.
Static Cone Testing	Used where deep soft/firm and loose alluvial deposits are present. Normally undertaken along with deep boreholes.	May be required depending on findings of the preliminary investigation.
Monitoring Wells for groundwater and ground gas.	Monitoring wells can be installed in the dynamic sample boreholes to allow measurement of shallow groundwater depths to assist in assessment of viability of infiltration drainage and to undertake ground gas monitoring.	6 wells in dynamic sample boreholes for ground gas and groundwater monitoring.
Groundwater and ground gas monitoring	Undertake ground gas and groundwater monitoring.	Minimum of 4 ground gas monitoring visits. Depending on results further visits may be required.

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<p>Chemical analysis (soil)</p>	<p>Chemical tests on soil samples to adopt generic suite comprising</p> <ul style="list-style-type: none"> <li>- Metals/ metalloids</li> <li>- pH soil</li> <li>- asbestos ID</li> <li>- Total Organic Carbon</li> <li>- Poly Aromatic Hydrocarbons</li> <li>- Banded Total Petroleum Hydrocarbons (TPH)</li> <li>- Pesticides/herbicides</li> </ul>	<p>Twelve samples likely to be adequate (subject to observed ground conditions).</p>
<p>Geotechnical testing</p>	<ul style="list-style-type: none"> <li>- Moisture contents</li> <li>- Plasticity Index.</li> <li>- BRE SD-1 Suite</li> <li>- Oedometer consolidation</li> <li>- Undrained shear strength in triaxial compression</li> </ul>	<p>Detailed requirement dictated by ground conditions observed at fieldwork stage.</p>

## 6.0 CONCLUSIONS

The historic data review indicates that the site has been in agricultural use since before the first edition Ordnance Survey map of 1884 to the present. Drains are located on site and the site is relatively low lying, therefore groundwater is likely to be at shallow depth.

It is proposed to develop the site for housing, however, a development layout plan was not available at the time of this desk study.

The British Geological Survey mapping indicates the site to be underlain by Tidal Flat Deposits comprising Clay, Silt and Sand, overlying Jurassic Blue Lias Formation comprising Mudstone and Limestone. Whilst not mapped, Head deposits would be anticipated overlying the solid geology.

The Envirocheck report indicates that no radon protection measures are required for new developments.

A drainage channel has been infilled between 1999 and 2006 in Area B. Investigation will be required in this area to determine the nature of the backfill. Agricultural practices may have resulted in minor impact with hydrocarbons, metals, sulphates and pesticides/herbicides. Sampling and analysis should be considered to assess this as part of a pre-development ground investigation.

Whilst the issues identified, if found to be present, may require specific mitigation measures, such as a clean cover soil system for gardens they would not be envisaged to be of sufficient magnitude or complexity as to prevent development of the site due to chemical restrictions and as such could be addressed by appropriate conditions in any grant of planning permission.

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A preliminary Phase 2 ground investigation is recommended as detailed in Section 5 of this report.

Soakaway infiltration drainage is unlikely to be viable at this site due to the anticipated shallow groundwater table and low-permeability alluvial soils underlying the site. Groundwater monitoring wells should be installed and monitored to determine the winter ground water levels.

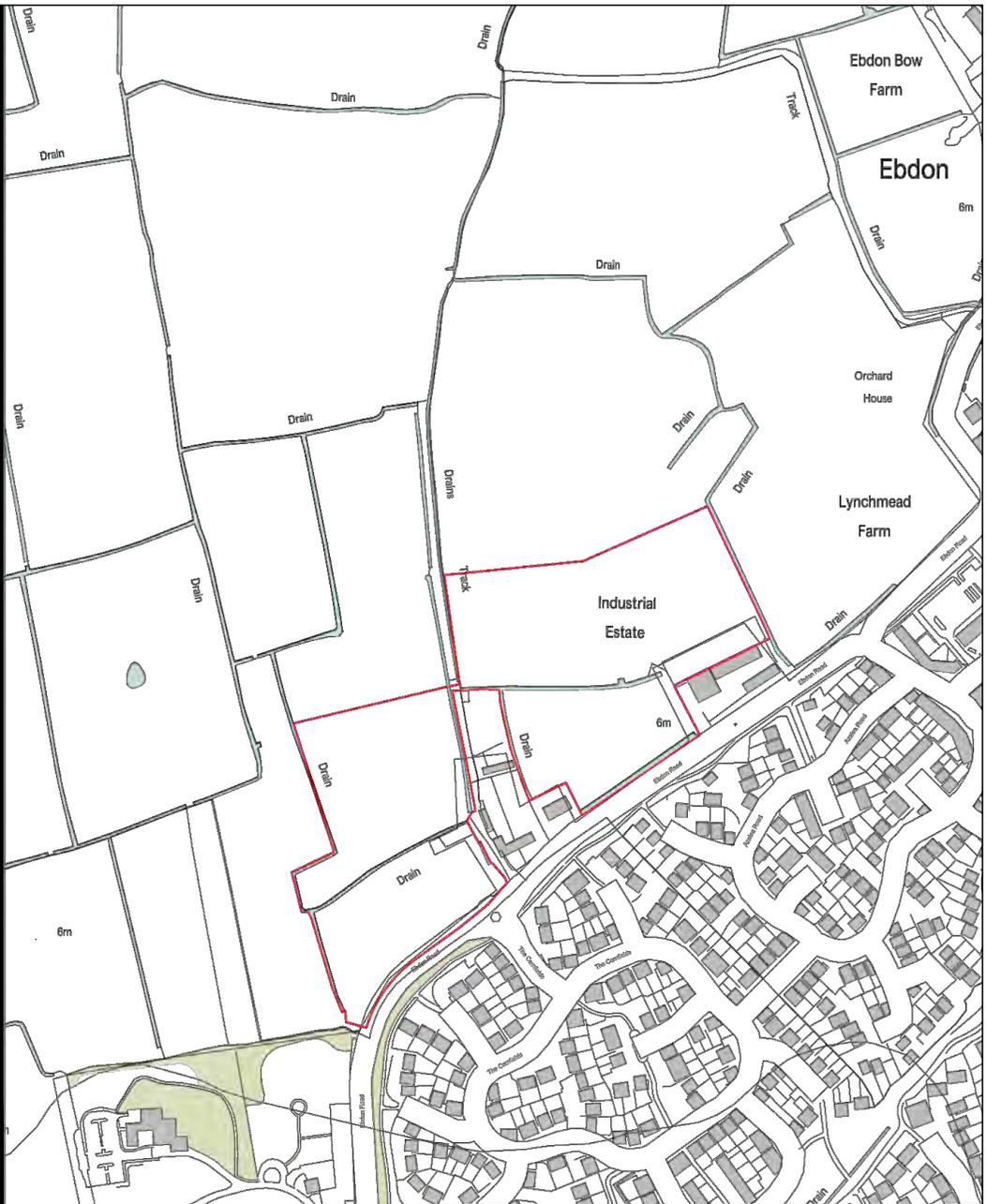
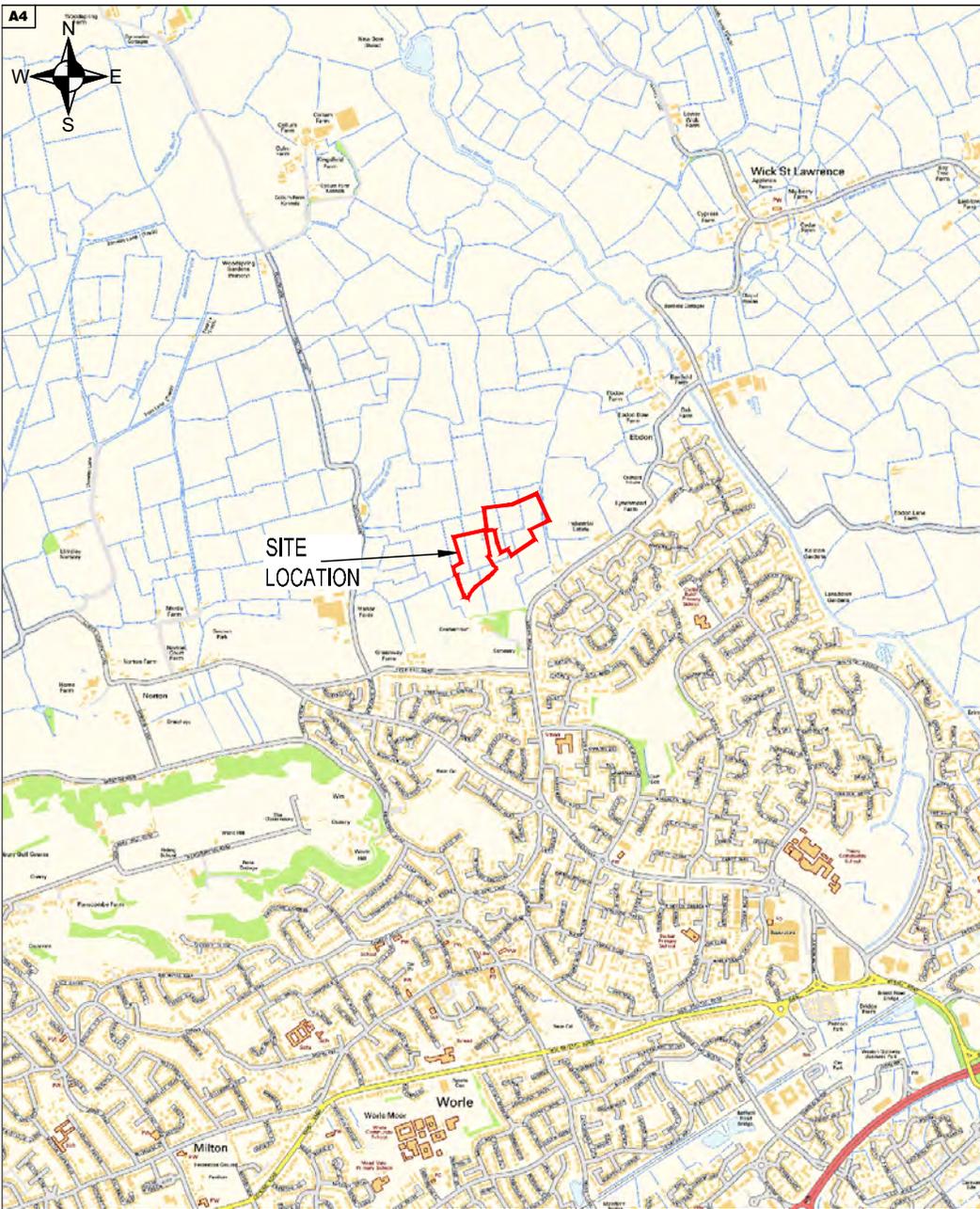
Deep Tidal Flat deposits underlying the site indicate potential for long-term secondary settlement and medium-term consolidation settlement resulting from increased ground levels likely to be required for development. This may require pre-loading surcharge to build in projected consolidation and secondary settlement. Structures are likely to require pile foundations due to anticipated depth to a competent bearing stratum and potential for differential settlement.

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## FIGURES

Figure 1 Site Location Plan

Figure 2 Walkover Plan



Geo Consulting Engineering Ltd  
The Studio, Woodmanton Barns,  
Woodbury, Exeter, EX5 1HQ  
T: 01395 239977  
E: mail@geoconsultingeng.co.uk  
W: www.geoconsultingeng.co.uk

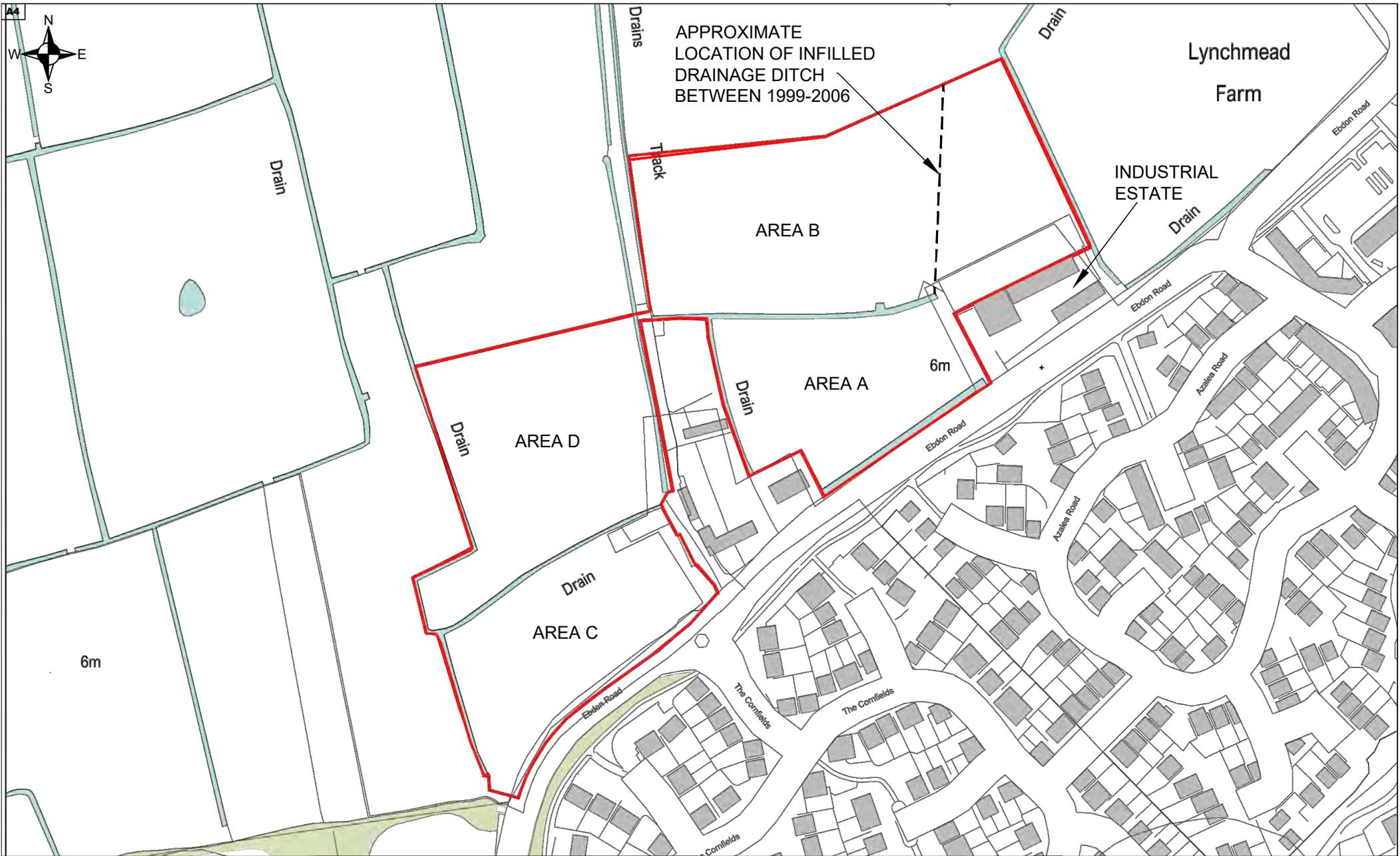
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**Lynchmead Farm  
Ebdon Road  
Weston Super Mare**

Client:  
**Mead Realisations Ltd**

Dwg Title:  
**Site  
Location Plan**

Drawing Status  
**For Information**

Scale 1:25000/1:5000 @ A4 Drawn ..... HM  
Date ..... Jan 2019 ..... Checked ..... DLJ  
Drawing no: GCE00939/Fig1 Rev



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 W: www.geoconsultingeng.co.uk

Job Title:  
**Lynchmead Farm  
 Ebdon Road  
 Weston Super Mare**

Client:  
**Mead Realisations Ltd**

Dwg Title:  
**Site  
 Walkover Plan**

Drawing Status  
**For Information**

Scale ..... 1:2500 @ A4 ..... Drawn ..... HM .....  
 Date ..... Jan 2019 ..... Checked ..... DLJ .....

Drawing no:  
**GCE00939/Fig2** Rev



GCE00939/ R1

## **APPENDICES**

Appendix A – Site Photographs

Appendix B – Historic Maps

Appendix C – Landmark Envirocheck Report

GCE00939/ R1



## Appendix A – Site Photographs

Photo 1: Area A looking south-west from Industrial Estate.



Photo 2: Area A looking north-westerly from south-east corner.



Photo 3: Area B looking north-eastwards along east end of southern boundary.



Photo 4: Looking northwards across Area B from access gate.



Photo 5: Looking north-westwards across Area B from access gate.



Photo 6: Looking west-north-westwards across Area B from access gate.



Photo 7: View westwards along western end of southern boundary to Area B.



Photo 8: View into south-west corner of Area B.



Photo 9: View south-westwards along southern boundary of Area C.



Photo 10: View south-westwards across Area C.



Photo 11: View north-westwards to northern boundary of Area C.



Photo 12: Gate into Area C.



Photo 13: View westwards along southern boundary of Area D.



Photo 14: View north-westwards across Area D.



Photo 15: View northwards up eastern boundary of Area D.



Photo 16: View south-eastwards from northern margin of Area D.



Photo 17: View eastwards along southern boundary of Area D.



Photo 18: View northwards into industrial estate to east of Area A.



Photo 19: View north-eastwards into industrial estate to east of Area A.



Photo 20: View eastwards along rear of industrial estate in what is part of Area B..



Photo 21: View north-eastwards along rear of industrial estate in what is part of Area B.



Photo 22: View south-westwards along Ebdon Road on southern boundary of site.



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## Appendix B – Historic Maps

# Historical Mapping Legends

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

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

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

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

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

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

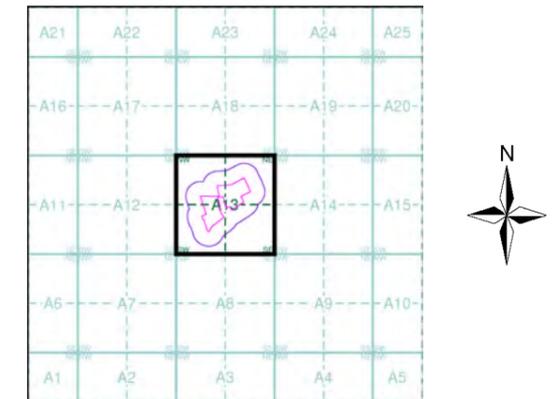
# Envirocheck®

LANDMARK INFORMATION GROUP®

## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Somerset	1:2,500	1885	2
Somerset	1:2,500	1903	3
Somerset	1:2,500	1931	4
Ordnance Survey Plan	1:2,500	1972 - 1974	5
Ordnance Survey Plan	1:1,250	1982 - 1985	6
Additional SIMs	1:1,250	1987	7
Additional SIMs	1:2,500	1988 - 1989	8
Additional SIMs	1:2,500	1989	9
Additional SIMs	1:1,250	1989	10
Ordnance Survey Plan	1:1,250	1990	11
Ordnance Survey Plan	1:2,500	1991	12
Large-Scale National Grid Data	1:1,250	1992	13
Large-Scale National Grid Data	1:2,500	1992	14
Large-Scale National Grid Data	1:1,250	1994	15
Large-Scale National Grid Data	1:2,500	1996	16
Large-Scale National Grid Data	1:2,500	1996	17
Historical Aerial Photography	1:2,500	1999	18

## Historical Map - Segment A13



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 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 100

## Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA

**Landmark**  
 INFORMATION GROUP

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

## Somerset

Published 1885

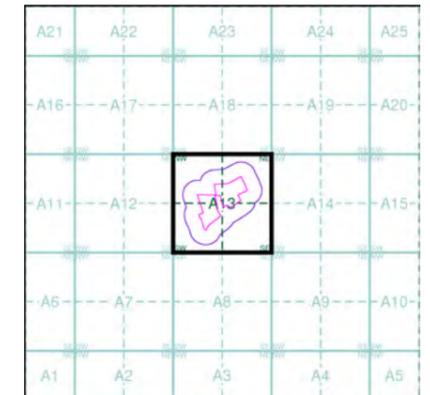
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010_09	1885	1:2,500

### Historical Map - Segment A13

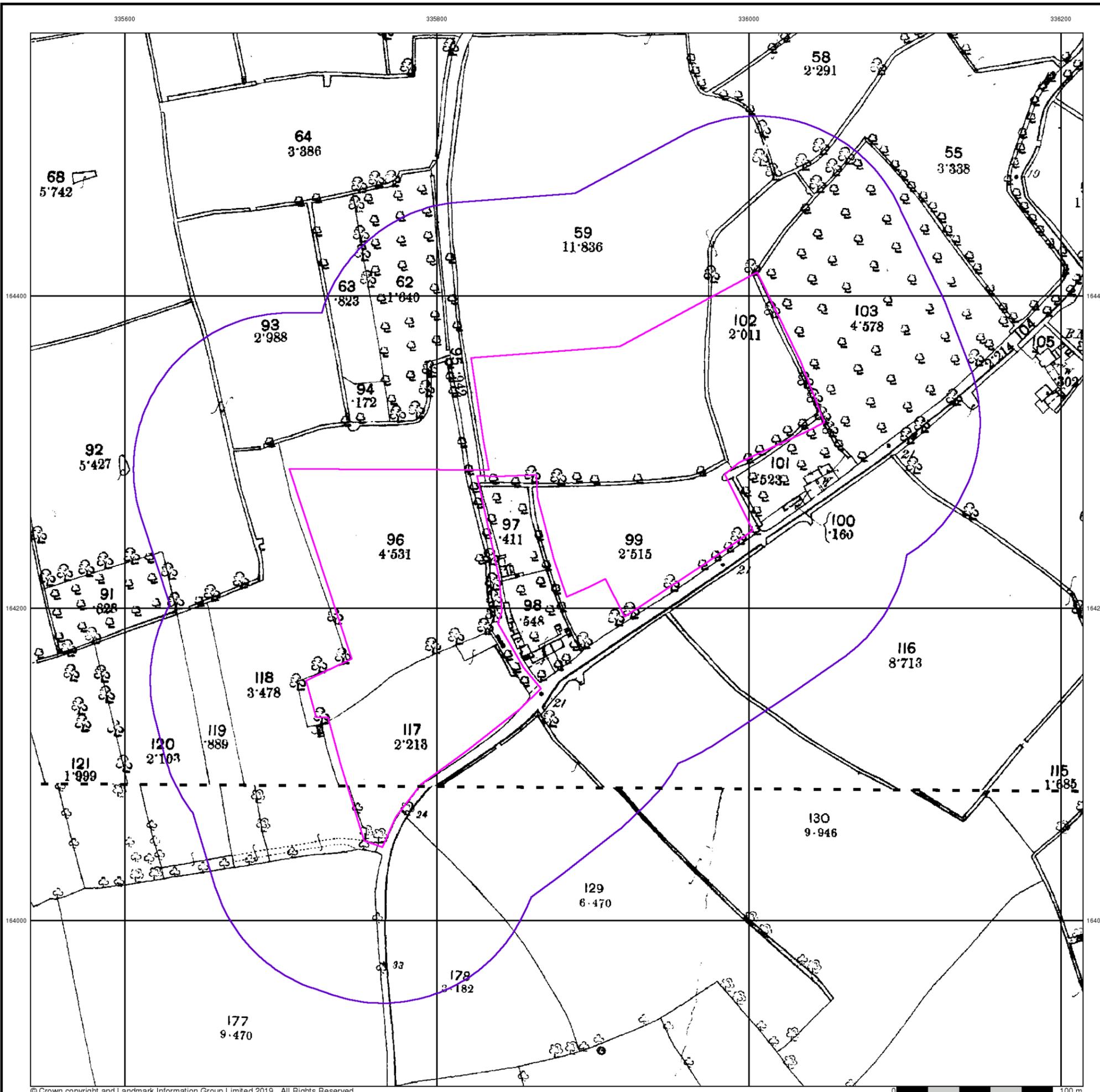


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### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



## Somerset

Published 1903

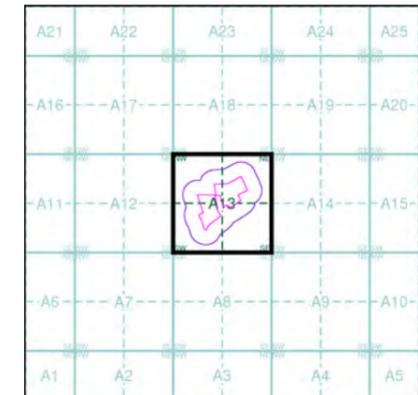
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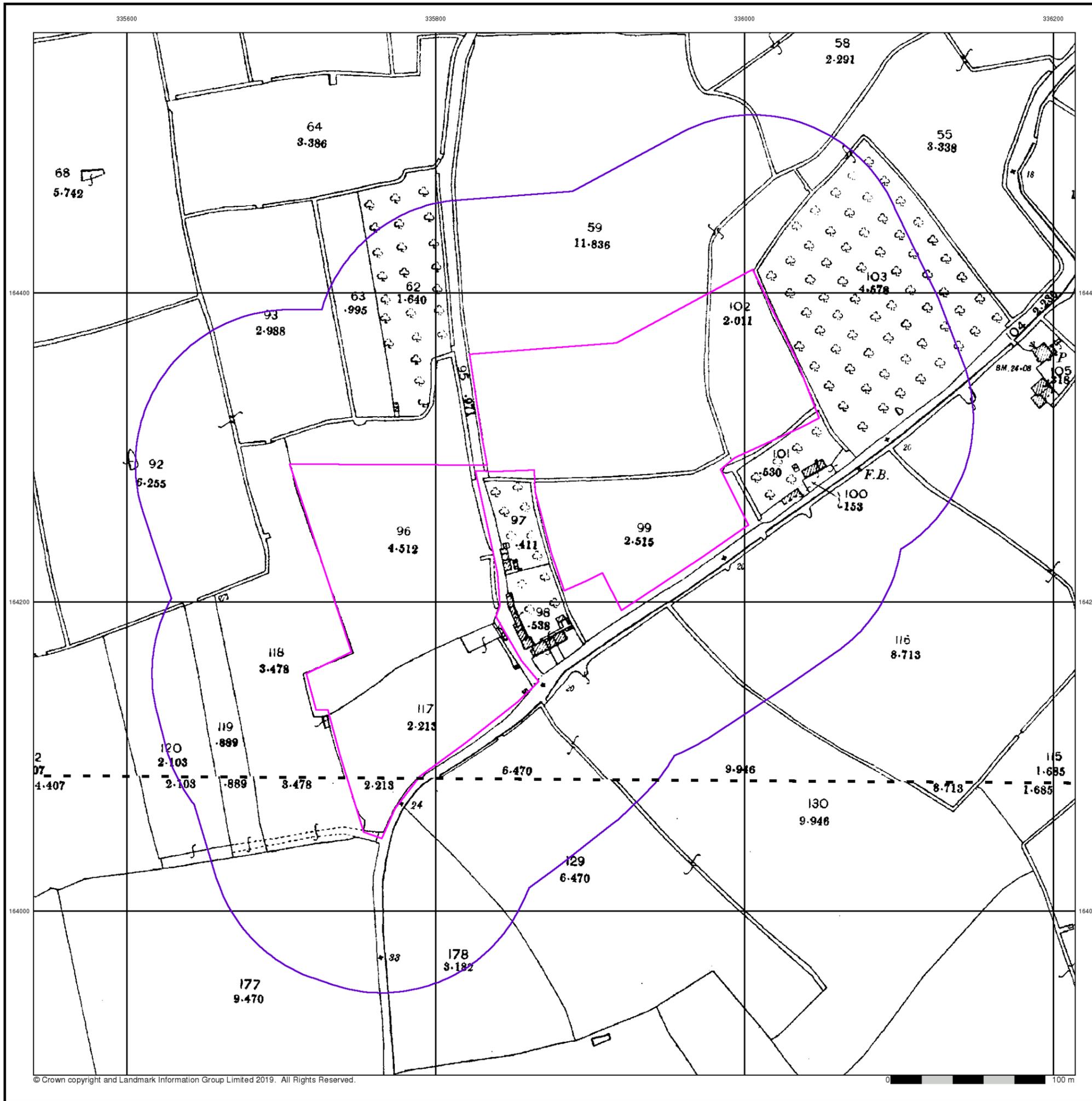


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### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



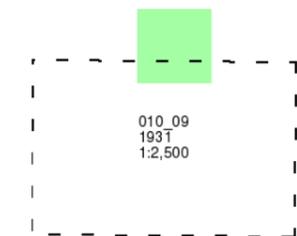
## Somerset

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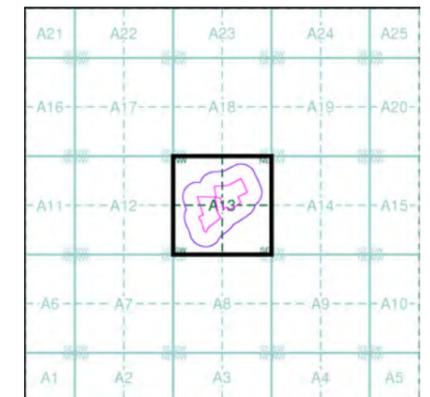
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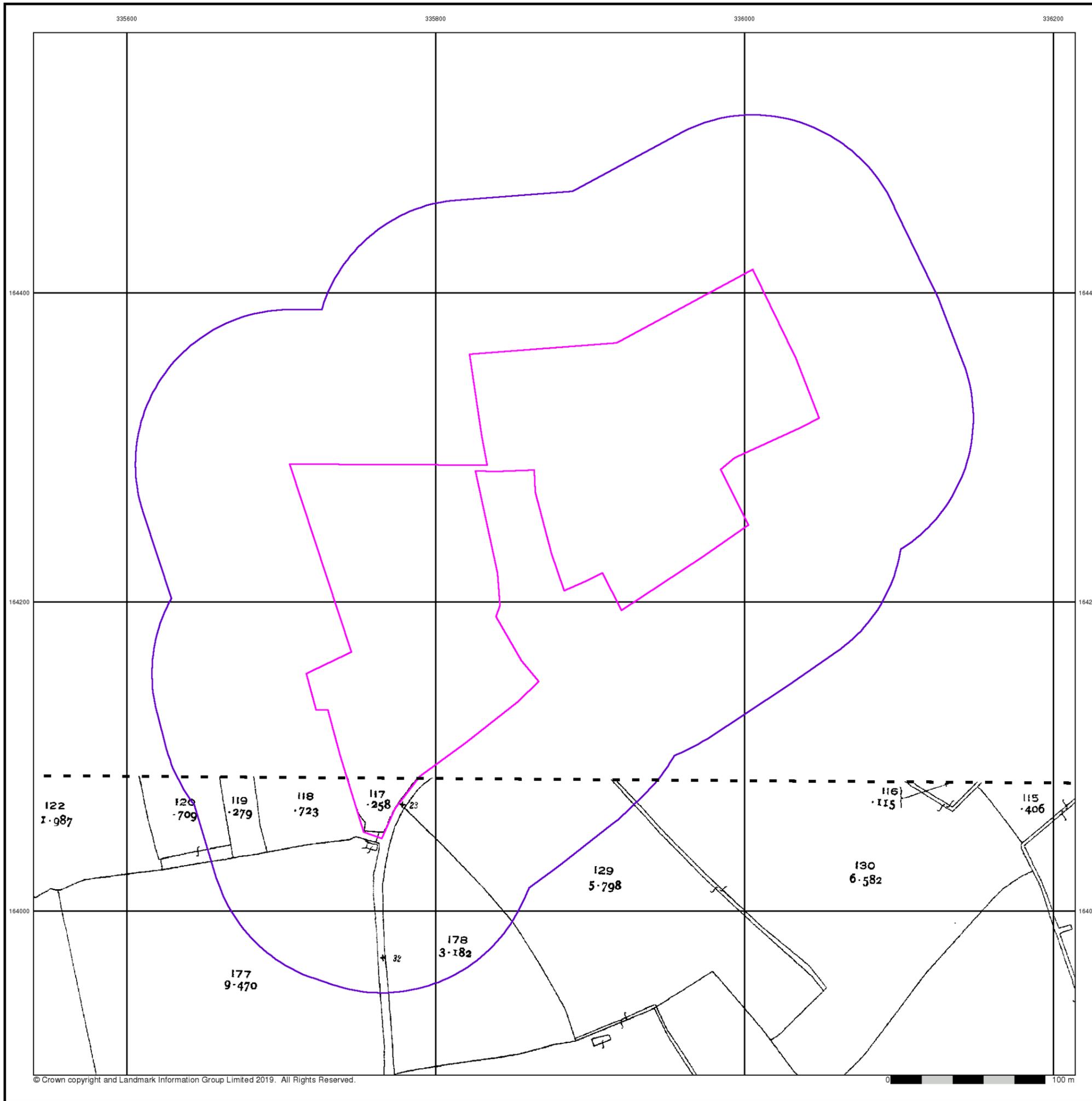


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### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



## Ordnance Survey Plan

Published 1972 - 1974

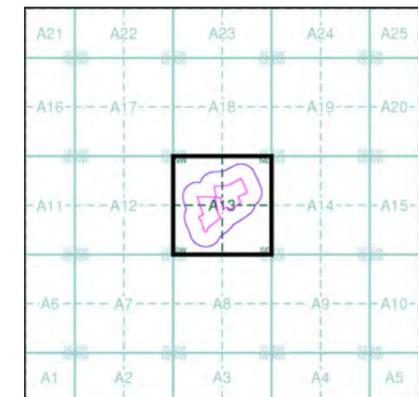
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ST3563 1972 12,500	ST3663 1974 12,500

### Historical Map - Segment A13

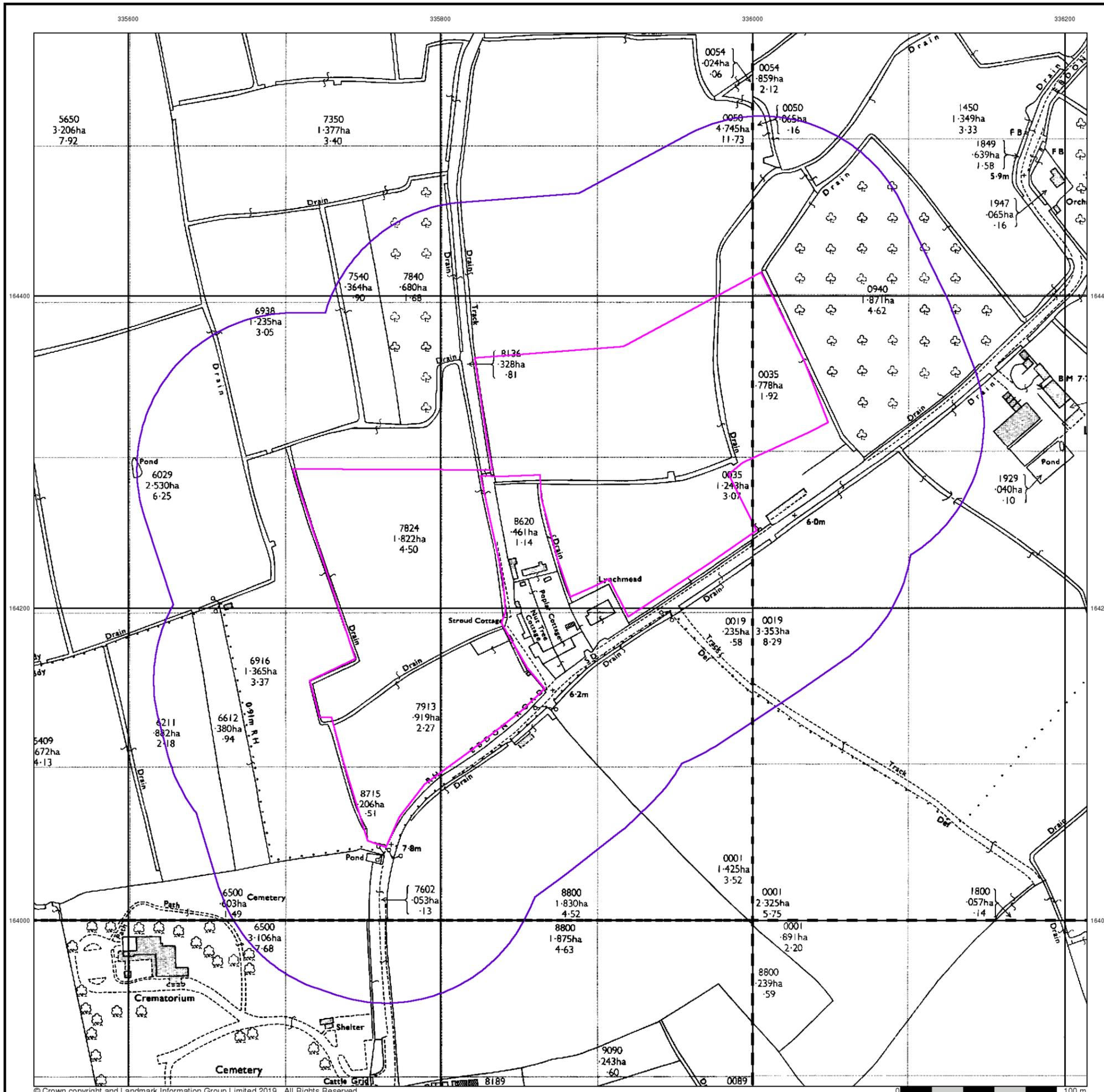


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 Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



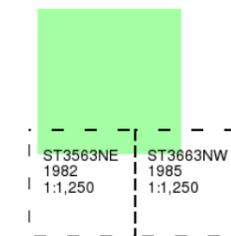
## Ordnance Survey Plan

Published 1982 - 1985

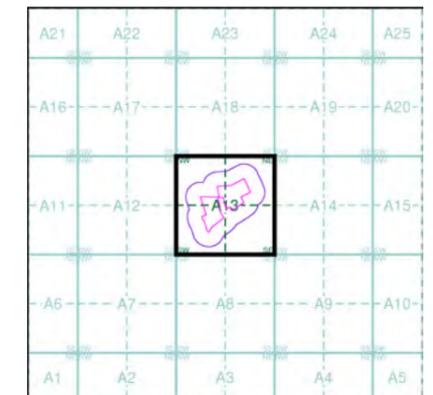
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### Map Name(s) and Date(s)



### Historical Map - Segment A13

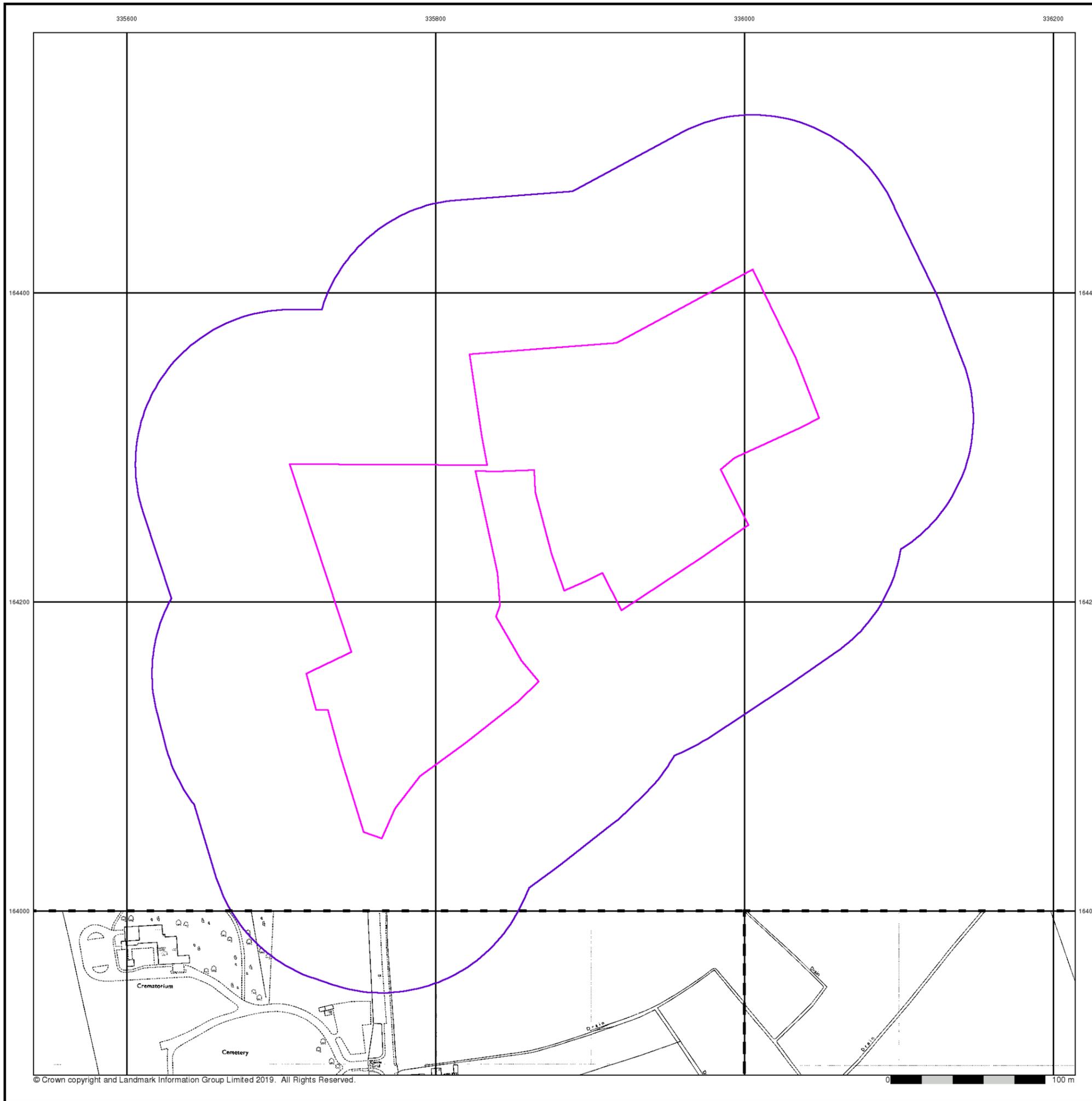


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### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



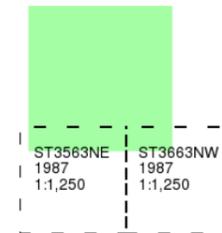
## Additional SIMs

Published 1987

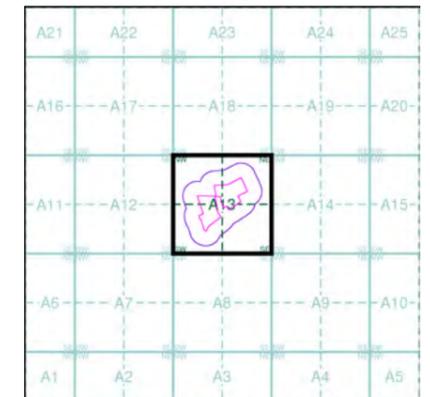
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

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



## Historical Map - Segment A13

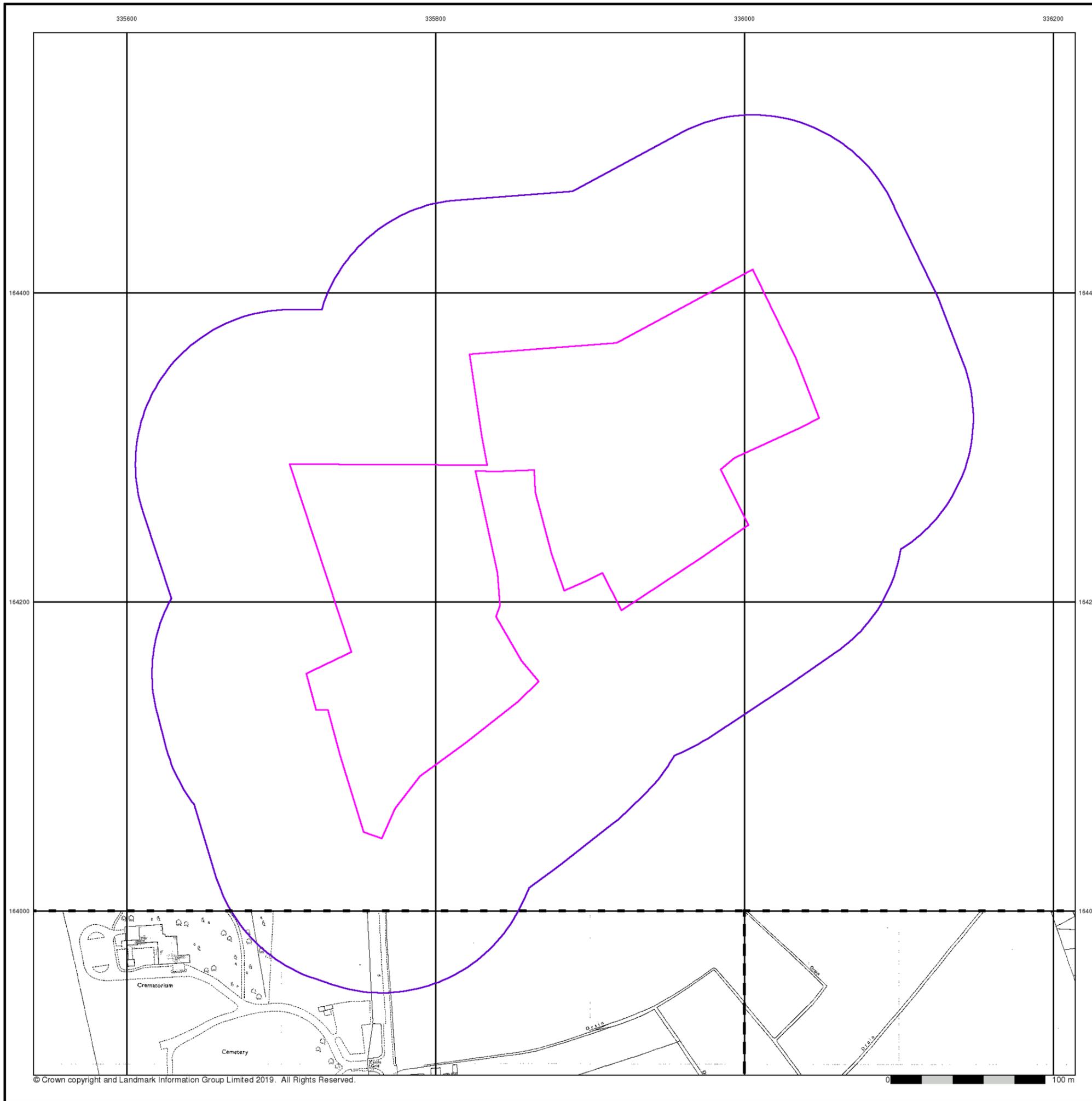


## Order Details

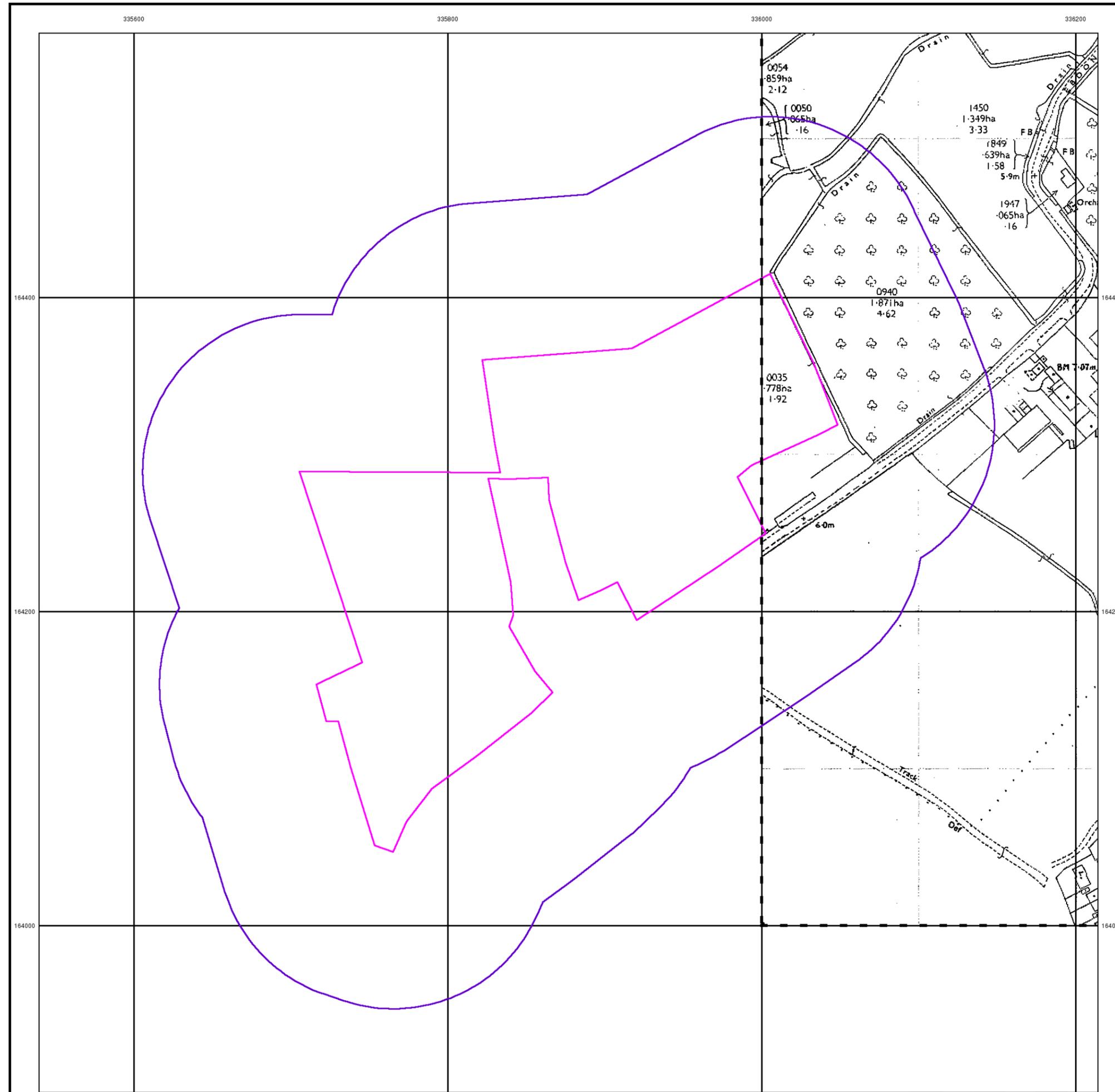
Order Number: 190967450\_1\_1  
Customer Ref: GCE00939  
National Grid Reference: 335860, 164250  
Slice: A  
Site Area (Ha): 5.07  
Search Buffer (m): 100

## Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA







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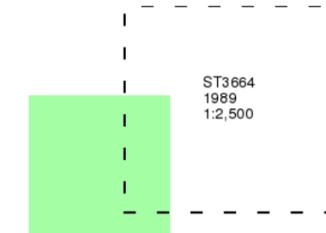
## Additional SIMs

Published 1989

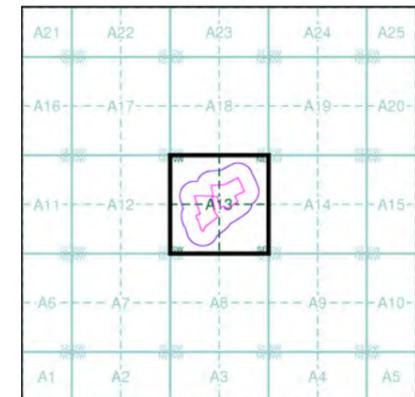
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

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



### Historical Map - Segment A13



### Order Details

Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA

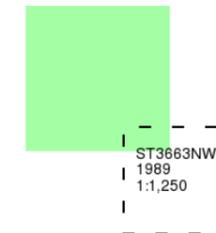
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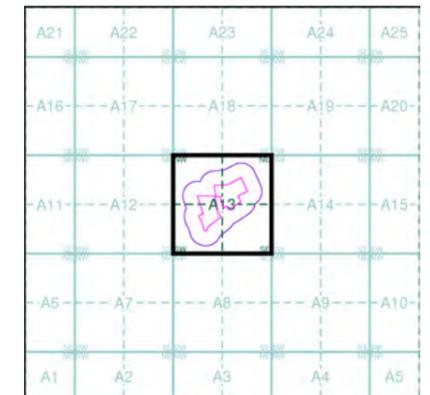
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

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



## Historical Map - Segment A13

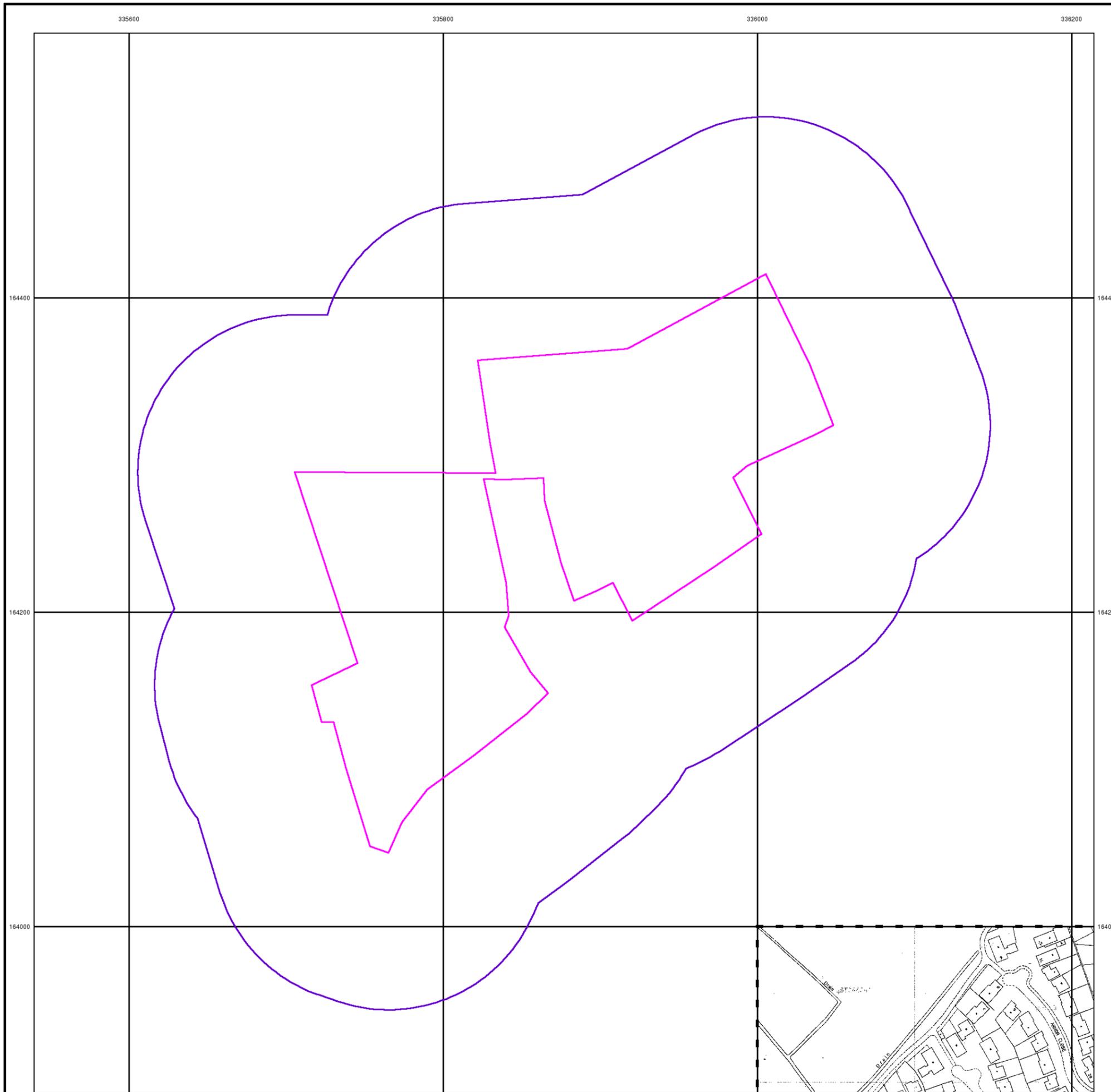


## Order Details

Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
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## Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA

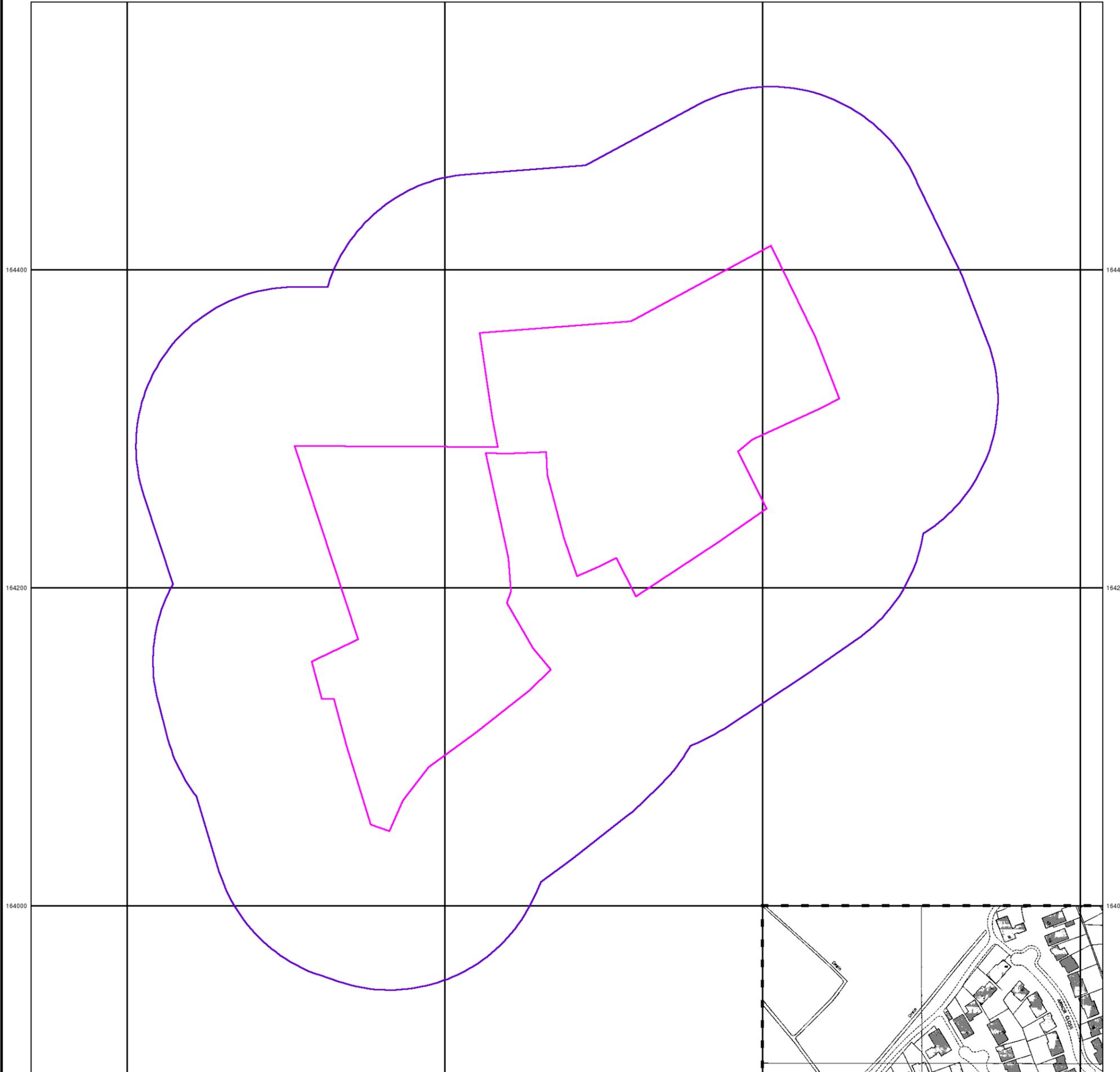


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335800

336000

336200



164400

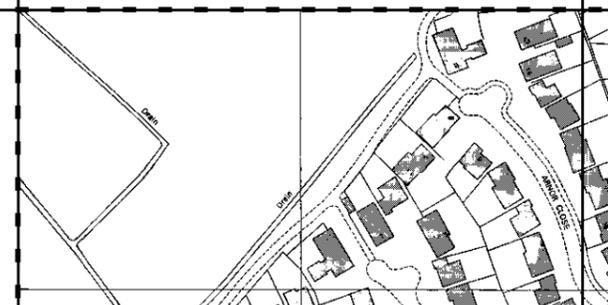
164400

164200

164200

164000

164000



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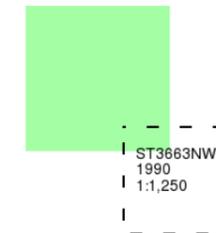
## Ordnance Survey Plan

Published 1990

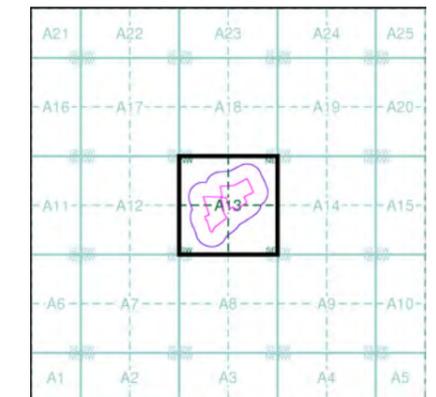
Source map scale - 1:1,250

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

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



### Historical Map - Segment A13



### Order Details

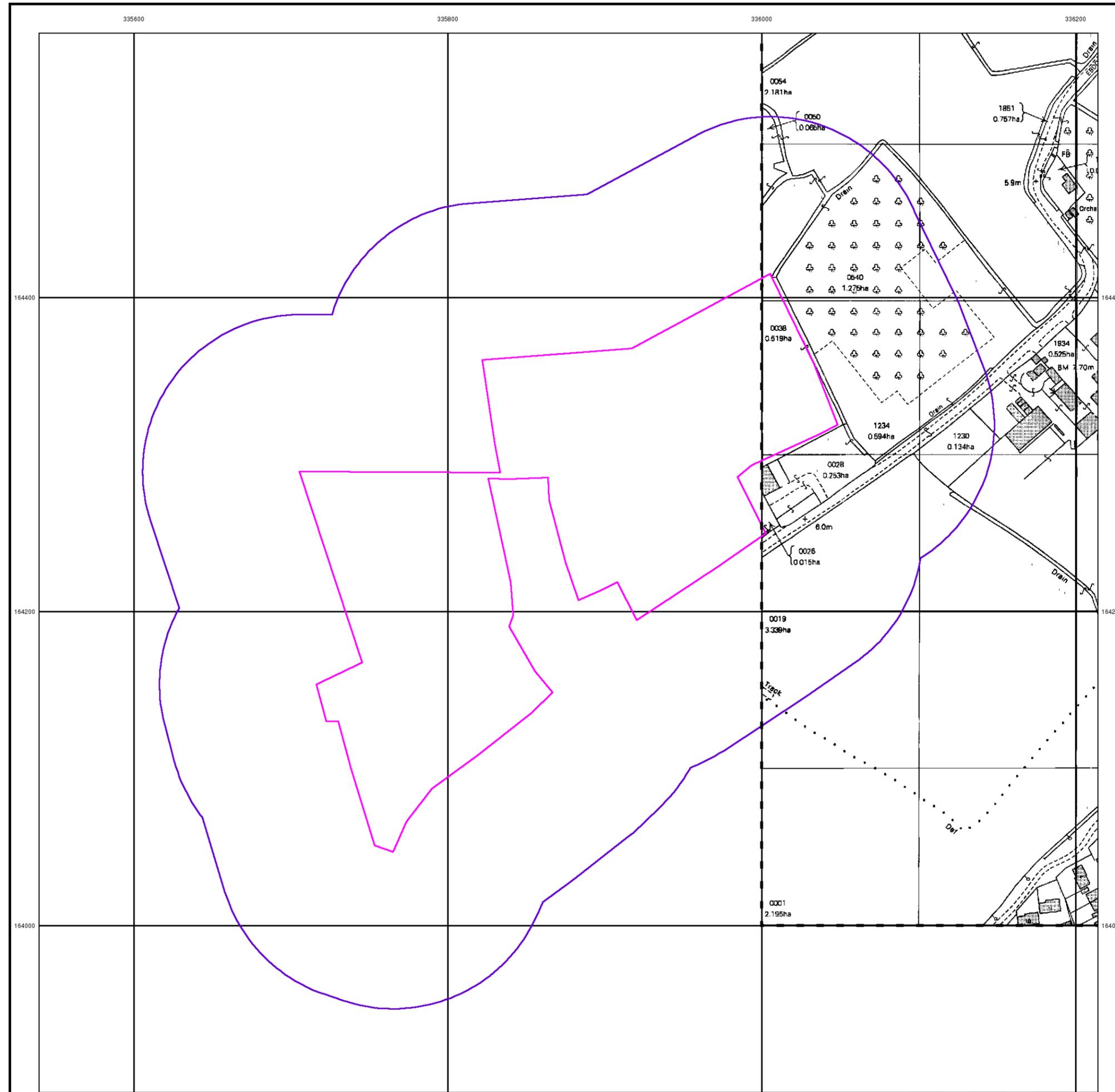
Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA

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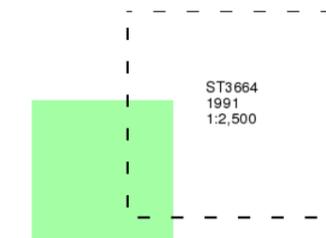
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0 100 m

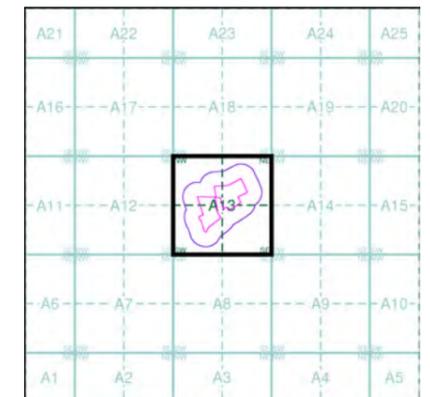
## Ordnance Survey Plan Published 1991 Source map scale - 1:2,500

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

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



### Historical Map - Segment A13



### Order Details

Order Number: 190967450\_1\_1  
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 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA

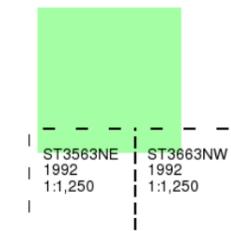
## Large-Scale National Grid Data

Published 1992

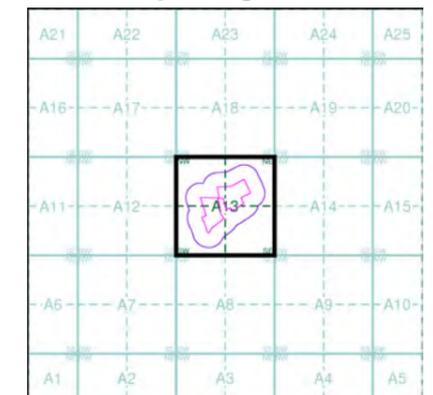
Source map scale - 1:1,250

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

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



### Historical Map - Segment A13

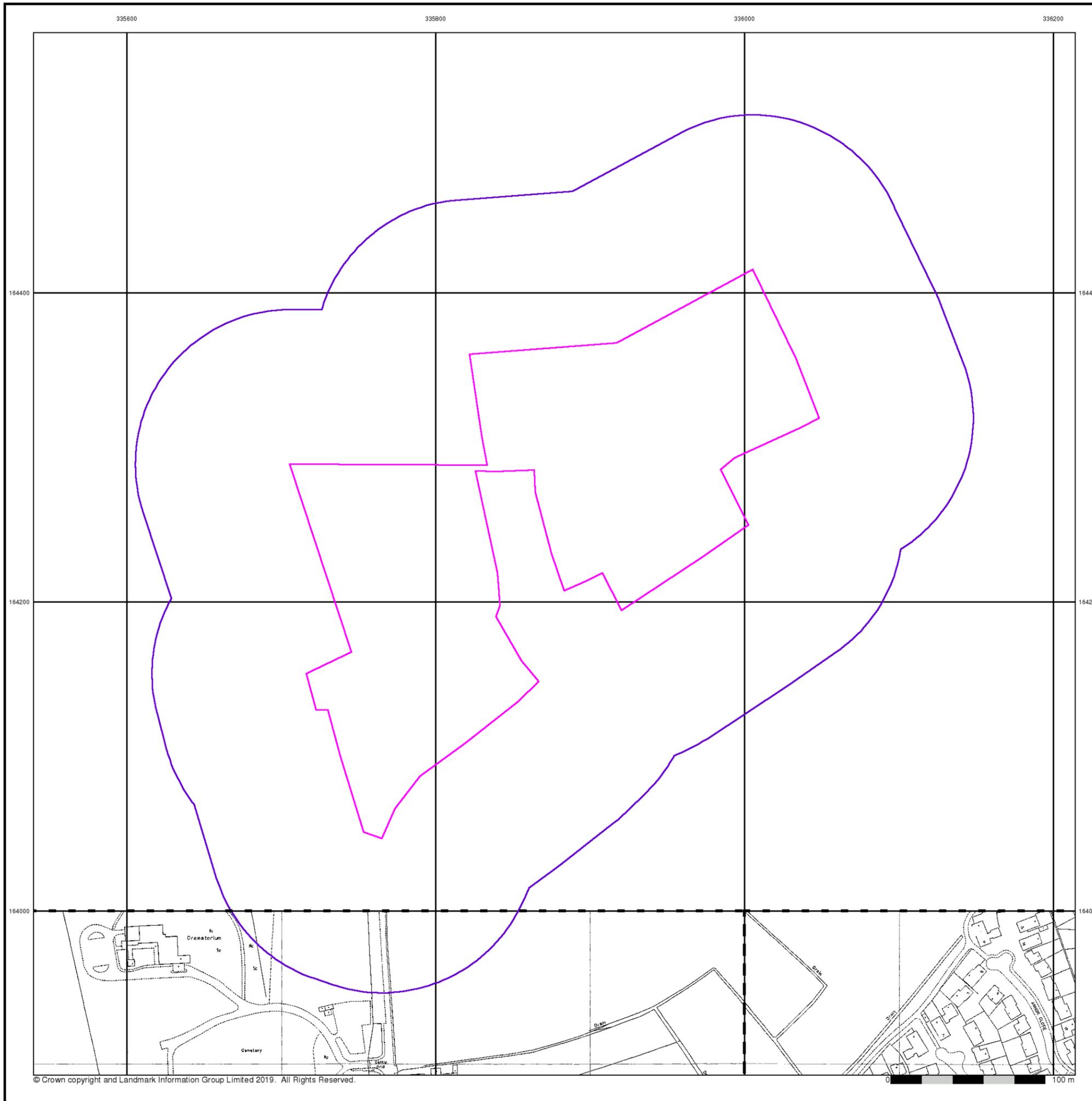


### Order Details

Order Number: 190967450\_1\_1  
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 National Grid Reference: 335860, 164250  
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 Site Area (Ha): 5.07  
 Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



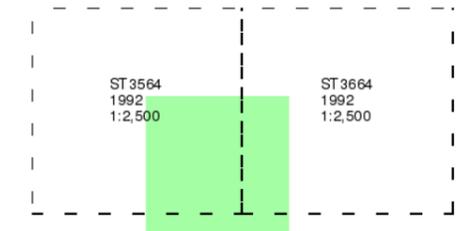
## Large-Scale National Grid Data

Published 1992

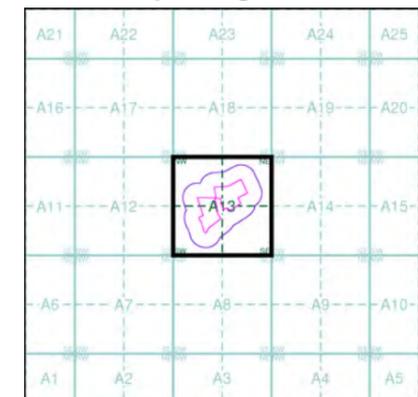
Source map scale - 1:2,500

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

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



### Historical Map - Segment A13

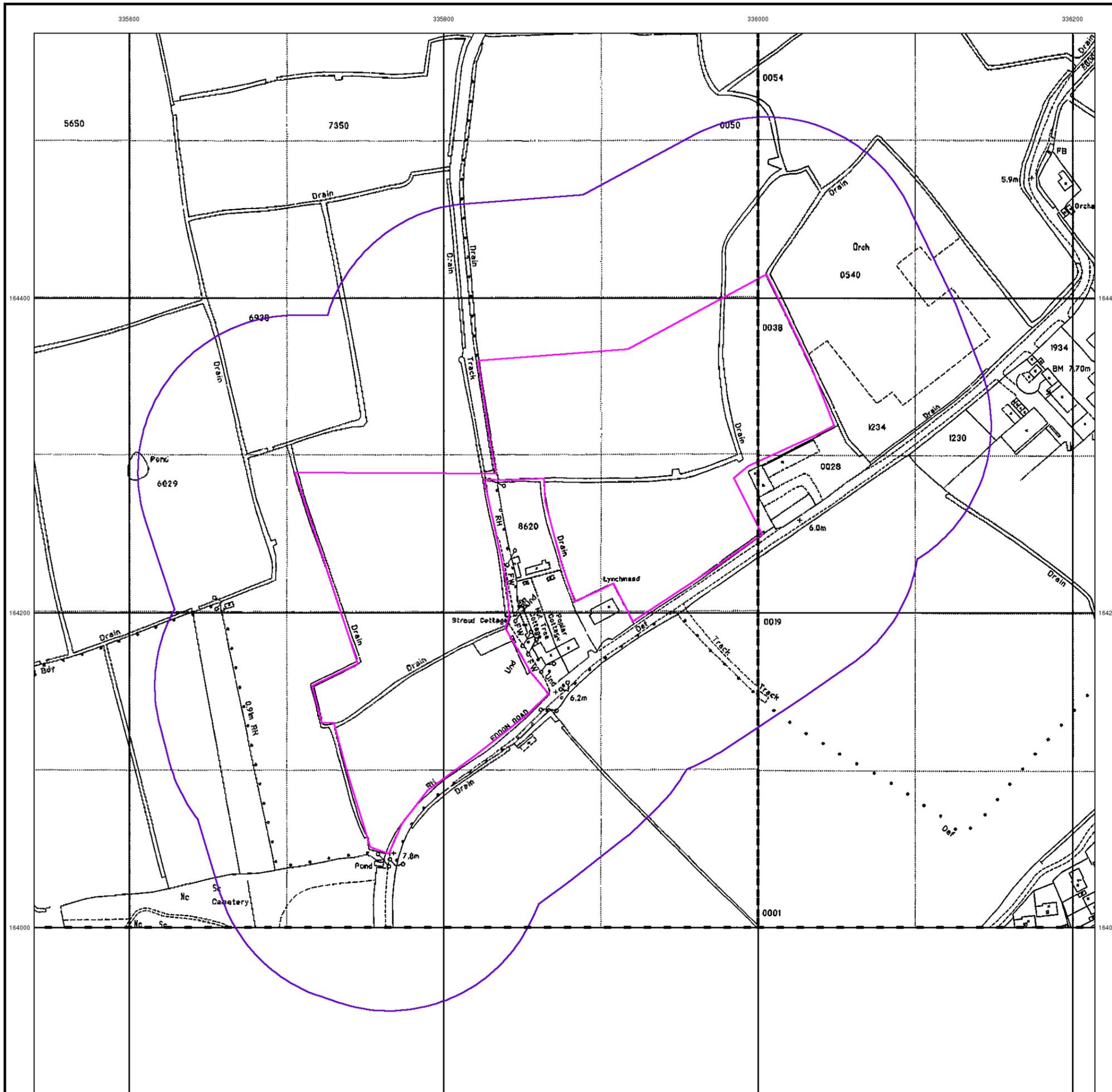


### Order Details

Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



## Large-Scale National Grid Data

Published 1994

Source map scale - 1:1,250

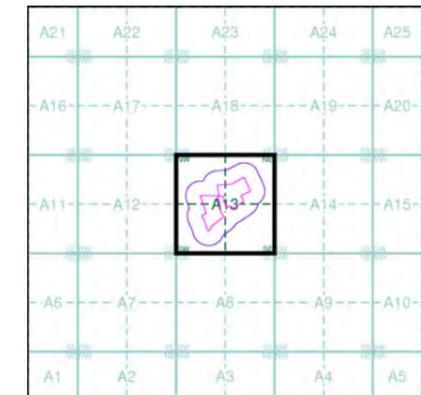
'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic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

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



ST3563NE  
1994  
1:1,250

### Historical Map - Segment A13

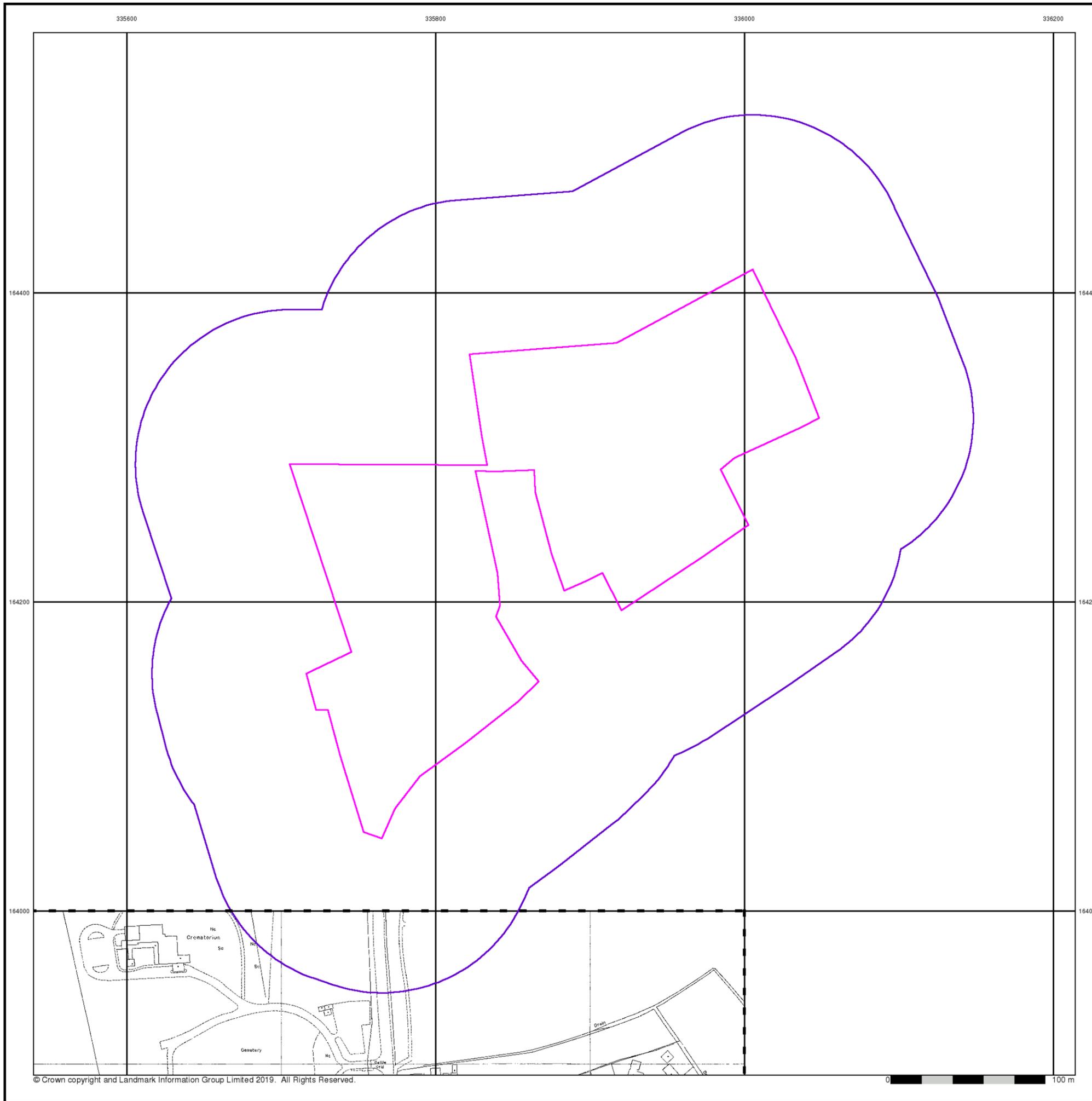


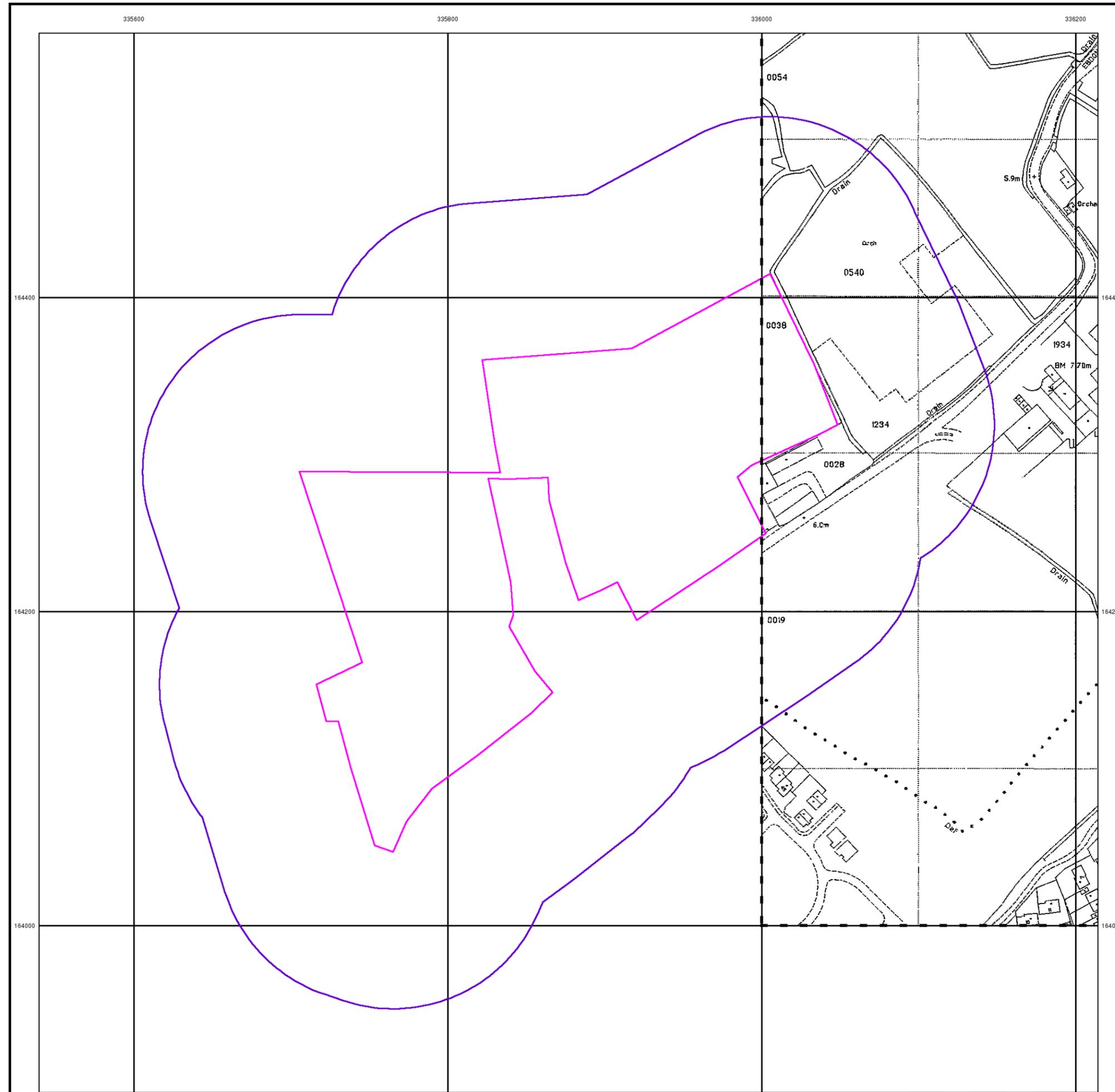
### Order Details

Order Number: 190967450\_1\_1  
Customer Ref: GCE00939  
National Grid Reference: 335860, 164250  
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Site Area (Ha): 5.07  
Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



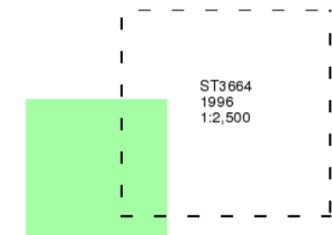


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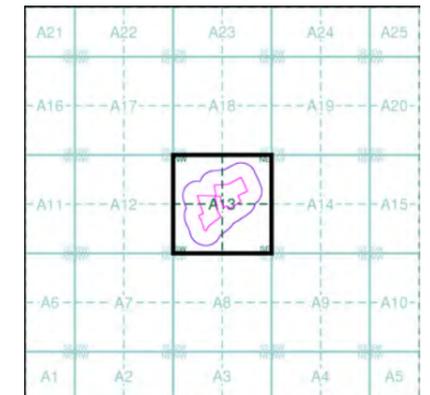
## Large-Scale National Grid Data Published 1996 Source map scale - 1:2,500

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

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



### Historical Map - Segment A13



### Order Details

Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA

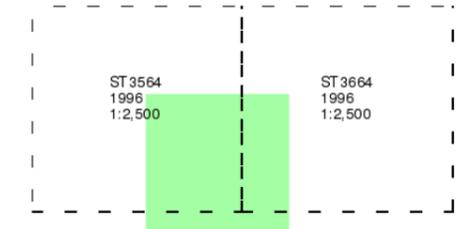
## Large-Scale National Grid Data

Published 1996

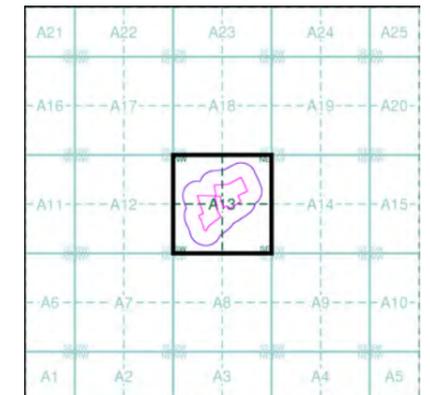
Source map scale - 1:2,500

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

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



### Historical Map - Segment A13

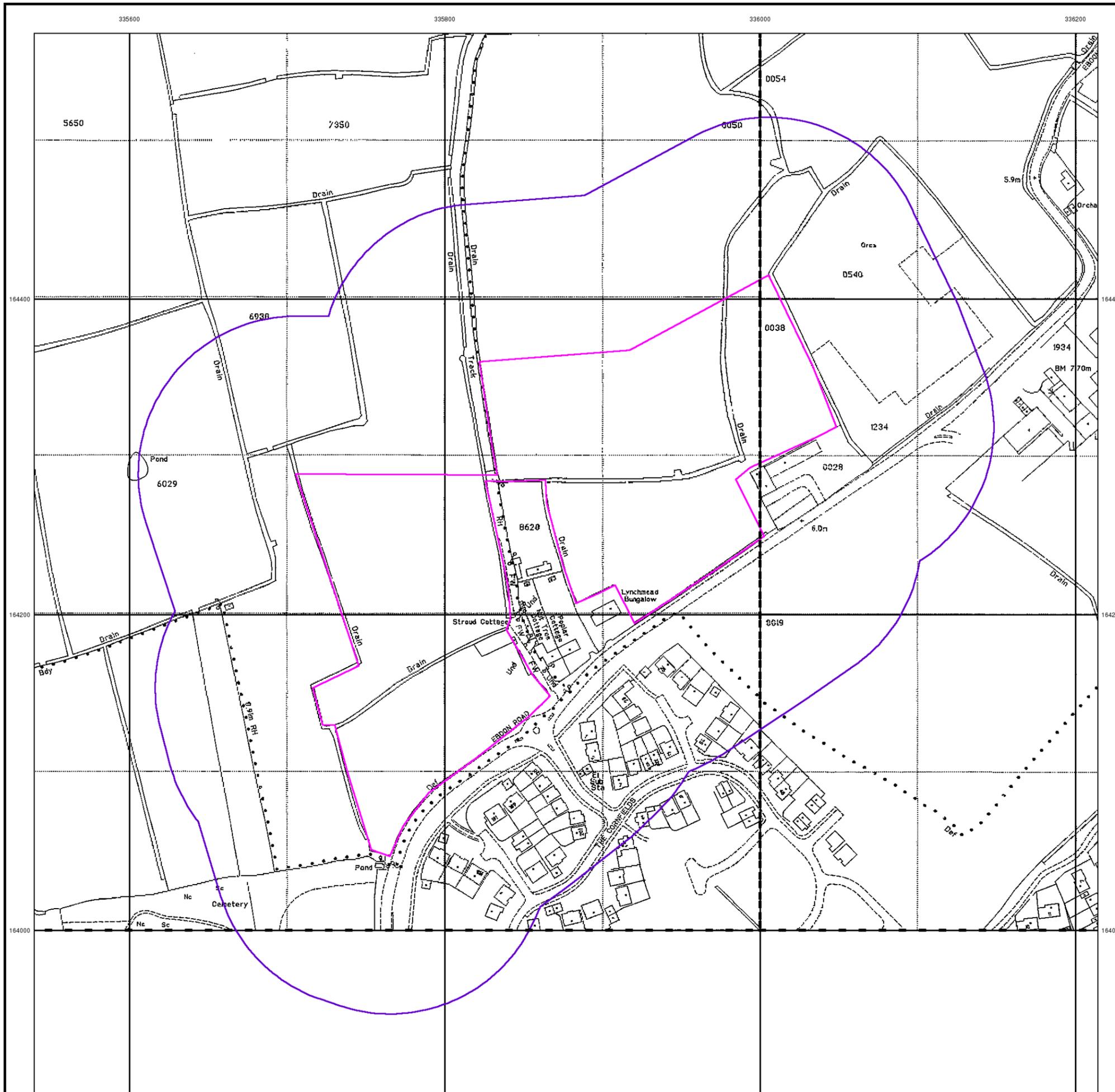


### Order Details

Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 100

### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



335600

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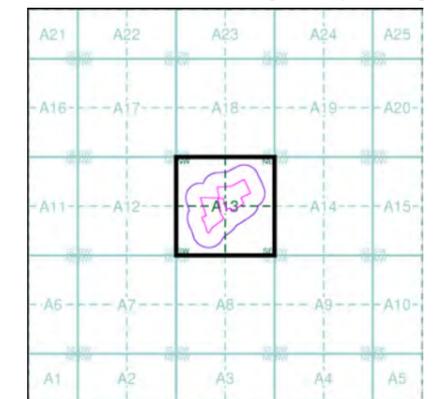
## Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain



### Historical Aerial Photography - Segment A13



### Order Details

Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
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### Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA

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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

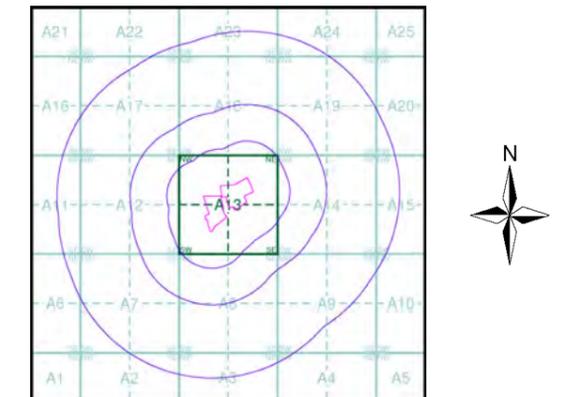
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## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Somerset	1:10,560	1884 - 1886	2
Somerset	1:10,560	1903 - 1904	3
Somerset	1:10,560	1932	4
Somerset	1:10,560	1938 - 1939	5
Ordnance Survey Plan	1:10,000	1961 - 1963	6
Ordnance Survey Plan	1:10,000	1974 - 1977	7
Ordnance Survey Plan	1:10,000	1983 - 1989	8
Ordnance Survey Plan	1:10,000	1990 - 1991	9
10K Raster Mapping	1:10,000	1999	10
10K Raster Mapping	1:10,000	2006	11
VectorMap Local	1:10,000	2018	12

## Historical Map - Slice A



## Order Details

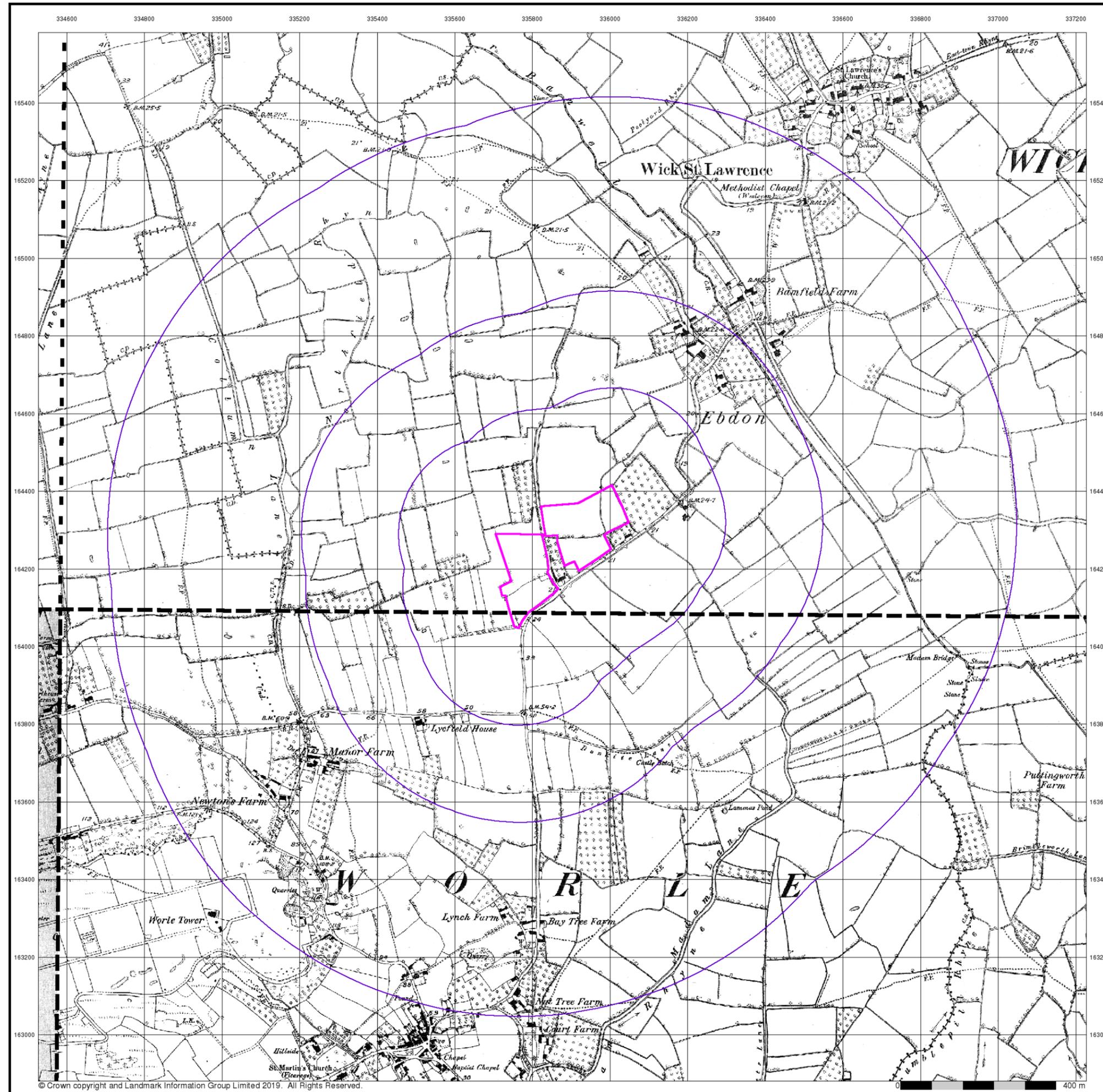
Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 1000

## Site Details

Ebdon Road, WESTON-SUPER-MARE, BS22 6UA

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 Web: www.envirocheck.co.uk



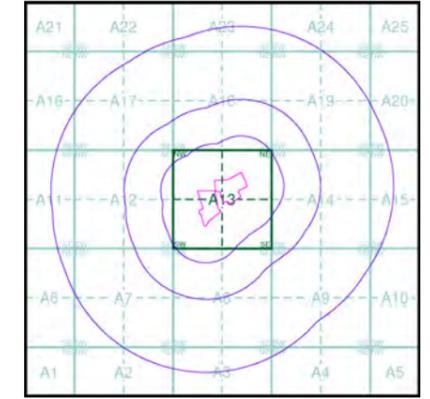
**Somerset**  
**Published 1884 - 1886**  
**Source map scale - 1:10,560**

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)**

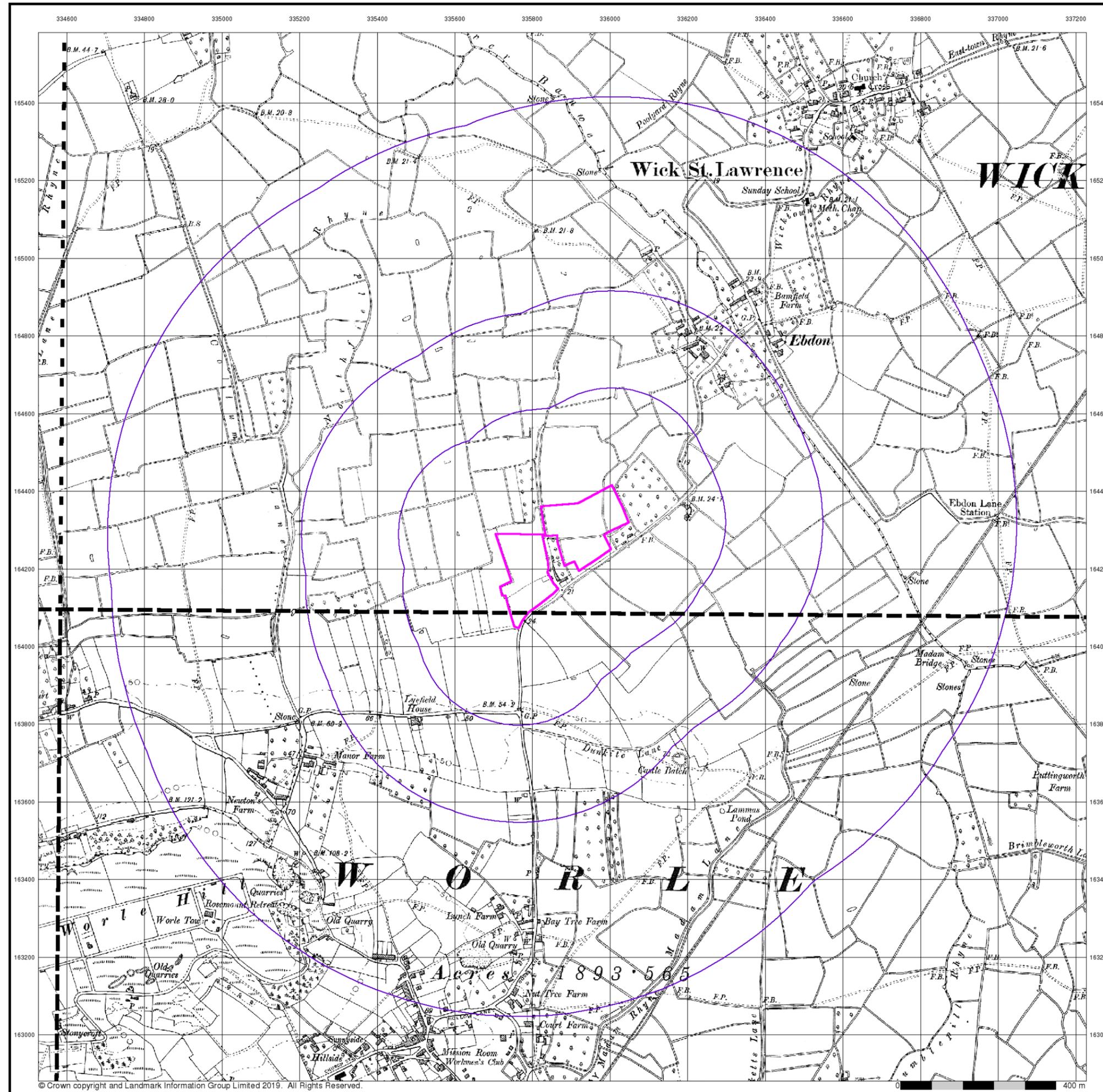
009NE 1884 1:10,560	010NW 1884 1:10,560
009SE 1886 1:10,560	010SW 1884 1:10,560

**Historical Map - Slice A**



**Order Details**  
 Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
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**Site Details**  
 Ebdon Road, WESTON-SUPER-MARE, BS22 6UA



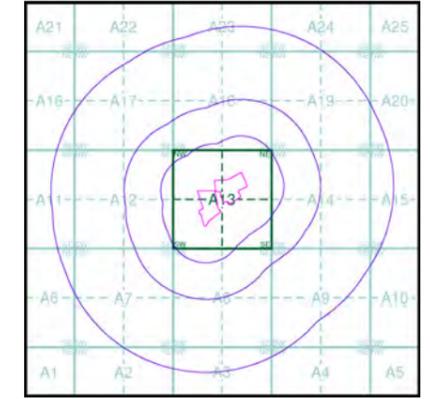
**Somerset**  
**Published 1903 - 1904**  
**Source map scale - 1:10,560**

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)**

009NE 1904 1:10,560	010NW 1903 1:10,560
009SE 1904 1:10,560	010SW 1904 1:10,560

**Historical Map - Slice A**

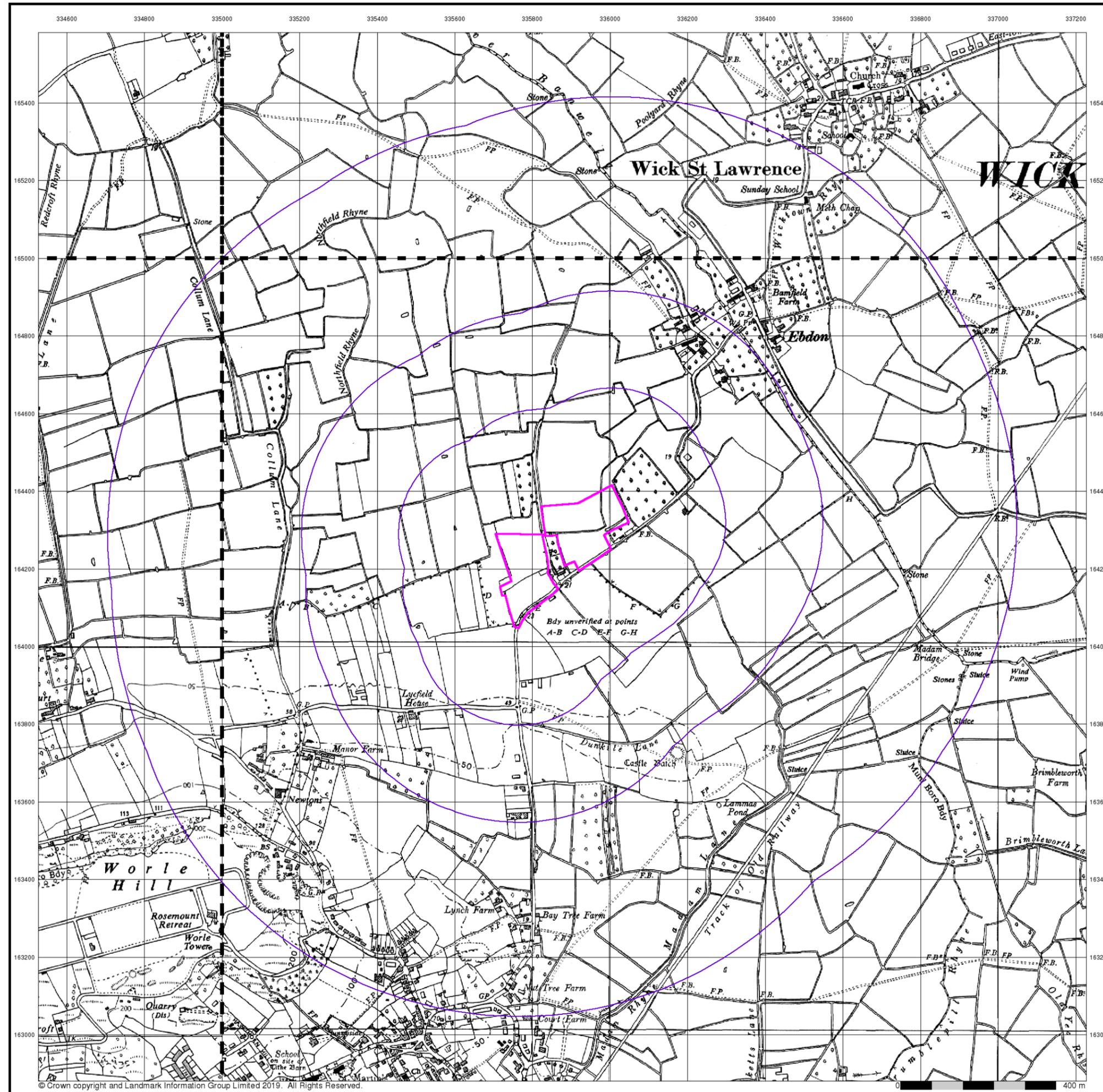


**Order Details**  
 Order Number: 190967450\_1\_1  
 Customer Ref: GCE00939  
 National Grid Reference: 335860, 164250  
 Slice: A  
 Site Area (Ha): 5.07  
 Search Buffer (m): 1000

**Site Details**  
 Ebdon Road, WESTON-SUPER-MARE, BS22 6UA







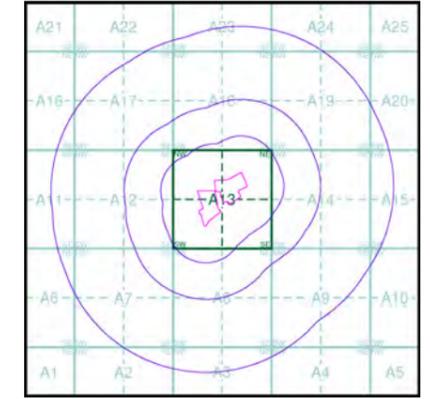
## Ordnance Survey Plan Published 1961 - 1963 Source map scale - 1:10,000

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)

ST36NW 1961 1:10,560	ST36NE 1962 1:10,560
ST36SW 1963 1:10,560	ST36SE 1962 1:10,560

### Historical Map - Slice A

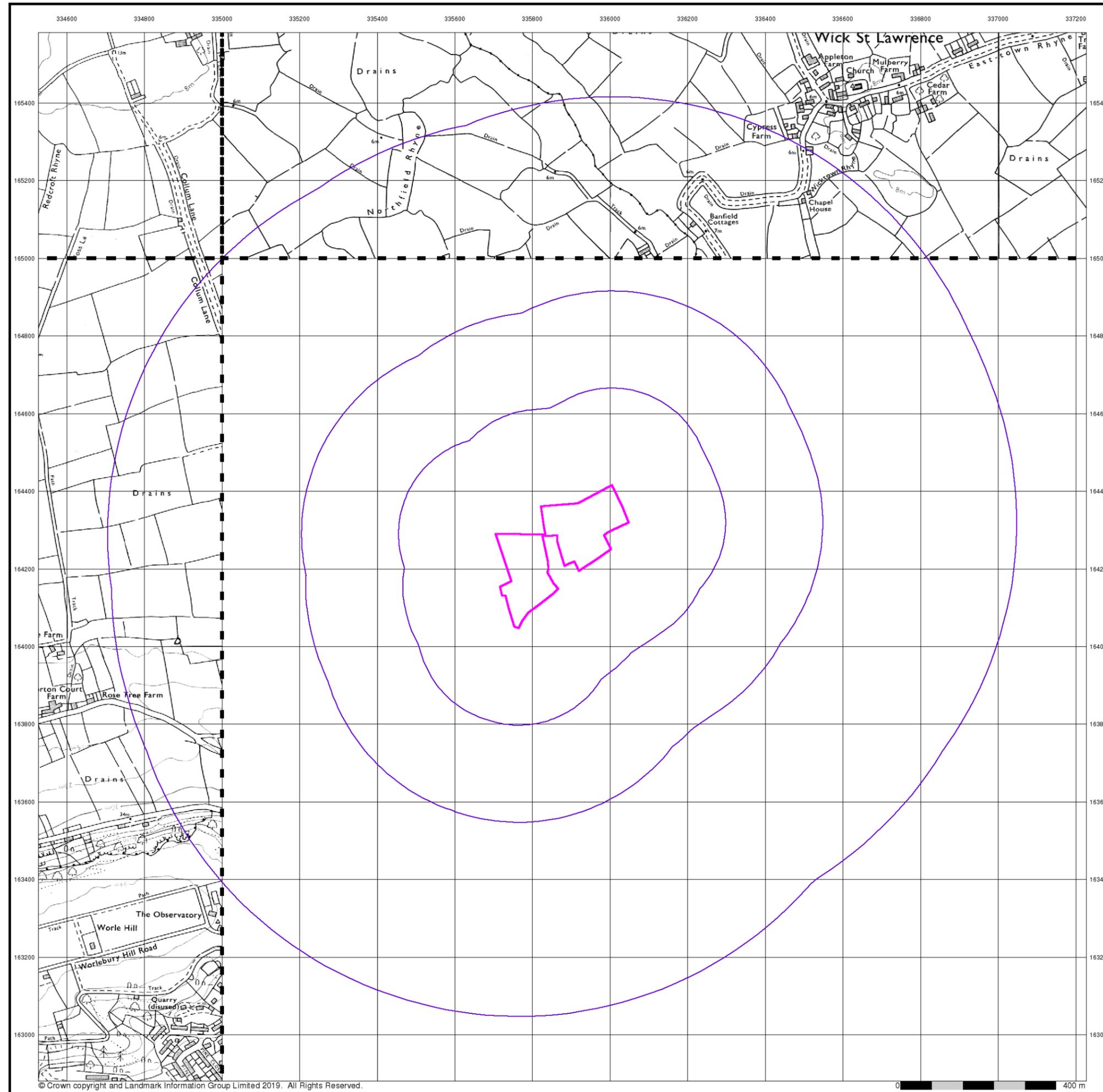


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## Ordnance Survey Plan

Published 1974 - 1977

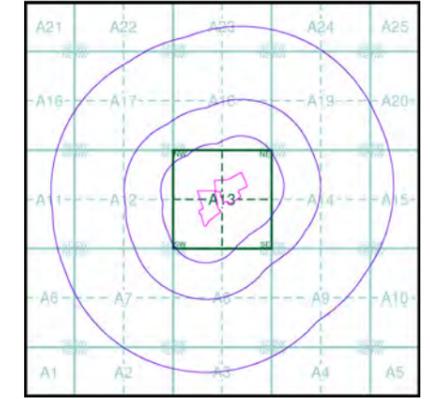
Source map scale - 1:10,000

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)

ST36NW	1974	1:10,000
ST36NE	1977	1:10,000
ST36SW	1975	1:10,000

### Historical Map - Slice A

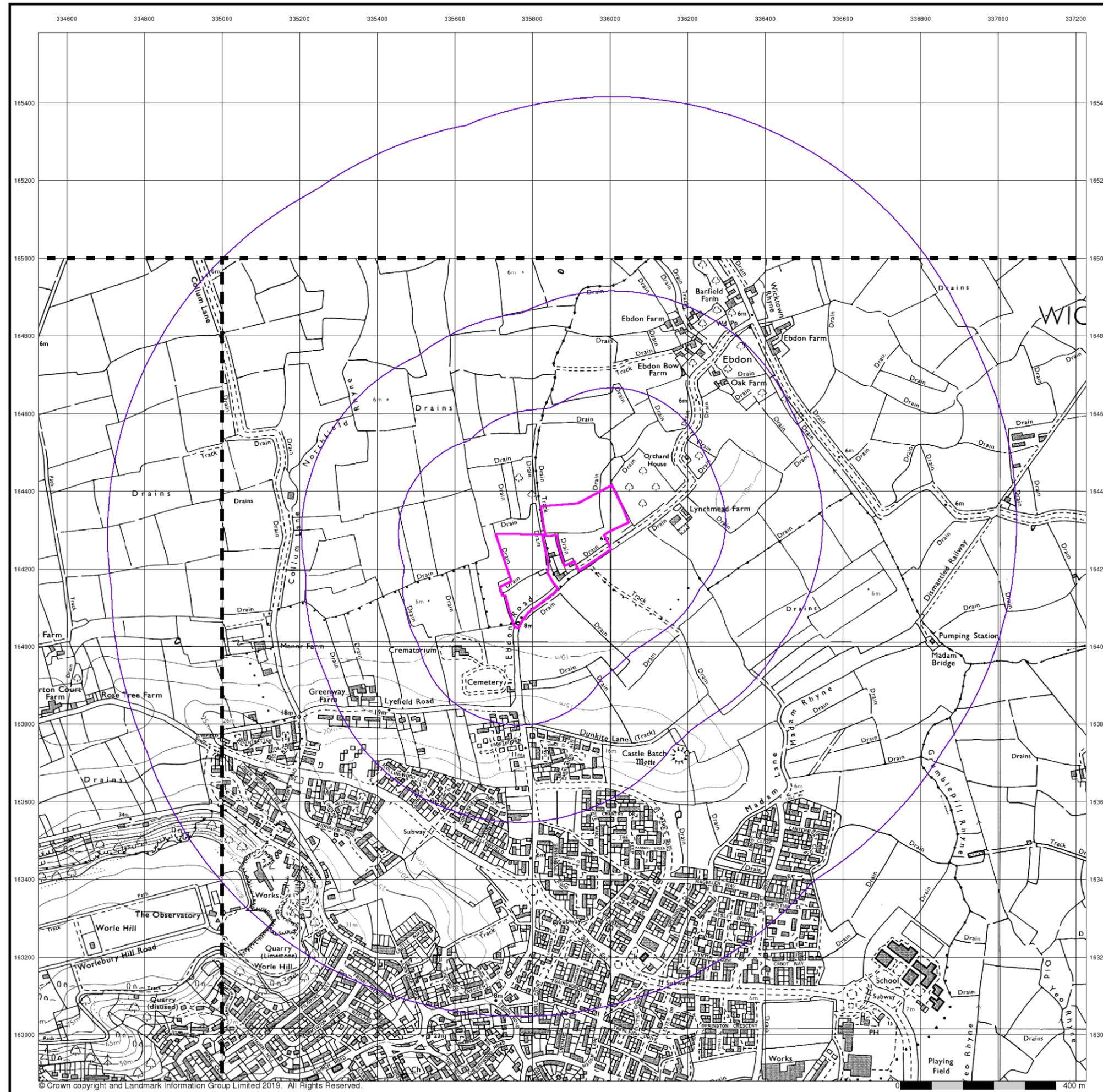


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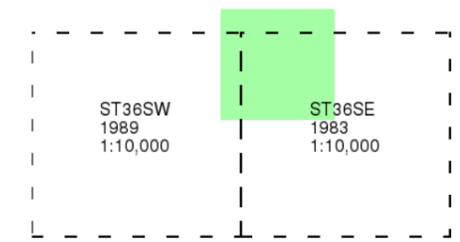


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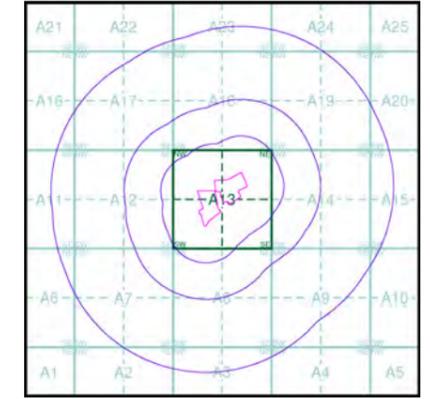
## Ordnance Survey Plan Published 1983 - 1989 Source map scale - 1:10,000

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

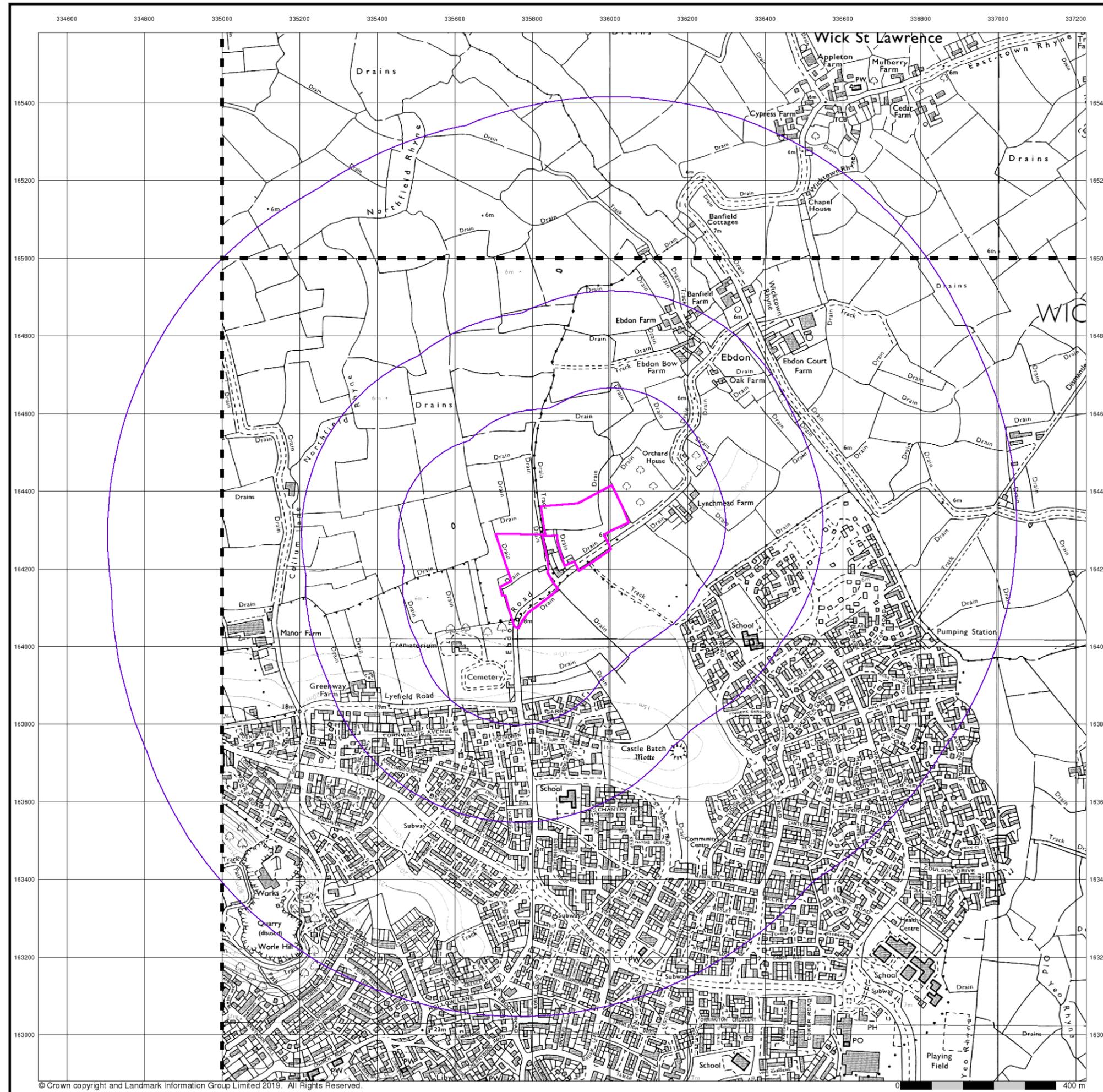


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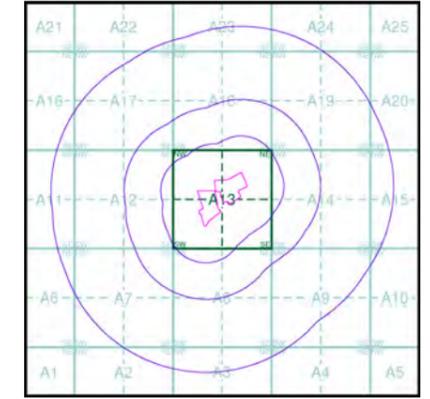
## Ordnance Survey Plan Published 1990 - 1991 Source map scale - 1:10,000

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)

ST36NE	1991	1:10,000
ST36SE	1990	1:10,000

### Historical Map - Slice A



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