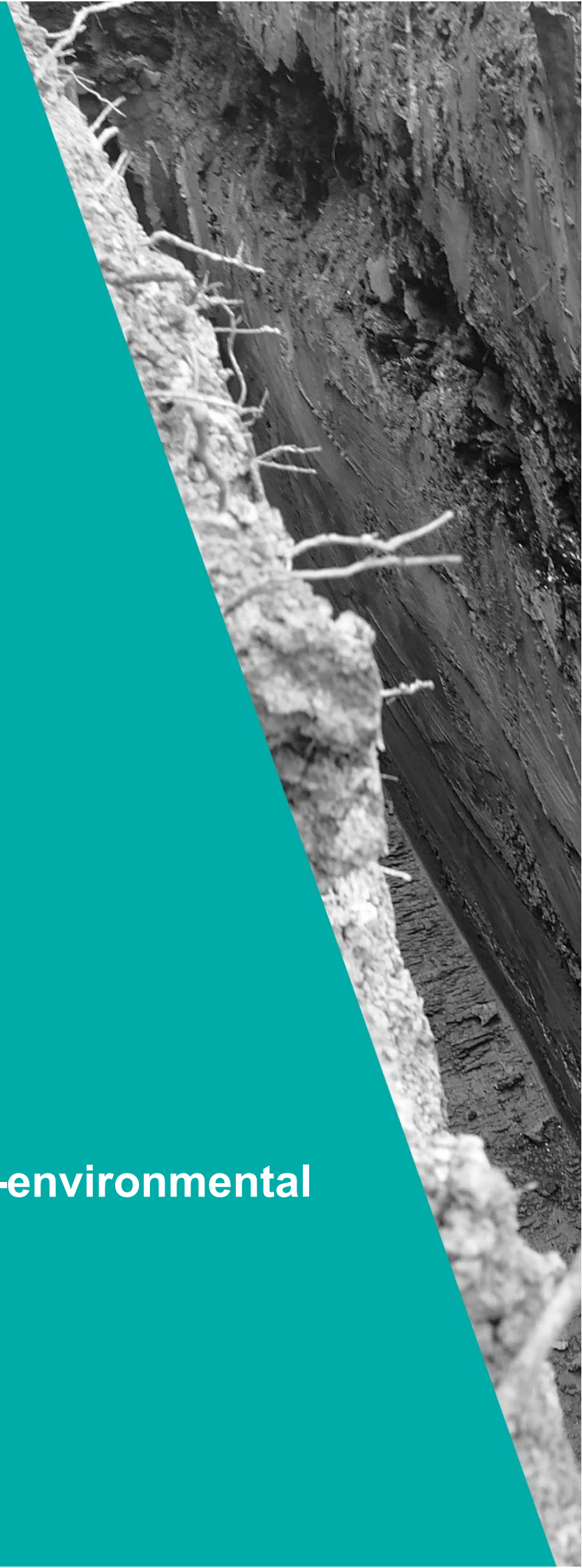
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Phase 1
Geotechnical & Geo-environmental Site Investigation

Barnburgh Lane, Goldthorpe

Homes by Honey

14 December 2022

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PHASE 1
GEOTECHNICAL AND GEO-ENVIRONMENTAL SITE INVESTIGATION

BARNBURGH LANE, GOLDTHORPE

FOR

HOMES BY HONEY

ISSUE 1



47619 **14 December 2022**

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PHASE 1
GEOTECHNICAL AND GEO-ENVIRONMENTAL
SITE INVESTIGATION

BARNBURGH LANE, GOLDTHORPE

FOR

HOMES BY HONEY

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Kate Edwards

CONTENTS

1.0 EXECUTIVE SUMMARY 4

2.0 INTRODUCTION 6

2.1 Terms of Reference 6
2.2 Context 6
2.3 Aims and Objectives 6
2.4 Scope of Investigation 6
2.5 Limitations of Investigation 7
3.0 THE SITE 8
3.1 Description 8
3.2 History 8
3.2.1 The Site 8
3.2.2 The Surrounding Area 9
3.3 Geology 9
3.4 Hydrogeology 10
3.5 Hydrology 10
3.6 Coal Mining 10
3.7 Ground Gas 12
3.8 Pollution Incidents to Controlled Waters 12
3.9 Local Authority Pollution Prevention and Controls 13
3.10 Discharge Consents 13
3.11 Flooding 13
3.12 Soil Geochemistry 13
3.13 Contemporary Trade Directory Entries and Fuel Station Entries 13

4.0 EXPECTED GROUND CONDITIONS 15

4.1 Topsoil 15
4.2 Made Ground 15
4.3 Natural Ground 15
4.4 Groundwater 15

5.0 OUTLINE CONCEPTUAL MODEL 16

5.1 Potential Sources of Contamination 16

5.2 Ground Gas 16
5.3 Potential Pollutant Linkages 16
5.4 Remedial Measures 16

6.0 GEOTECHNICAL APPRAISAL 17

6.1 General 17
6.2 Foundations 17
6.3 Ground Slabs 17
6.4 Superstructure Precautions 17
6.5 Excavation Problems & Obstructions 18
6.6 Roads 18
6.7 Surface Water Drainage 18

7.0 RECOMMENDATIONS FOR FURTHER WORK 19

APPENDICES

Appendix 1 Site Walkover Photographs

Appendix 2 Landmark Envirocheck

Consultants Coal Mining Report

1.0 EXECUTIVE SUMMARY

1. The approximately 3.4 hectare greenfield site is located to the north of Barnburgh Lane, Goldthorpe. The site is roughly triangular in plan and comprises an agricultural field. West Moor Dike is located immediately east of the site, housing and fields present in other directions. The site roughly lies between 41 m AOD in the north west and 31 m AOD in the south east, and generally slopes down to the south with an average gradient up to 1 in 16.

2. A railway cutting up to around 2.5 m deep is located adjacent to the northern boundary, and is largely covered with trees. The sides of the cutting slope down at around 1 in 2 to 1 in 3. It is recommended that plots are kept at least 5 m from the former railway cutting to the north to avoid destabilising the slope; if plots are positioned closer than 5 m, ground conditions will need to be reviewed.

3. Sirius have completed a Geo-environmental Appraisal on the site in 2022, which we understand Homes by Honey has reliance on.

4. A fault crosses the south eastern tip of the site. West of the fault (below the majority of the site), Pennine Middle Coal Measures Formation mudstone and siltstone are present. East of the fault, Ackworth Rock sandstone is expected.

5. The Highgate coal has been found intact in the upper 20 m. Precautions against the effects of shallow coal mining are not considered necessary.

6. The shallow ground conditions comprise topsoil up to 0.4 m over firm to stiff cohesive strata.

7. Groundwater monitoring completed by Sirius recorded groundwater between 0.57 and 2.38 m bgl, however no groundwater strikes were recorded in any of the exploratory holes. It should be noted that the groundwater monitoring period was over summer months and that groundwater levels are often shallower in the winter months. Shallow ground water conditions may therefore be encountered.

8. The most appropriate foundation solution is likely to be strip or trench fill foundations taken onto undisturbed competent natural clay. Assuming a medium volume change potential, the minimum footing depth is likely to be 900 mm, deepened near trees in accordance with NHBC Standards Chapter 4.2.

9. A fault is present below the eastern corner. Should a difference in ground be noted in this area, for example a mudstone and sandstone interface, overlying foundations should be thickened and reinforced.

10. Shallow bedrock may be encountered from around 1.0 m bgl.

11. A ‘p’ is shown in the centre of the site on the 1851 historical map which could denote a pump. If encountered during construction, the feature will need capping.

12. The stability of trenches may be poor in made ground, if present, and if shallow groundwater is encountered.

13. The ground conditions are expected to comprise weathered Pennine Middle Coal Measures Formation comprising clay and weak mudstone. Given the cohesive nature of the weathered bedrock surface water drainage via ground soakage will not be viable for the proposed development.

14. Radon precautions are not considered to be necessary. Although previous gas monitoring indicates no gas measures are required, additional monitoring is recommended to target the northern boundary of the site and ensure that the made ground north of the site and the fault zone do not pose a significant gas risk. At this stage, Amber 1 gas measures should be allowed for in plots adjacent to the northern site boundary.

15. Significant contamination is not expected, therefore the site won topsoil and natural ground are expected to be suitable for re-use, subject to a more intensive testing programme.

16. Before more definite information regarding the properties of the ground and any contamination present can be given, an intrusive ground investigation will be required.

2.0 INTRODUCTION

2.1 Terms of Reference

This report presents the findings of a Phase 1 Geotechnical and Geo-environmental Site Investigation carried out by Eastwood & Partners (Consulting Engineers) Limited trading as Eastwood Consulting Engineers (ECE) for, and on the instructions of Homes by Honey. Any other parties using the information in this report do so at their own risk and any duty of care is excluded.

2.2 Context

ECE have been provided with two previous site investigation reports, these are listed below and should be read in conjunction with this report.

- Sirius' Geoenvironmental Appraisal, dated June 2022, report reference C9434;
- Sirius' Gas Risk Assessment Letter Report, dated 15 August 2022, report reference C9434/AW/9943.

We understand Homes by Honey have reliance on these reports. Pertinent details from these reports have been included in this Phase 1.

2.3 Aims and Objectives

The aims and objectives of this investigation were as follows:

- To assimilate and review information extracted from published documentation and a site walkover to derive an outline conceptual model identifying potential contaminants, pathways and receptors, as well as possible linkages between these;
- To detail the expected ground conditions and their geotechnical properties enabling outline foundation proposals to be made for the proposed residential development; and
- To outline proposals for a Phase 2 intrusive investigation, the purpose of which would be to obtain information to test the conceptual model and assess the risks to receptors as well as to confirm the foundation proposals.

2.4 Scope of Investigation

The investigation involved a review of information extracted from published documentation. Information regarding the current and former land uses both on and surrounding the site, as well as

the environmental sensitivity of the location as determined by factors including geology, hydrogeology and hydrology have been examined.

Information analysed has been obtained from a variety of sources and included the following:

- A Landmark Envirocheck;
- Consultants Coal Mining Report;
- British Geological Survey maps and memoirs; and
- A site walkover.

2.5 Limitations of Investigation

This report is based on the assumption that the site will be developed with residential properties of conventional construction with private gardens and areas of soft landscaping. It is assumed that existing ground levels will not alter significantly. If this is not the case, then the advice given in this report may not be appropriate.

Where assessments of site areas affected in particular ways are given, these are approximate. All information, comments and opinions given in this report are based on the documentary information examined. This report considers the ground and groundwater and does not cover any buildings, their fabric or the constituents of any hardstanding. Risks to ecological receptors, such as bats, have not been considered.

3.0 THE SITE

3.1 Description

The approximately 3.4 hectare site is located to the north of Barnburgh Lane, east of Goldthorpe and roughly triangular in plan. The site is centred on grid reference 446930, 403950.

The site currently comprises an agricultural field. A public footpath crosses the site adjacent to the western boundary, and former railway cutting is located immediately beyond the northern boundary; a footbridge crosses the cutting adjacent to the north west corner.

The cutting, and the land immediately to the north, is predominantly covered with trees. A residential development is located to the north of the woodland and a further residential development is located at the south west corner of the site.

The site is boarded by agricultural fields to the east and south. An electricity substation is located approximately 80 m to the east of the site. A number of livestock fields are located to the west of the site with further residential dwellings beyond this.

West Moor Dike (a watercourse) is located at the eastern corner of the site, flowing from north to south.

The site roughly lies between 41 m AOD in the north west and 31 m AOD in the south east. The topography is slightly undulating, but generally slopes down towards the south with an average gradient of around 1 in 16.

In the north west, the former railway cutting is estimated to lie around 2.5 m below the level of the site; the sides of the cutting slope down at around 1 in 2 to 1 in 3. The cutting is expected to gradually shallow further towards the east, as the ground levels of the site reduce.

Photographs from the site walkover are included in the Appendix.

3.2 History

Historical Ordnance Survey maps have been reviewed in the Envirocheck to assess the previous use of the site and surrounding area. The maps, together with the Envirocheck, can be found in the Appendix.

3.2.1 The Site

The maps viewed, dated 1851 to 1854, show the site to be divided into two separate agricultural fields. A 'p' is shown in the centre of the site which could denote a pump. This feature is not shown on any later maps.

By 1961 the fence through the centre of the site has been removed and the site comprises one large field. No further significant changes were observed between 1961 and present day.

3.2.2 The Surrounding Area

Date	The Surrounding Area
1851	The site is surrounded by fields. A road follows the southern border of the site and West Moor Dike is located at the eastern corner, flowing from north to south.
1905	A railway cutting has been constructed along the northern site boundary.
1930	Goldthorpe Colliery is indicated 90 m north of the site, connected to the railway line via sidings. Spoil heaps are shown north of the railway line. Goldthorpe has also expanded, with dwellings as close as 100 m south west of the site. Allotments are shown adjacent to the west of the site.
1956 to 1966	Spoil heap associated with Goldthorpe Colliery increased in size to the north west and north east.
1976	The heaps to the north of the site are labelled as disused tips. Active workings are located 250 m north and east of the site.
1983	The heap has expanded to cover the area previously shown as active workings to the north east. The railway lane to the north has been removed, indicating the line in longer in use. Later maps however still show the line as present.
2000	Goldthorpe Colliery buildings are no longer shown.
2022	A residential development has been constructed on the former Goldthorpe Colliery site. New housing is also shown to the south west of the site.

3.3 Geology

The geological maps, SE40SE and 275 SE (1:10,560 scale), show the solid geology beneath the majority of the site to be mudstone and siltstone of the Pennine Middle Coal Measures. A fault crosses the south eastern tip of the site in a north east/south west orientation, downthrown to the south east. East of the fault the solid geology comprises the Ackworth Rock sandstone.

No superficial deposits are shown overlying the site. Alluvium (i.e. soft clays, silts, sands and gravels) is shown to be present directly to the south east of the site, associated with West Moor Dike.

The strata are shown to dip towards the north east with a dip of approximately 2º.

The area immediately to the north of the site is indicated to be made ground, likely associated with the former colliery.

3.4 Hydrogeology

The underlying bedrock is classified as a Secondary A Aquifer. This is defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

According to the Envirocheck, there are no active water abstractions within 500 m of the site. There are two water abstractions, located 280 and 284 m east of the site with revoked and lapsed licenses respectively. These were both surface water abstractions for general industrial purposes.

3.5 Hydrology

According to the Envirocheck, the nearest surface water feature is the West Moor Dike, 15 m south east of the site.

Information within the Envirocheck states that the site does not lie within a Groundwater Source Protection Zone.

3.6 Coal Mining

Map Sheet 87 and SE40SE indicate the Highgate coal to outcrop approximately 140 m south of the site on a roughly northwest southeast trend terminating at the fault which crosses the site. The Shafton coal seam is conjectured to outcrop around 600 m to the south west.

Annotations on the 275SE map shows the Highgate coal to be around 0.35 to 0.45 m thick, whilst the Shafton seam is around 1.5 m thick, with around 15 m of measures expected in between the two seams.

Based on the dip from the inferred outcrop, the Highgate coal is expected at around 10 to 20 m depth below this site, with the Shafton expected from around 25 to 35 m. Goldthorpe Colliery to the north of the site recorded the Highgate coal at around 30 m depth.

The historic maps viewed show Goldthorpe Colliery to the north of the site from 1930 and Barnburgh Main Colliery 500 m south east of the site from 1931.

The Highgate coal is understood to have been worked in localised areas, particularly near Highgate Colliery located 1.25 km north west of the site. The Shafton coal is known to be worked, and workings within the seam below new residential developments located to the south west of the site have been grouted. The Highgate seam here though was not found to be worked.

The site is recorded to be within a coal mining affected area; a Coal Authority (CA) Consultant Coal Mining Report has been obtained. This indicates that the site is directly underlain by a number of past underground mine workings, these are summarised in the following table.

Seam	Depth (m)	Extraction Thickness (m)	Year Last Mined
Shafton	33 to 44	1.6	1920
Newhill	263 to 292	1.68 to 1.75	1979
Meltonfield	282 to 313	1.23 to 1.27	1982
Top Hard Barnsley	422 to 437	1.83 to 2.18	1938
Parkgate	654 to 685	1.45 to 1.57	1955

The seams generally dip to the north east or east at around 2 to 3 degrees.

The Coal Authority (CA) Report states that the site is not within an area of unrecorded shallow mine workings and that there are no shallow spine roadways.

The CA Report states that there are two mine entries recorded within 100 m of the site; these are both approximately 90 m north of the site. The CA reports these have been capped with a vent pipe at rockhead in 2006. Both capped mine entries are located within a housing development. It should be noted that the CA records are not exhaustive and further unrecorded shafts could exist within the vicinity of the site.

According to the Summary of Findings map, a fault on a north east-south west trend crosses the eastern corner of the site. This agrees with the fault recorded in a similar location on geological map Sheet 87.

No opencast mines or Coal Authority managed tips are recorded within 500 m of the site.

A damage notice or claim of alleged subsidence damage was made in April 1997 for the land immediately to the west of the site. However, the claim was rejected.

A mine gas remediation works site is recorded 334 m north east of the site. No report is available to purchase from the Coal Authority on this. Annotations on the geological map indicate the remediation may relate to a former mine entry located within Ackworth Rock sandstone i.e. geologically younger strata.

The property is in an area where a notice to withdraw support was given in 1982.

The Coal Authority is not aware of any requests having been made to carry out preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

To conclude, although the Highgate coal is expected at shallow depth it is not expected to have been worked below this site. As part of their investigation, Sirius drilled six rotary boreholes across the site to 30 m bgl. An intact coal seam 0.1 to 0.6 m thick was encountered from 9.0 to 18 m bgl.

Precautions against the effects of shallow coal mining are not therefore considered to be required.

3.7 Ground Gas

According to the Envirocheck the site is within an intermediate probability radon area, where 1 to 3% of homes are estimated to be at or above the action level. No radon protection levels are therefore necessary in the construction of new dwellings or extensions.

Significant depths of made ground are not expected on site. However, BGS map sheets 87 and SE40SE indicate the area immediately to the north of the site to comprise made ground, likely associated with the former Goldthorpe Colliery.

According to the Envirocheck there are no historical landfill sites, active landfills sites or areas of infilled land within 250 m of the site.

A mine gas remediation works site is recorded 334 m north east of the site. It is assumed that the mine gas remediation relates to a former mine entry, and therefore deeper coal workings. Given the fault zone which links the site to this strata, a ground gas monitoring program is recommended.

As part of their investigation, Sirius installed five gas and groundwater monitoring wells across the site to depths of between 2.0 and 3.0 m bgl. Six monitoring rounds were undertaken between May and July 2022, finding no detectable methane and a maximum carbon dioxide concentration of 2.3%. The maximum peak gas flow rate was 2.0 l/hr and the maximum steady flow rate 0.1 l/hr. Although this monitoring indicates no gas measures are required, additional monitoring is recommended to target the northern boundary of the site and ensure that the made ground north of the site does not pose a significant gas risk.

3.8 Pollution Incidents to Controlled Waters

There is one recorded pollution incident within 500 m of the site. The incident is located 68 m south east of the site, when mining water entered a freshwater stream in 1994. It was classified as a Category 3 Minor Incident. Due to the minor nature and age of the incident, it is not considered to pose significant risk to the site.

3.9 Local Authority Pollution Prevention and Controls

Accordioning to the Envirocheck there are no active Local Authority Pollution Prevention Control within 500 m of the site. There is one Local Authority Pollution Prevention Control with revoked authorisation located 109 m north east of the site which related to British Coal and coke and coal product processes.

3.10 Discharge Consents

The Envirocheck records one discharge consent located within 250 m of the site. This is located 1 m east of the site, operated by British Coal, relating to trade effluent discharging into freshwater stream/river. The status is not supplied.

3.11 Flooding

The Envirocheck records that the site is not at risk of flooding from rivers or the sea. Small portions of the east and south west of the site (approximately 10% of the site) are recorded have a low risk (1,000 year return) of surface water flooding.

The eastern tip of the site is recorded to have a limited potential for groundwater flooding to occur.

3.12 Soil Geochemistry

The Envirocheck estimates the following concentrations of arsenic, cadmium, chromium, nickel and lead to be present in the natural soil at the site. These have been compared to the appropriate assessment value protective of residential human health receptors with homegrown produce.

Contaminant	Estimated Concentration (mg/kg)	Assessment Value (mg/kg)
Arsenic	15 to 25	37
Cadmium	<1.8	11
Chromium	60 to 90	910
Lead	<100	200
Nickel	15 to 30	180

The concentrations of these contaminants are not therefore expected to be elevated within natural ground.

3.13 Contemporary Trade Directory Entries and Fuel Station Entries

There is one active contemporary trade directory entry recorded within 250 m of the site. This is located 62 m west of the site and related to domestic cleaning services.

There are no fuel stations within 250 m of site.

4.0 EXPECTED GROUND CONDITIONS

4.1 Topsoil

Between 0.2 and 0.4 m of topsoil covers the site.

4.2 Made Ground

No made ground is expected, and none of Sirius' exploratory holes recorded any made ground.

4.3 Natural Ground

Sirius encountered weathered cohesive Pennine Coal Measures strata to depths of 0.9 to 2.2 m bgl underlain by weak mudstone.

4.4 Groundwater

West Moor Dike flows from north to south immediately east of the site.

Groundwater monitoring completed by Sirius recorded groundwater between 0.57 and 2.38 m bgl, however no groundwater strikes were recorded in any of the exploratory holes. It should be noted that the groundwater monitoring period was over summer months and that groundwater levels are often shallower in the winter months.

Shallow ground water conditions may therefore be encountered.

5.0 OUTLINE CONCEPTUAL MODEL

The site is being considered for residential development including private gardens and soft landscaping.

5.1 Potential Sources of Contamination

Historically, the site has not been developed previously and no past contaminative uses have been identified.

None of the topsoil or natural ground samples tested by Sirius recorded elevated concentrations when compared against generic assessment criteria for a residential with home-grown produce end use.

5.2 Ground Gas

Radon precautions are not required.

Although previous monitoring indicated no gas measures are required, additional monitoring is required to confirm the extensive area of made ground to the north of the site

5.3 Potential Pollutant Linkages

The table below details the possible sources and associated contaminants of concern, pathways and receptors:

Source	Potential Contaminants	Potential Pathways	Potential Receptors
Made ground offsite to north Deep coal workings via fault zone	Methane, Carbon dioxide	Inhalation Migration through ground	Site residents and visitors to the site Buildings

5.4 Remedial Measures

Significant contamination is not expected, therefore the site won topsoil and natural ground are expected to be suitable for re-use, subject to a more intensive testing programme.

At this stage, Amber 1 gas measures should be allowed for in plots adjacent to the northern site boundary. This is subject to the results of additional gas monitoring.

6.0 GEOTECHNICAL APPRAISAL

6.1 General

The site is proposed for development with residential housing with associated private gardens.

The shallow ground conditions comprise topsoil up to 0.4 m over firm to stiff cohesive strata. Shallow water is expected to be present.

It is recommended that plots are kept at least 5 m from the former railway cutting to the north to avoid destabilising the slope. If plots are positioned closer than 5 m, ground conditions will need to be reviewed.

6.2 Foundations

The most appropriate foundation solution for any future development is likely to be strip or trench fill foundations taken onto undisturbed competent natural ground. Assuming a medium volume change potential for cohesive soils, the minimum footing depth is likely to be 900 mm. The volume change potential would need to be determined as part of an intrusive investigation.

A fault is present below the eastern corner. Should a difference in ground be noted in this area, for example a mudstone and sandstone interface, overlying foundations should be thickened and reinforced.

Where trees will influence the foundations in cohesive soils, the footing depth should be increased in accordance with the guidance given in Chapter 4.2 of the NHBC standards. Where the footing depth due to tree influence will exceed 1,500 mm, heave precautions should be added in the form of a compressible material on the inner face of the perimeter footings to each plot.

6.3 Ground Slabs

Where less than 600 mm of made ground is present, ground bearing slabs will be appropriate.

Where there is more than 600 mm of made ground, reinforced suspended slabs or precast concrete floors with an underlying void will be required.

6.4 Superstructure Precautions

No additional precautions are likely to be proposed in the superstructure of buildings due to the ground conditions.

6.5 Excavation Problems & Obstructions

Shallow bedrock may be encountered from around 1.0 m bgl.

A ‘p’ is shown in the centre of the site on the 1851 historical map which could denote a pump. If encountered during construction, the feature will need capping.

Groundwater strikes were not recorded in any of the exploratory holes completed by Siruis during their May 2022 site investigation, however, subsequent groundwater monitoring recorded groundwater as shallow as 0.57 m bgl east of centre of the site. Shallow groundwater may therefore be encountered particularly if excavations are left open for an extended period of time. It should be noted that the groundwater monitoring was completed during summer months and that groundwater levels are often shallower over the winter.

The stability of trenches may be poor in made ground, if present, and if shallow groundwater is encountered. Support will therefore be required in accordance with current Health & Safety Regulations wherever access is required to trenches deeper than 1.2 m or less where there is risk of collapse.

6.6 Roads

A CBR value of at least 2% is likely to be appropriate for road design. The ground should be assumed to be frost susceptible and a minimum construction thickness of 450 mm will therefore apply. It is recommended that CBR tests are undertaken along any proposed roads prior to construction so that more accurate CBR values can be obtained.

6.7 Surface Water Drainage

The ground conditions are expected to comprise weathered Pennine Middle Coal Measures Formation comprising clay and weak mudstone. Given the cohesive nature of the weathered bedrock surface water drainage via ground soakage will not be viable for the proposed development.

7.0 RECOMMENDATIONS FOR FURTHER WORK

Before more definite information regarding the properties of the ground and any contamination present can be given, an intrusive ground investigation will be required. Investigation by mechanically dug trial pits would be the preferred method of investigating the soils on site, as this allows a larger volume of soil to be viewed.

Gas monitoring is recommended to confirm the level of gas measures required.

The potential pollutant linkages presented in Section 5.3 will need to be investigated by means of soil analysis. The chemical testing suite should be chosen to cover the range of potential contaminants indicated. Geotechnical testing should be carried out on clay soils to determine their volume change potential.

Appendix 1

Site Walkover Photographs



View towards the site entrance from Barnburgh Lane



View east from the site entrance across the south of the site

Job No.	47619	Prepared	DN	Checked	KE	Date	29/11/2022	Photograph Number	1 & 2

HOMES BY HONEY

BARNBURGH LANE, GOLDTHORPE

SITE WALKOVER PHOTOGRAPHS

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Eastern corner of the site



View east from the eastern corner along the northern boundary

Job No.	47619	Prepared	DN	Checked	KE	Date	29/11/2022	Photograph Number	3 & 4

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View from northern boundary towards south west corner



View north along western boundary

Job No.	47619	Prepared	DN	Checked	KE	Date	29/11/2022	Photograph Number	5 & 6

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View west along northern boundary from north west corner



View west along former railway cutting immediately to north of site from footbridge adjacent to north west corner

Job No.	47619	Prepared	DN	Checked	KE	Date	29/11/2022	Photograph Number	7 & 8

HOMES BY HONEY

BARNBURGH LANE, GOLDTHORPE

SITE WALKOVER PHOTOGRAPHS

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Appendix 2

Landmark Envirocheck

Consultants Coal Mining 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

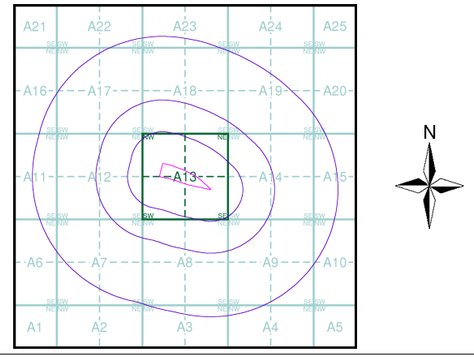
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community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

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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1851 - 1855	2
Yorkshire	1:10,560	1893	3
Yorkshire	1:10,560	1894	4
Yorkshire	1:10,560	1903 - 1907	5
Yorkshire	1:10,560	1931 - 1932	6
Yorkshire	1:10,560	1938 - 1948	7
Yorkshire	1:10,560	1948 - 1950	8
Ordnance Survey Plan	1:10,000	1956	9
Ordnance Survey Plan	1:10,000	1966	10
Ordnance Survey Plan	1:10,000	1976	11
Ordnance Survey Plan	1:10,000	1983 - 1988	12
Ordnance Survey Plan	1:10,000	1991	13
10K Raster Mapping	1:10,000	2000	14
10K Raster Mapping	1:10,000	2006	15
VectorMap Local	1:10,000	2022	16

Historical Map - Slice A



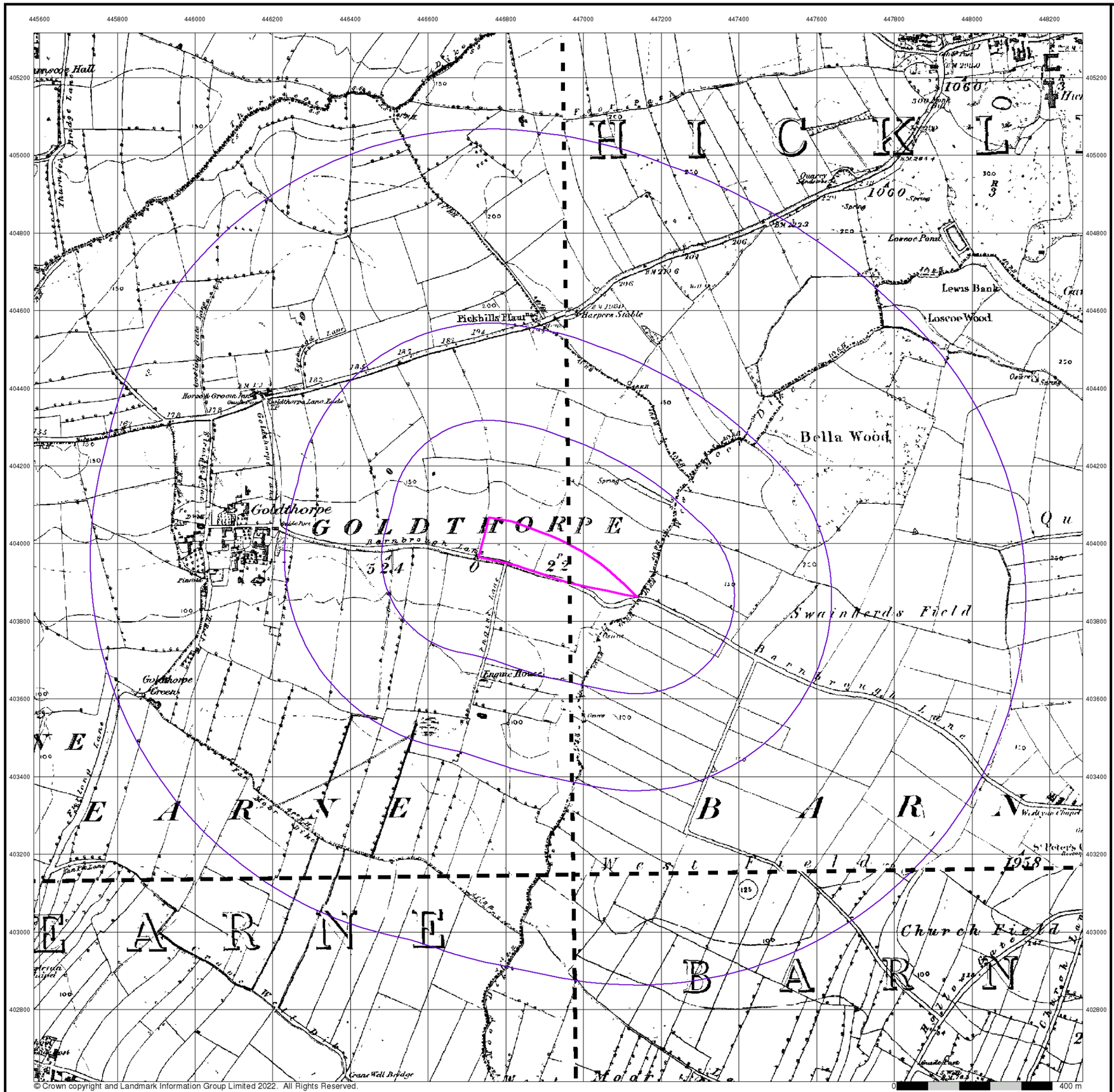
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Slice:	A
Site Area (Ha):	3.36
Search Buffer (m):	1000

Site Details

Site at 446900, 403970

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Yorkshire

Published 1851 - 1855

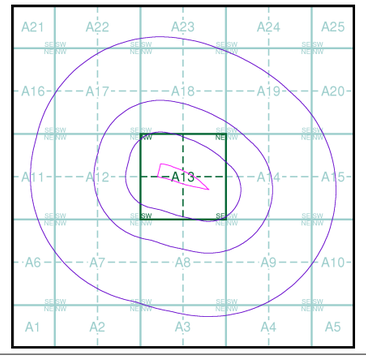
Source map scale - 1:10,560

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Map Name(s) and Date(s)

27500 1854 1:10,560	27600 1851 1:10,560
28300 1855 1:10,560	28400 1854 1:10,560

Historical Map - Slice A



Order Details

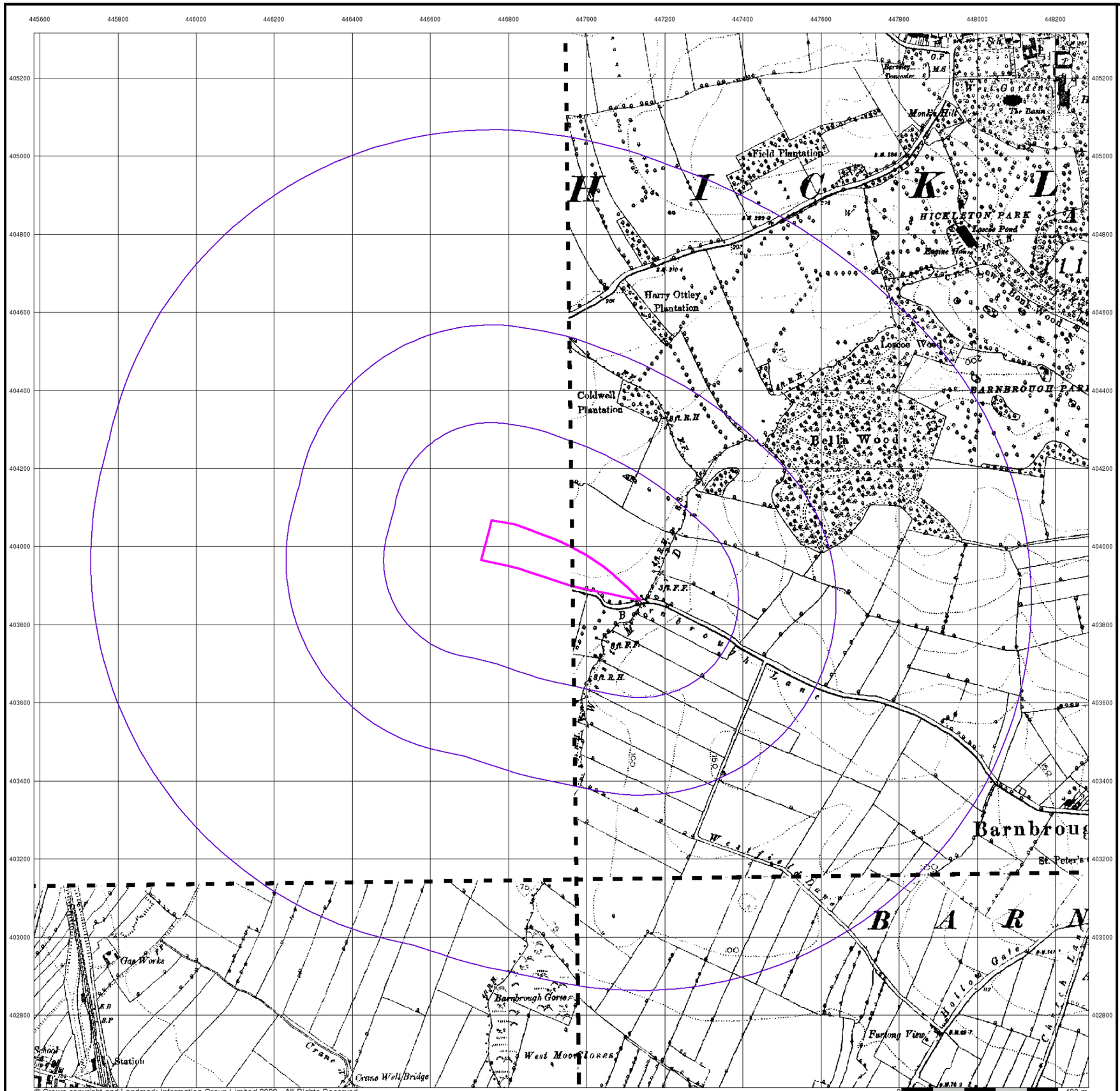
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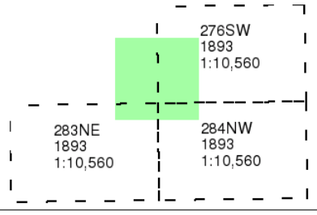
Yorkshire

Published 1893

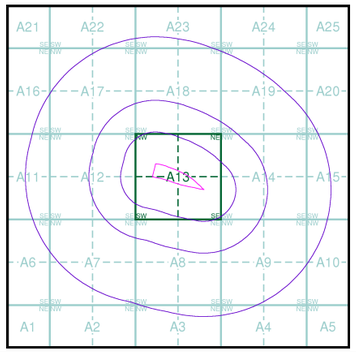
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

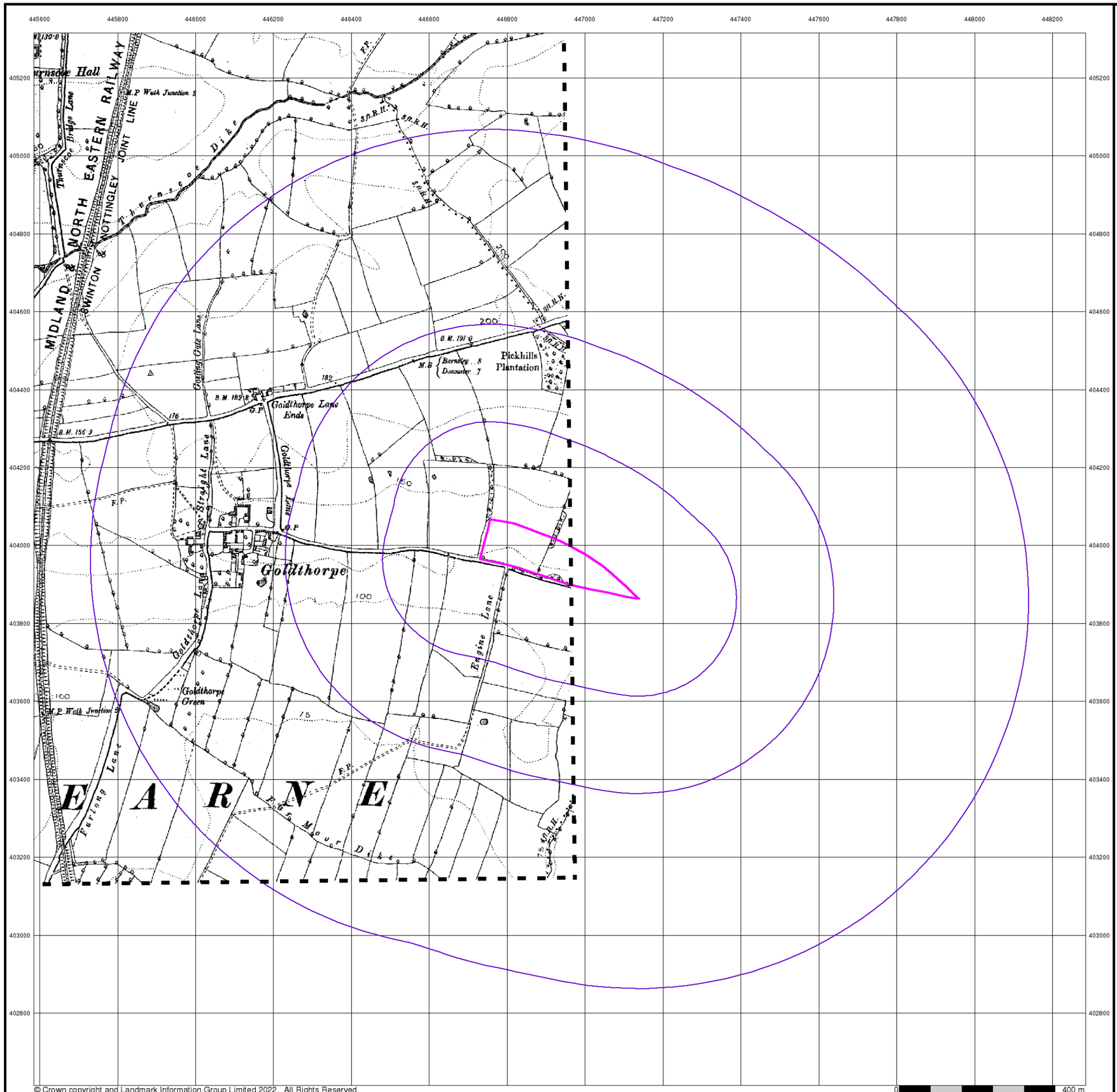
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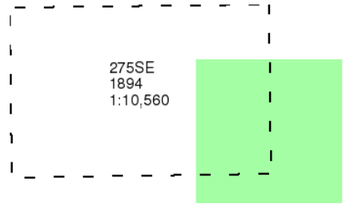
Yorkshire

Published 1894

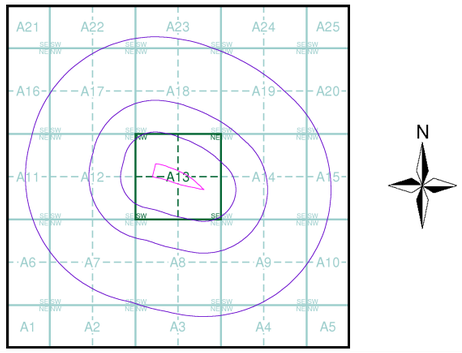
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



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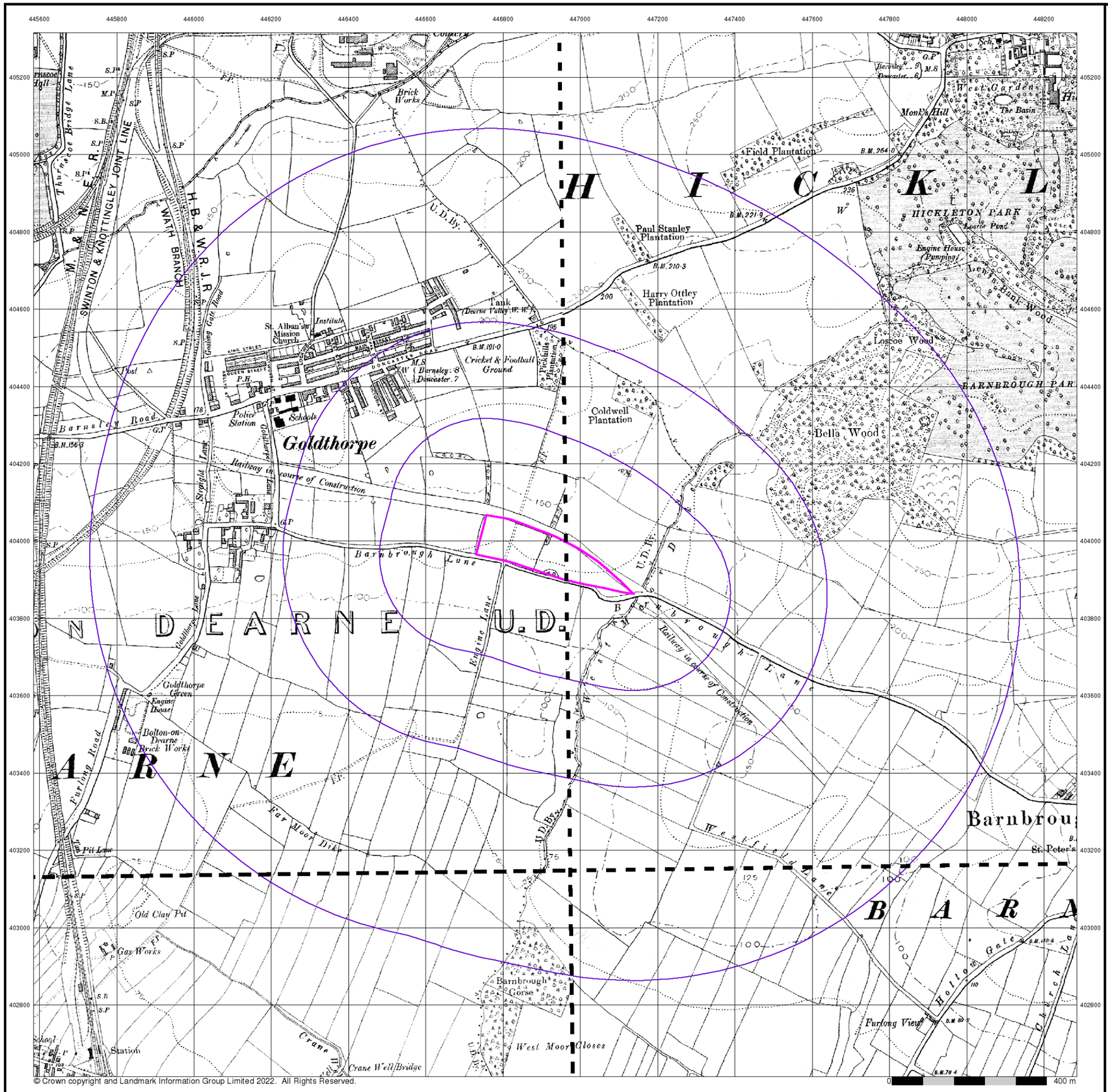
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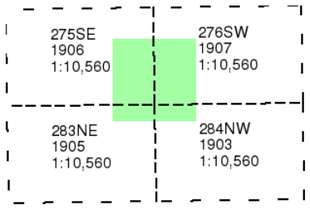
Yorkshire

Published 1903 - 1907

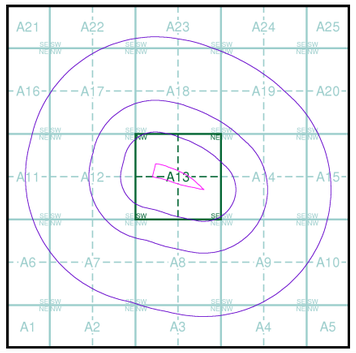
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

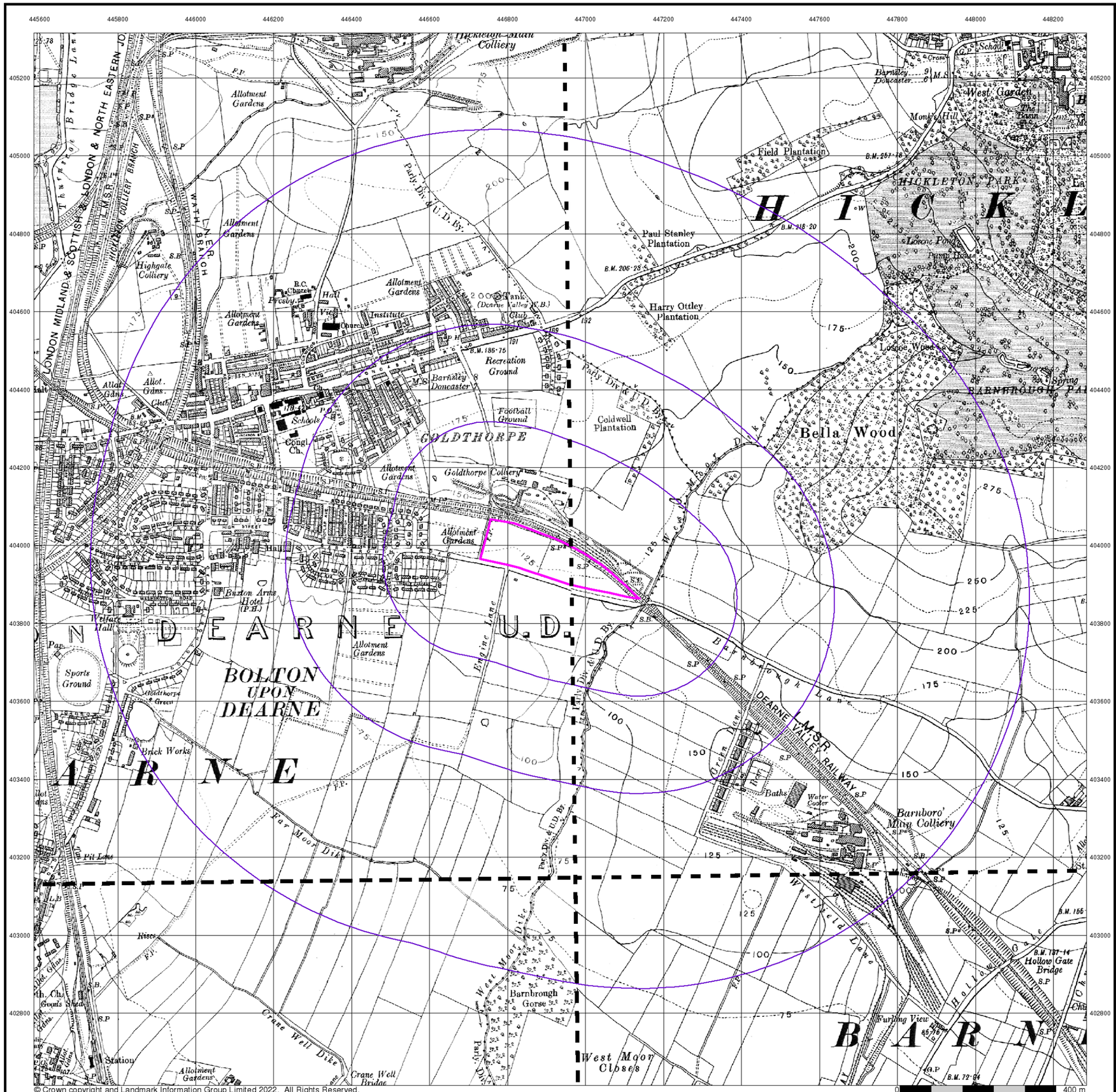
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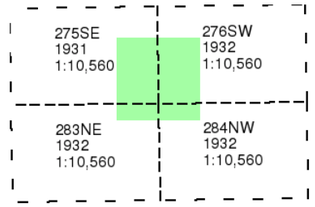
Yorkshire

Published 1931 - 1932

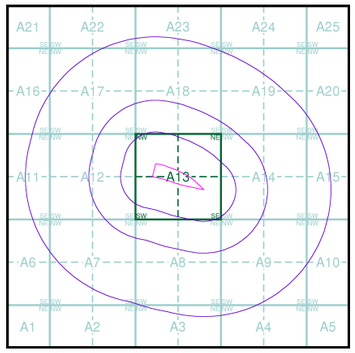
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

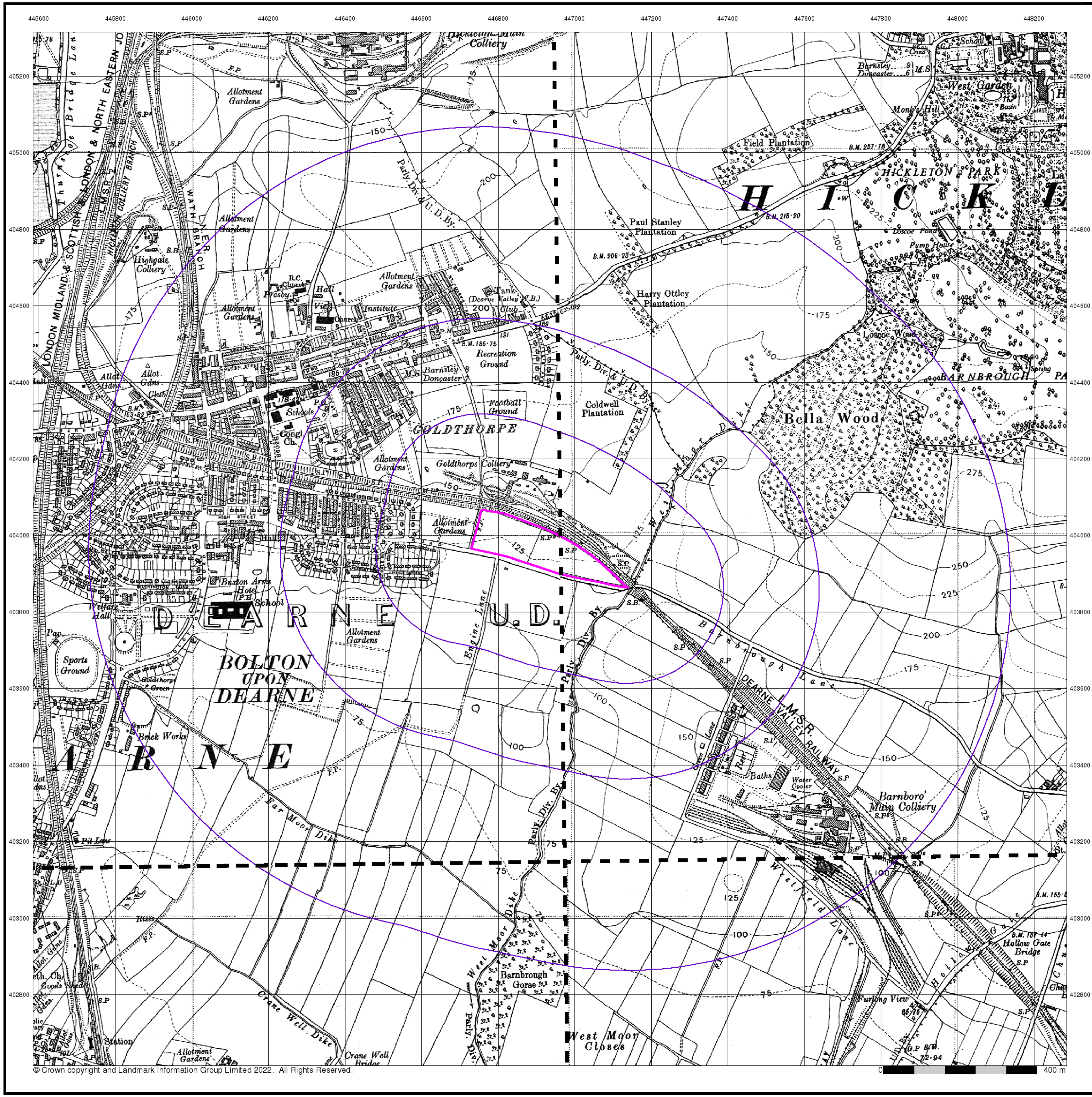
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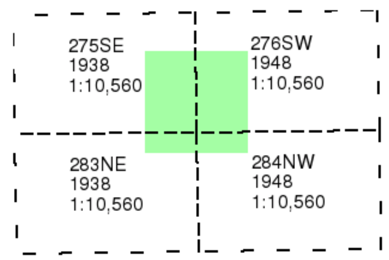
Yorkshire

Published 1938 - 1948

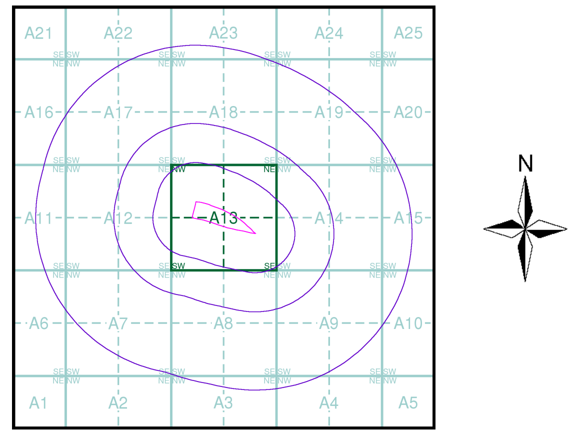
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



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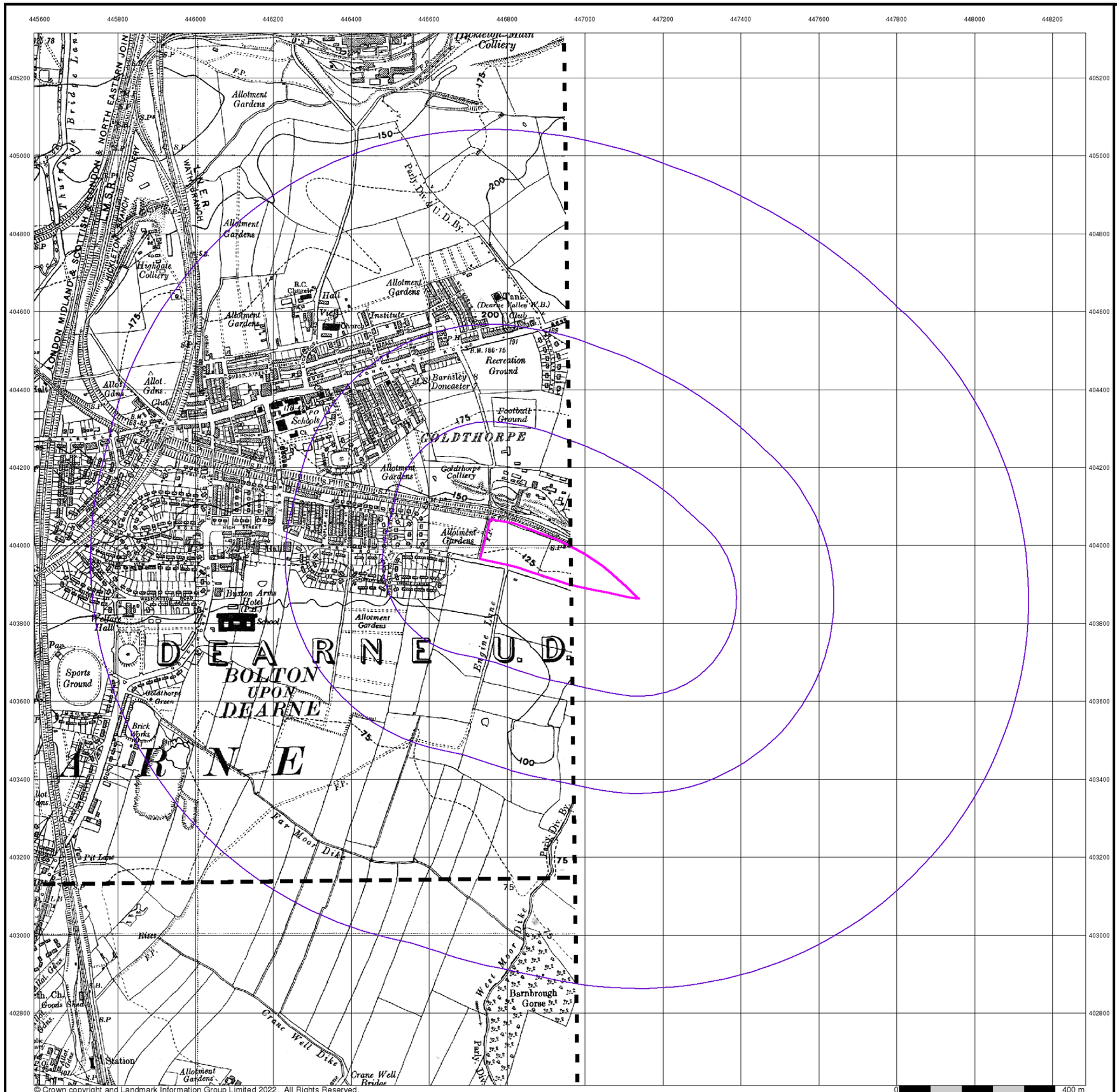
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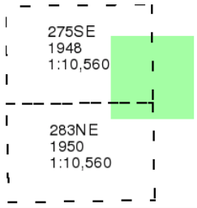
Yorkshire

Published 1948 - 1950

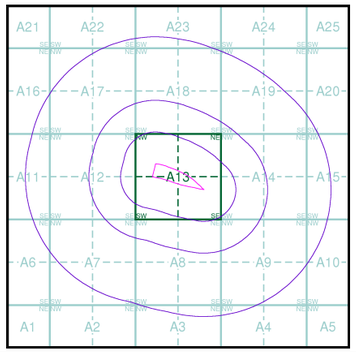
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Map Name(s) and Date(s)



Historical Map - Slice A



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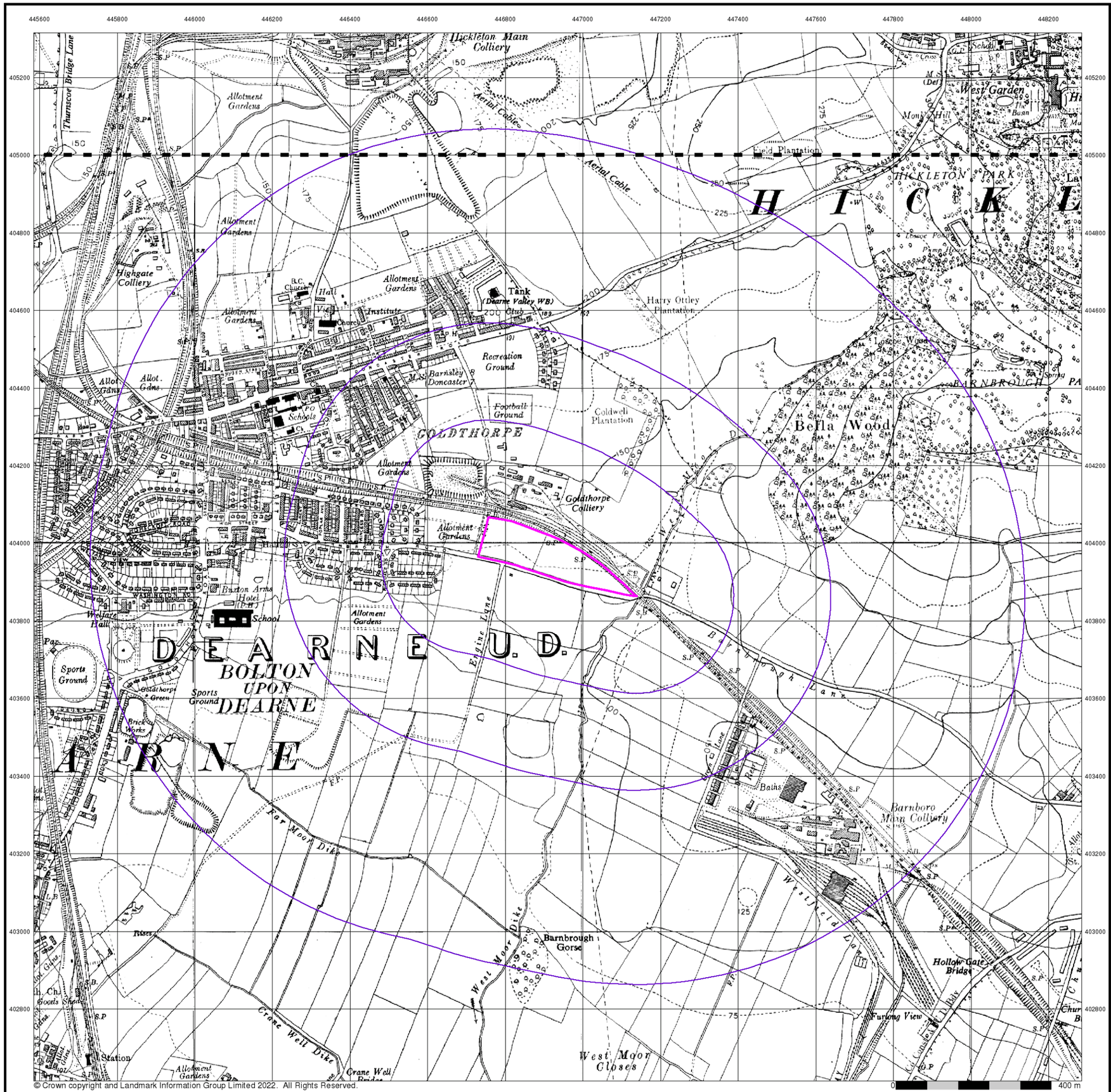
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Ordnance Survey Plan

Published 1956

Source map scale - 1:10,000

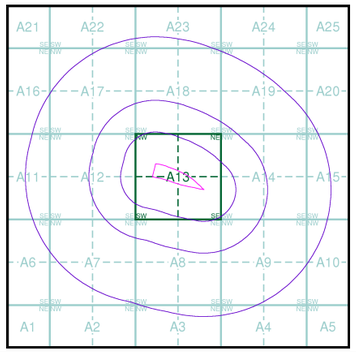
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Map Name(s) and Date(s)

SE40NE
1956
1:10,560

SE40SE
1956
1:10,560

Historical Map - Slice A



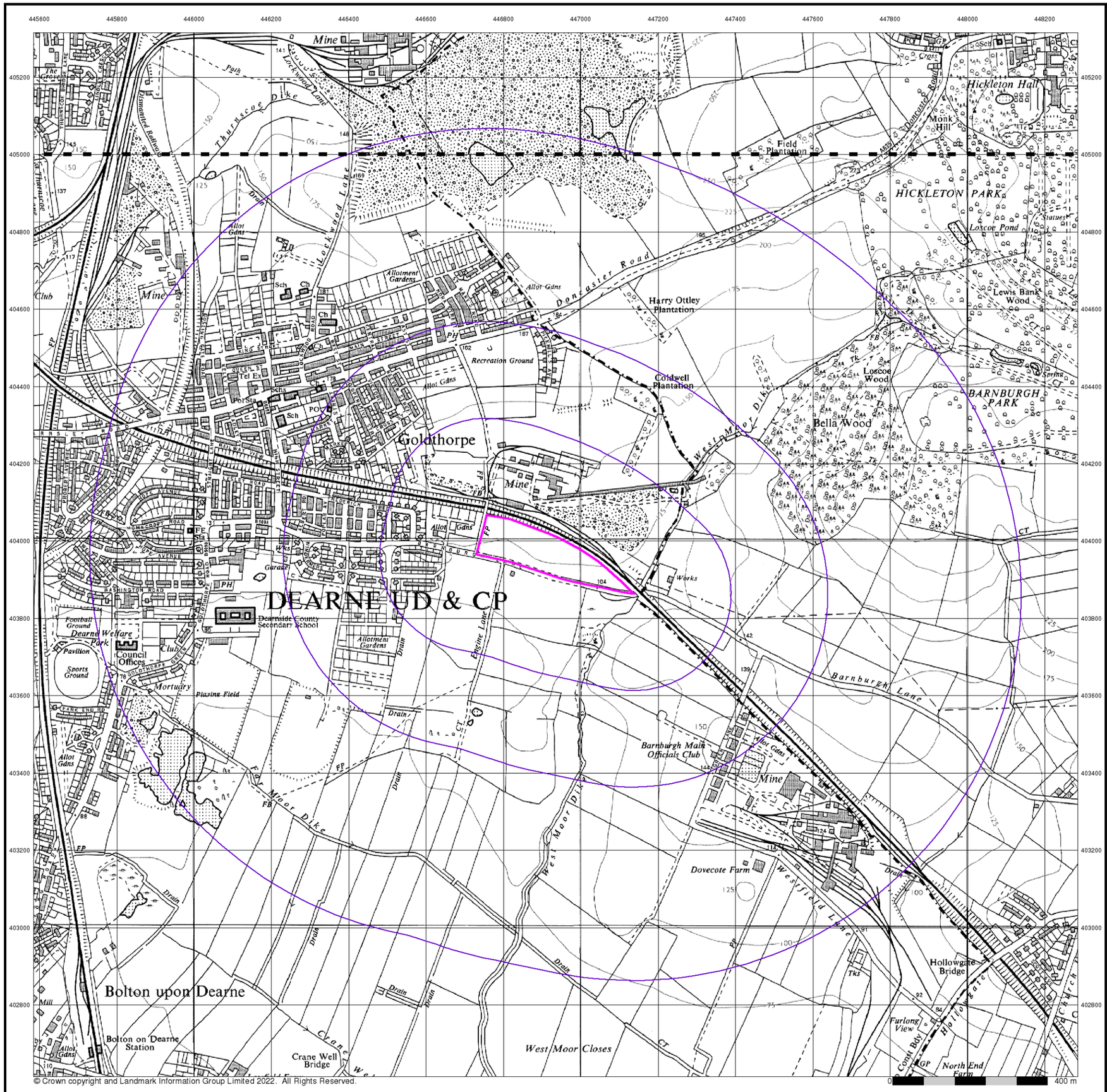
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Ordnance Survey Plan

Published 1966

Source map scale - 1:10,000

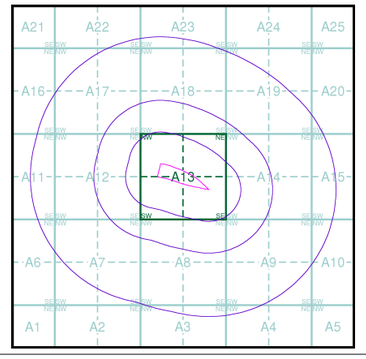
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Map Name(s) and Date(s)

SE40NE
1966
1:10,560

SE40SE
1966
1:10,560

Historical Map - Slice A



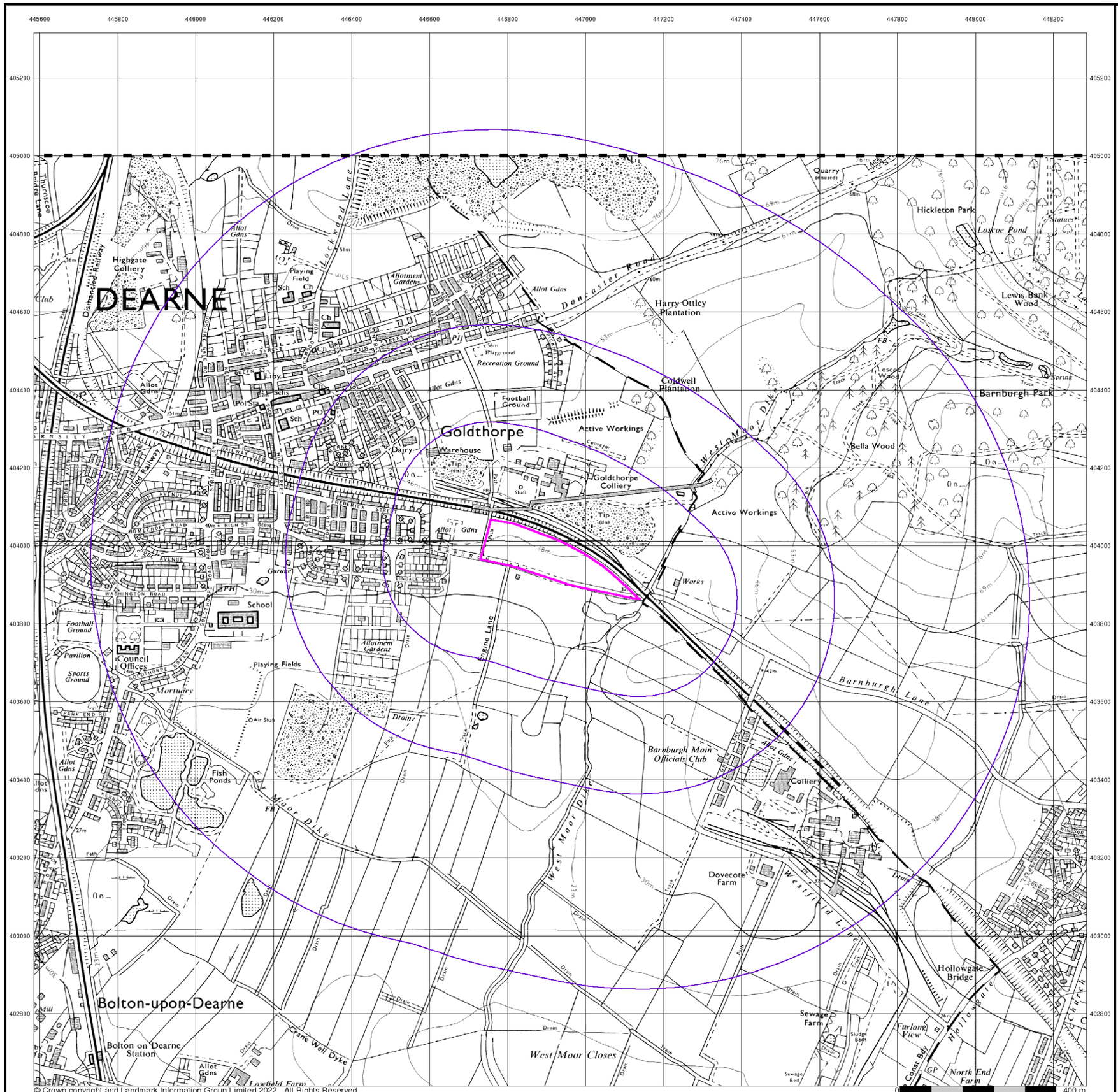
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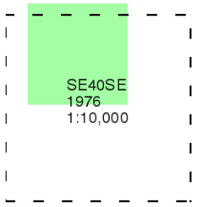
Ordnance Survey Plan

Published 1976

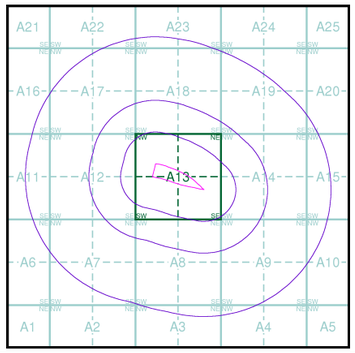
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

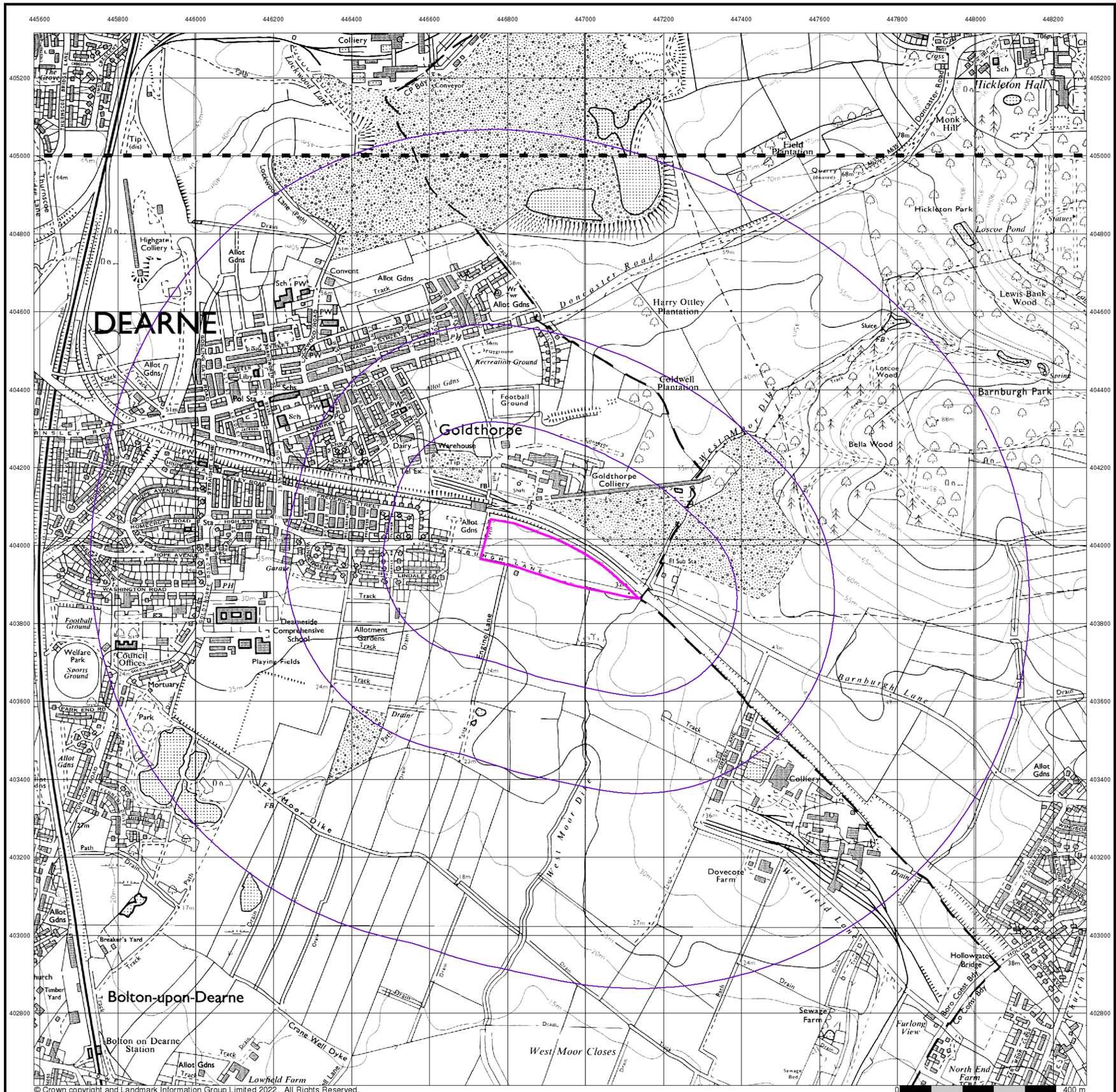
Order Number:	304657582_1_1
Customer Ref:	47619
National Grid Reference:	446930, 403950
Slice:	A
Site Area (Ha):	3.36
Search Buffer (m):	1000

Site Details

Site at 446900, 403970

Landmark INFORMATION GROUP

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Ordnance Survey Plan

Published 1983 - 1988

Source map scale - 1:10,000

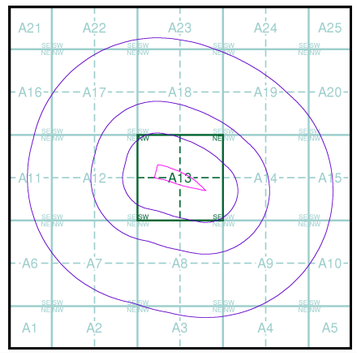
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Map Name(s) and Date(s)

SE40NE
1983
1:10,000

SE40SE
1988
1:10,000

Historical Map - Slice A



Order Details

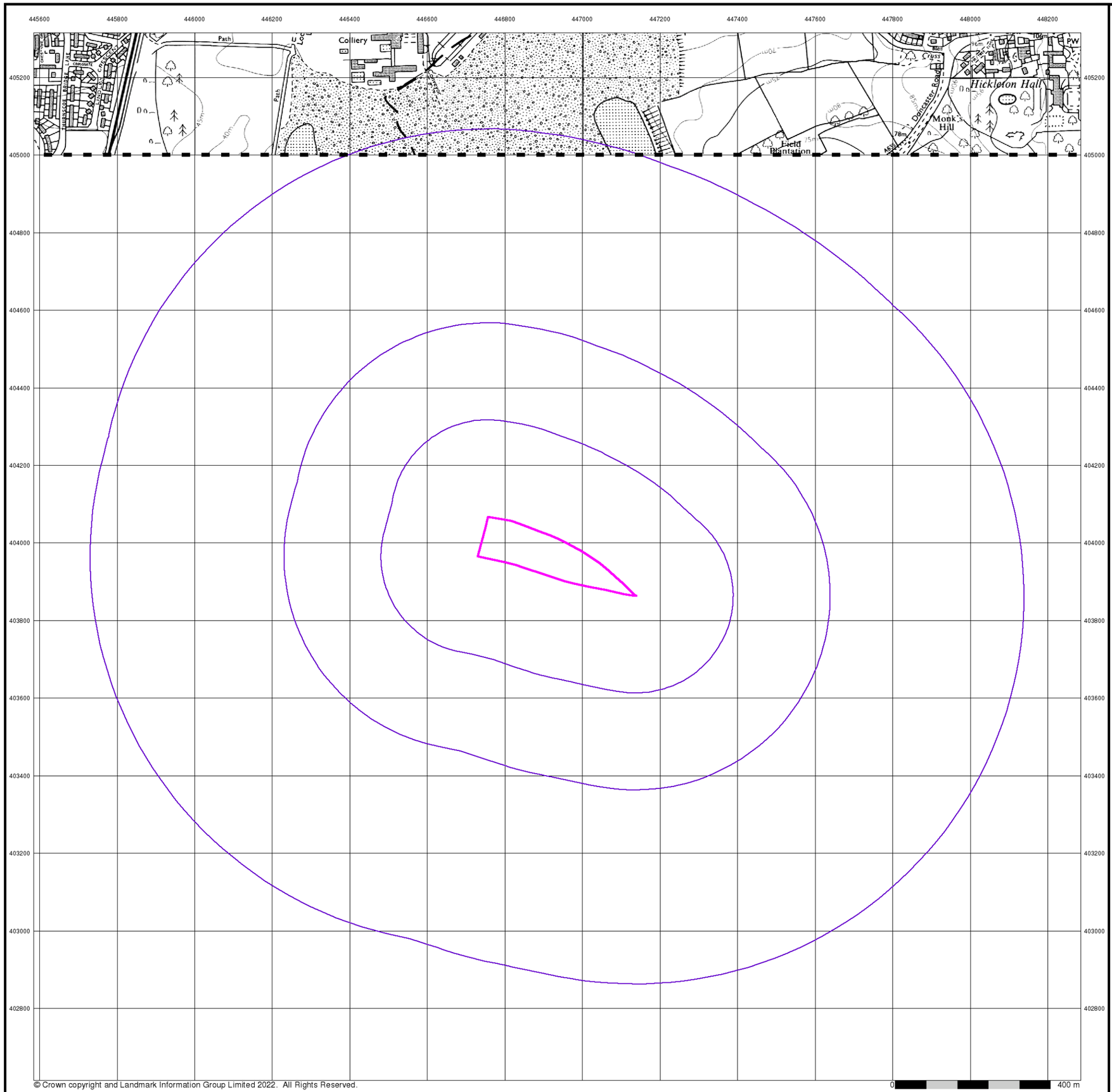
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Ordnance Survey Plan

Published 1991

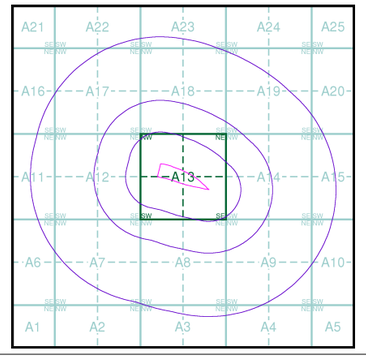
Source map scale - 1:10,000

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Map Name(s) and Date(s)

SE40NE
1991
1:10,000

Historical Map - Slice A



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