Gladman Developments Limited

Fryatts Way, Bexhill, TN39 4LW

Phase 1 Preliminary Risk Assessment (PRA)

305127 R01 (00)

NOVEMBER 2019

RSK GENERAL NOTES

Project No.: 315126 R01 (00)

Title: Phase 1 Preliminary Risk Assessment: Fryatts Way, Bexhill, TN39 4LW

Client: Gladman Developments Limited, Gladman House, Alexandra Way, Congleton Business Park, Congleton, Cheshire CW12 1LB.

Date: November 2019

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Status: Final

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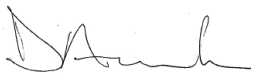
Signature		Signature	
Date:	18th November 2019	Date:	19th November 2019
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Date:	19th November 2019	Date:	20th November 2019

Revision control sheet

Revision reference	Date	Reason for revision
Rev 00	November 2019	First issue

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EXECUTIVE SUMMARY

Commissioning and purpose of assessment	RSK Environment Limited (RSK) was commissioned by Gladman Developments Limited to carry out a Phase I Preliminary Risk Assessment of the land at Fryatts Way, Bexhill The overall aim of the project was to assess potential land contamination sources.
Site description and proposed development	The site currently comprises grazing land for horses / agricultural land and is being considered for development for residential use.
History of site and surrounding area	The site was formerly used for agricultural proposes. Potential sources of contamination identified on-site comprise agricultural uses, Made Ground associated with a former building, an infilled pond and a historical landfill.
Previous site investigation (SI) reports	There are no previous SI reports available.
Geology and environmental setting	The site is indicated to be underlain by Tunbridge Wells Sand Formation comprising of Siltstone, Mudstone and Sandstone. The Tunbridge Wells Sand Formation is a Secondary A aquifer. No groundwater abstraction licences are within 1 km of site and the site is not located within a groundwater Source Protection Zone. The nearest surface water feature comprises a number of drainage ditches located along the site boundary and centre of the site.
Site reconnaissance findings	No potentially significant land contamination were identified during the site reconnaissance survey.
Initial conceptual site model (CSM) and preliminary risk assessment (PRA)	Potentially complete contaminant linkages identified with a risk estimate of moderate to low or above include agricultural uses and Made Ground associated with a former building, infilling of a pond and historical landfill. Uncertainties and data gaps have been identified in the CSM at desk study stage.
The information given in this summary is necessarily incomplete and is provided for initial briefing purposes only. The summary must not be used as a substitute for the full text of the report.	

1 INTRODUCTION

1.1 Commissioning

RSK Environment Limited (RSK) was commissioned by Gladman Developments Limited to carry out a Phase 1 Preliminary Risk Assessment of the land at Fryatts Way, Bexhill, TN39 4LW. The project was carried out to an agreed brief as set out in RSK's proposal (305127 T01 (00), 16th October 2019).

This report is subject to the RSK service constraints given in **Appendix A** and limitations that may be described through this document.

1.2 Proposed development

It is understood that the Site in question is being considered for development for residential end use. At the time of reporting no proposed development plan had been provided to RSK.

1.3 Objectives

The objectives of the work is to:

- Examine whether there have been potentially contaminative uses on the site or nearby land;
- Develop an initial conceptual model;
- Use desk-based information regarding ground conditions to qualitatively assess risks to end-users and the environment in relation to end use proposals; and
- Make recommendations, where appropriate, for the proposed scope of Phase II in-trusive site works.

1.4 Scope of works

The scope of this assessment has been developed in accordance with relevant British Standards and authoritative technical guidance as referenced through the report. The assessment of the contamination status of the site is in line with the technical approach presented in CLR 11 Model Procedures for the Management of Land Contamination (Environment Agency, 2004) and in general accordance with BS 10175: 2011 + A2 2017 (BSI, 2017). It is also compliant with relevant planning policy and guidance.

A brief summary of relevant legislation and policy relating to land contamination is given in **Appendix B**.

The scope of works for the assessment has included the following:

- Review of the history of development on the site and surroundings, including a study of historical ordnance Survey mapping and other sources of historical information via an environmental database report;

- An assessment of local geology, hydrogeology and surface water setting, including the identification of potential geological hazards including mining and radon;
- A review of relevant information held by appropriate statutory authorities, e.g. local authority Environmental Health Departments and Environment Agency, obtained from the environmental database report and consultations;
- A site reconnaissance survey to assess the visual condition of the site;
- A conceptual site model (CSM) identifying potential contaminant linkages for potential contaminants;
- An assessment of the environmental risks and liabilities associated with site ownership; and,
- Recommendations for further investigations, if required.

1.5 Existing reports

No existing reports relevant to the site assessment have been provided to RSK.

1.6 Limitations

The study aims principally to identify and assess the potential risks and liabilities associated with contamination of the ground, on and in the vicinity of the site. While this includes consideration of current operations and housekeeping on the site, the report does not constitute a comprehensive environmental audit of the site, as covered under ISO 14001.

The study was designed generally to meet the objectives of a preliminary (phase 1) investigation, as defined by BS 10175:2011 (BSI, 2017).

This report should be considered in the light of any changes in legislation, statutory requirement or industry practices that have occurred subsequent to the date of issue.

The "vicinity" of the site for the purposes of this report is defined as locations situated within an approximate 250 m radius of the site, although certain sources and/or sensitive targets further than 250 m may also have been considered.

The opinions expressed in this report, and the comments and recommendations given, are based on the information obtained from the desk assessment and the site reconnaissance survey. No intrusive investigations have been undertaken to confirm the actual ground conditions and hence the environmental status of the site.

2 SITE DETAILS

2.1 Site location

Site location details are presented in **Table 1** and a site location plan is provided on Figure 1.

Table 1 Site location details

Site name	Fryatts Way
Full site address and postcode	Fryatts Way, Bexhill, TN39 4LW
National Grid reference (centre of site)	572490, 108720

2.2 Surrounding land uses

The Site is located in Bexhill, within a predominantly residential setting. Immediate surrounding land uses are described in **Table 2**.

Table 2 Surrounding land uses

North	Highwoods Golf Course.
East	Fryatts Way and residential properties.
South	Agricultural field and Deerswood Lane and residential properties beyond.
West	Broad Oak Park and Highwoods Golf Course.

2.3 Development plans

The Site is being considered for residential development. At the time of reporting no proposed development plan has been provided. It has been assumed that the development will include traditional low-rise housing.

No details of the proposed ground levels have been provided therefore for the purpose of this report it has been assumed that the current levels will remain unchanged.

3 SITE RECONNAISSANCE FINDINGS

A site reconnaissance survey was completed on 14th November 2019 by RSK. The characteristics of the site observed during the walkover and from current ordnance Survey maps are summarised in **Table 3**.

A site layout plan is provided in **Figure 2** with photographic records included in Appendix D detailing the main features identified in **Table 3** below.

Whilst the walkover summary includes consideration of current operations and housekeeping on the site as potential sources of contamination, it does not constitute a comprehensive environmental audit of the site, as covered under ISO 14001.

Table 3 Site reconnaissance findings

Feature	Description
Physical characteristics	
Access constraints	Vehicle access is located on the eastern boundary from Fryatts Way, through two locked gates (Appendix D Photo 1). Private pedestrian access is located on the north eastern boundary from a residential property.
Site topography	The eastern portion of site is elevated, slopping down gradient to the west in a gentle to moderate manner (Appendix D Photo 2 and 3).
Surface cover	The ground is predominantly open grassy fields with trees and shrubbery located around the field parcels (Appendix D Photo 2).
Site drainage	A probable drain cover was identified adjacent the vehicle entrance on the eastern boundary (Appendix D Photo 1). No other drain covers were identified on site. Several areas of the site were waterlogged, in particular the western portion of the site (down gradient) (Appendix D Photo 3). A small area of saturated ground was observed adjacent the southern boundary of site, approx. 5m across. (Appendix D photo 6). However, it is noted heavy rain had occurred during the day of the site walk over.
Surface water	Drainage ditches were identified along the site edge and running down the centre of the site, in an east to west direction (Appendix D Photo 4). At the time of the site walkover predominantly the drainage ditches in the west of the site contained running water. No evidence of visual contamination was observed on the water. Other than the drainage ditches noted above there were no streams or surface water bodies on or adjacent to the site.
Trees and hedges	Established trees and hedges were located around the field parcels. (Appendix D Photo 5).

Feature	Description
Invasive species	Based upon the walkover survey obvious evidence of Japanese Knotweed or other invasive species has not been identified on-site. However, it should be noted that a detailed survey of the possible presence or absence of invasive species is outside of the scope of investigation and consideration should be given to commissioning a specialist survey, as necessary.
Existing buildings on-site	No buildings are present on-site.
Retaining walls and adjacent buildings on or close to site boundary	There are no such structures on or close to the site boundary.
Made ground, earthworks and quarrying	None observed.
Potentially unstable slopes on or close to site	None observed.
Buried and overhead services present	Electric fencing was present between the parcels of land. The electricity was supplied from a 12v battery (noted as a Farmer A3000 battery). (Appendix D Photo 7).
Environmental characteristics	
Underground/ above ground storage tanks and pipework	None observed.
Potentially hazardous materials storage and use	None observed.
Asbestos-containing materials	No obvious asbestos construction materials were observed.
Waste storage	None observed.
Fly-tipping	None observed.
Electricity sub-stations/ transformers	None observed on or close to site.
Evidence of possible land contamination on-site	None observed.
Potential off-site sources of ground contamination	None observed.

No potentially significant land contamination or geotechnical issues were identified during the site reconnaissance survey.

4 DESK-BASED ASSESSMENT

4.1 Site history

4.1.1 Historical development record

The development history of the site and surrounding area based upon assessment of historical plans and records is detailed in **Table 4**. The historical maps reviewed are shown within the environmental database report in **Appendix C**.

Table 4 Summary of historical development

Date from	Date to	Historical Land Use (on-site)	Area of site
1875	Present	Agricultural Fields	Entire site
1899	2000	Pond	South
1961	Circa 1987	Building (piggery)	South East corner
Date from	**Date to**	**Historical Land Use (off-site)**	**Distance (m) and orientation**
1930	Present	Highwood Golf Course	Adj. North
1954	Present	Pond	10 m South West
1982	Present	Fryatts Way	Adj. East
Relevant information sources: Historical OS maps ☒ Information from the Local Planning Authority ☐			
Note: Reference to published historical maps provides invaluable information regarding the land use history of the site, but historical evidence may be incomplete for the period pre-dating the first edition and between successive maps.			

4.1.2 Unexploded ordnance

A review of publicly available unexploded ordnance (UXO) risk maps indicates that the site is located in a medium risk area with respect for wartime bombs (Zetica, 2019). Further assessment may be required prior to intrusive works at the site.

4.2 Information from environmental database report

Relevant environmental permits and incidents detailed within the environmental database report (see **Appendix C**) are summarised overleaf in **Table 5**.

Table 5 Summary of environmental permits, landfills and incidents

Data type	Entries on-site	Entries <250m from site	Details
Agency and hydrological			
Environmental permits – incorporating Integrated Pollution Prevention and Control, Integrated Pollution Controls, Local Authority Integrated Pollution Prevention and Control	0	0	-
Enforcement and prohibition notices	0	0	-
Pollution incidents to controlled waters, ,	0	0	-
Prosecutions relating to controlled waters	0	0	-
Substantiated pollution incident register	0	0	-
Water Industry Act referrals	0	0	-
Discharge consents	0	3	Nearest consent is located 233 m north for Southern Water Services Limited for sewage discharges. Issued 22nd May 2003. Revocation date unknown.
Registered radioactive substances	0	0	-
Landfill and waste			
Active landfills	0	1	Landfill record located 85m south east on Fryatts Way for East Sussex County Council. Waste type: unknown.
Historic/closed landfills	1	0	Landfill record located in south east of site between 1983 and 1987. Waste type: deposited waste included inert waste.
Other waste management licences	0	0	-

Data type	Entries on-site	Entries <250m from site	Details
Hazardous substances/industrial land uses			
Control of Major Accident Hazards (COMAH) sites	0	0	-
Explosives sites, Notification of Installations Handling Hazardous Substances (NIHHS)	0	0	-
Planning hazardous substance consents/ enforcements	0	0	-
Industrial Land Uses			
Contaminated land Part 2A register entries and notices	0	0	-
Contemporary trade directory entries	0	1	Merry Maids (cleaning services) is located 21 m east.
Fuel station entries	0	0	-
Note: Entries have only been included within the table where they are located within a 250 m radius of the site or, where they fall outside of this radius but are considered to comprise a significant entry.			

In summary, items that have been identified to represent an on-going potential source of contamination that could affect the site comprise:

- Historical landfill located on site;
- Piggery in south west corner; and
- Active landfill noted 85 m south east of site.

These entries have been carried forward for consideration within the initial conceptual site model contained in Section 6.

4.3 Information from regulatory authorities

4.3.1 Planning records

No planning records pertaining to the site can be found in the online planning portal for Rother District Council.

4.3.2 Local Authority environmental health department information

The Environmental Health Department of Rother District Council were contacted regarding any records the council hold on contamination in connection with the site. At the time off issue of this report no response had been received, The report will or addendum letter be updated following on from their response if warranted.

4.3.3 Site services

Obtaining a full set of service plans was outside the scope of this report, however, no services were noted within the site during the walkover with the exception of the drain cover at the eastern entrance to the site.

4.4 Summary of previous investigations

At the time of reporting, no previous investigation reports, have been provided to RSK to review.

4.5 Site geology

4.5.1 Anticipated geological sequence

Published records (British Geological Survey, 2019.) for the area indicate the geology of the site to be characterised by the succession recorded in **Table 6**. There are no publicly available BGS historical boreholes located on or within 500 m of the site.

Table 6 Site geology

Strata	Description	Estimated thickness	Aquifer Designation
Tunbridge Wells Sand Formation	Siltstone, Mudstone and Sandstone	Between 46 m – 122 m	Secondary A
Relevant information sources: BGS Geoindex ☒ Envirocheck Report ☒			

4.5.2 Radon

The environmental database report provides an assessment of site-specific radon risk. The report indicates that the site is located within an intermediate probability radon area of <1 %. No radon protective measures are required within new buildings at the site.

4.6 Mining and quarrying

Evidence has been sought to identify any mining, quarrying, landfilling and land reclamation operations, past and present, which have taken place within 500 m of the site.

4.6.1 Coal mining area

The site lies outside the Coal Authority Consultation Area and is not located within a coalfield area.

4.6.2 Areas of other (rock or mineral) mining

No BGS recorded mineral sites or manmade mining cavities are recorded within the Envirocheck report within 1 km of the site, although historical mining activities may have resulted in unrecorded mines.

4.7 Hydrogeology

A summary of the hydrogeological setting of the site, with respect to the anticipated geological sequence set out in Section 3.5 is presented below in **Table 7**.

Table 7 Summary of hydrogeological setting

Condition	Description
Aquifer characteristics	The site is underlain by a Secondary A aquifer relating to the Tunbridge Wells Sand Formation.
Depth to groundwater and flow	No information available as to likely groundwater depth. The site is located approximately 2 km north of the coast and regional groundwater flow is likely to be towards the south.
Rising groundwater levels	The environmental database report records the site as having a limited potential for groundwater flooding.
Groundwater recharge/ attenuation	Most of the site is currently unsurfaced and will therefore drain to ground.
Licensed groundwater abstractions	The environmental database report indicates that there are no groundwater abstractions within a 1 km radius of the site.
Source protection zones	Information available in the Envirocheck report indicates that the site does not lie within a currently designated groundwater Source Protection Zone (SPZ).

4.8 Hydrology

A summary of the hydrology within the site area is summarised in **Table 8**.

Table 8 Summary of hydrology in site area

Condition	Description
Surface watercourses/ features	There are drainage ditches on the site boundary and in the centre of the site.
Site drainage	Surface drainage from the site appears to be discharged to the ground and within the drainage ditches.
Preliminary flood risk assessment	The site does not lie within an Environment Agency floodplain zone.

4.9 Sensitive land uses

Table 9 provides a summary of any environmentally sensitive areas identified within 500 m radius of the site based on the environmental database report.

Table 9 Environmentally sensitive areas

Feature	Present within 500m of site?	Details	Likely pathways from site?
International designations – Ramsar wetland, Special Area of Conservation (SAC), Special Protection Area (SPA)	No	-	-
National designations – Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), ancient woodland	Yes	Ancient Woodland located 406 m and 487 m north east	No
Local designations – Local Nature Reserve, Site of Importance for Nature Conservation (SINC)	No	-	-
Nearest high sensitivity development, e.g. residential	Yes	Residential properties located 10 m east on Fryatts Way	Yes

5 INITIAL CONCEPTUAL SITE MODEL

In line with CLR11 (Environment Agency, 2004) and BS 10175: 2011 + A2 2017 (BSI, 2017), RSK has used information in the preceding sections to identify sources of contaminants, receptors that may be impacted and plausible linking pathways. Where all three are present this is termed a potentially complete contaminant linkage and a qualitative risk estimation is made.

5.1 Potential soil, soil vapour and groundwater linkages

5.1.1 Potential sources of contamination

Potential sources of soil and groundwater contamination identified from current activities and the history of the site and surrounding area are presented in **Table 10**. Ground gas sources are addressed in the next section.

Table 10 Potential sources of soil and groundwater contamination

Potential sources	Contaminants of concern	Current or historical?
On-site		
Agricultural land	Potential use of herbicides and pesticides	Historical and current
Made Ground associated with building in south east corner (1961-1987) and infilling of pond (1875 – 2000)	Potential for metals, PAHs, TPHs and asbestos containing materials	Historical
Former Landfill (1983-1987) in south east of site	Inert/ commercial/ industrial/ municipal waste possible however, considered likely to be demolition waste etc. Landfill leachate including ammoniacal nitrogen, chloride.	Historical
Off-site		
Landfill (85m south east) subsequently redeveloped as residential housing	Inert/ commercial/ industrial/ municipal waste. Landfill leachate including ammoniacal nitrogen, chloride	Current (although now shown as residential housing)

5.1.2 Sensitive receptors and linking exposure/migration pathways

Sensitive receptors identified at the site that could be affected by the potential sources identified above comprise:

- future site users – residential users;
- current adjacent site users;
- vegetation;

- potable water supply pipes; and
- buildings and infrastructure;

Please note that construction workers and future maintenance workers have not been identified in the conceptual model as receptors because risks are considered to be managed through health and safety procedures according to the CDM Regulations.

5.1.3 Summary of plausible pathways

The plausible pathways are summarised below:

- direct contact [oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres, ingestion of home-grown produce];
- vertical and lateral migration including leaching;
- root uptake; and
- chemical attack of infrastructure (including water supply pipes and buildings).

5.2 Potential ground gas linkages

5.2.1 Ground gas generation potential

Potential ground gas sources identified for the site and surrounding are shown in **Table 11**.

Table 11 Potential ground gas sources

Potential sources	Indicative ground gas generation potential (CIEH, 2008)	Additional information
On-site		
Landfill mid-1960s to early 1990s	High	No evidence of landfill on historical maps or aerial photographs.
Off-site		
Active Landfill located 85 m south east	Low	Area redeveloped with residential housing.

Given the anticipated ground conditions set out above, potential sources of ground gas generation have been identified associated with landfill sites.

5.2.2 Preferential pathways for ground gas migration

Credible preferential pathways potentially connecting the source and receptor through vertical and lateral migration are:

- Geology of the Tunbridge Wells Sand formation which is likely to be permeable;

- Building foundations;
- Construction joints and cracks within building structure; and,
- Utility routes and service penetrations into buildings;

5.2.3 Sensitive receptors and linking pathways

Sensitive receptors identified at or in the vicinity of the site that could be affected by the potential ground gas sources identified above comprise:

- future site users – residential users;
- adjacent site users; and,
- future buildings and services.

Construction workers have not been identified as receptors for the purposes of this assessment. Risks may still be present to construction workers especially where works include the entry into excavations within the ground. Construction workers should undertake appropriate risk assessments and risks should be managed through health and safety procedures and the use of PPE.

5.3 Preliminary risk assessment

The preliminary risk assessment findings and potentially complete contaminant linkages are shown in **Table 12** overleaf. The risk classification based on the combination of hazard consequence and probability using a risk matrix from CIRIA C552 (Rudland et al., 2001), a summary of which is included in Appendix E.

Table 12 Risk estimation for potentially complete contaminant linkages

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
Agricultural land (herbicides and pesticides)	Human health (future residents)	Ingestion of contaminated soil, dust, Inhalation of contaminated dust	Low Likelihood	Medium	Moderate/ Low	If present, contaminants could affect future residents via direct contact pathways in areas of soft landscaping and gardens.
	Adjacent site users		Unlikely	Medium	Low	Potential for contamination is low and likelihood of adjacent users coming into contact with any contamination is also low.
	Vegetation	Plate uptake	Low Likelihood	Mild	Low	If present, contaminants may affect vegetation in areas of soft landscaping and gardens.
	Water supply pipes	Direct contact	Unlikely	Medium	Low	If present, contaminants are likely to affect plastic utilities via direct contact pathways.
Made Ground associated with former building and infilling of pond (metals, PAHs, TPHs and asbestos)	Human health (future residents)	Ingestion of contaminated soil, dust, Inhalation of contaminated dust	Low Likelihood	Medium	Moderate/ Low	If present, contaminants could affect future residents via direct contact pathways in areas of soft landscaping and gardens.
	Adjacent site users		Unlikely	Medium	Low	Potential for contamination is low and likelihood of adjacent users coming into contact with any contamination is also low.
	Vegetation	Plate uptake	Low Likelihood	Mild	Low	If present, contaminants may affect vegetation in areas of soft landscaping and gardens.
	Water supply pipes	Direct contact	Unlikely	Medium	Low	If present, contaminants are likely to affect plastic utilities via direct contact pathways.

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
Landfill Potential contaminates comprised carbon dioxide, methane and other trace gases	Human health (future residents)	Asphyxiation/poisoning Injury due to explosion Damage through explosion	Low Likelihood	Medium	Low	The likely composition of the possible landfill material is unlikely to represent a risk.
	Building/property		Low Likelihood	Medium	Low	The likely composition of the possible material is unlikely to represent a risk.
Off Site						
Landfill (85m south east) Potential contaminates comprised carbon dioxide, methane and other trace gases	Human health (future residents)	Asphyxiation/poisoning Injury due to explosion Damage through explosion	Unlikely	Medium	Low	Area developed as residential housing, considered unlikely to represent a risk.
	Building/property		Unlikely	Medium	Low	Area developed as residential housing, considered unlikely to represent a risk.

Risk matrix		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

5.3 Preliminary Risk Assessment conclusions

The potential for contamination at the site is considered to be low risk based on the findings of the preliminary risk assessment:

- Potential risk to human health from contaminants of concern within soil;
- Potential risk to vegetation via plant uptake of phytotoxic contaminants within soil; and
- Potential ground gas migration onto site.

Based upon the findings of the PRA, it is considered that ground investigation works should be carried out to further investigate the potentially complete pollutant linkages identified above and establish the underlying soil and groundwater regime and actual concentrations of potential contaminants present.

5.4 Data gaps and uncertainties

There are no previous site investigations available for the site, including no publicly available BGS borehole records and RSK have not received correspondence from Rother District Council, therefore there is no information on actual concentrations of contaminants in soil and groundwater at this stage.

To reduce any uncertainty associated with the conceptual model of contamination and confirm the on site geology, RSK recommends a Phase 2 intrusive investigation including:

- UXO Risk Assessment to assess the medium UXO risk;
- Window Sampling and Trial Pitting across the site to confirm shallow ground conditions;
- The collection of contamination soil samples for laboratory analysis for a range of potential contaminants including heavy metals, PAHs, TPHs, asbestos, herbicides and pesticides;
- Soil infiltration testing to identify the drainage potential of the underling Tunbridge Wells Sand Formation;
- The collection of geotechnical samples for laboratory analysis to provide information on foundation design, floor slabs and concrete classification; and
- Combined factual and interpretative Phase 2 report.

FIGURES

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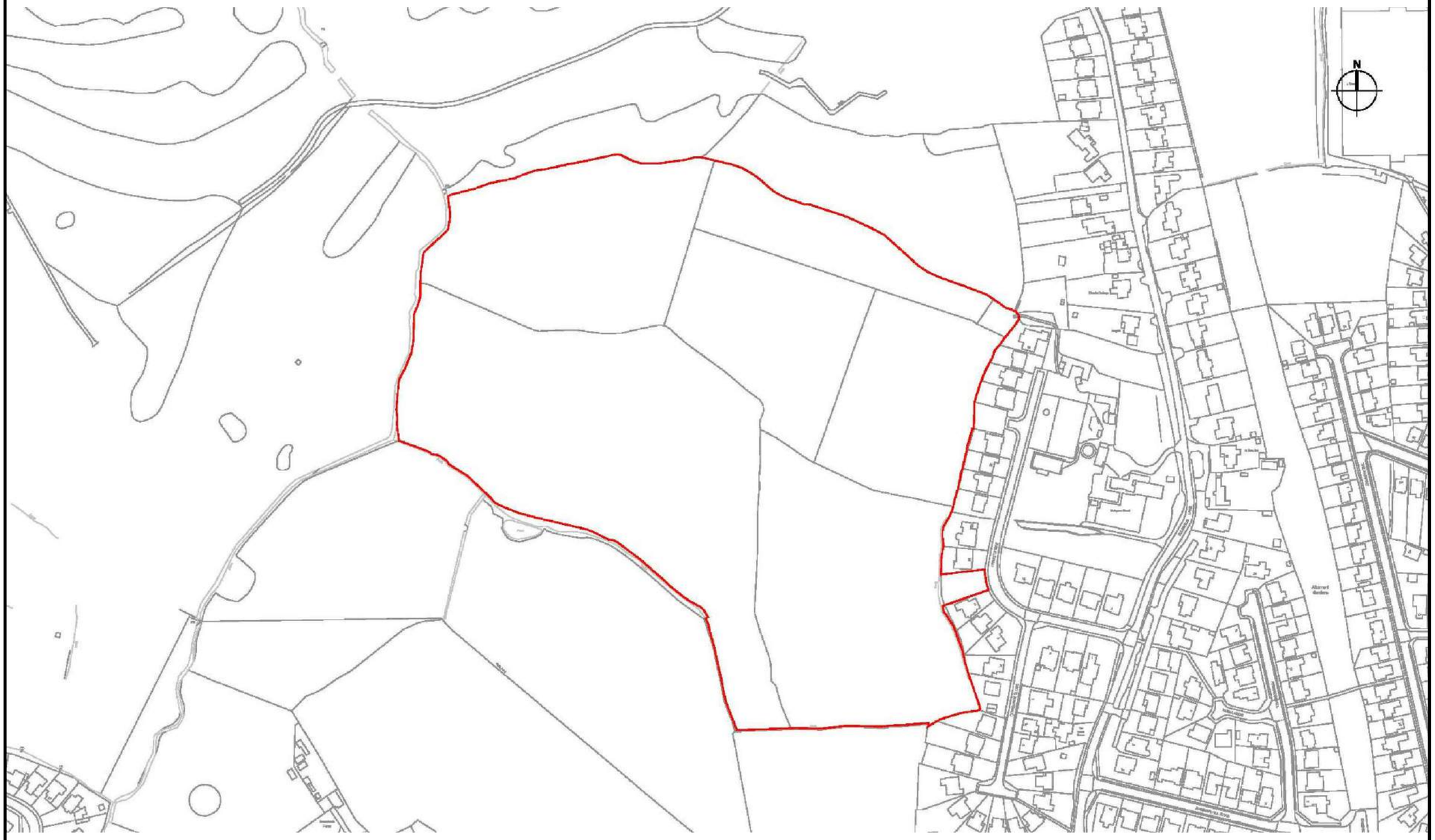
Client	GLADMAN DEVELOPMENTS LIMITED
Project Title	FRYATTS WAY, BEXHILL
Drawing Title	SITE LOCATION PLAN

Drawn	Date	Checked	Date	Approved	Date	Project No.	Drawing File
HD	20.11.19	EC	20.11.19	EC	20.11.19	305127	305127-R01(00)D001A

Scale	Orig Size	Dimensions	Drawing No.	Rev.
NTS	A4	—	FIGURE 1	A



LEGEND:

Site boundary

REV	DATE	DESCRIPTION	BY	CHD.	APR.
A	20.11.19	FIRST ISSUE	HD	EC	EC

Dimensions	Projection	Scale	Orig Size
m		NTS	A3

RSK

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CLIENT

GLADMAN DEVELOPMENTS LIMITED

PROJECT

FRYATTS WAY, BEXHILL

TITLE

SITE LAYOUT PLAN

JOB No.:	DRAWING FILE:
305127	305127-R01(00)D002A

BY:	DATE:	CONTRACT NO.		REV:
HD	20.11.19		FIGURE 2	A

APPENDIX A
SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Gladman Developments Limited (the "Client") in accordance with the terms of a contract [RSK Environment Standard Terms and Conditions] between RSK and the Client, dated November 2019. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by an environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the Client.
2. Other than that, expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the Client. RSK is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.**
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the Client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the Client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials, unless specifically identified in the Services.
7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a visual inspection of the site together with RSK's interpretation of information, including documentation, obtained from third parties and from the Client on the history and usage of the site, unless specifically identified in the Services or accreditation system (such as UKAS ISO 17020:2012 clause 7.1.6):

a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.

b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.

c. The Services did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services.

RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the Client and RSK.

8. The intrusive environmental site investigation aspects of the Services are a limited sampling of the site at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the properties of the materials adjacent and local conditions, together with the position of any current structures and underground utilities and facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters (as stipulated in the scope between the client and RSK, based on an understanding of the available operational and historical information) and it should not be inferred that other chemical species are not present.

9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.

10. The comments given in this report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows, may vary from those reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.

11. Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works.

12. Unless stated otherwise, only preliminary geotechnical recommendations are presented in this report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed.

APPENDIX B
SUMMARY OF LEGISLATION AND POLICY RELATING TO LAND CONTAMINATION

Part IIA of the Environmental Protection Act 1990

Part IIA of the Environmental Protection Act 1990 (Part IIA) and its associated Contaminated Land Regulations 2000 (SI 2000/227), which came into force in England on 1 April 2000, formed the basis for the current regulatory framework and the statutory regime for the identification and remediation of contaminated land. Part IIA of the EPA 1990 defines contaminated land as 'any land which appears to the Local Authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that significant harm is being caused, or that there is significant possibility of significant harm being caused, or that pollution of controlled waters is being or is likely to be caused'. Controlled waters are considered to include all groundwater, inland waters and estuaries.

In August 2006, the Contaminated Land (England) Regulations 2006 (SI 2006/1380) were implemented, which extended the statutory regime to include Part IIA of the EPA as originally introduced on 1 April 2000, together with changes intended chiefly to address land that is contaminated by virtue of radioactivity. These have been replaced subsequently by the Contaminated Land (England) (Amendment) Regulations 2012, which now exclude land that is contaminated by virtue of radioactivity.

The intention of Part IIA is to deal with contaminated land issues that are considered to cause significant harm on land that is not undergoing development (see Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, April 2012). This document replaces Annex III of Defra Circular 01/2006, published in September 2006 (the remainder of this document is now obsolete).

Planning Policy

Contaminated land is often dealt with through planning because of land redevelopment. This approach was documented in Planning Policy Statement: Planning and Pollution Control PPS23, which states that it remains the responsibility of the landowner and developer to identify land affected by contamination and carry out sufficient remediation to render the land suitable for use. PPS23 was withdrawn early in 2012 and has been replaced by much reduced guidance within the National Planning Policy Framework (NPPF), reference ISBN: 978-1-5286-1033-9, February 2019.

The new framework has only limited guidance on contaminated land, as follows:

Chapter 11. Making effective use of land

117 Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land.

118. Planning policies and decisions should:

c) give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land.

Chapter 15. Conserving and enhancing the natural environment

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Ground conditions and pollution

178. Planning policies and decisions should ensure that:

a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990; and

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.

179. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

Water Resources Act (WRA)

The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 updated the Water Resources Act 1991, which introduced the offence of causing or knowingly permitting pollution of controlled waters. The Act provides the Environment Agency with powers to implement remediation necessary to protect controlled waters and recover all reasonable costs of doing so.

Water Framework Directive (WFD)

The Water Framework Directive 2000/60/EC is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands that depend on the aquatic ecosystems
- promote the sustainable use of water
- reduce pollution of water, especially by ‘priority’ and ‘priority hazardous’ substances
- ensure progressive reduction of groundwater pollution.

The WFD requires a management plan for each river basin be developed every six years.

Groundwater Directive (GWD)

The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive 2006/118/EC of the WFD are the main European legislation in place to protect groundwater. The 1980 Directive is due to be repealed in December 2013. The European legislation has been transposed into national legislation by regulations and directions to the Environment Agency.

Priority Substances Directive (PSD)

The Priority Substances Directive 2008/105/EC is a 'Daughter' Directive of the WFD, which sets out a priority list of substances posing a threat to or via the aquatic environment. The PSD establishes environmental quality standards for priority substances, which have been set at concentrations that are safe for the aquatic environment and for human health. In addition, there is a further aim of reducing (or eliminating) pollution of surface water (rivers, lakes, estuaries and coastal waters) by pollutants on the list. The WFD requires that countries establish a list of dangerous substances that are being discharged and EQS for them. In England and Wales, this list is provided in the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010. In order to achieve the objectives of the WFD, classification schemes are used to describe where the water environment is of good quality and where it may require improvement.

Environmental Permitting Regulations (EPR)

The Environmental Permitting (England and Wales) Regulations 2016 (as amended) provide a single regulatory framework that streamlines and integrates waste management licensing, pollution prevention and control, water discharge consenting, groundwater authorisations, and radioactive substances regulation. Schedule 22, paragraph 6 of EPR 2016 states: 'the regulator must, in exercising its relevant functions, take all necessary measures - (a) to prevent the input of any hazardous substance to groundwater; and (b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.'

Notes:

1. *The above information is provided for background but does not constitute site-specific advice*

2. *The above summary applies to England only. Variations exist within other countries of the United Kingdom*

APPENDIX C
ENVIRONMENTAL DATABASE REPORT

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

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

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Pylon
Electricity Transmission Line
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

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

1:10,000 Raster Mapping

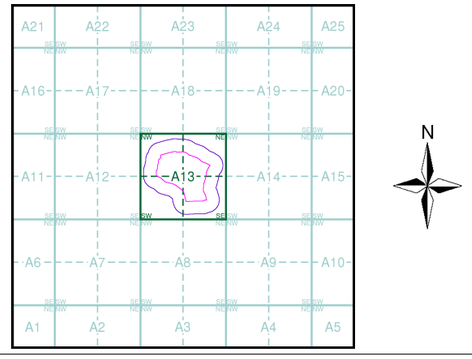
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

RSK

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Sussex	1:10,560	1878	2
Sussex	1:10,560	1899	3
Sussex	1:10,560	1910	4
Sussex	1:10,560	1930 - 1931	5
Sussex	1:10,560	1938 - 1951	6
Historical Aerial Photography	1:10,560	1945 - 1947	7
Sussex	1:10,560	1952	8
Ordnance Survey Plan	1:10,000	1961 - 1962	9
Ordnance Survey Plan	1:10,000	1968	10
Ordnance Survey Plan	1:10,000	1976	11
Ordnance Survey Plan	1:10,000	1981 - 1989	12
10K Raster Mapping	1:10,000	2000	13
10K Raster Mapping	1:10,000	2006	14
VectorMap Local	1:10,000	2019	15

Historical Map - Slice A



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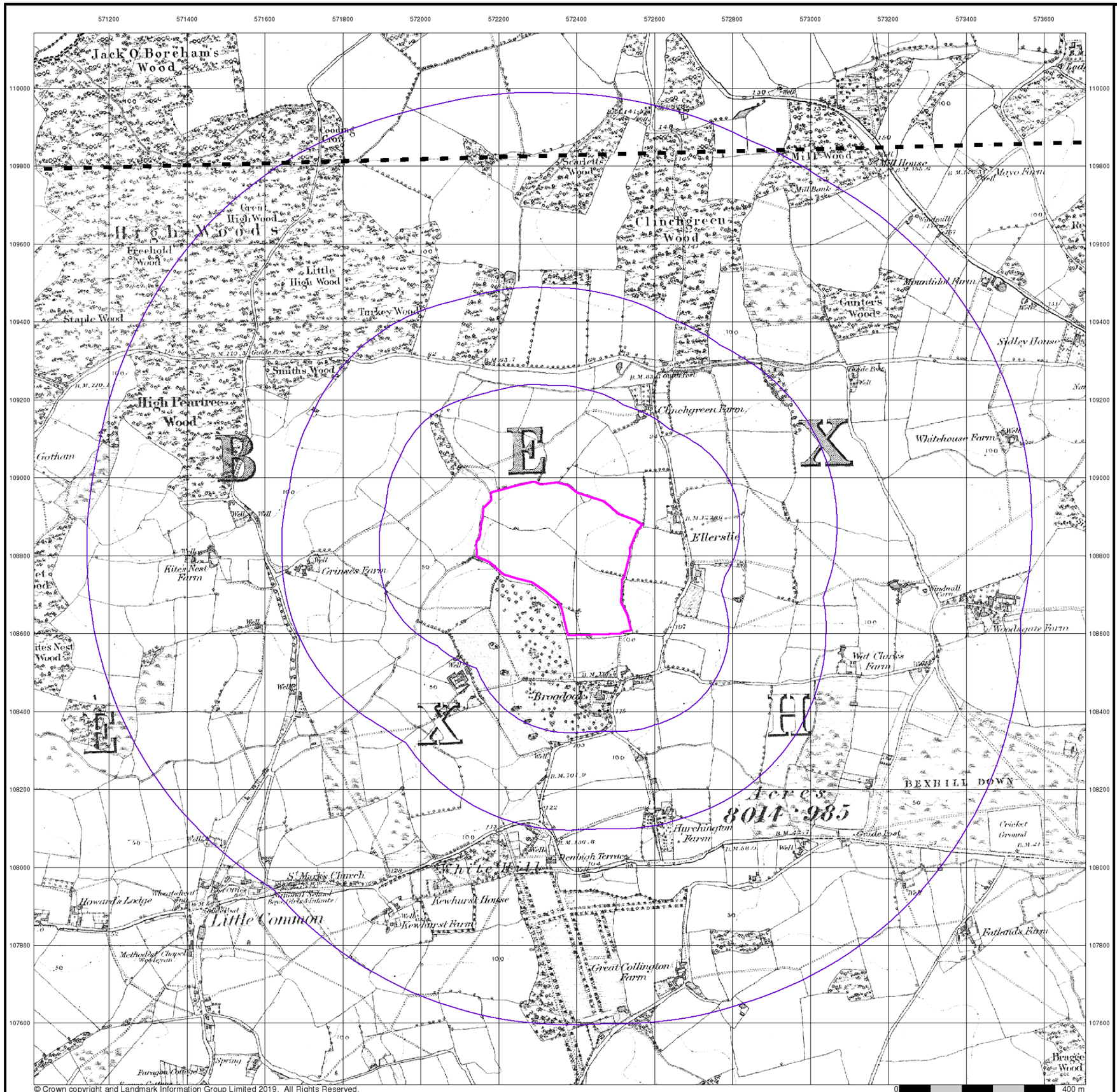
Slice: A
Site Area (Ha): 10.8
Search Buffer (m): 1000

Site Details

Site at 572490, 108720

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



RSK

Sussex

Published 1878

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)

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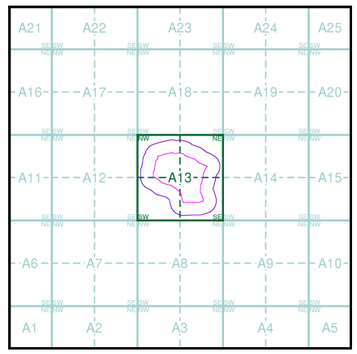
1878
1:10,560

07000
1878
1:10,560

Historical Map - Slice A



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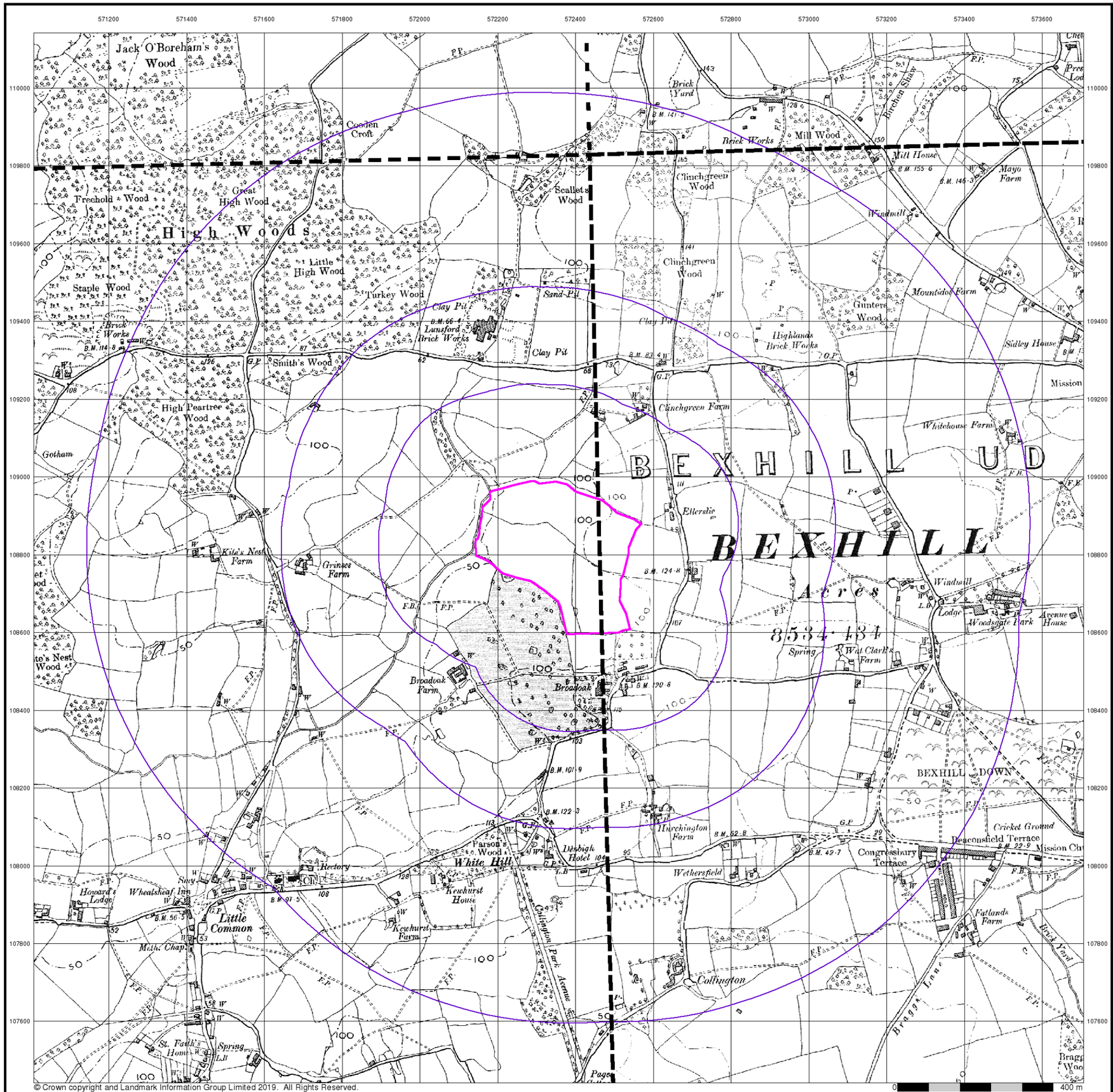

RSK

Sussex

Published 1899

Source map scale - 1:10,560

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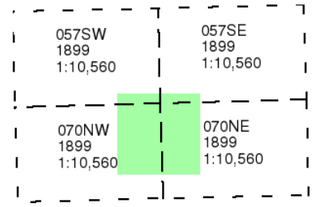
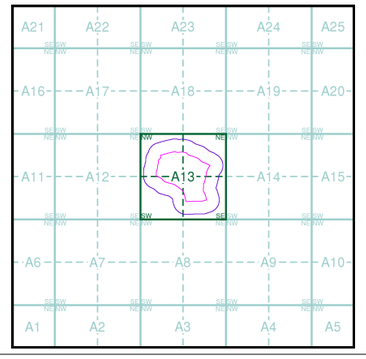
Map Name(s) and Date(s)



Historical Map - Slice A



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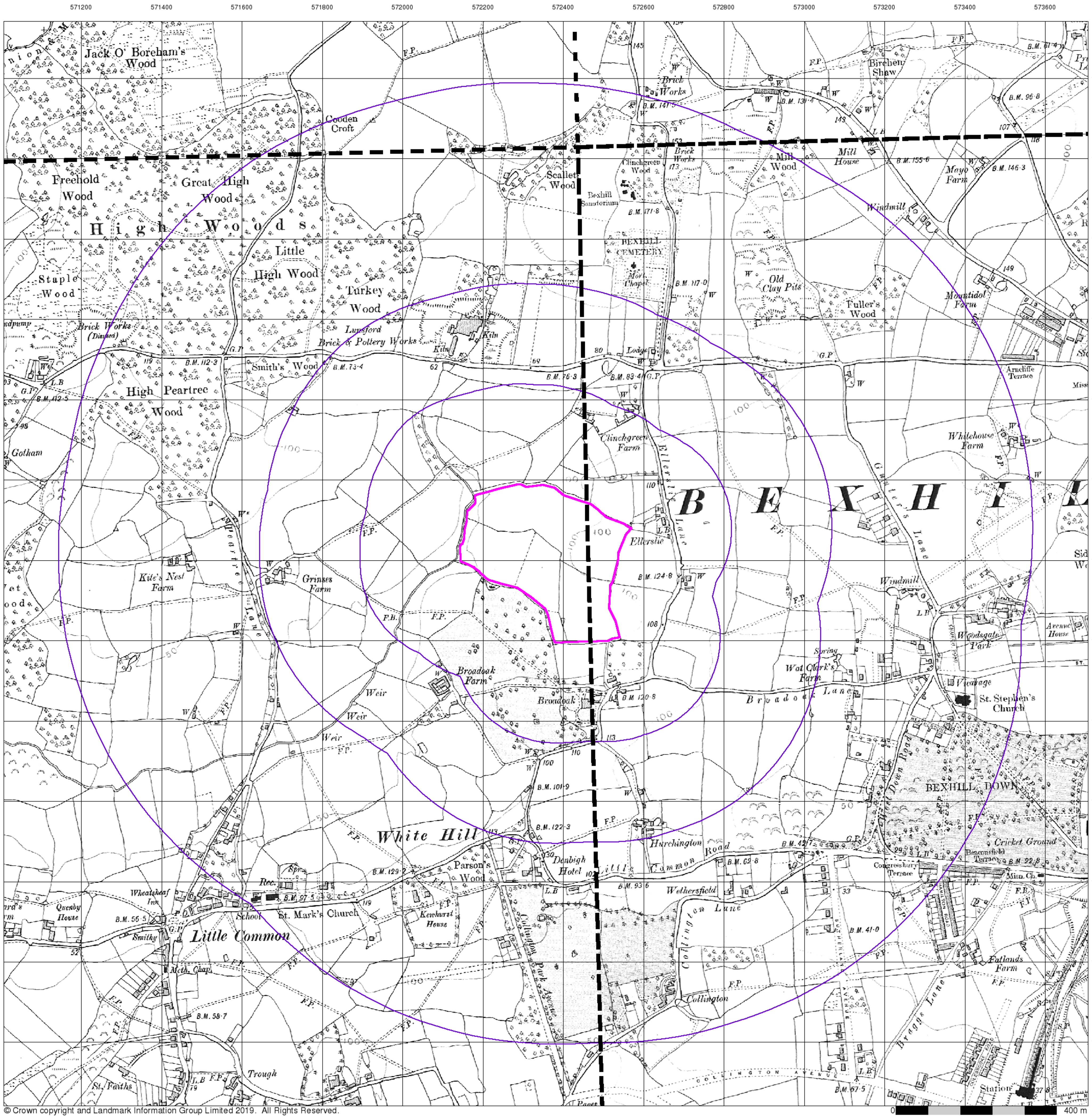

Sussex

Published 1910

Source map scale - 1:10,560

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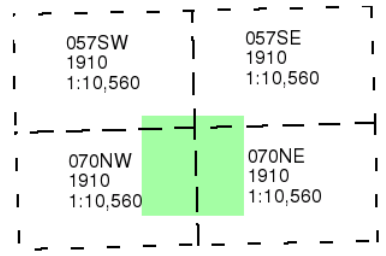
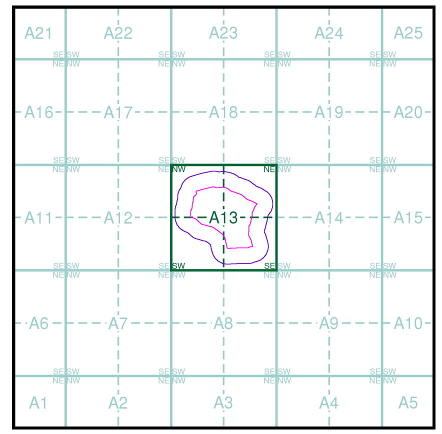


Historical Map - Slice A



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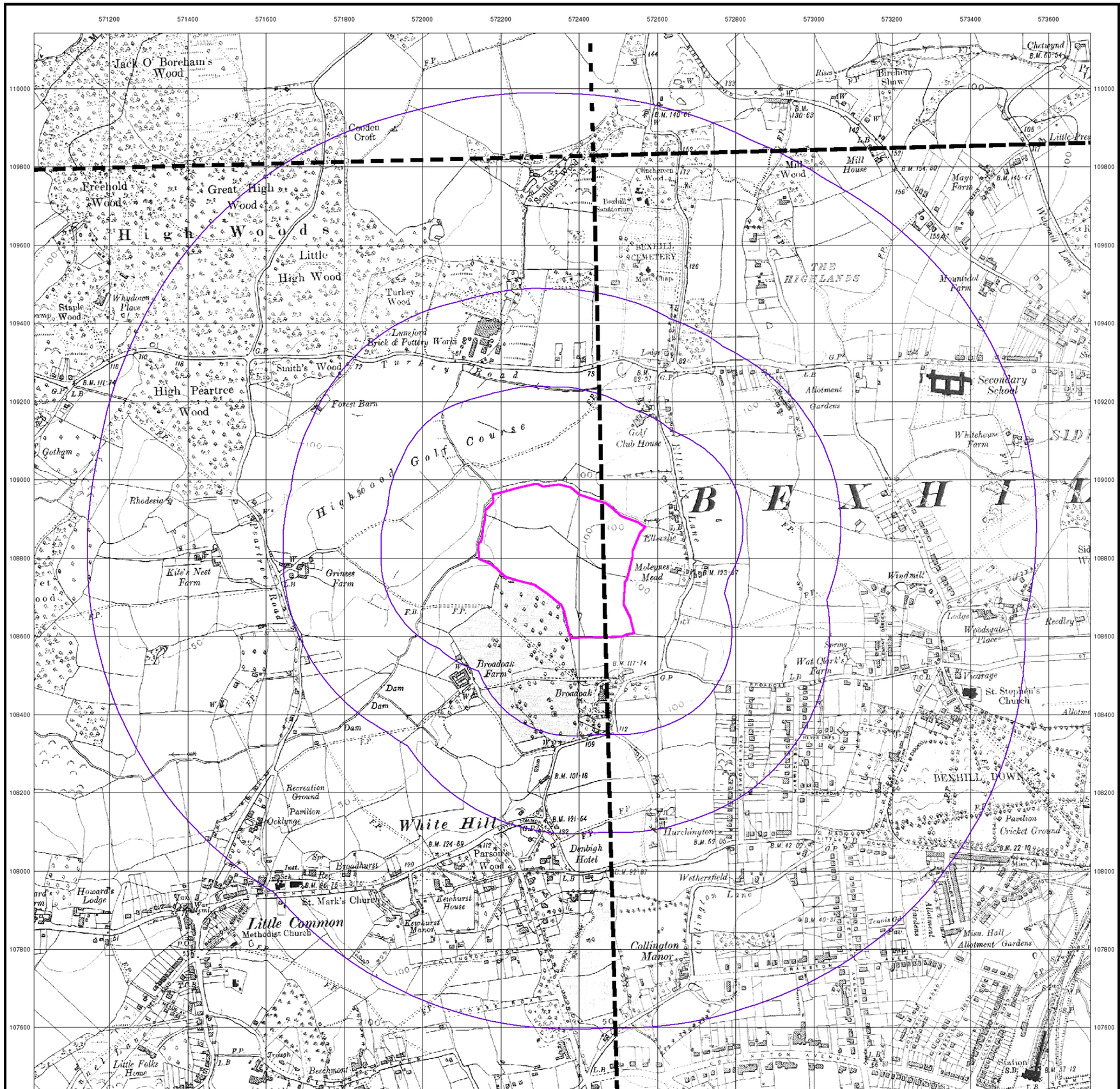

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Sussex

Published 1930 - 1931

Source map scale - 1:10,560

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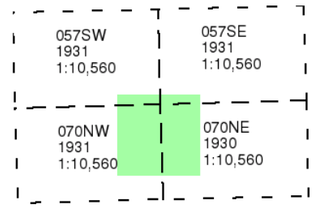
Map Name(s) and Date(s)



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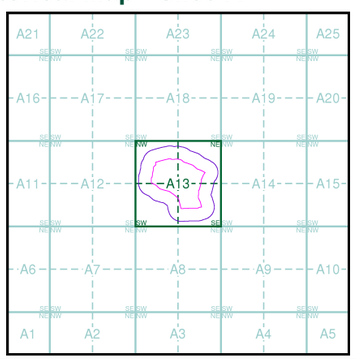

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Site Area (Ha):	10.8
Search Buffer (m):	1000

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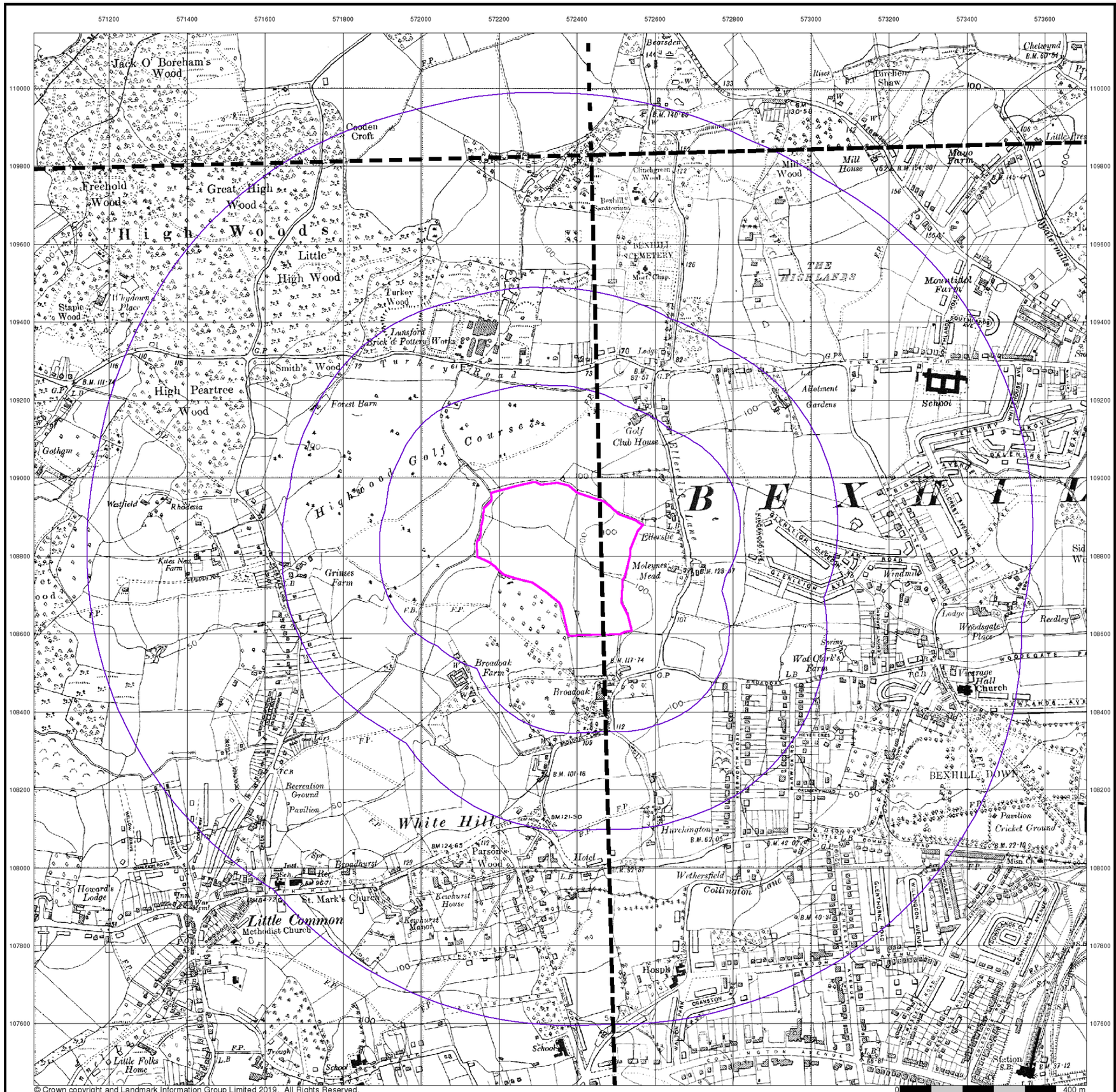

0 400 m

RSK

Sussex

Published 1938 - 1951

Source map scale - 1:10,560

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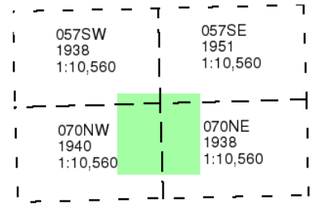
Map Name(s) and Date(s)



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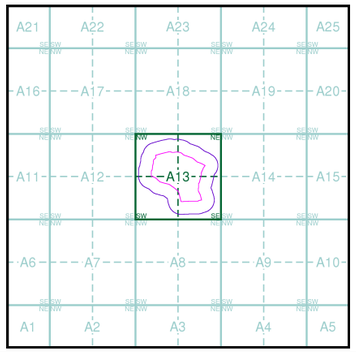

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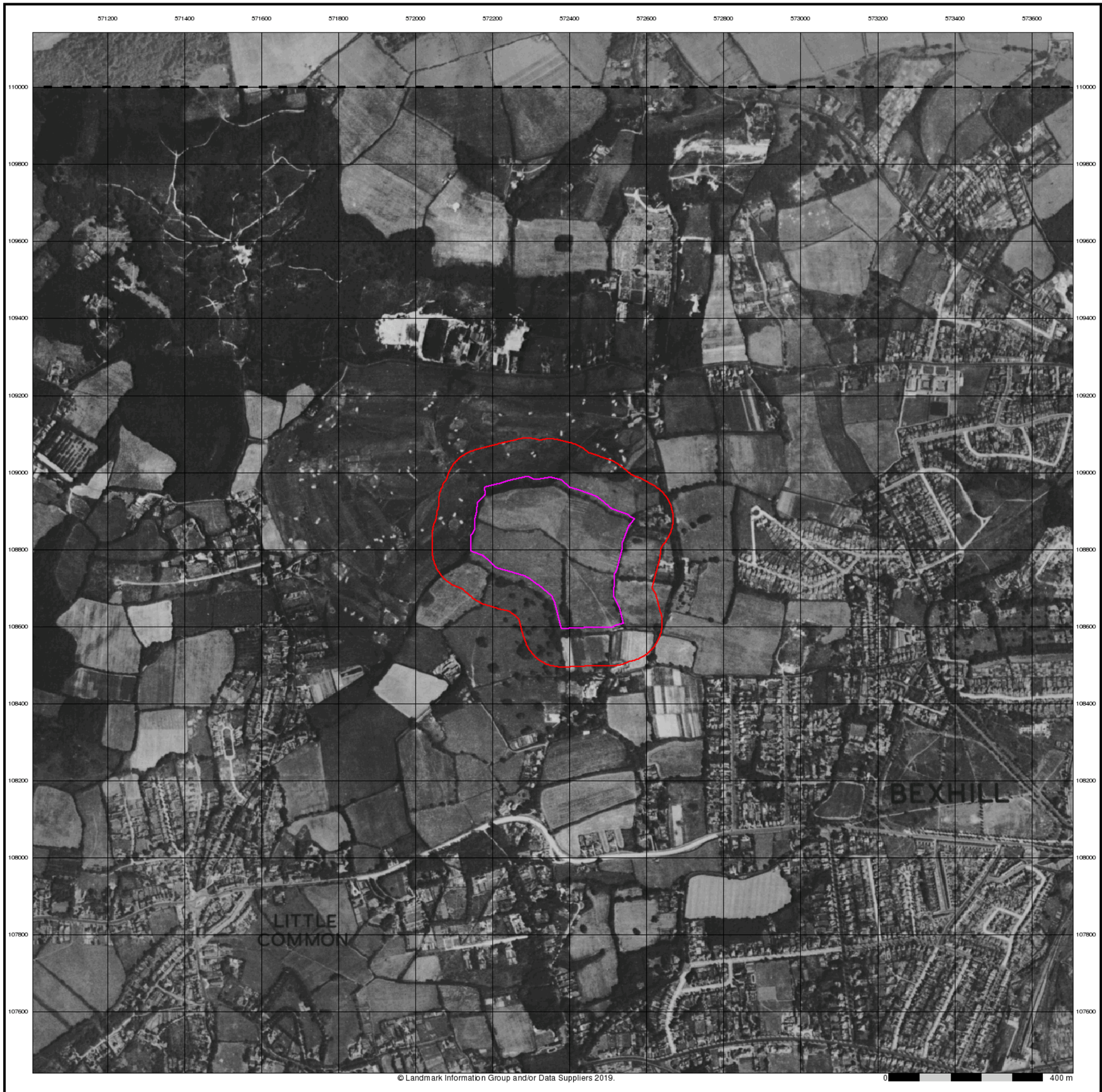


Historical Aerial Photography

Published 1945 - 1947

Source map scale - 1:10,560

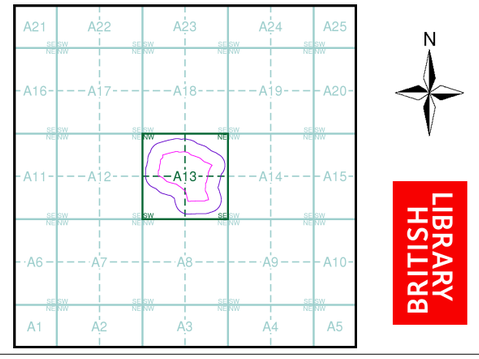
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 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.

Map Name(s) and Date(s)

TQ71SW
1945
1:10,560

TQ70NW
1947
1:10,560

Historical Aerial Photography - Slice A



Order Details

Order Number:	224892920_1_1
Customer Ref:	305127
National Grid Reference:	572370, 108800
Slice:	A
Site Area (Ha):	10.8
Search Buffer (m):	1000

Site Details

Site at 572490, 108720

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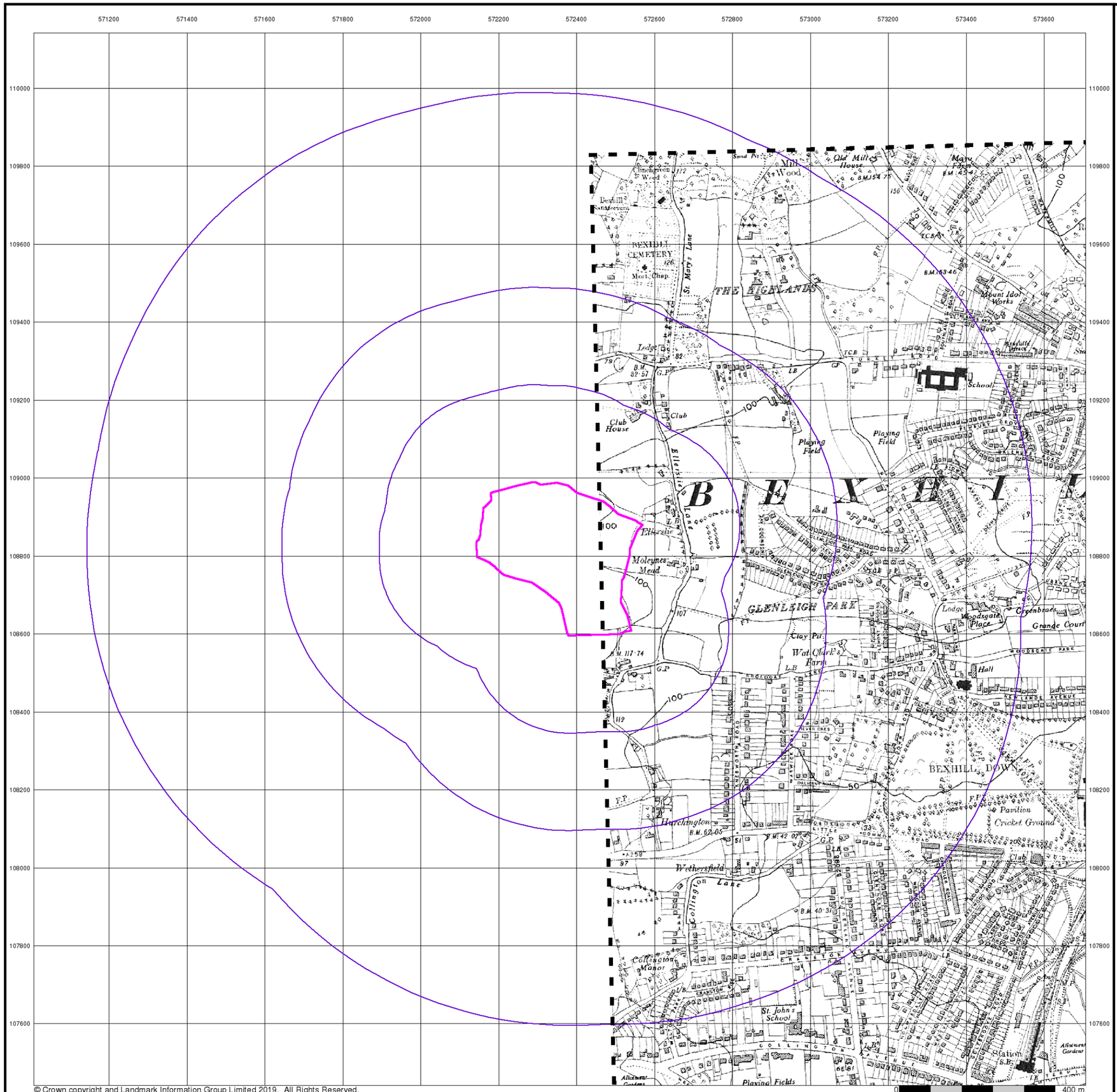
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



RSK

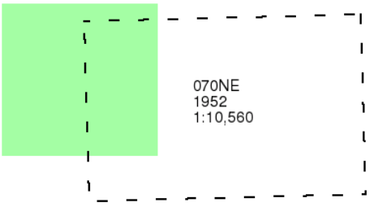
Sussex

Published 1952

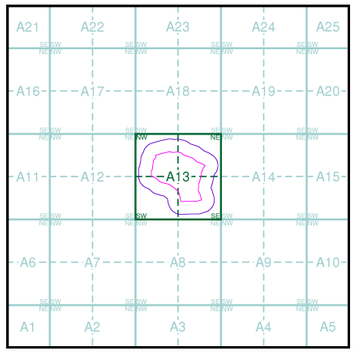
Source map scale - 1:10,560

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



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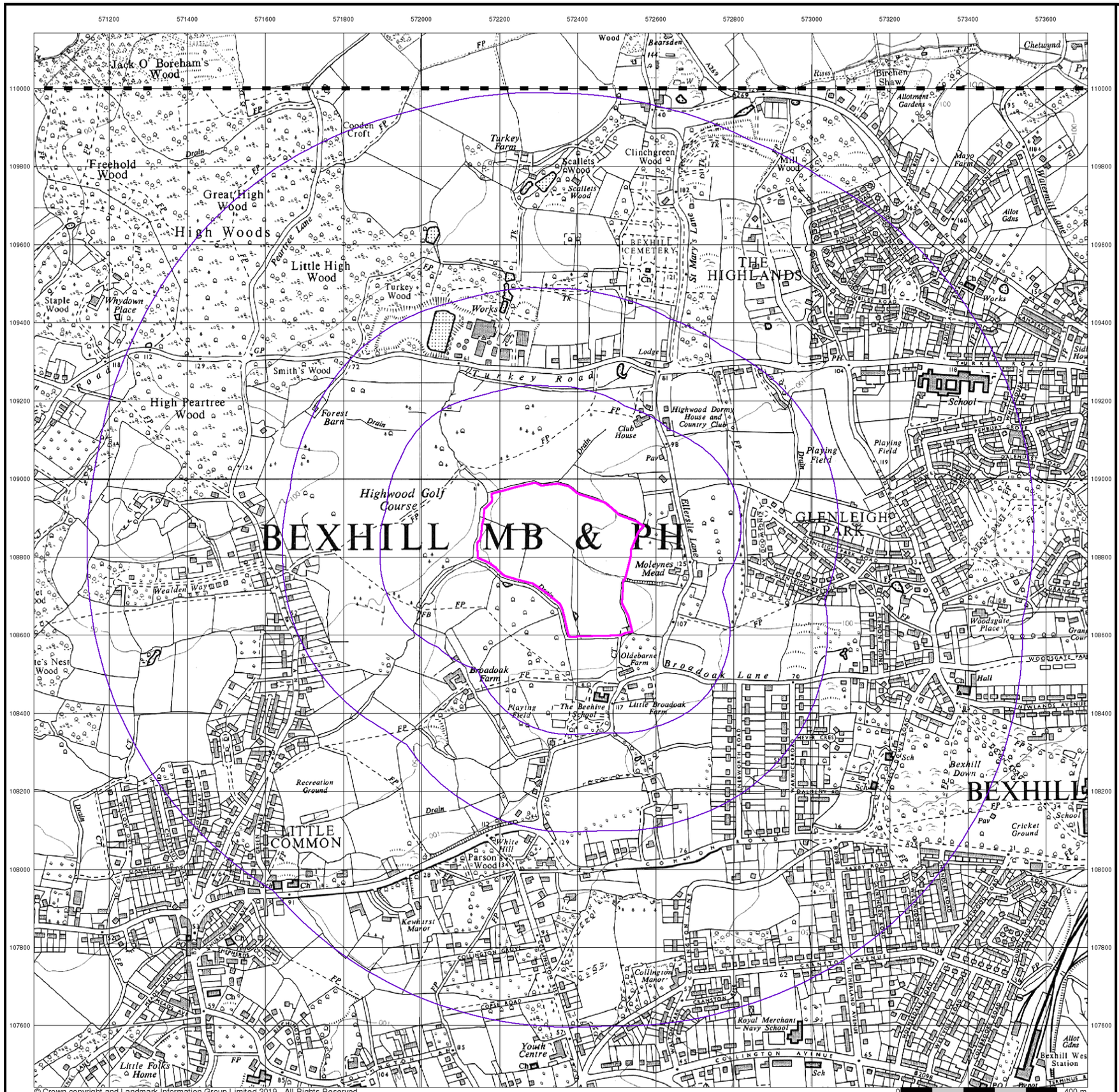

RSK

Ordnance Survey Plan

Published 1961 - 1962

Source map scale - 1:10,000

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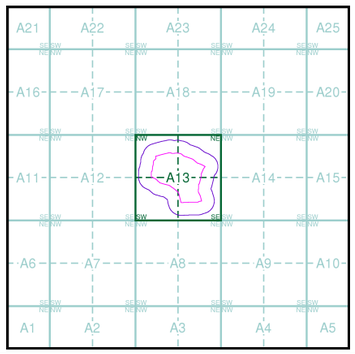
Map Name(s) and Date(s)

TQ71SW
1961
1:10,560

TQ70NW
1962
1:10,560

Historical Map - Slice A



Order Details

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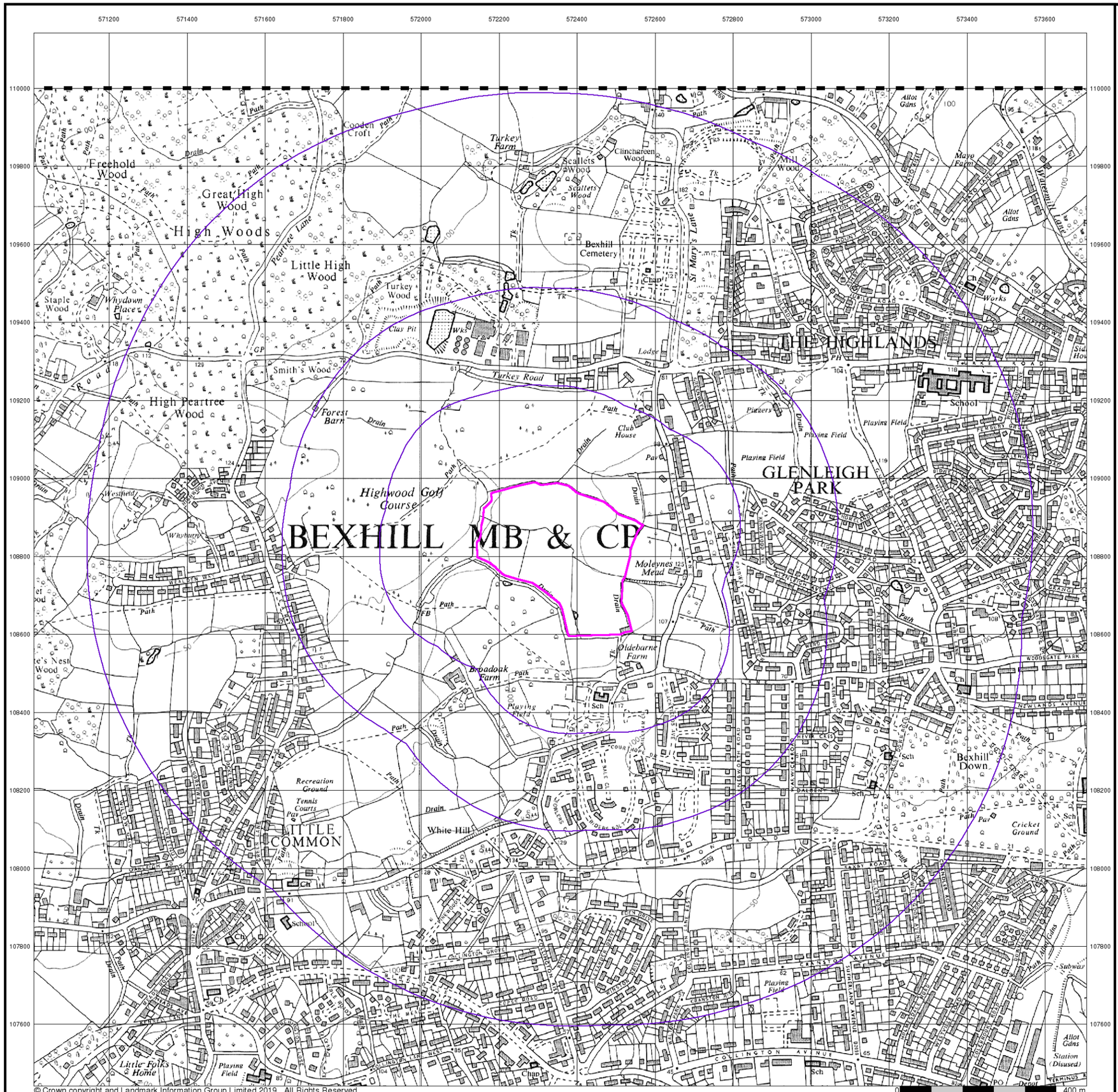


RSK

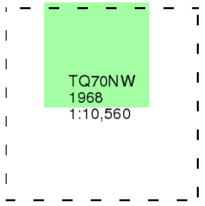
Ordnance Survey Plan

Published 1968

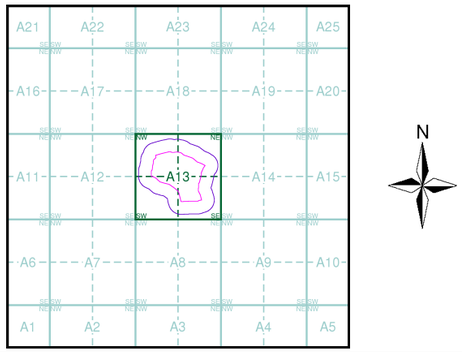
Source map scale - 1:10,000

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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