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14a Chapel Road, Hanham, Bristol Proposed Commercial Development Phase One Coal Mining Risk Assessment

Report Reference: ESP.8893.4078

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14a Chapel Road, Hanham, Bristol Proposed Commercial Development Phase One Coal Mining Risk Assessment

Prepared for:

Independent Welding Services (IWS) c/o G Rendall & E Thompson 14a Chapel Road Hanham Bristol



Report Reference: ESP.8893.4078

Revision	Status	Date	Written by	Checked and approved by		
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General Notes



Executive Summary

Independent Welding Services (IWS), hereafter known as the Client, are proposing to redevelop a site for commercial purposes, located off Chapel Road in the Hanham area of Bristol. The proposed development comprises a storage unit within the west/northwest of the site, with remainder of the site to be hardstanding with areas of vehicle parking. The site lies within an area of past coal mining, and there is the potential for shallow mine workings beneath the site. The Earth Science Partnership have been instructed by the Client to prepare a Phase One (desk study based) Coal Mining Risk Assessment (CMRA) for the proposed development.

The site lies above the Coal Measures bedrock (Downend Member) with the Parrot coal seam shown to crop out conjecturally (west-east) across the approximate centre of the site. The strata dips to the southwest, with evidence from the geological mapping and Coal Authority showing an approximate dip angle of 20°, therefore this coal seam would be expected to underlie the south margins of the site, as shown on Figure 3.

A discrepancy between the published geological mapping and the information provided by the Coal Authority has been identified. The Parrot seam is indicated to crop out on site; however, the Coal Authority report (see Appendix B) indicates the shallowest working at the site to be within the Parrot seam at a depth of 26m; therefore, it could not crop out on site. The Coal Authority report also names the parrot seam as the seam outcropping on site.

Based on the Conceptual Model presented as Figure 3, if the Parrot seam is located at 26m beneath the site, then the outcrop location would be approximately 77m northeast of the site.

The stratigraphical section shown on the geological map indicates that the Parrot Coal seam is up to 3.0m in thickness and therefore is likely to have been worked in the area.

The Coal Authority identify 'probable' shallow coal mine workings beneath the site within and identify the site as lying within a 'Development High Risk Area'. Based on the presently available information, we anticipate that the subsidence risk above any workings within the Parrot seam could be High to the south of the outcrop i.e. possibly beneath the south margins of the site.

At this stage and due to the uncertainty of the outcrop of the Parrot seam (on site or to the northeast), we consider that the subsidence risk could be **High**.

The precise position of the Parrot coal seam outcrop on the site (if present) will control the degree of subsidence risk to the proposed development - subsidence risks could be high to the south of the seam outcrop, but low to the north. Therefore, further intrusive investigation in the form of rotary drilling and probably trial trenching would be required to confirm the location of the seam outcrop and the depth to the various coal seams beneath the site.

If the seam outcrop lies within the site (as published on the geological mapping and within the Coal Authority report), there are also potential risks from old mine entries, mine gas and combustible soils which would need to be considered further.



1 Introduction

1.1 Background

Independent Welding Services (IWS), hereafter known as the Client, are proposing to redevelop a site located off Chapel Road in the Hanham area of Bristol. The site location is shown on Insert 1 in Section 2.1.

The site lies in an area of past coal mining and therefore, the Earth Science Partnership Ltd (ESP), Consulting Engineers, Geologists and Environmental Scientists, have been instructed by David Cahill Design Consultants Ltd, acting on behalf of the Client and hereafter known as the designer, to prepare a Phase One (desk study based) coal mining risk assessment (CMRA) to evaluate potential risks posed by past mine workings on the proposed development.

The proposed development comprises a storage unit within the west/northwest of the site, with remainder of the site to be hardstanding with areas of vehicle parking. The proposed layout is presented as Figure 1.

We are not aware of any mining related planning conditions applicable to the site.

1.2 Objective and Scope of Works

The scope of works of this preliminary risk assessment is in general accordance with the published Coal Authority guidance on a risk-based approach to development (Coal Authority, 2014). Specifically:

- to obtain and review relevant desk study data on the site relating to past coal mining; and
- to identify and evaluate the risks (individually and cumulatively) to the proposed development (based on desk study data on at this stage).

The precise scope of works was mutually developed and agreed with the Client by ESP within an agreed budget and comprised a desk study review of available historical Ordnance Survey maps, geological maps, memoirs, and a Coal Authority mining report obtained for the site by ESP, assessment, and reporting. No site reconnaissance visits, or intrusive investigation has been undertaken at this stage.

The contract was awarded based on a competitive tender quotation. The terms of reference for the assessment are as laid down in the Earth Science Partnership email proposal of 12th March 2024. The assessment was undertaken in March 2024.

1.3 Report Format

This report includes a summary of the desk study information reviewed (Section 2), followed by a preliminary assessment of the risks from mining features (Section 3). Recommendations for further intrusive investigation are provided in Section 4.

This report is issued as a digital version only.

1.4 Limitations of Report

This report represents the findings of an assessment of risks associated with possible past shallow coal mining and mine entries on the site. The brief did not require an assessment of the implications for any other end use, nor of other geotechnical or geo-environmental hazards (e.g., contamination, slope stability and gas risks).

Proposed Commercial Development 14a Chapel Road, Hanham, Bristol



These potential ground hazards may require further assessment prior to development. It should also be appreciated that no site reconnaissance visits, or intrusive investigation has been completed at this stage. The report is not a comprehensive site characterisation and should not be construed as such.

Where preventative, ameliorative or remediation works are required, professional judgement will be used to make recommendations that satisfy the site-specific requirements in accordance with good practice guidance.

Consultation with regulatory authorities will be required with respect to proposed works as there may be overriding regional or policy requirements which demand additional work to be undertaken. It should be noted that both regulations and their interpretation by statutory authorities are continually changing.

This report represents the findings and opinions of experienced geo-environmental and geotechnical specialists. Earth Science Partnership does not provide legal advice and the advice of lawyers may also be required.



2 Desk Study Review

The information presented in this section was obtained from desk-based research undertaken including a review of historical maps, Coal Authority information, geological maps, and further readily available desk study information.

No site visit has been undertaken as part of this assessment.

2.1 Site Location and Description

The site is located north of Lower Chapel Road, west of Chapel Road, in eastern Bristol. The National Grid Reference of the approximate centre of the site is (ST) 364199, 172427 and the postcode is BS15 8SD. A Site Location Plan is presented as Insert 1 below.



Insert 1 - Site Location Plan from Ordnance Survey 1:25,000 scale map. Reproduced with permission (OS License No.: AL100015788).

Based on the information provided by the designer, and readily available desk study data, the site is in a predominantly residential area, and is currently occupied by N.W. Autobodies (a car repairs and MOT garage) in the area of the proposed storage unit, with surrounding hardstanding and vehicle parking.

The site comprises a roughly rectangular shaped parcel of land with the east portion slightly wider. The site is approximately 40m in length (northwest to southeast) and around 15m wide at its widest point in the southeast, narrowing to around 10m wide to the northwest. Vehicular access to the site is currently gained via a gate on the southeast boundary.

It is bounded by:

- To the north: residential properties and gardens.
- To the east: Chapel Road, followed residential properties.
- To the south: residential properties, followed by Lower Chapel Road.
- To the west: Residential properties and the north extent of Lower Chapel Road.



A topographic survey has been provided by the Client (see Figure 1) and indicates a ground level of around 71m AOD in the southeast, lowering to around 70.2 in the northwest.

2.2 Site History

2.2.1 Published Historical Maps

The site history (with regards to the mining legacy in the area) has been assessed from a review of available historical Ordnance Survey County Series and National Grid maps. The historical maps are presented in Appendix A and the salient features since the First Edition of the County Series maps are summarised in Table 1 below.

Table 1: Review of Historical Maps

Date	On-Site	In Vicinity of Site			
1882	The site is shown to be an area of	Three probable residential properties are located			
	vacant land within an area of likely	immediately adjacent to the south/southwest			
	residential properties in the area of	boundary, with an unnamed road within 5m of the			
	Hanham.	east boundary. Eight wells are identified within			
		100m of the site. The surrounding area largely			
1902-	A building marginally encroaches onto	comprises the suburb of Hanham. Hanham Colliery is shown approximately 500m			
1904	the site in the northwest, extending off	southwest, with associated Engine House and			
1504	site to the south/southwest.	tramway. Several old quarries and quarries are			
	Site to the south southwest.	noted more than 750m from the site in several			
		directions.			
1912-	A boot factory is shown on site.	No significant changes identified.			
1921					
1938	No significant changes identified.	Hanham Colliery s no longer shown; however, the			
		associated infrastructure and Tramway appear to			
1948	An unnamed building is now shown in	remain.			
1940	An unnamed building is now shown in the location of the existing building.	The surrounding area now resembles the present- day layout.			
1951-	Three small buildings are now shown in	The surrounding area now resembles the present-			
1955	the northwest,	day layout.			
1958-	The three small buildings in the	No significant changes identified.			
1988	northwest are now a single, slightly				
	larger building and the site resembles				
	the current layout.				
1988-	No significant changes identified.	No significant changes identified.			
present					
Notes:	Historical mana presented in Appandix A				
	 Historical maps presented in Appendix A. Features may have been present on site before or between the dates of the-mapping that may not have 				
	been identified.				

2.2.2 Other Sources

No further information on the history of the site has been identified.

2.3 Previous Investigations and Assessments

We are not aware of any previous investigations or assessments at the site.



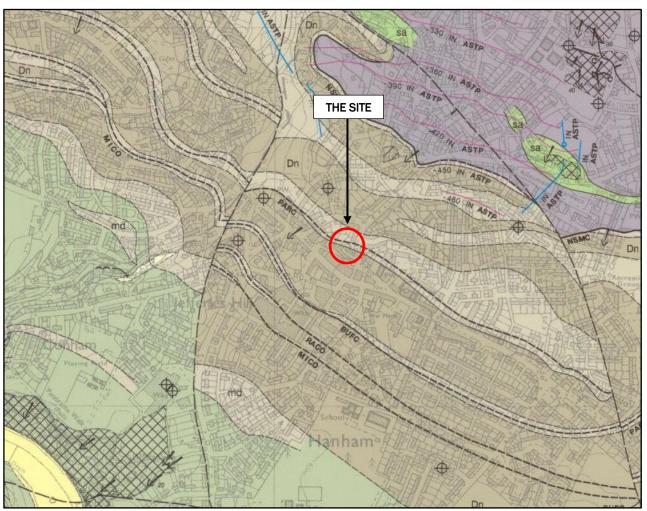
2.4 Geological Setting

2.4.1 Published Geology

The published 1:10,000 scale geological map for the area of the site (Sheet ST67SW, 2003 editions) indicates the site to be underlain by bedrock of the Middle Coal Measures Formation, comprising mainly mudstones, with sandstones, seat earths and coal seams.

No superficial deposits are indicated above the bedrock, however a covering of Made Ground/reworked natural soils is likely given the historical development at the site (see Table 1).

An extract from the geological map is presented as Insert 2 below.



Insert 2 - Extract from BGS Geological Map Sheet ST67SW, original 1:10,000 scale.

Reproduced with permission (BGS licence number: C15/05 CSL)

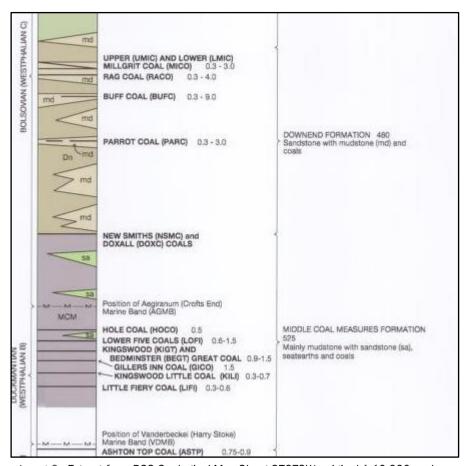
The bedrock is indicated to be the Downend Formation, comprised of sandstone with mudstone and conglomerate, seat earths and coal seams. The Parrot Coal seam is indicated to crop out conjecturally trending northwest to southeast through the approximate centre of the north portion of the site, where the seam is shown to trend west to east beneath the site. The proven position of the New Smiths Coal seam is shown crop out some 285m northeast. The conjectural outcrop of the Buff Coal is shown approximately 140m southwest. Based on recorded seam depths in the Ashton Top Coal seam extending north of the site (see Insert 2), the bedrock in the area is indicated to dip at around 20° to the southwest. This ties in with dip angles and directions shown on the geological map to the southwest of the site.



Given this, the Buff Coal seam to the southwest would not be anticipated beneath the site; however, the Parrot Coal seam is shown to conjecturally crop out on site and the New Smiths Coal seam to the north/northeast (below the Parrot Coal seam in succession), could be present beneath the site.

It should be appreciated that as the outcrop of the Parrot seam is indicated as conjectural, its position is not confirmed. Information obtained from the Coal Authority indicates workings within the parrot Seam are recorded at 26m beneath the site, which would indicate that the outcrop is not located on site and that the crop of the Parrot Coal seam is located further north/northeast. This is discussed further in Section 3.0.

The stratigraphical section shown on the geological map indicates that the Parrot Coal seam is up to 3.0m in thickness and the Ashton Top Coal seam shown to be up to 0.9m in thickness. No thickness is shown for the New Smiths Coal seam; however, several seams are located between the New Smiths seam and the Ashton Top Coal seam, which may also be present beneath the site, albeit at depth (see Insert 3 below).



Insert 3 - Extract from BGS Geological Map Sheet ST67SW, original 1:10,000 scale. Reproduced with permission (BGS licence number: C15/05 CSL)

Mine shafts are shown on the geological mapping (see Insert 2) approximately 136m north, 240m northwest, 285m west and 430m east; however, it is unclear which seam(s) these shafts are targeting.

Reference to the up-to-date mapping available on the website of the British Geological Survey (BGS, 2024) indicates a similar succession.



2.4.2 Available BGS Borehole Records

Reference to the website of the British Geological Survey (BGS, 2024) indicates no available records of boreholes in the immediate vicinity of the site (none identified within 200m).

2.5 Coal Authority Records

2.5.1 Coal Authority Website

- The outcrop of an unnamed coal seam is shown trending west to east across the site. Based on the published BGS mapping, this could be the Parrot Coal Seam. A further outcrop (possible Ashton Top Coal seam) is shown to the north, with a series of outcrops also shown to the south/southwest.
- Recorded past shallow coal mine workings are indicated at the site.
- Probable shallow coal mine workings are identified at the site.
- A series of mine entries are shown to the south and west of the site.
- No past surface hazard or surface mining is identified in the vicinity of the site.
- 'Development High Risk Areas' associated within the coal outcrop and recorded past shallow coal mine workings/probable shallow coal mine workings on site is shown to cover the complete site.

2.5.2 Coal Authority Mining Report

A Consultants Mining Report has been obtained from the Coal Authority as part of this assessment, and is presented in Appendix B. This identifies the following:

- Recorded mine workings within the Parrot Coal seam 26m beneath the site. The dip of the seam is recorded as 18.8° with a recorded extraction thickness of 0.6m. This was last mined in 1900.
- There are also 'probable unrecorded shallow workings' beneath the site.
- No spine roadways are recorded at shallow depth.
- No mine entries are recorded within 100m of the site.
- The Parrot coal seam is indicated to crop out on the site.
- No faults, fissures or breaklines are recorded.
- No opencast mining sites are recorded within 500 metres of the enquiry boundary.
- No Coal Authority managed tips are recorded within 500 metres of the enquiry boundary.
- The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.
- There is no current Stop Notice delaying the start of remedial works or repairs to the property.
- The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.
- There are no recorded mine gas emissions within 500 metres of the enquiry boundary.
- No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

2.6 Other Sources of Mining Information

Coal mining records are currently unavailable from the Bristol Coal Mining Archives (BCMA).



Assessment of Coal Mining Risks

3.1 Summary of Mining Hazard

The potential coal mining risks identified at the site are summarised in Table 1 below:

Table 1: Identified Coal Mining Risks

Coal Mining Aspect	Identified Hazard	Risk Assessment
Underground Coal Mining (recorded at shallow depth1)	Possible	See Section 3.2
Underground Coal Mining (unrecorded shallow¹)	Possible	See Section 3.3
Recorded Mine Entries (shafts and adits)	No	None identified.
Unrecorded Mine Entries (shafts and adits)	Possible	See Section 3.4
Recorded Coal Mining Geology (fissures)	No	None identified.
Recorded Past Mine Gas Emissions or Potential	Possible	See Section 3.5
Recorded Surface Coal Mining Hazard	No	None identified.
Recorded Surface Mining (opencast workings)	No	None identified.
Notes:	I.	1

- The Coal Authority defines shallow depth as within 30m of the ground surface.
- Identified risks are discussed further in the following sections.

3.2 Abandoned Coal Mine Workings

The site is located in an area of past mining, with the Coal Measures bedrock close to the surface and no reported overlying superficial deposits. The Coal Authority show the Parrot seam to crop out across the approximate centre of the site, as shown on Figure 2. The strata dips to the southwest, with evidence from the geological mapping and Coal Authority showing an approximate dip angle of 20°, therefore this coal seam would be expected to underlie the south margins of the site, as shown on Figure 3. The proven position of the New Smiths Coal seam is shown crop out some 285m northeast, dipping to the southwest; however, as shown on Figure 3, this is likely to be at a depth of around 86m below ground level (BGL).

A discrepancy between the published geological mapping and the information provided by the Coal Authority has been identified. The Parrot seam is indicated to crop out on site; however, the Coal Authority report (see Appendix B) indicates the shallowest working at the site to be within the Parrot seam at a depth of 26m; therefore, it could not crop out on site. The Coal Authority report also names the parrot seam as the seam outcropping on site. Based on the Conceptual Model presented as Figure 3, if the Parrot seam is located at 26m beneath the site, then the outcrop location would be approximately 77m northeast of the site. The stratigraphical section shown on the geological map indicates that the Parrot Coal seam is up to 3.0m in thickness and therefore is likely to have been worked in the area. At this stage and due to the uncertainty of the outcrop of the Parrot seam (on site or to the northeast), we consider that the subsidence risk could be High.

It should be appreciated that the above assessment is based on available desk study information only and would need to be confirmed by intrusive investigation (see Section 4). In particular, the location of the outcrop of the Parrot coal seam would need to be confirmed, along with the depth to any workings within this coal seam (if not outcropping on site) beneath the southern part of the site.



3.3 Unrecorded Shallow Coal Mine Workings

It is noted that the Coal Authority identify 'probable' shallow coal mine workings beneath the site within and identify the site as lying within a 'Development High Risk Area'. As discussed above, based on the presently available information, we anticipate that the subsidence risk above any workings within the Parrot seam could be High to the south of the outcrop i.e. possibly beneath the south margins of the site. However, the New Smiths Coal seam is anticipated to be at sufficient depth that any workings are unlikely to pose a significant subsidence risk to the proposed development.

3.4 Mine Entries

No mine entries are recorded by the Coal Authority on the site. However, the outcrop of the Parrot coal seam is shown by the published mapping and the Coal Authority to crop out on site (see Figure 2).

No superficial soils are indicated beneath the site. Therefore, the Coal Measures bedrock is expected to be present at shallow depth, and unrecorded past 'crop workings' (mine entries along the outcrop of the coal seam) could be present along the seam outcrop.

We have identified no direct evidence of old mine entries on the site during this desk study assessment however, given the above, we cannot discount that old mine entries, probably dating from before the First Edition of the historical mapping, could be present on site.

Based on the above, we consider that the risk of mine entries beneath the site is Moderate/High.

3.5 Mine Gas Emissions

As discussed in Section 2.5.2, the Coal Authority has no record of a mine gas emission requiring action in the vicinity of the site. Notwithstanding this, given the probability of shallow mine workings and mine entries along the outcrop (possibly on site), there is a potential risk from mine gas and a mine gas risk assessment based on the guidelines published by Wilson et al (2021) would be required. This will need to be assessed through intrusive investigation works.

3.6 Potential Combustibility

Although outside the brief, the developer should be aware of the potential for a combustibility risk where the coal seam crops out across the site. The risks off combustion will be controlled by the carbon content of the outcropping coal and the nature of development immediately above the outcrop. We note that the Coal Authority identify the outcrop of the Parrot coal seam on site. Further guidance on the risk of potential combustibility can be provided, if required.



4 Recommended Investigation

Further intrusive investigation will be required to confirm the Conceptual Ground Model and the likely mining risks to the proposed development. In particular, the investigation would need to (as a minimum):

- Confirm the location of the outcrop of the Parrot coal seam (shown conjecturally on Figure
 2) the precise position of this outcrop will control the potential subsidence risks beneath the site.
- Confirm the depth and thickness of the Parrot seam (if present) beneath the site.
- Confirm the absence of any further coal seams within 30m of the site surface.

We consider that the appropriate further investigation would comprise rotary drillholes probably followed by trial trenching.

We recommend that initially a line of rotary drillholes should be constructed northwest to southeast through the site to establish the possible outcrop location, the depth to the Parrot coal seam (if present at depth), and its thickness.

Further drillholes may be required, with their location's dependant on emerging findings. These drillholes should be taken to a minimum of 30-40m depth as required. We consider that a minimum of five drillholes would be required.

If the outcrop of the Parrot coal seam is identified within the site boundary, its precise position would need to be established by trial trenching. Trial trenching would also allow an inspection of the area of the outcrop for possible past mine entries and allow sampling for an assessment of the risk from combustibility.

A shallow site strip to expose the bedrock may also be required across the footprints of the proposed dwellings to identify the possible presence of mine entries along the seam outcrop (if present).

A preliminary UXO report will be required prior to any intrusive works. Recent assessments in the area have identified a potential high risk from UXO and therefore allowances should be made for undertaking a detailed UXO assessment, should the preliminary assessment identify a potential risk.



5 References

BRITISH GEOLOGICAL SURVEY (BGS). 2024. Website accessed March 2024.

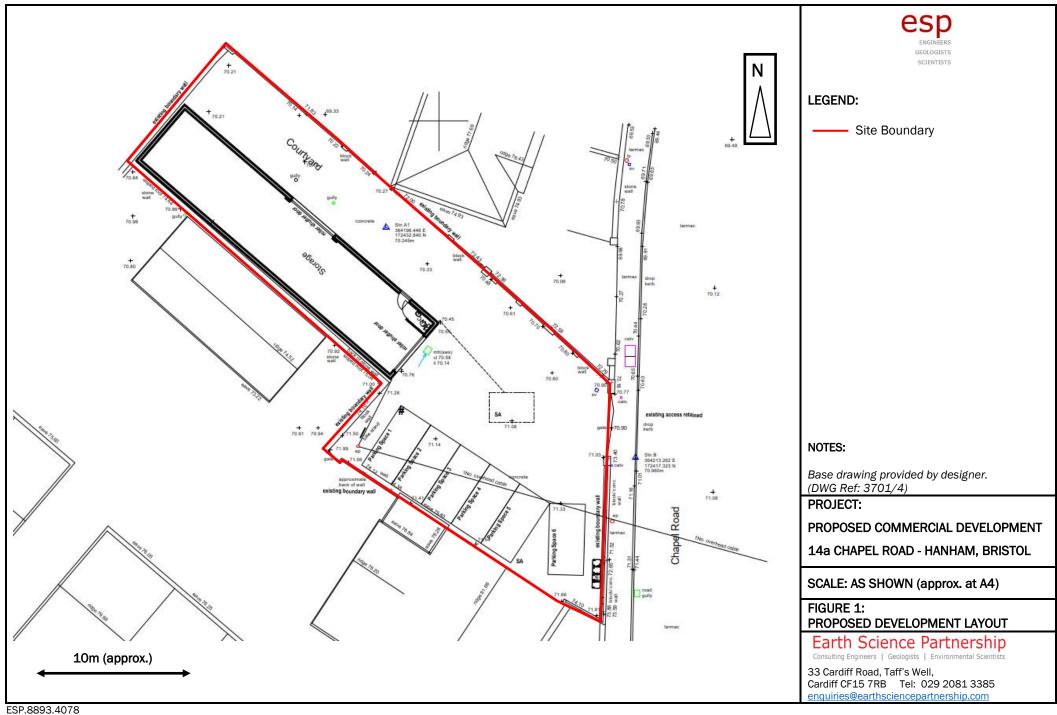
BRITISH STANDARDS INSTITUTION (BSI). 2020. Code of Practice for Ground Investigation. BS5930:2015+A1:2020. HMSO, London.

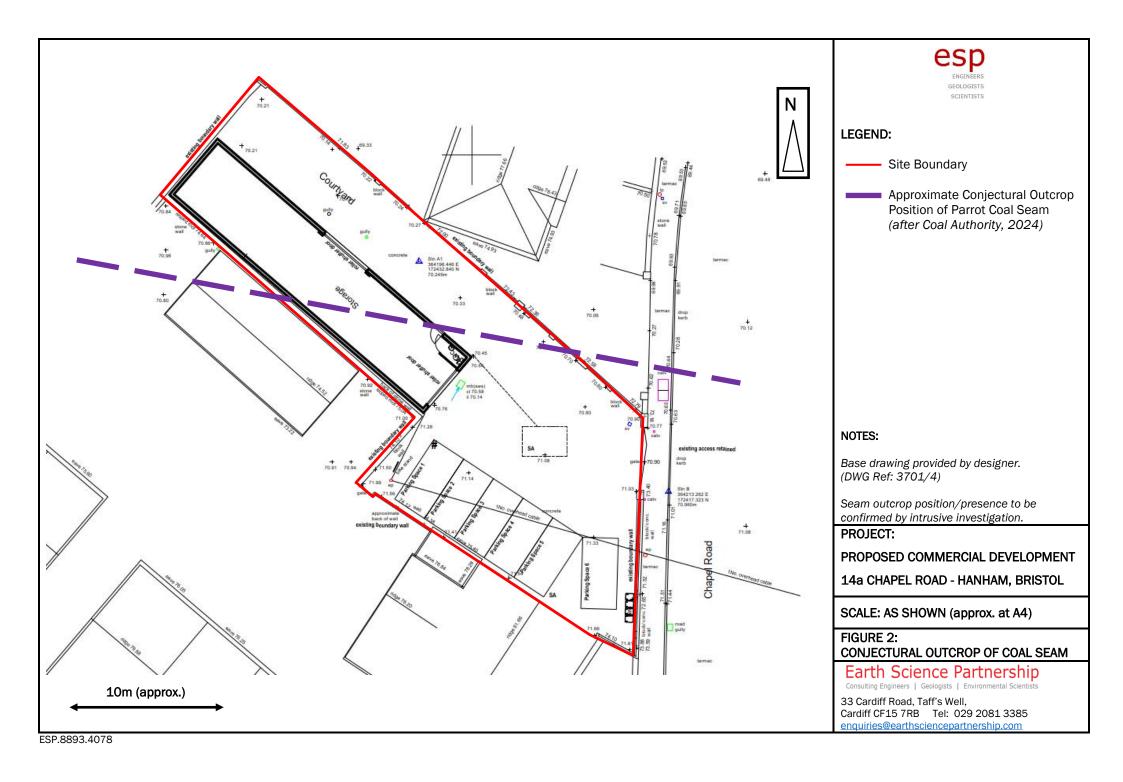
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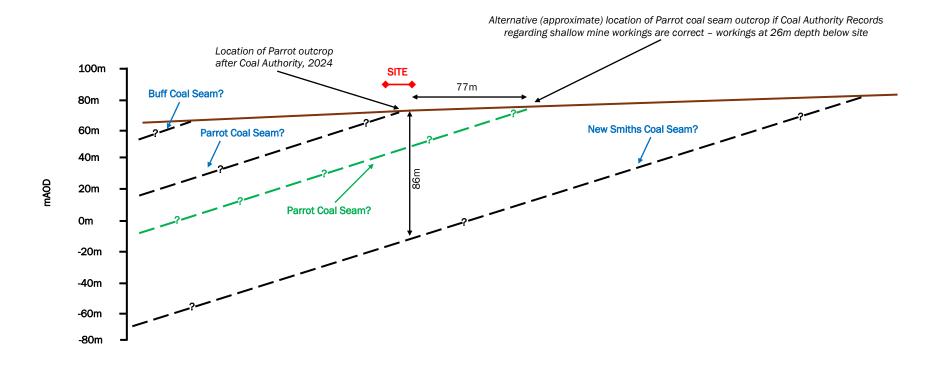
WILSON S, HENMAN T, LEE A, and MEREDITH R. 2021. Good Practice for Risk Assessment for Coal Mine Gas Emissions. CL:AIRE.

Figures









PROJECT: PROPOSED COMMERCIAL DEVELOPMENT 14a CHAPEL ROAD - HANHAM, BRISTOL

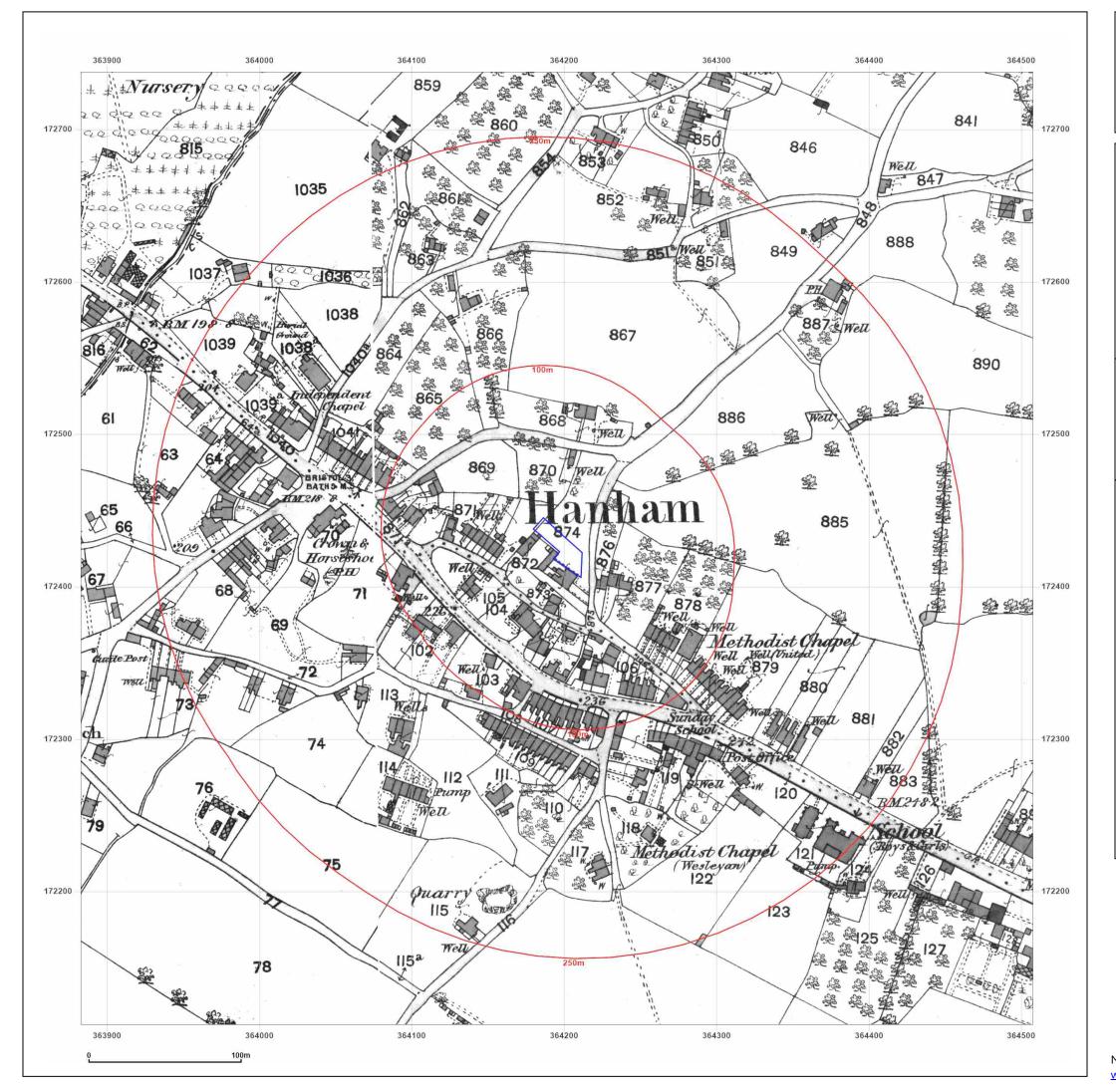
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FIGURE 3: CONCEPTUAL GROUND MODEL

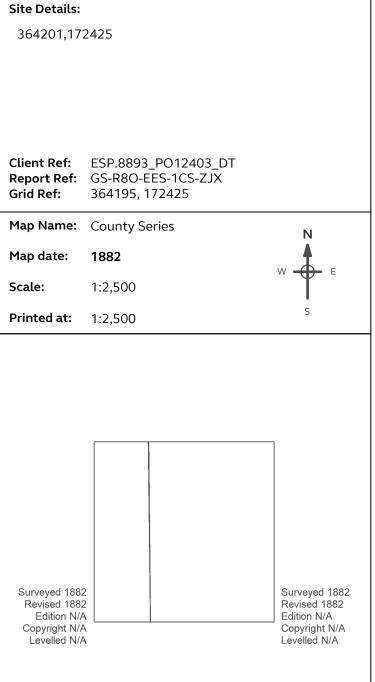


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Appendix A





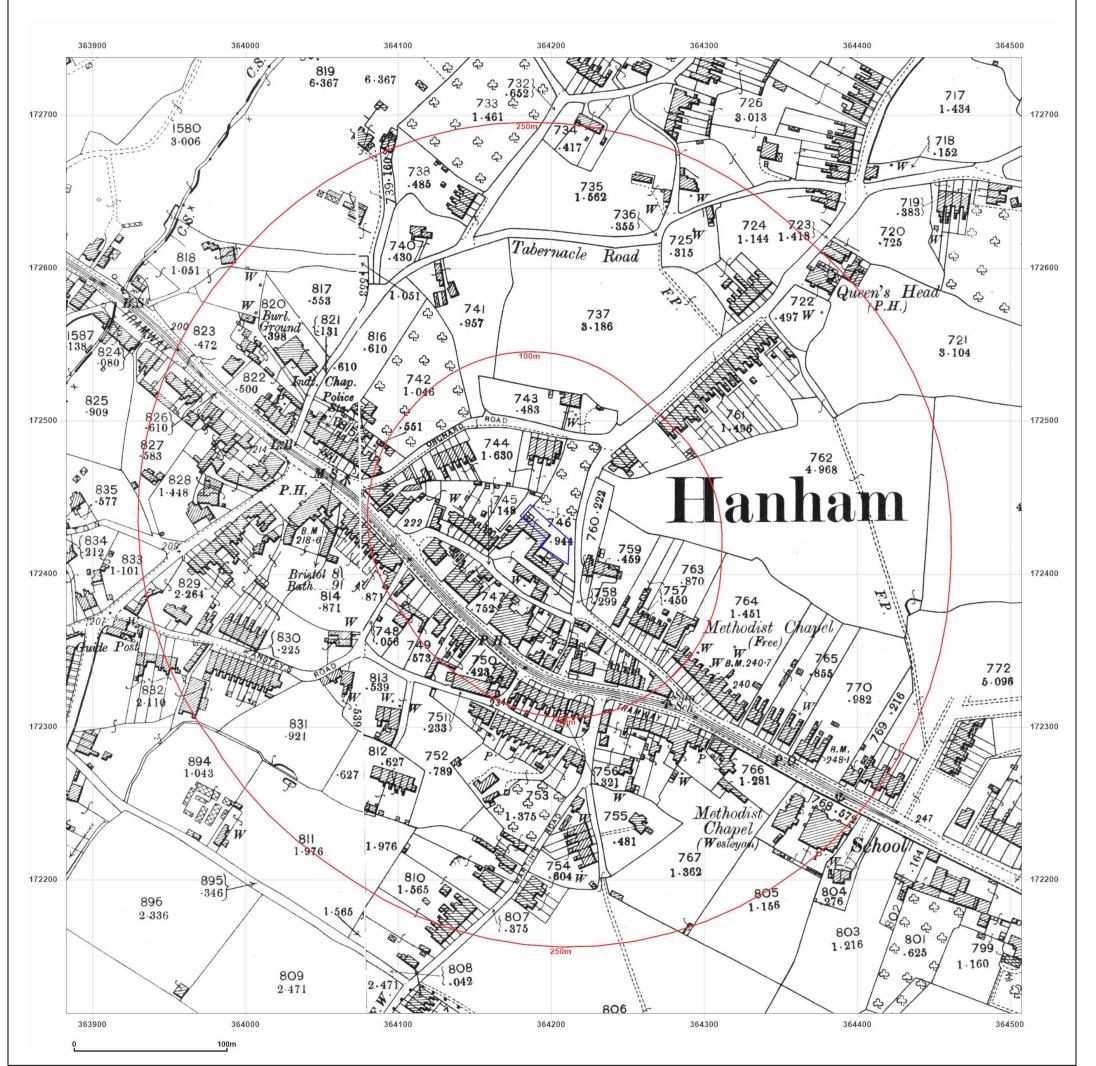




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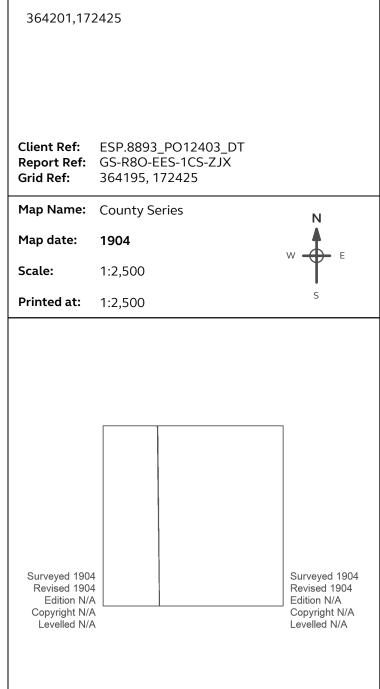
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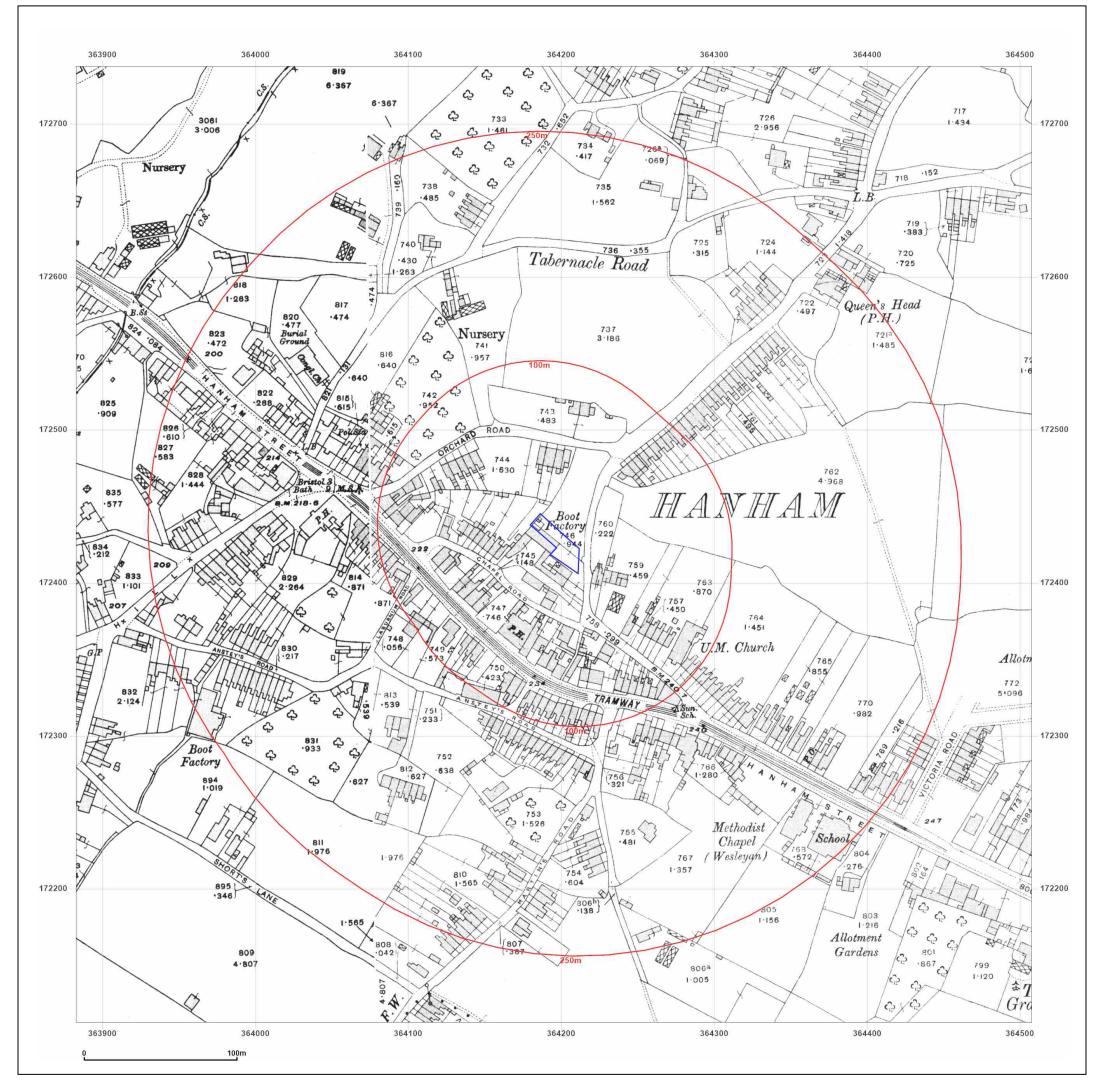


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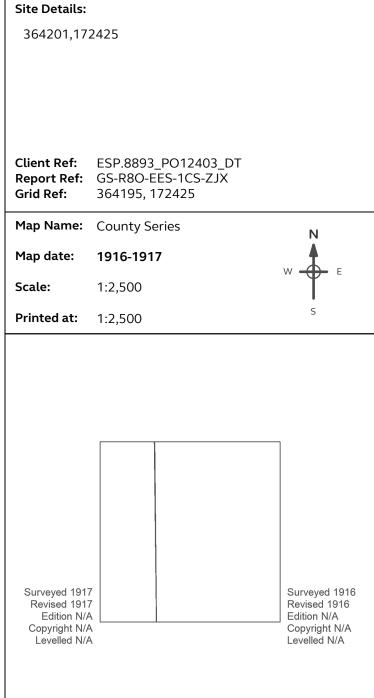
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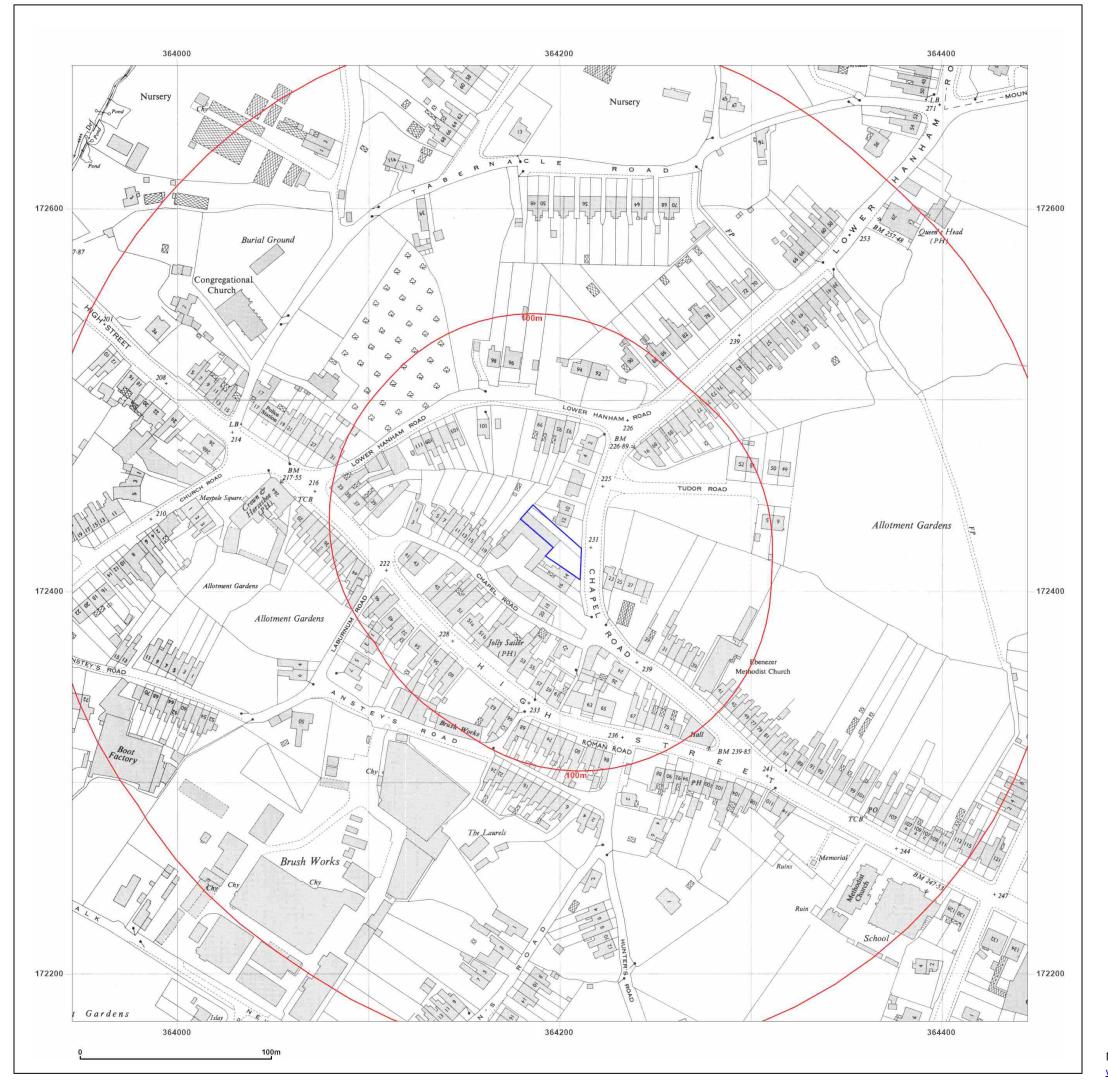




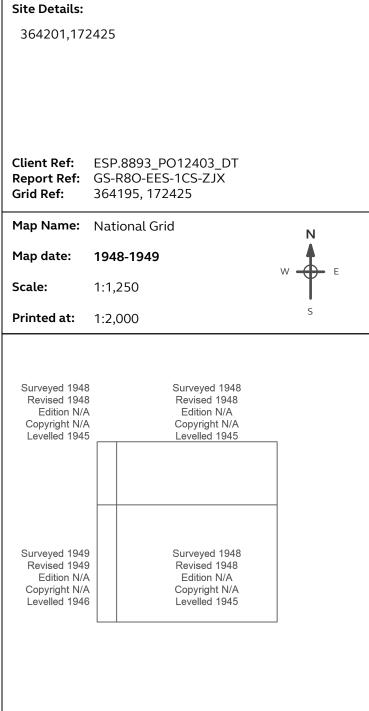
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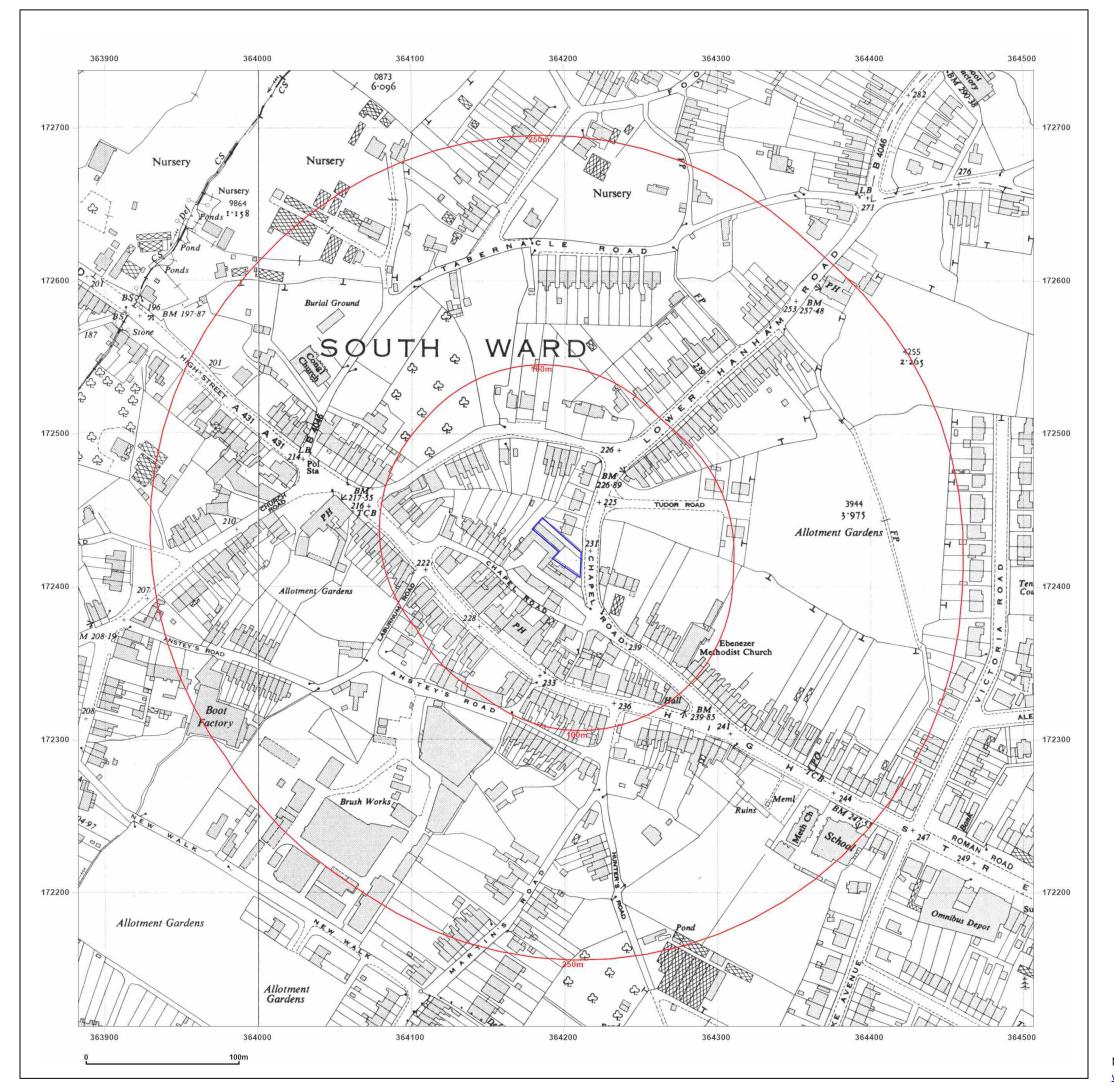




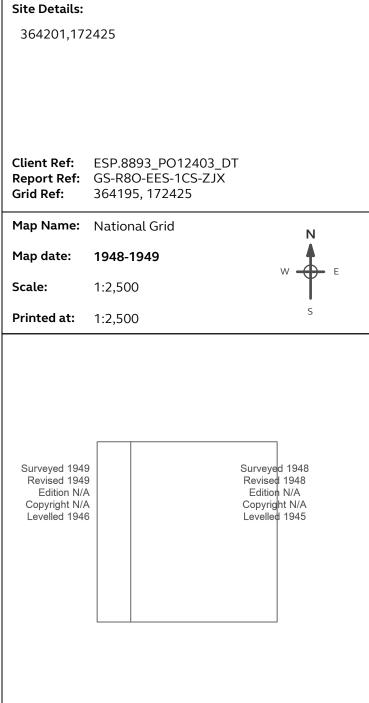
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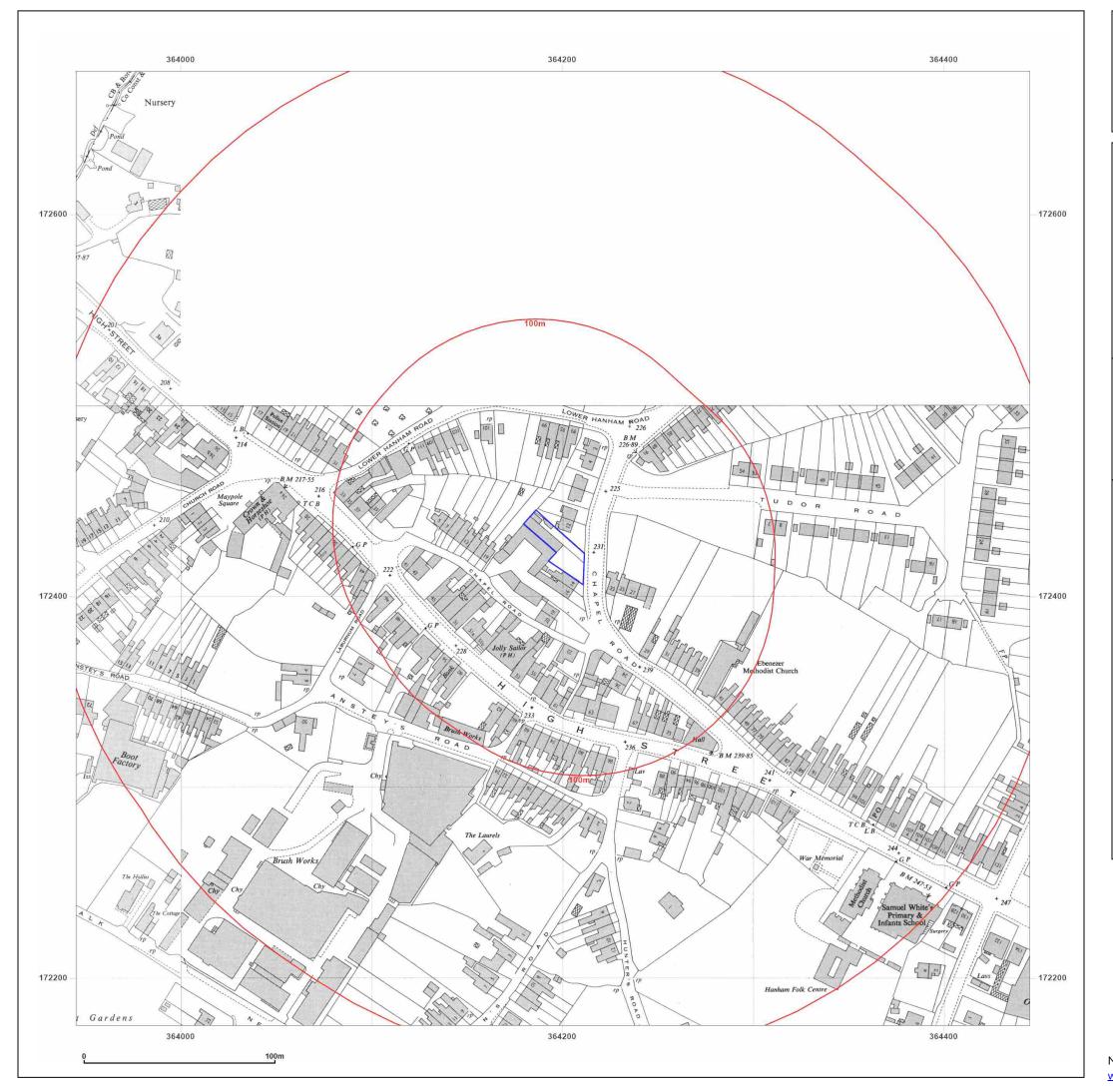




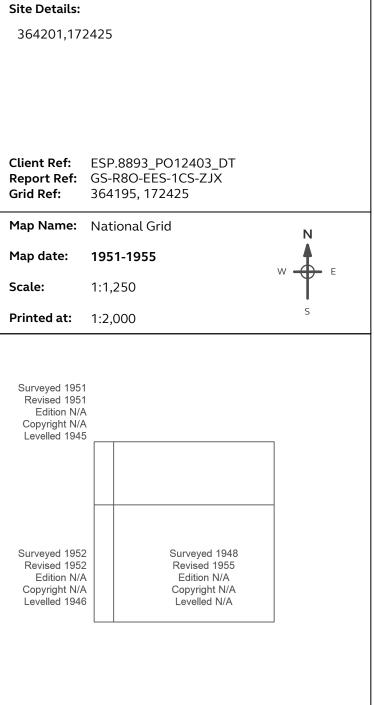
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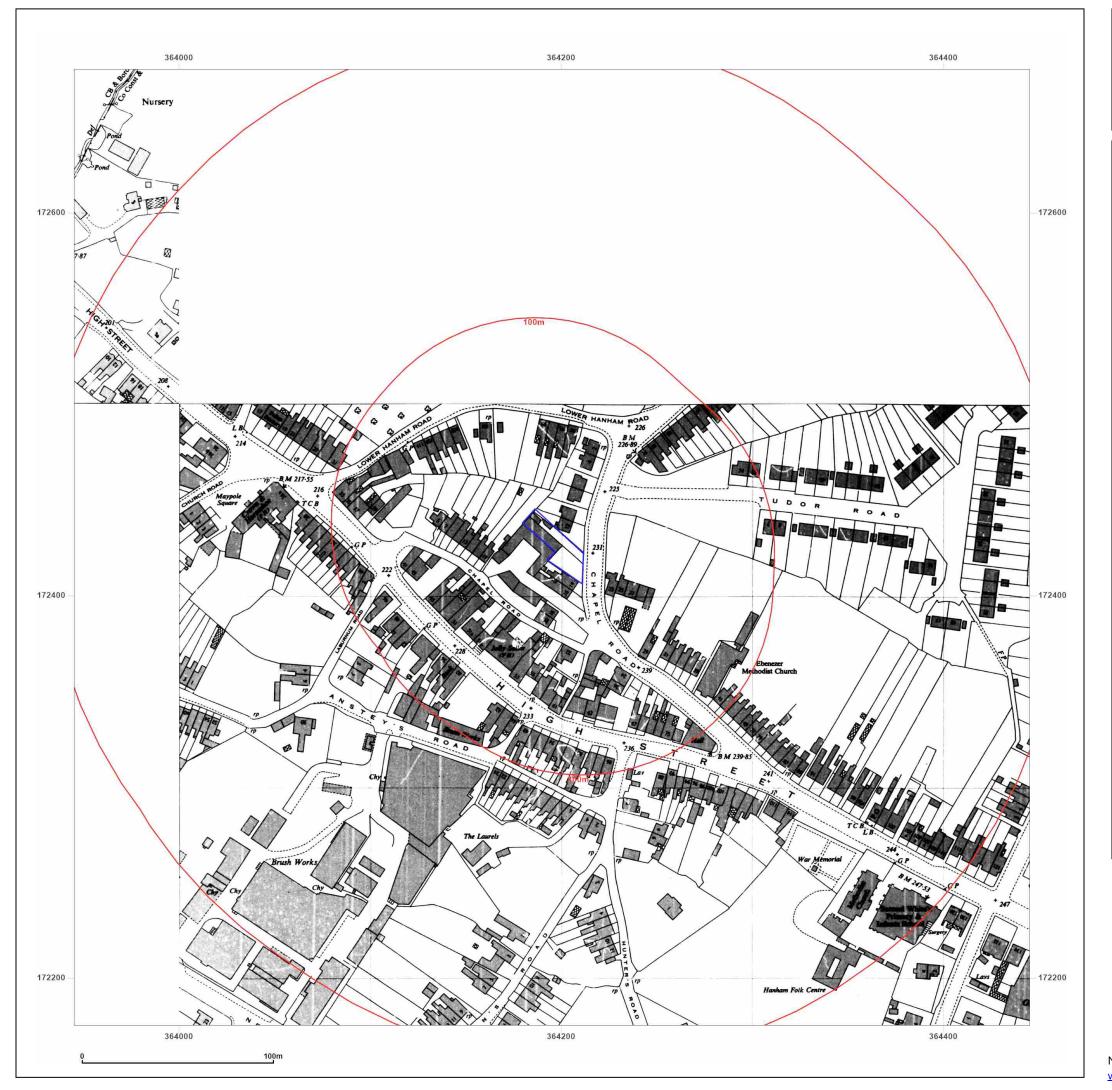




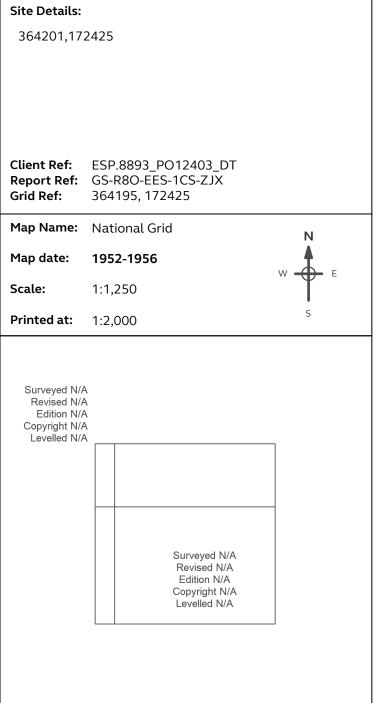
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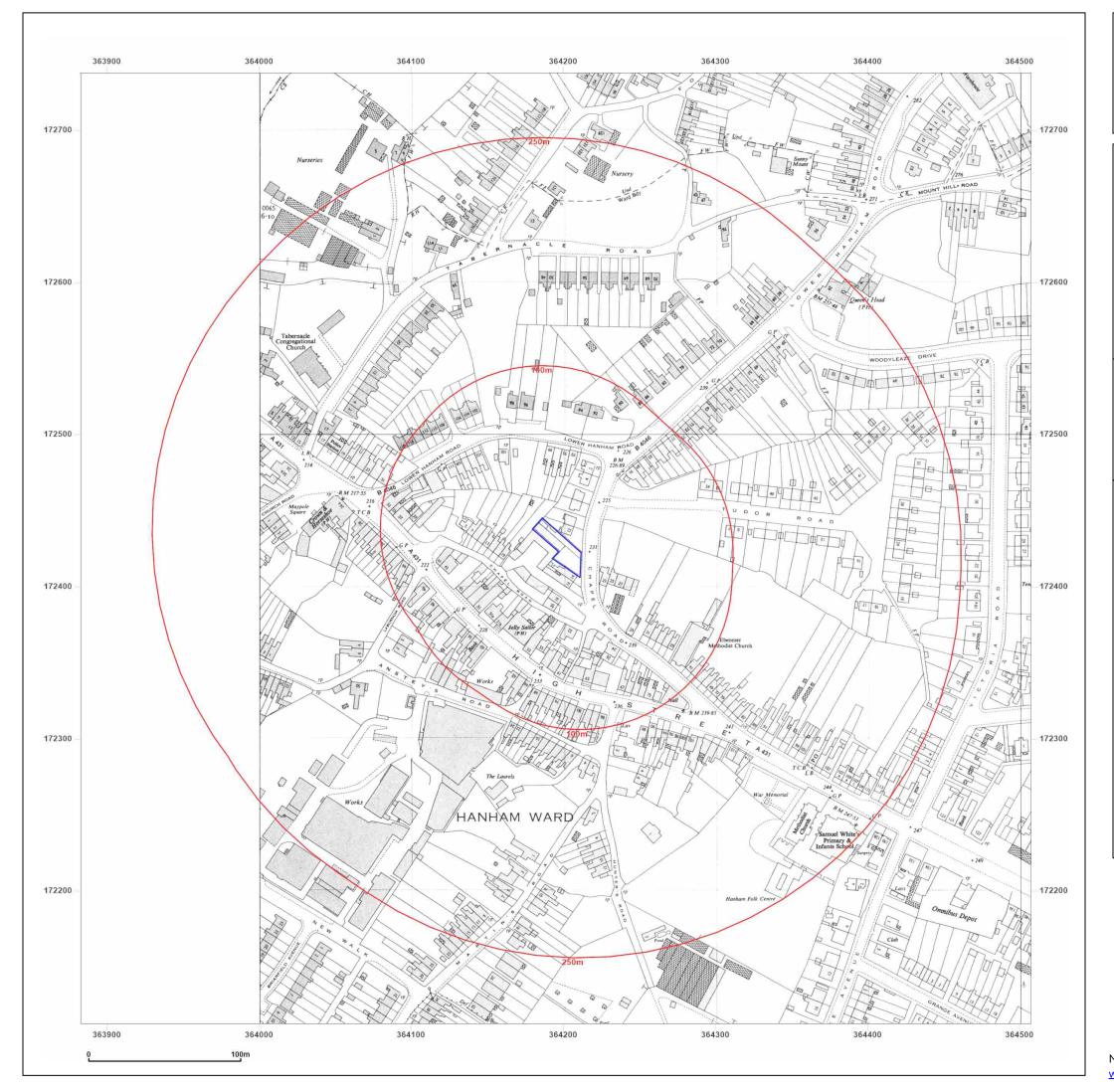




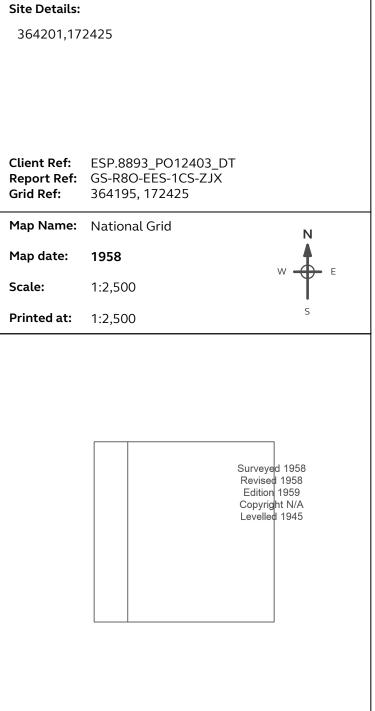
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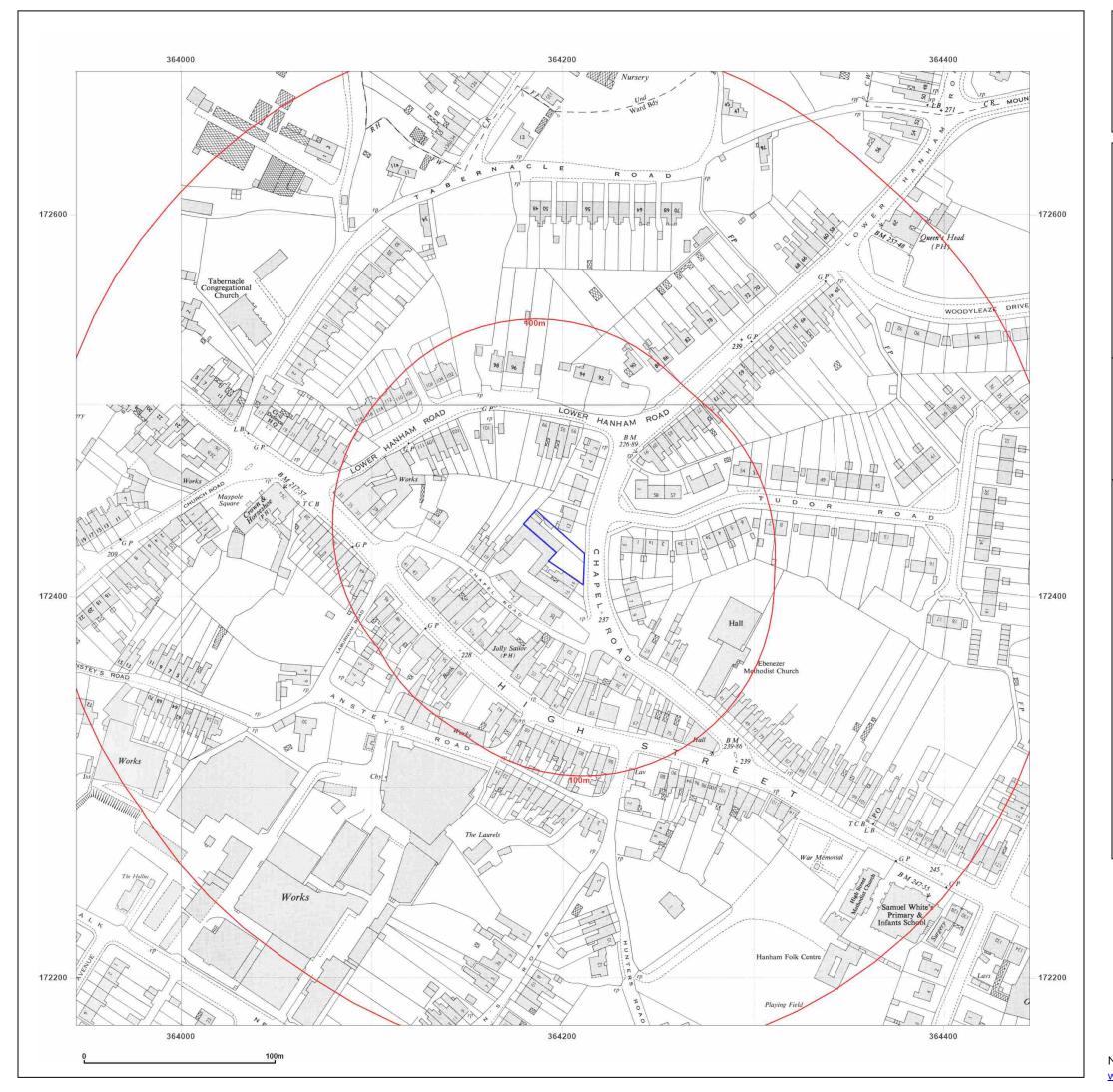




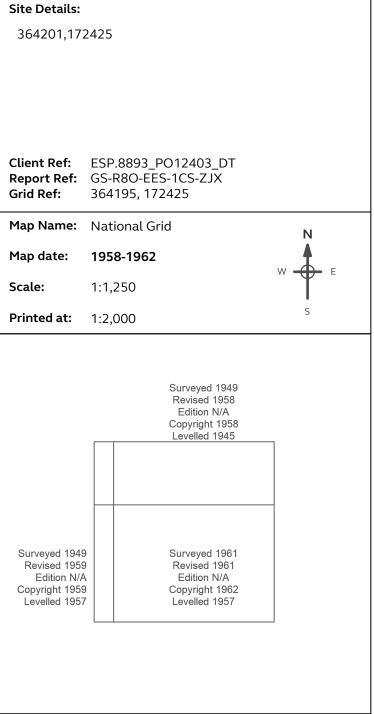
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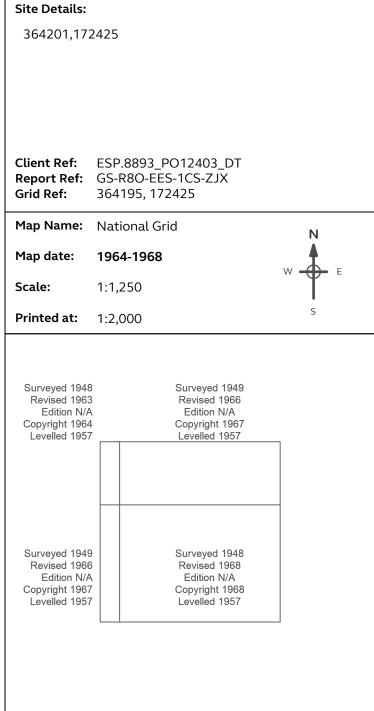
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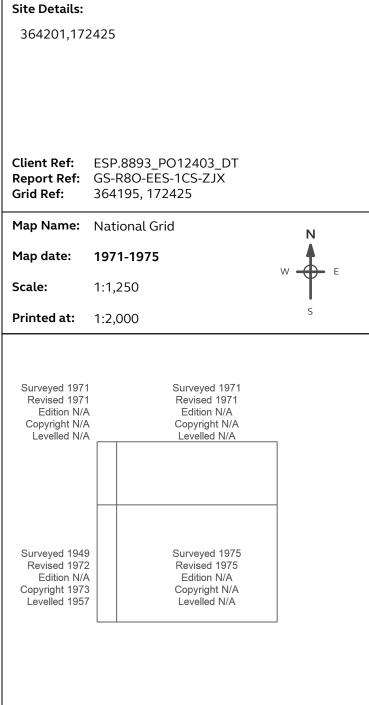
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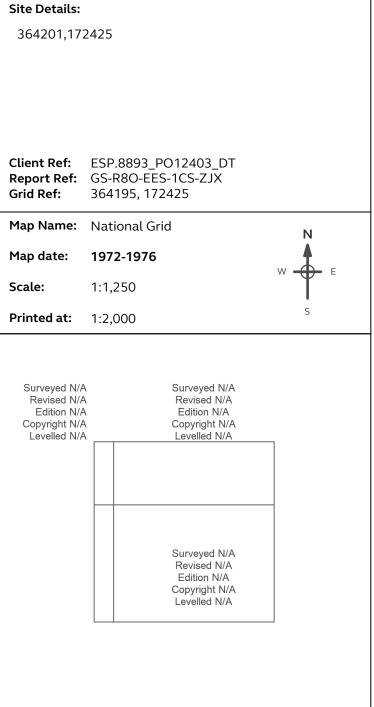
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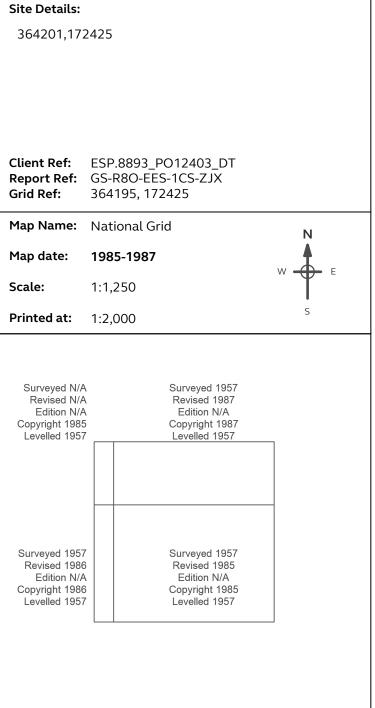
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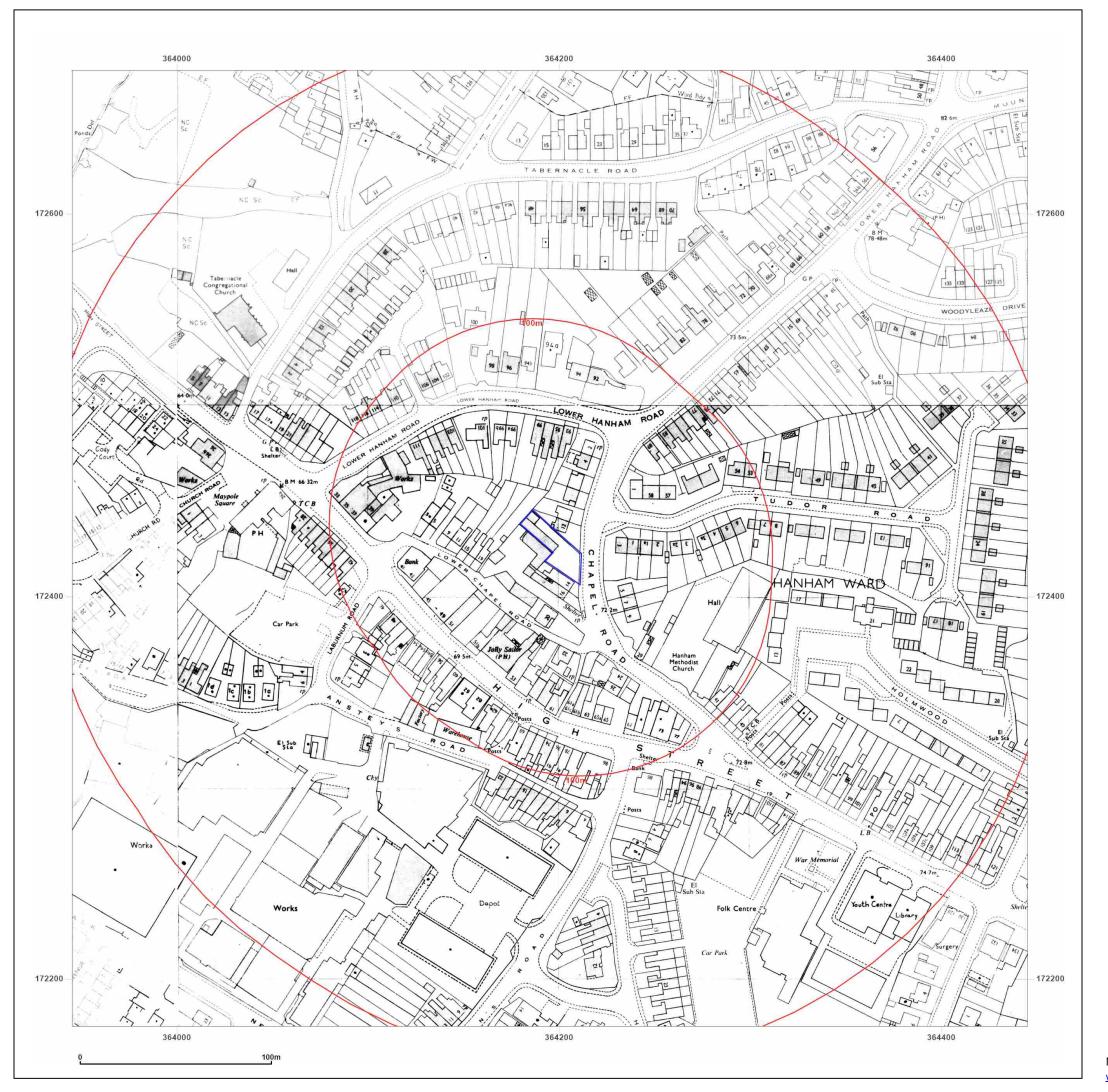




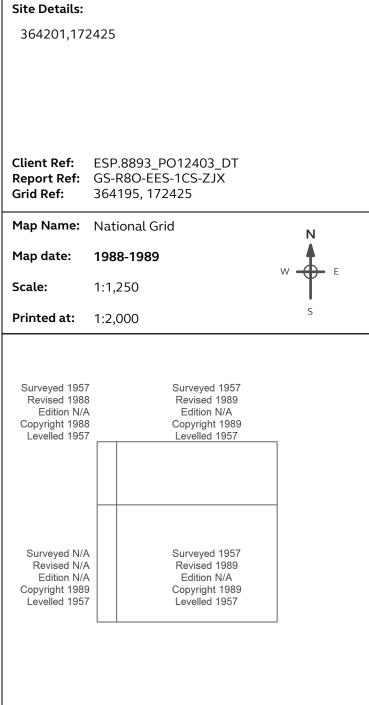
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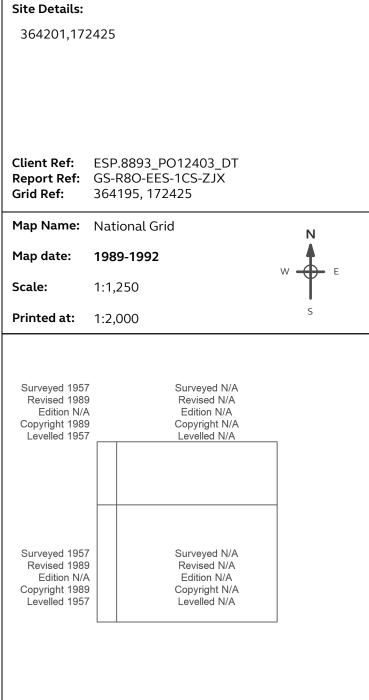
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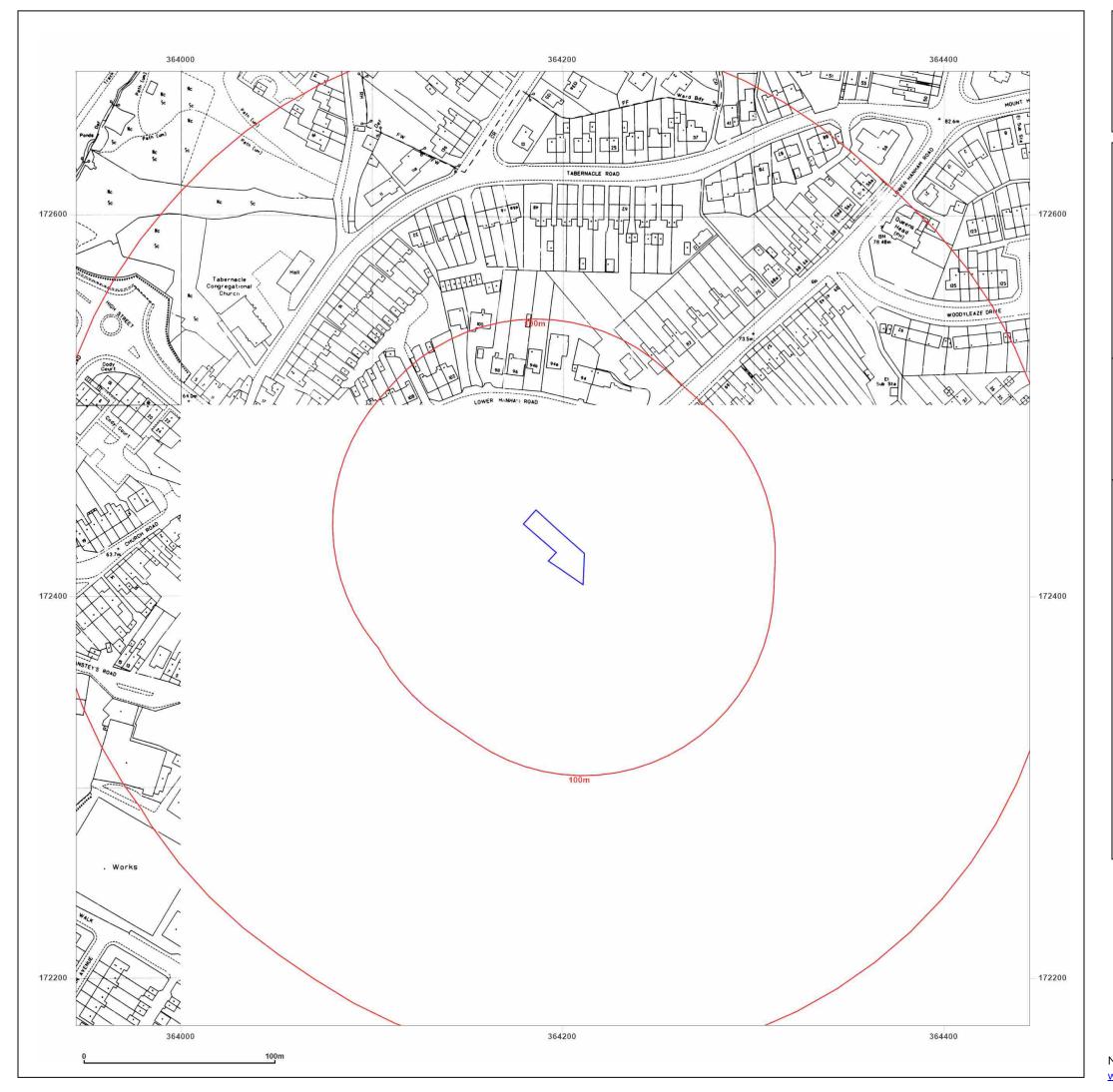




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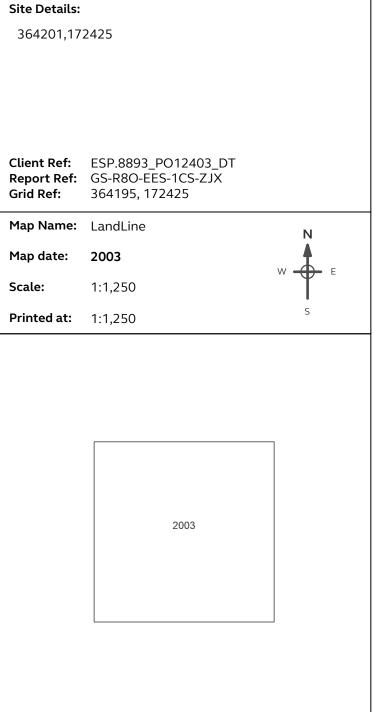
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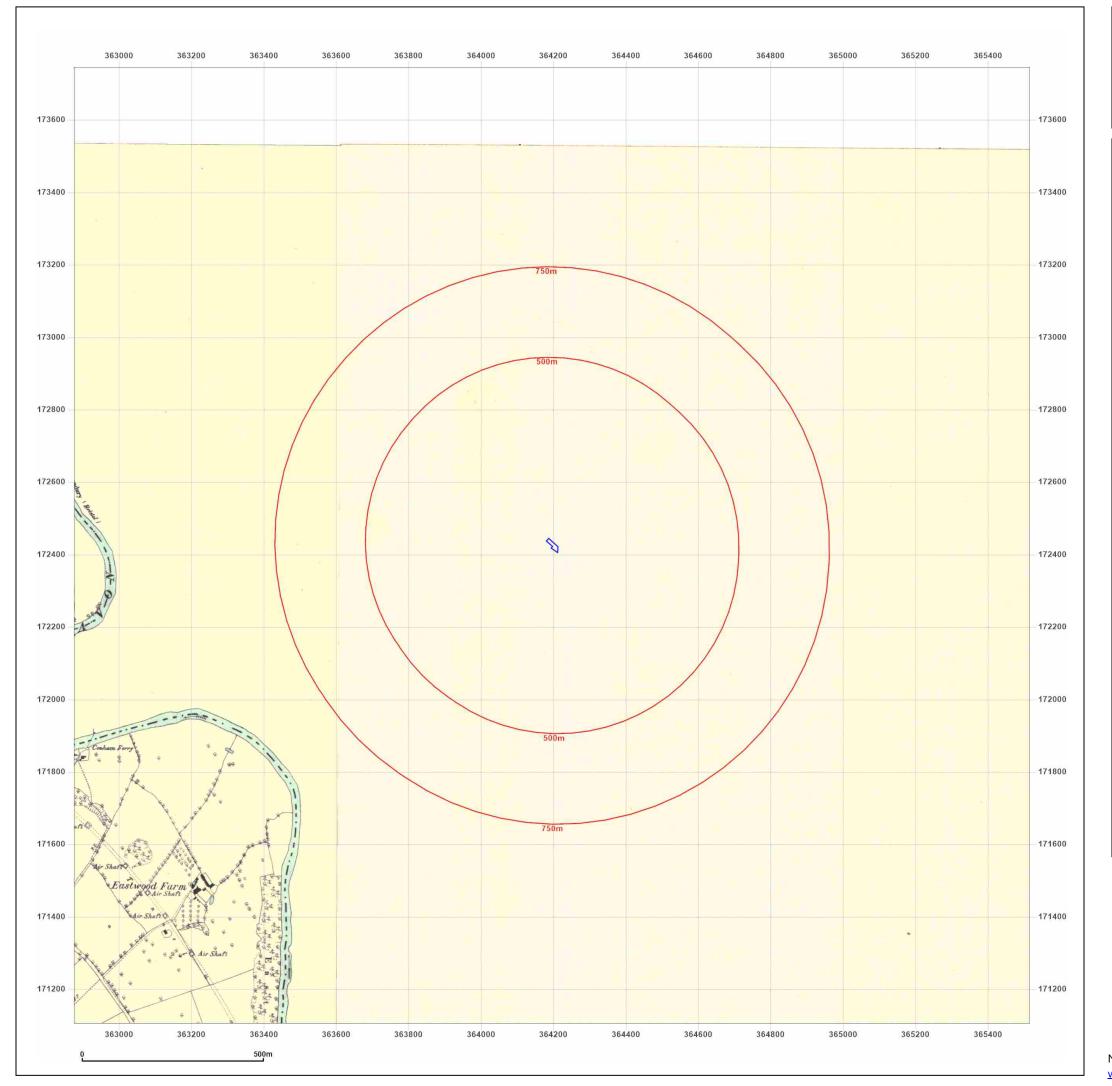




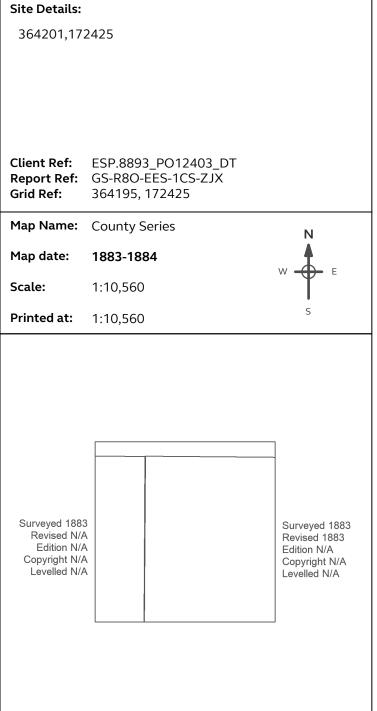
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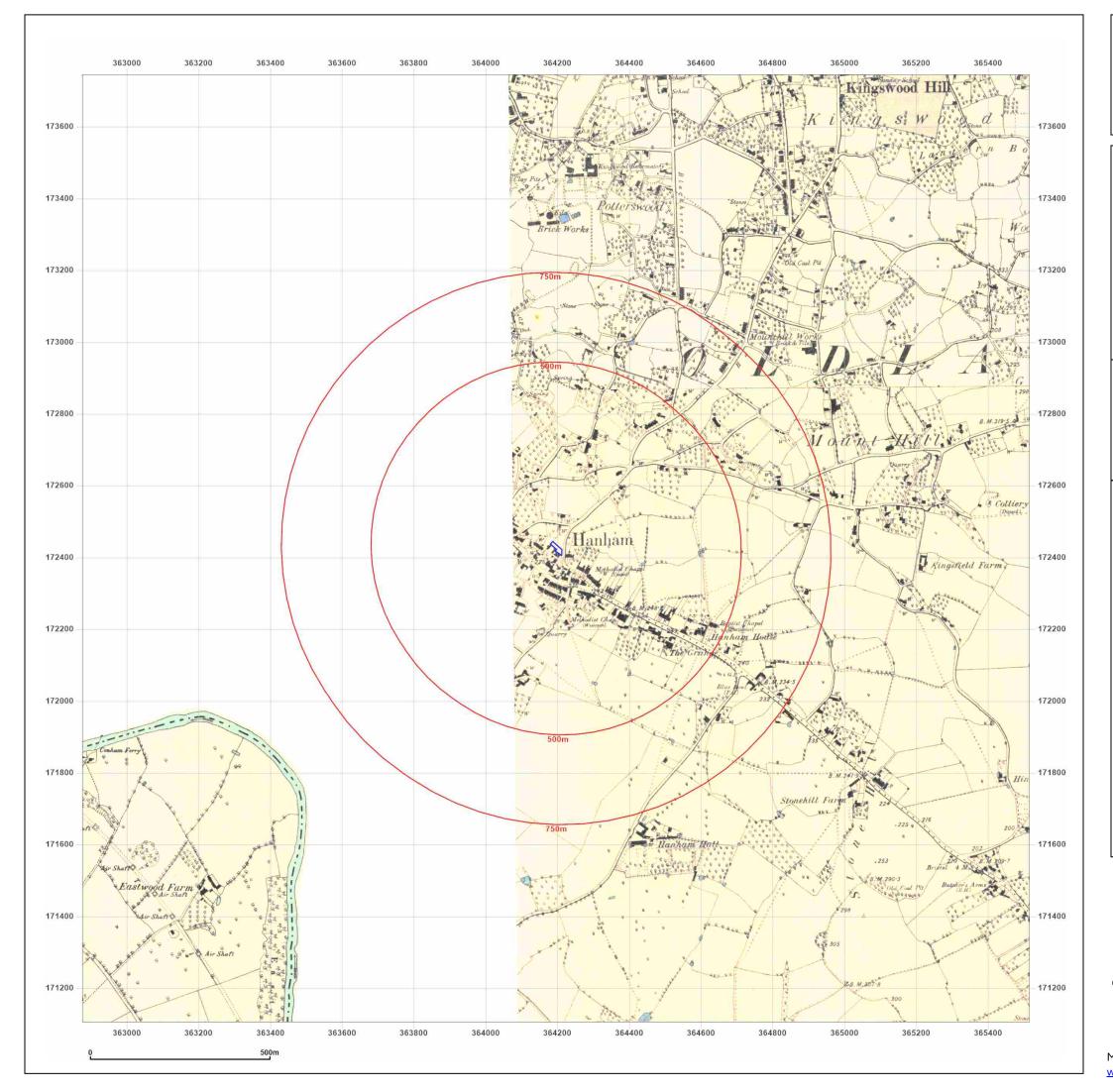




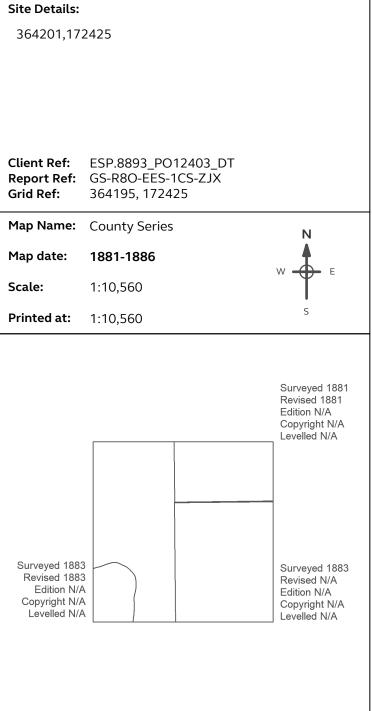
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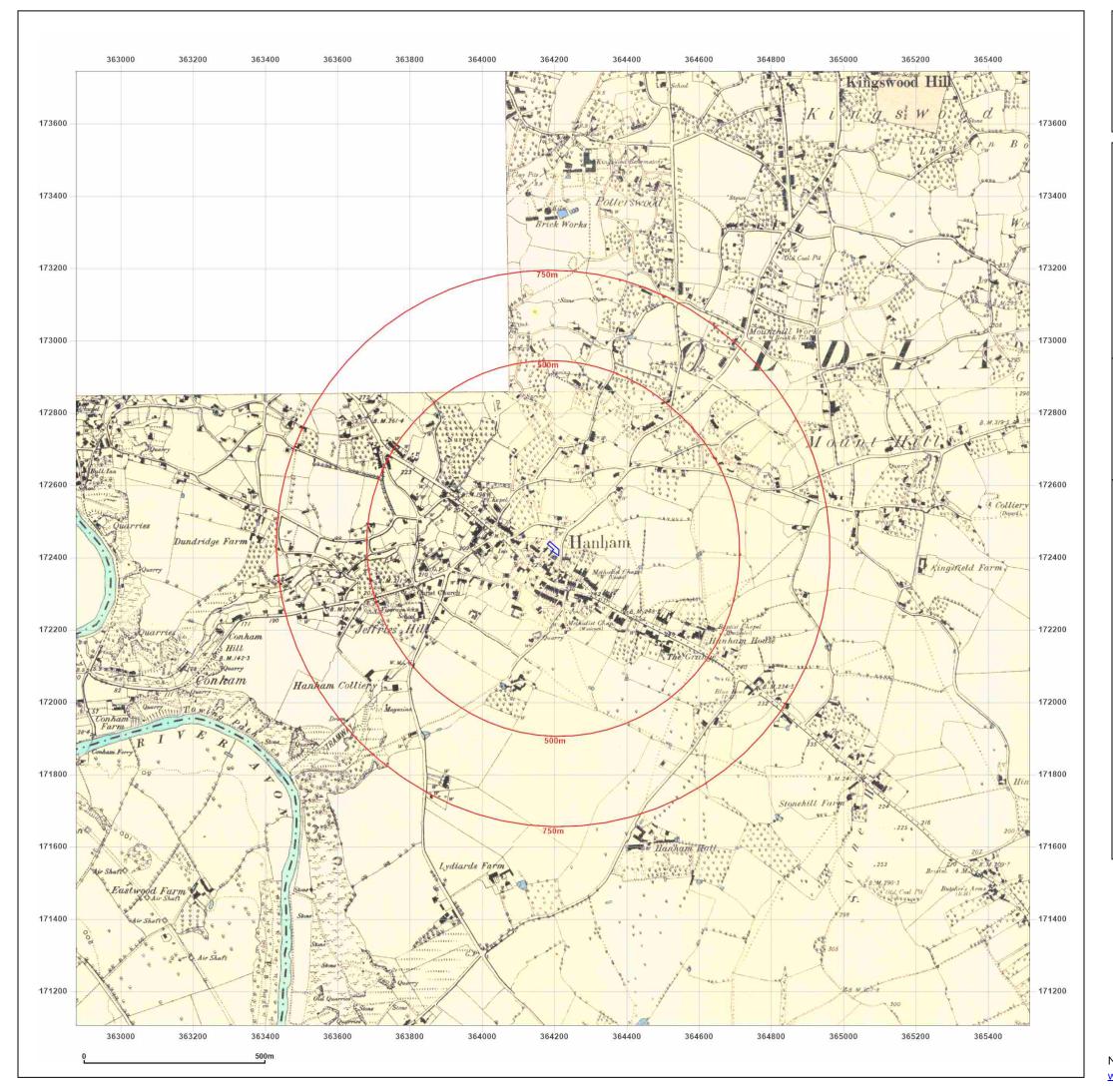




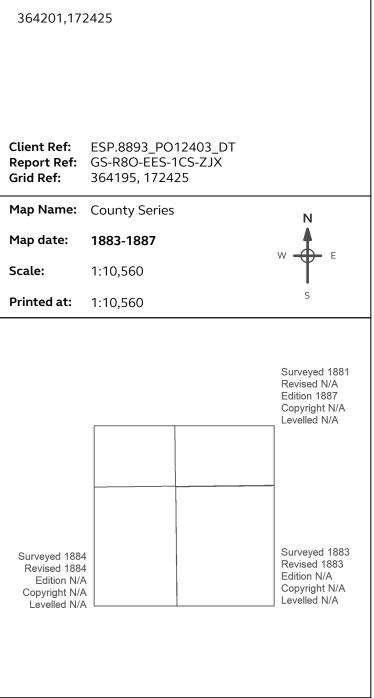
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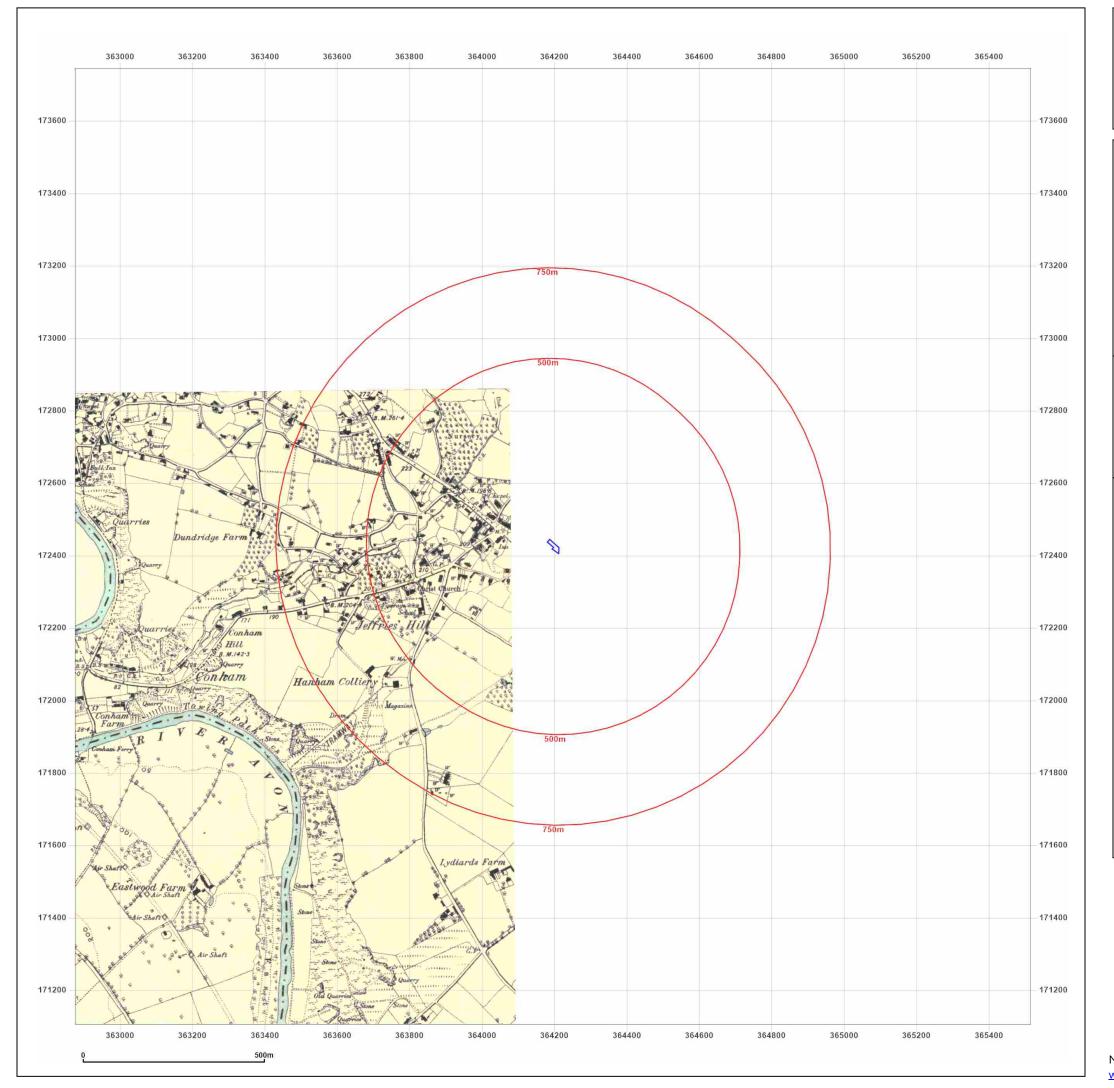


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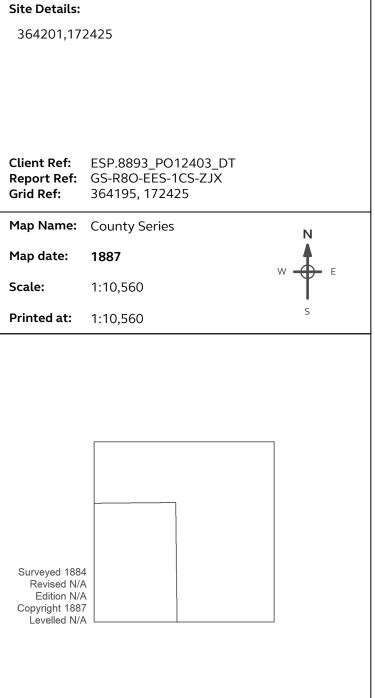
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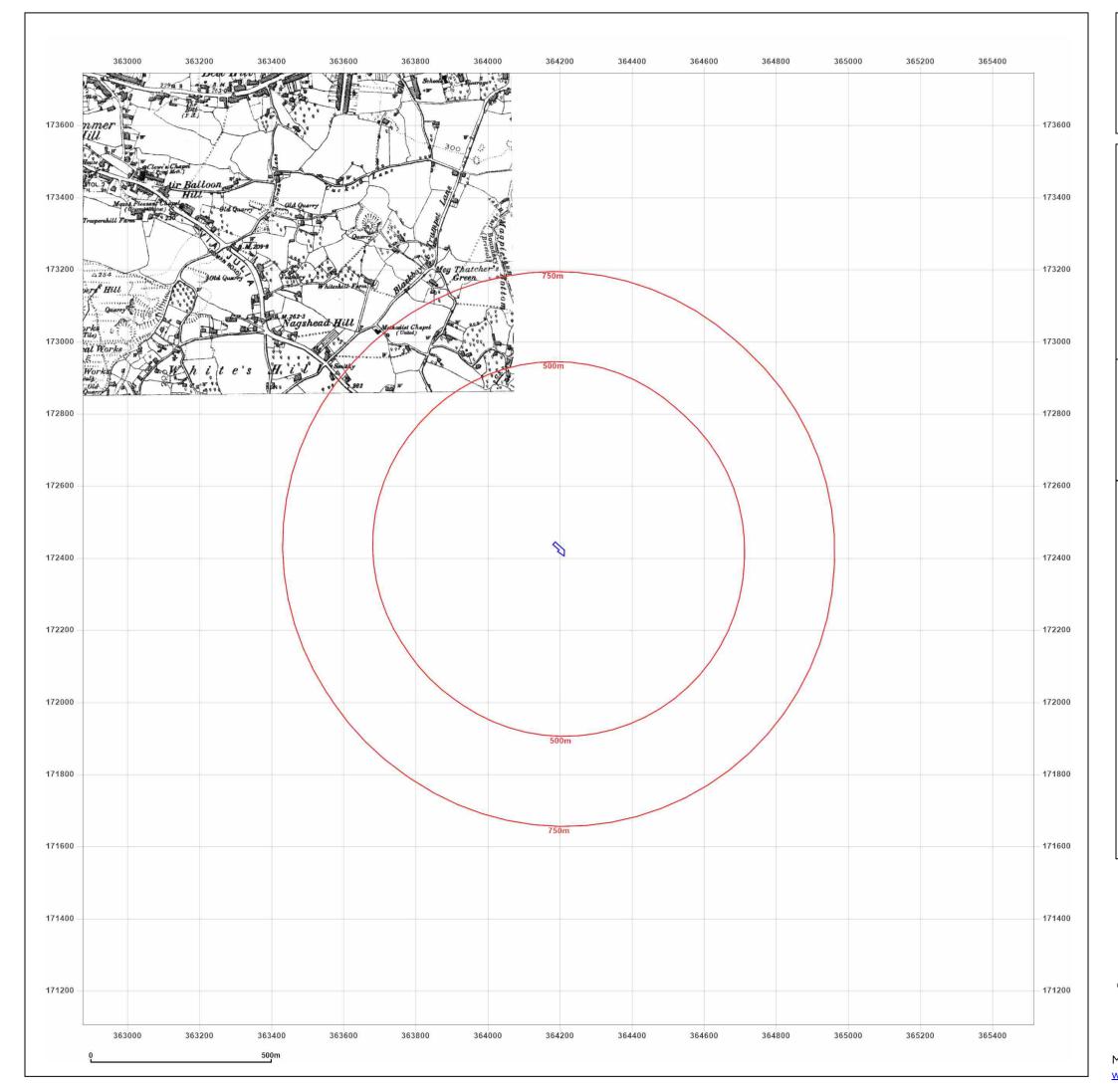




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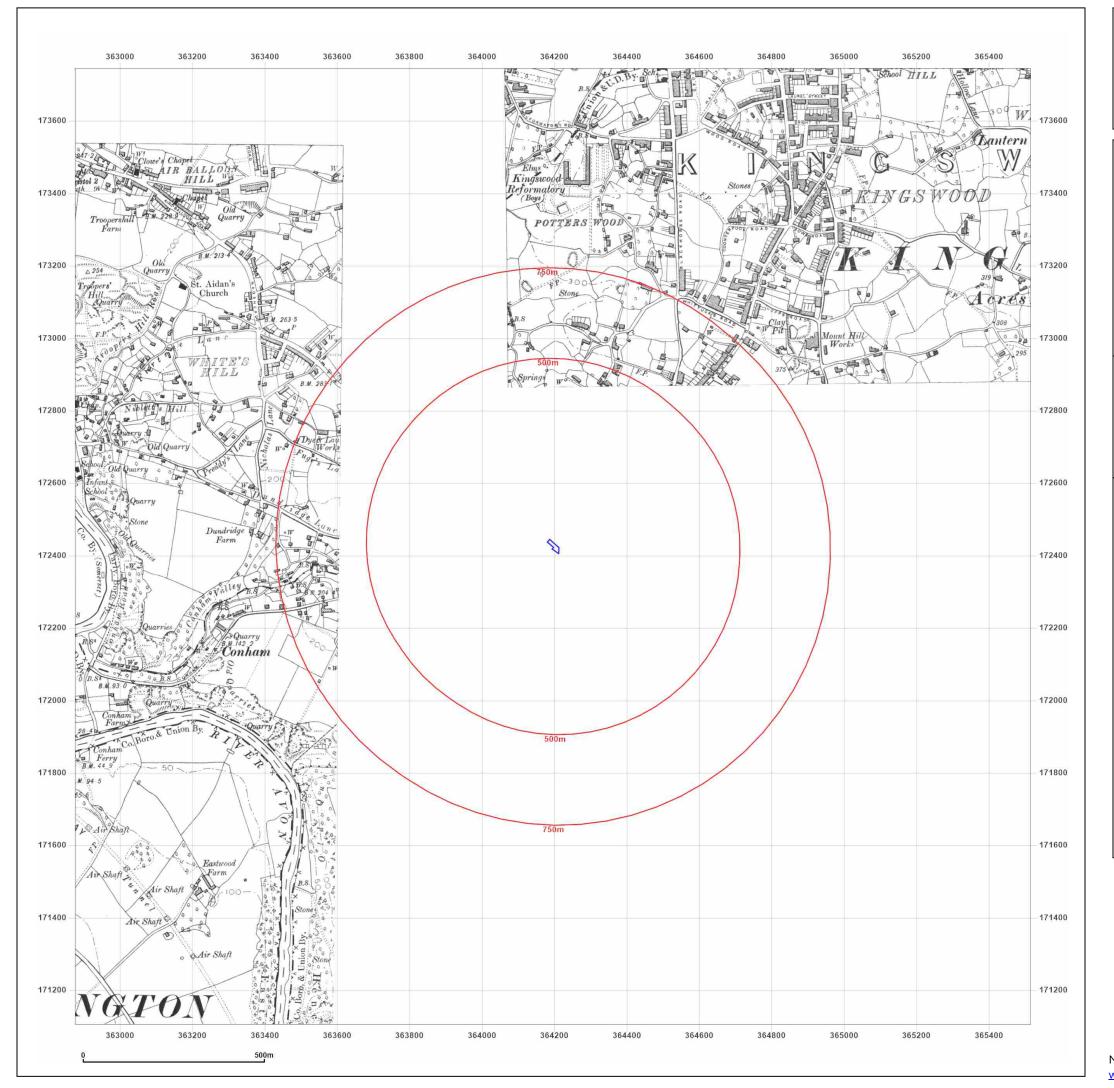
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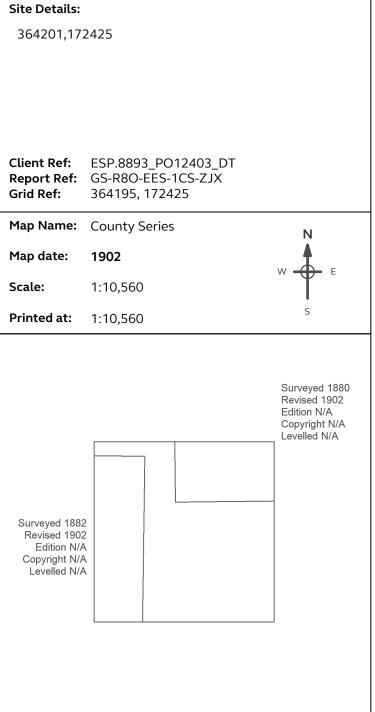
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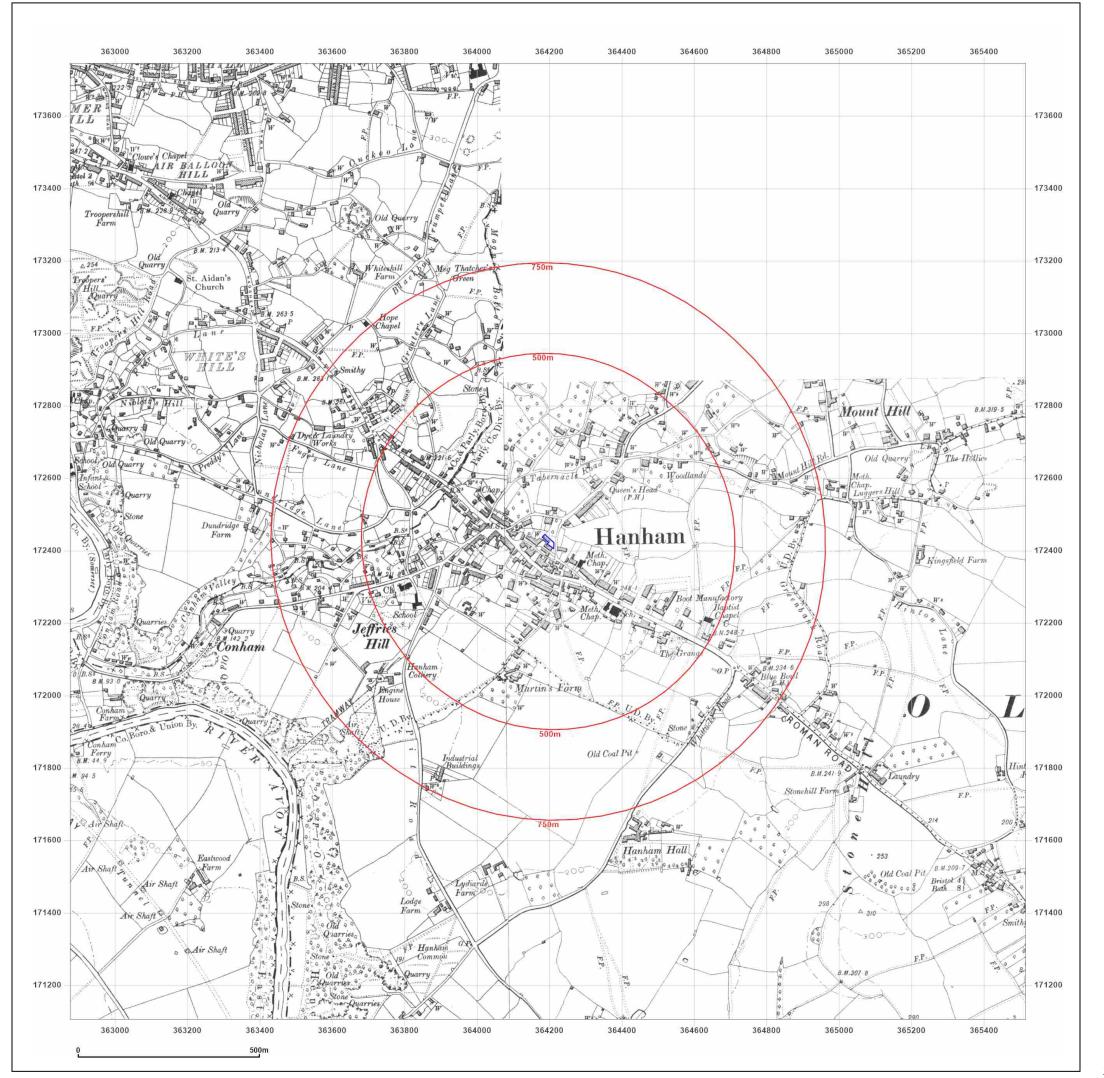




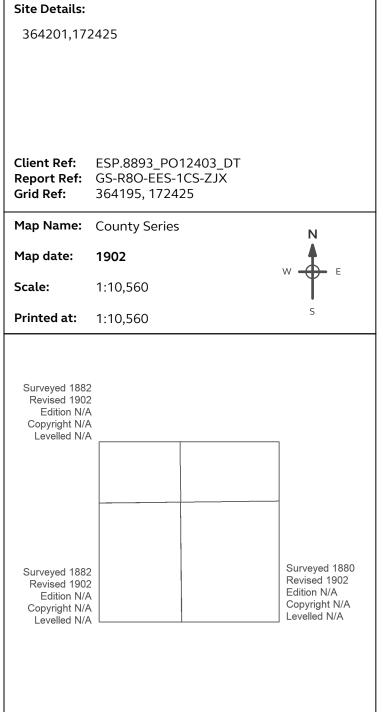
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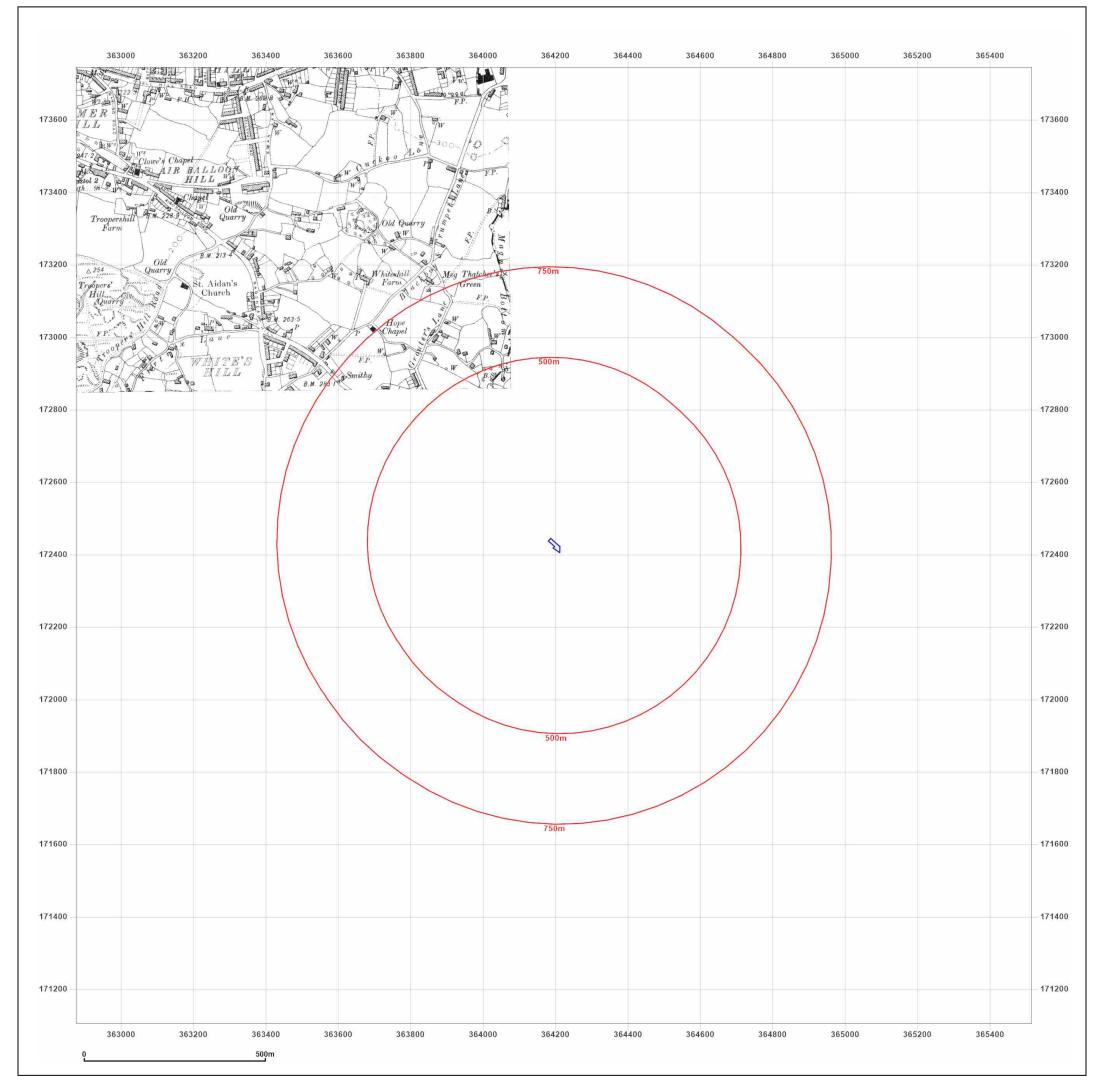




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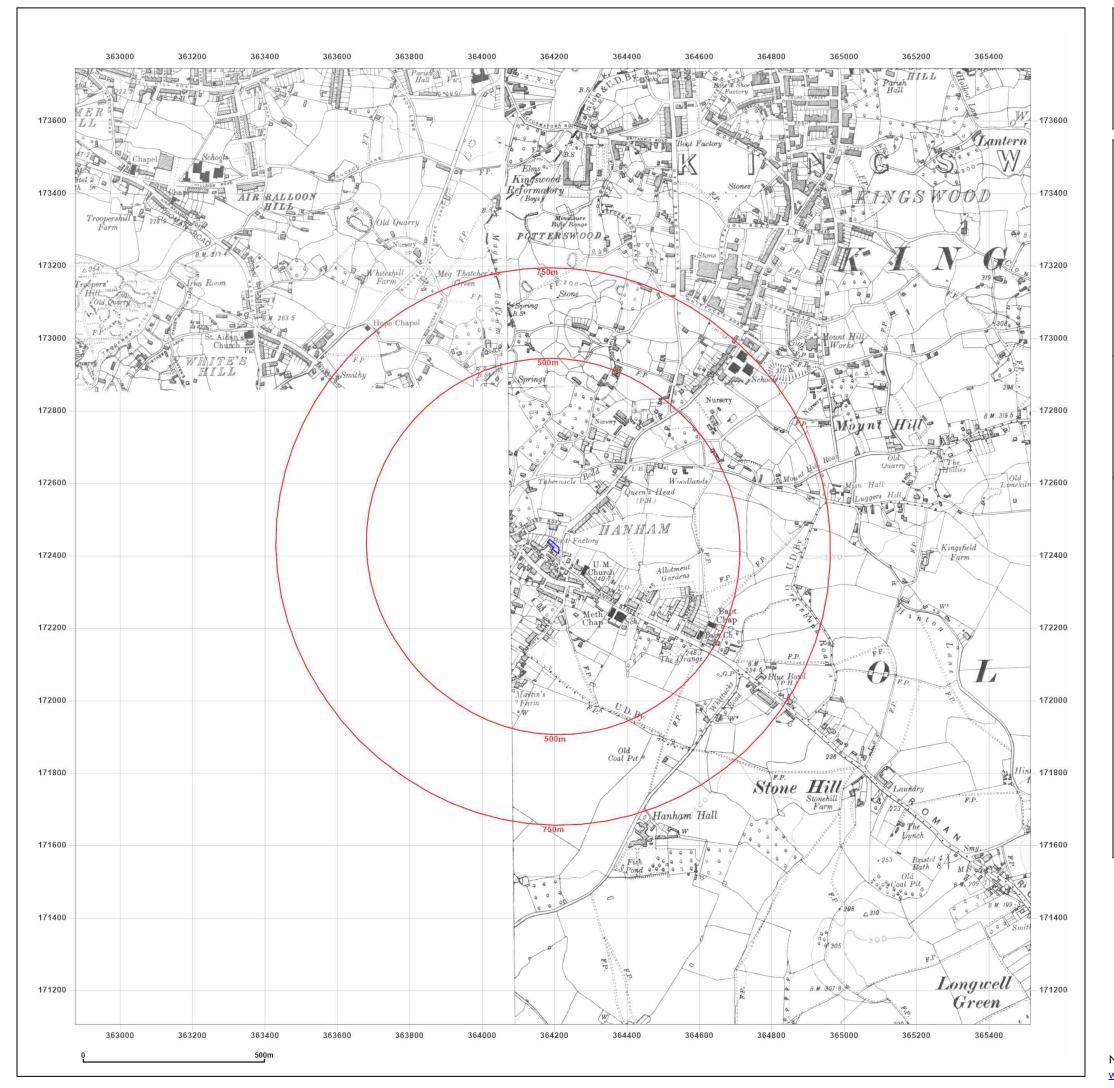
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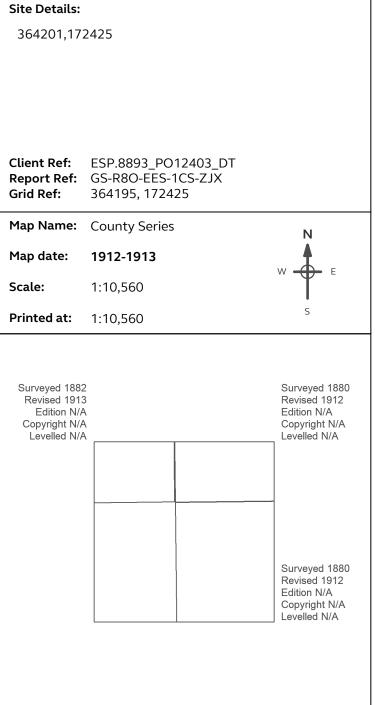
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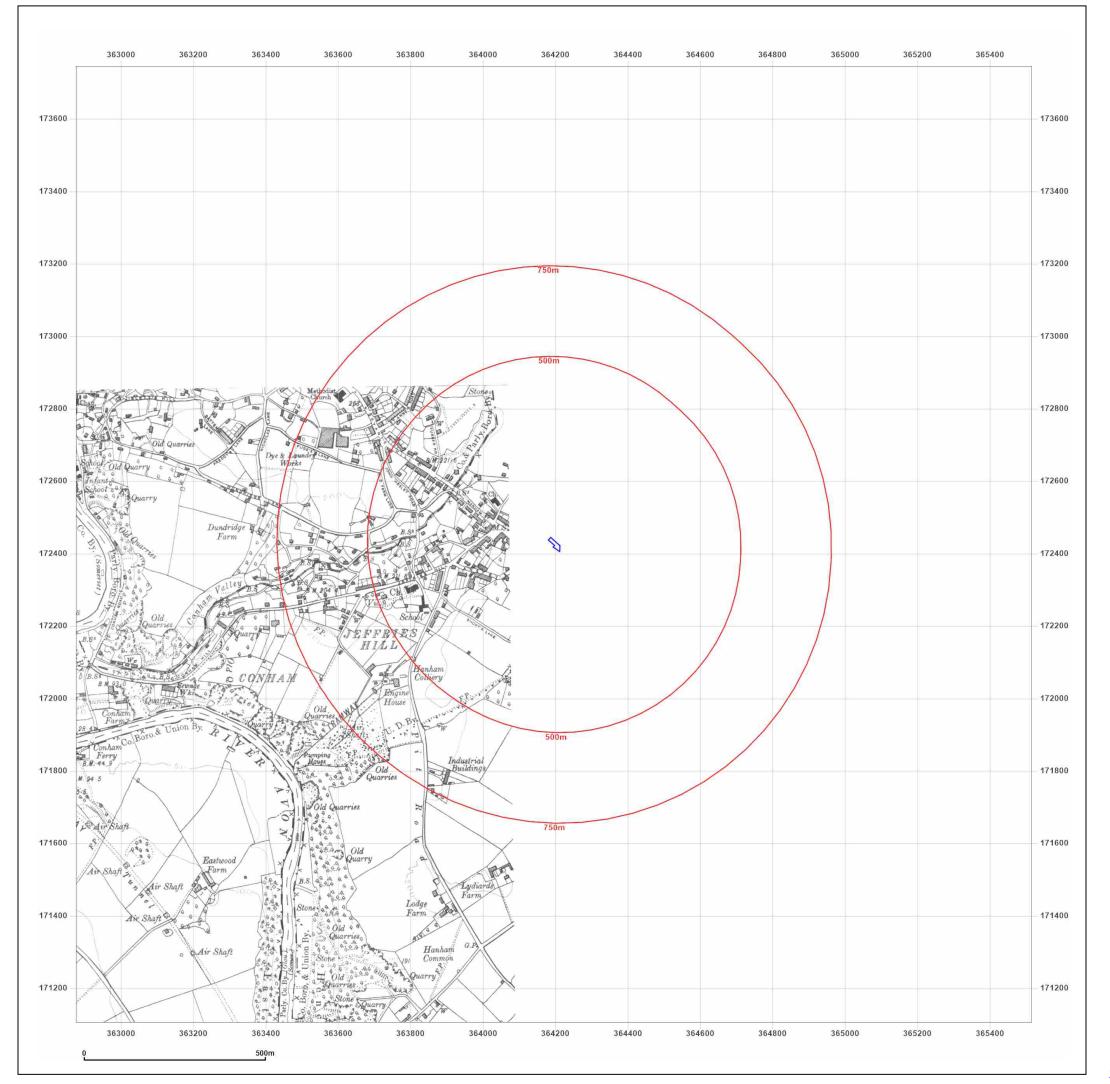




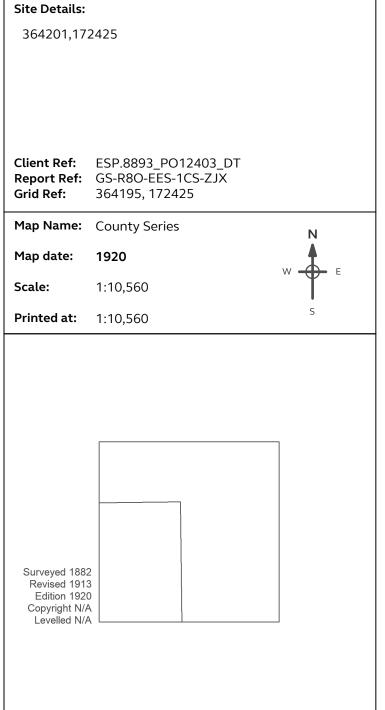
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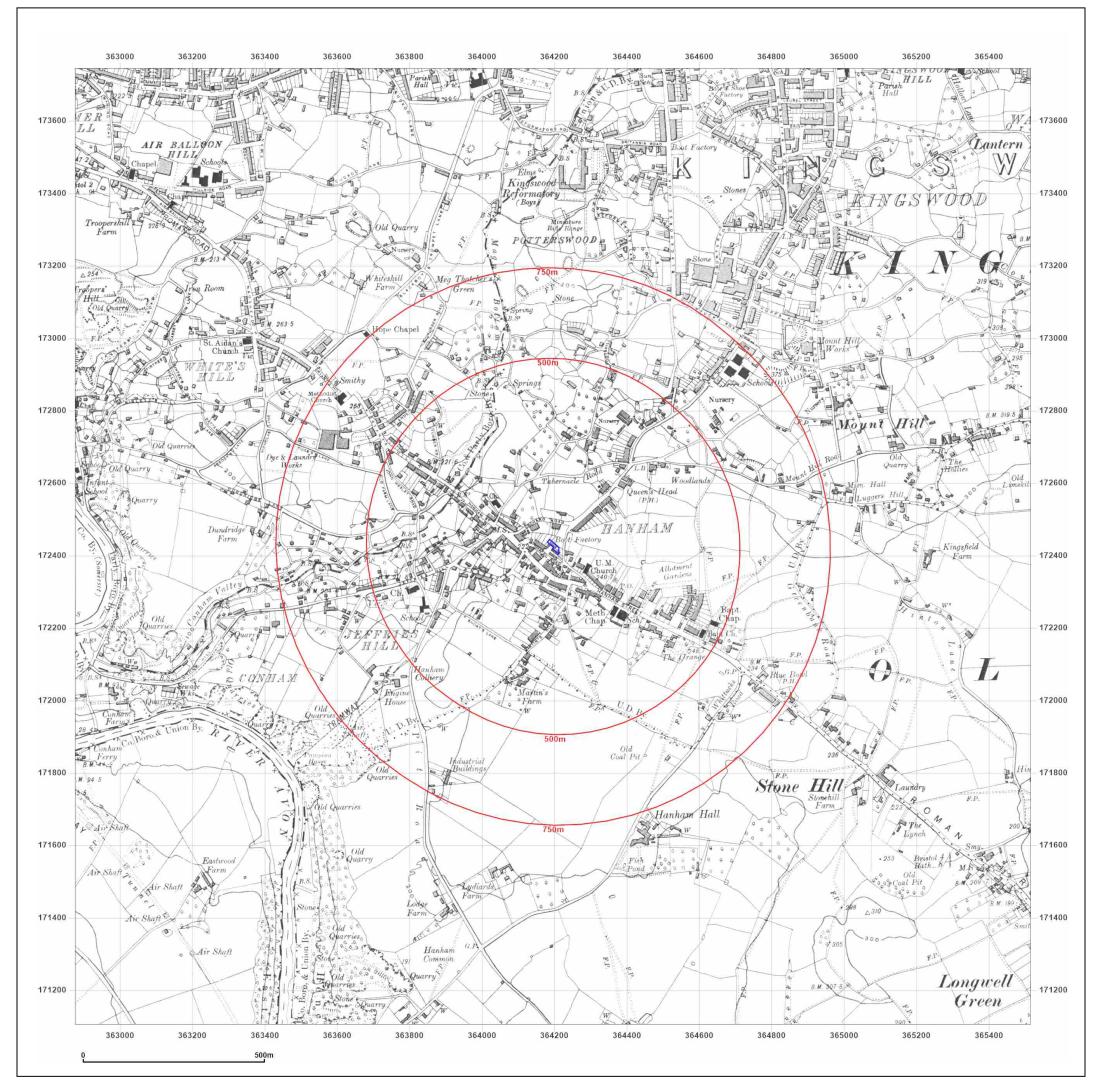




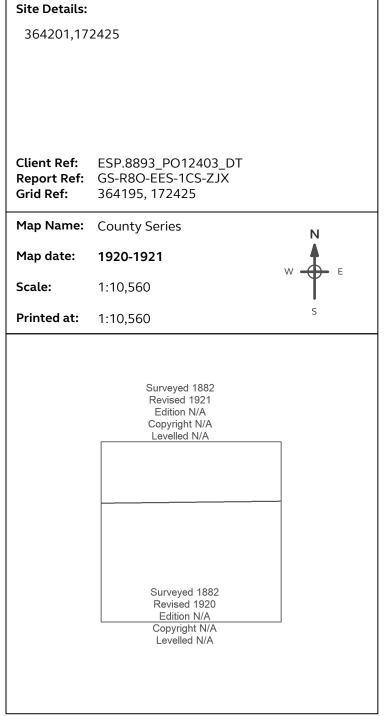
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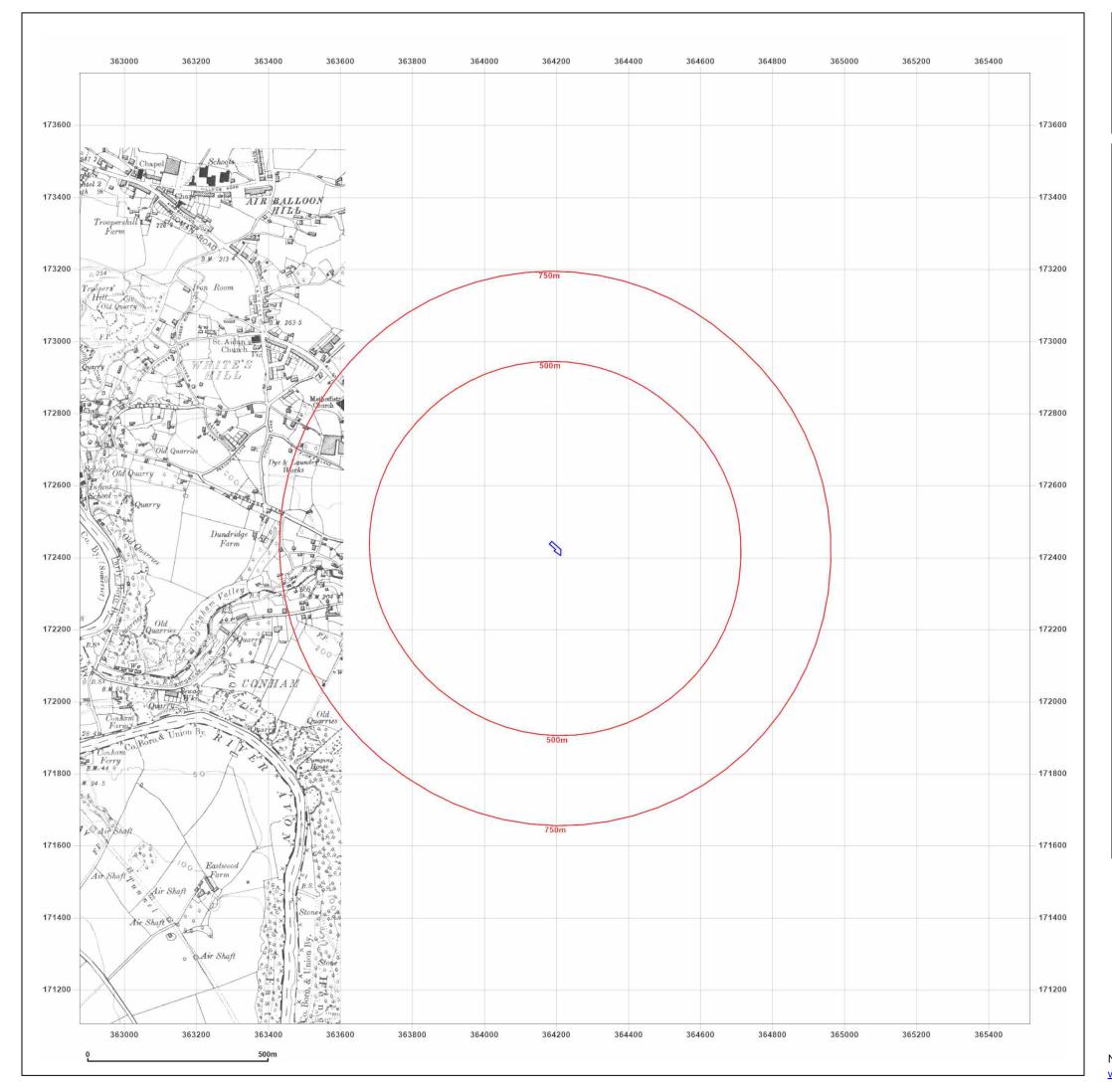




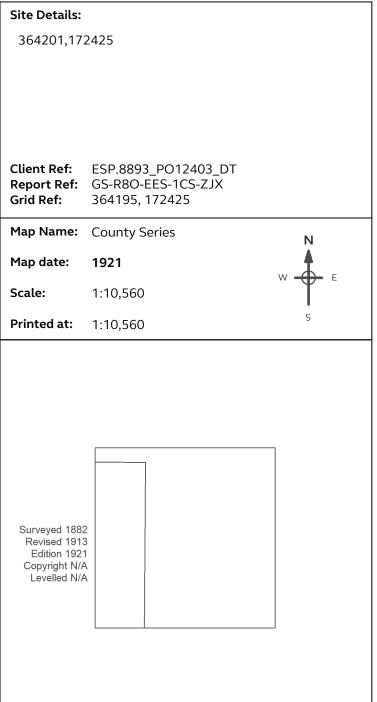
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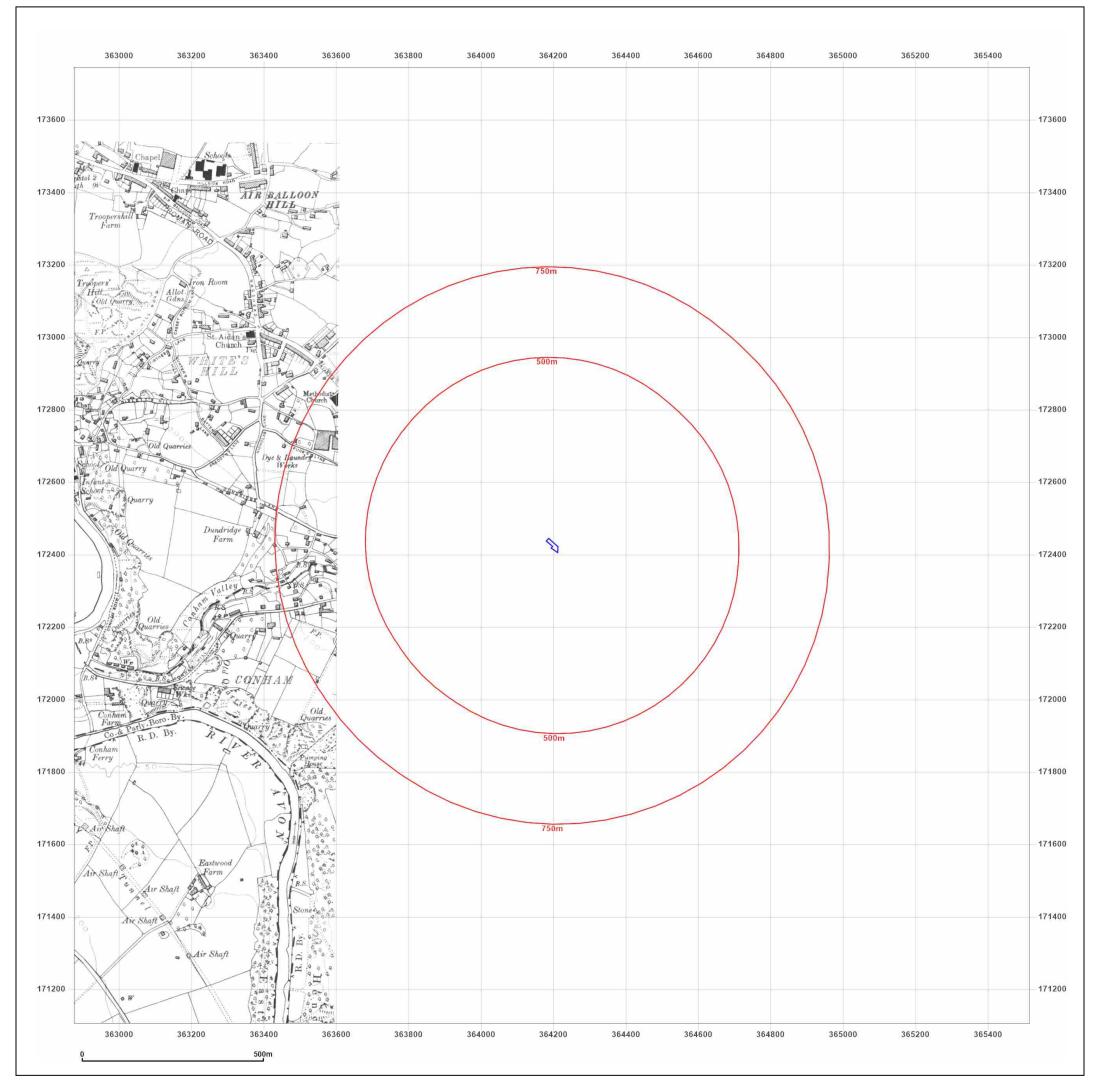




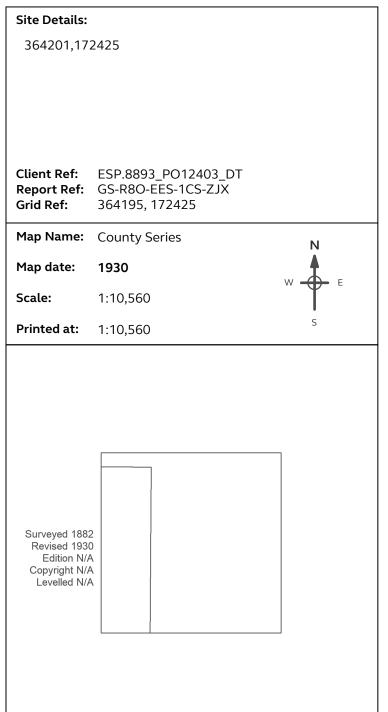
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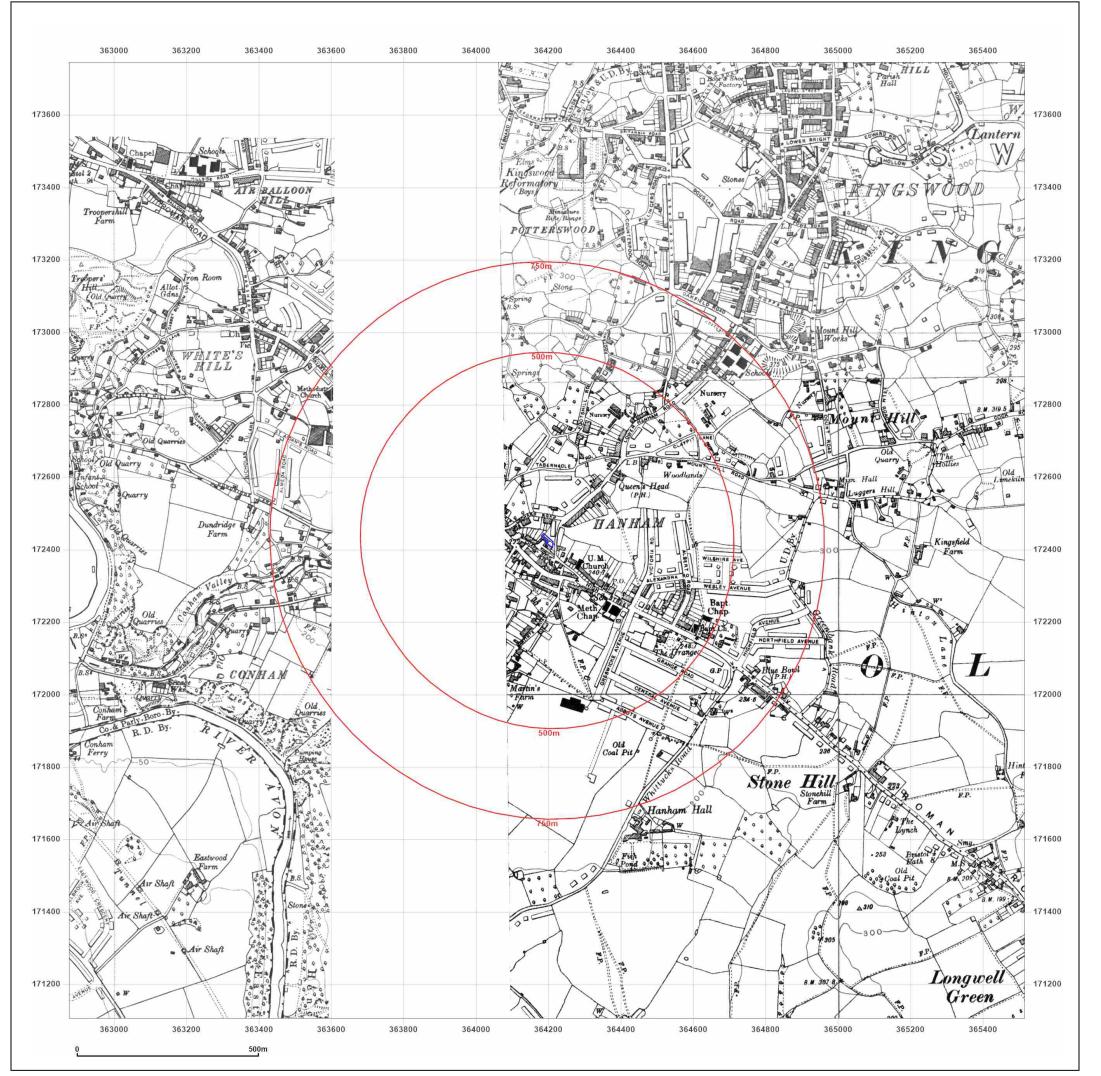




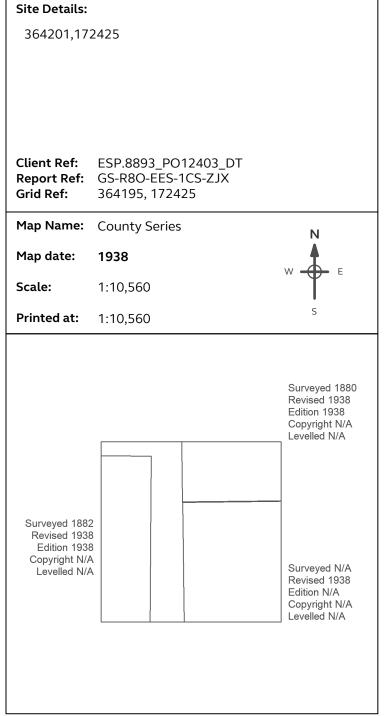
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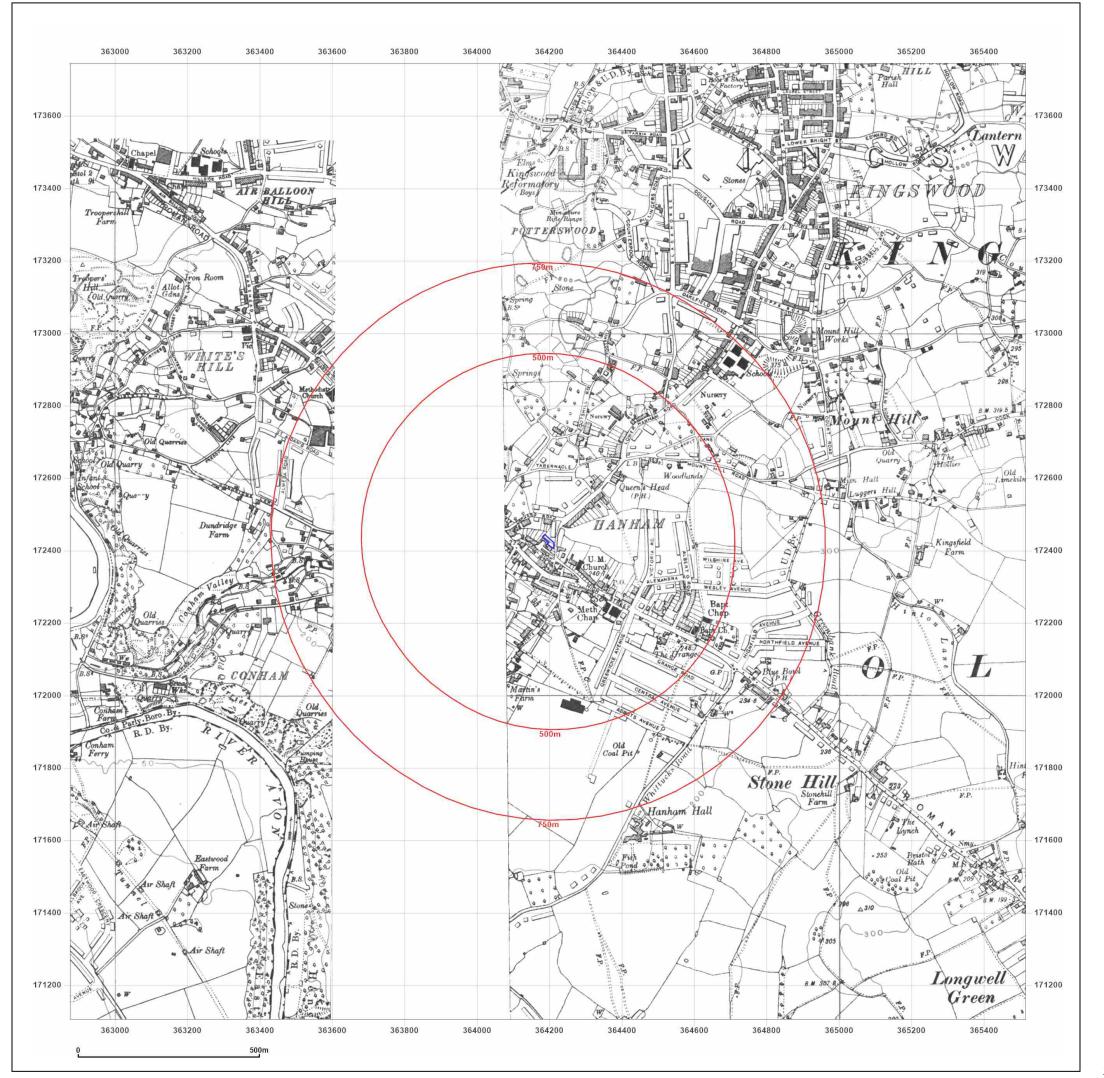




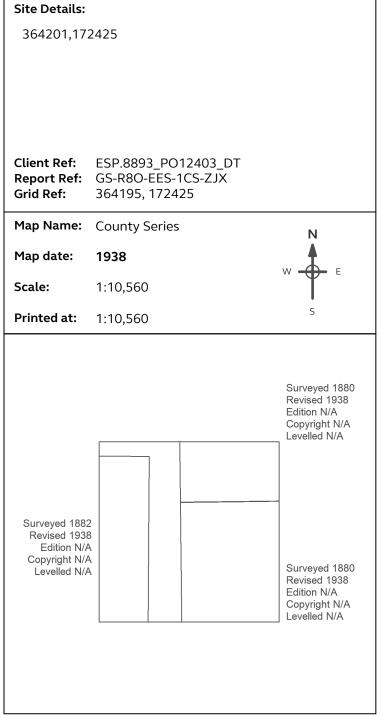
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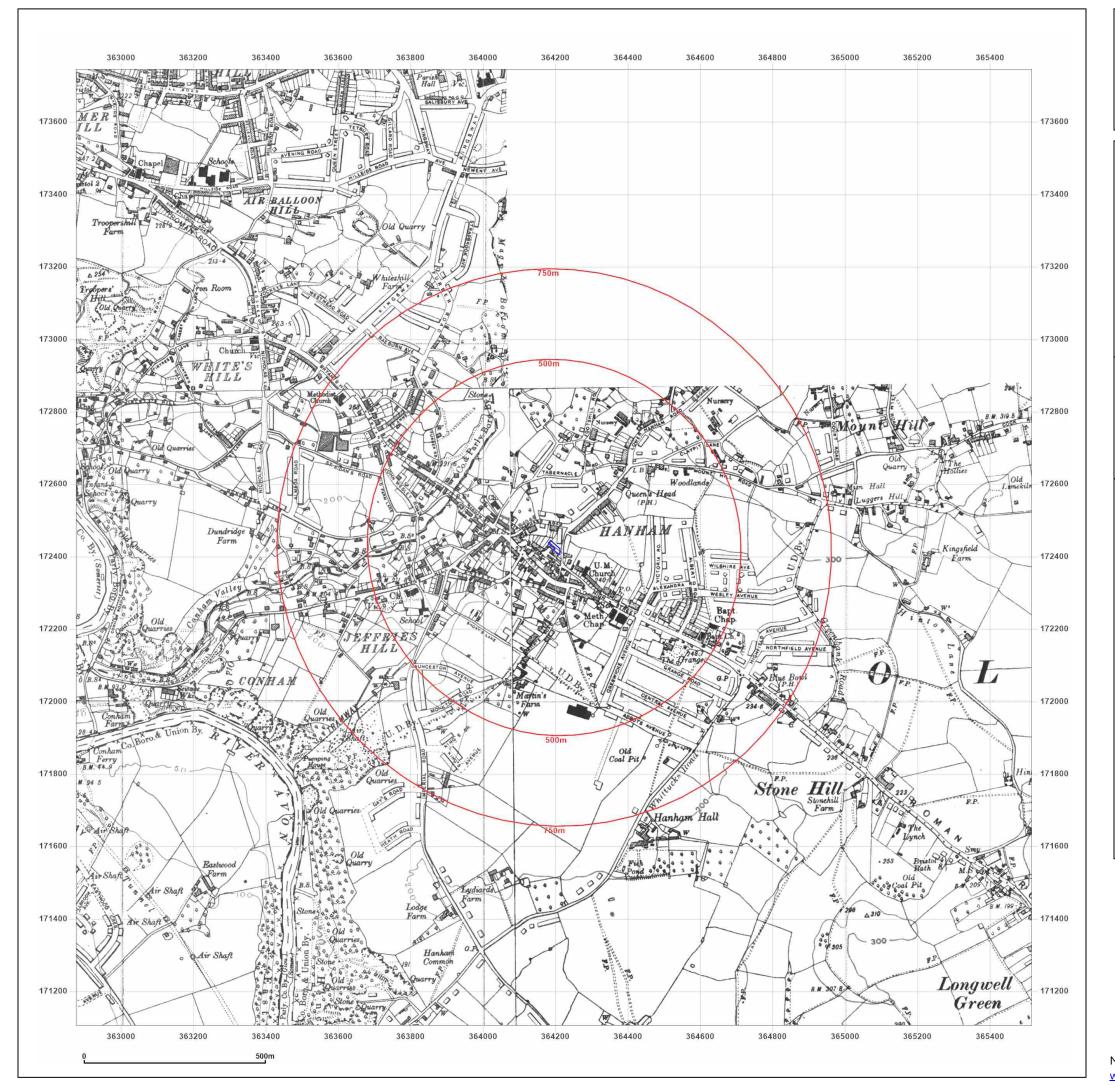




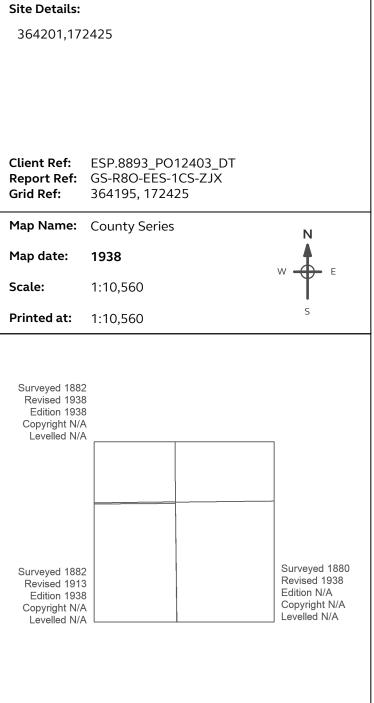
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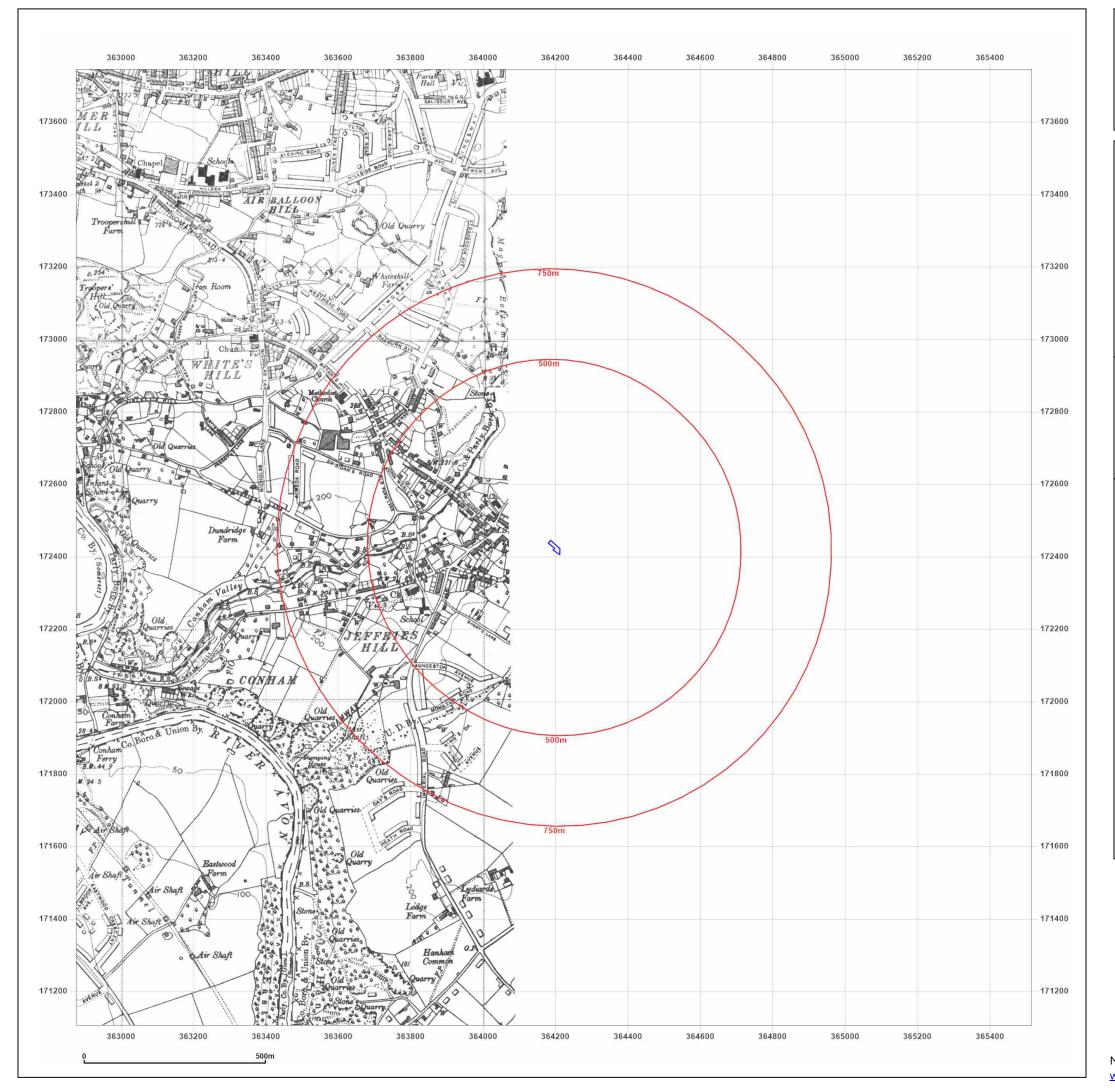




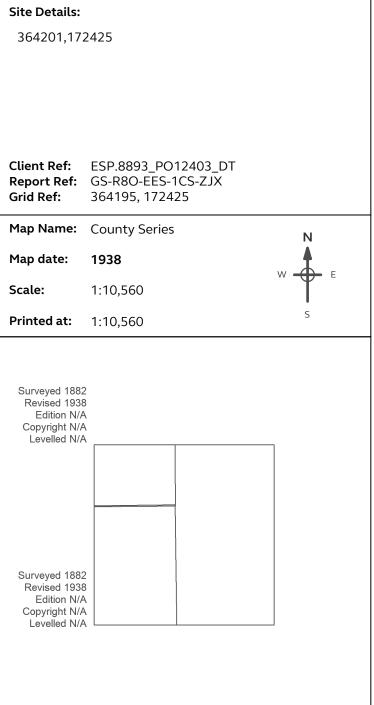
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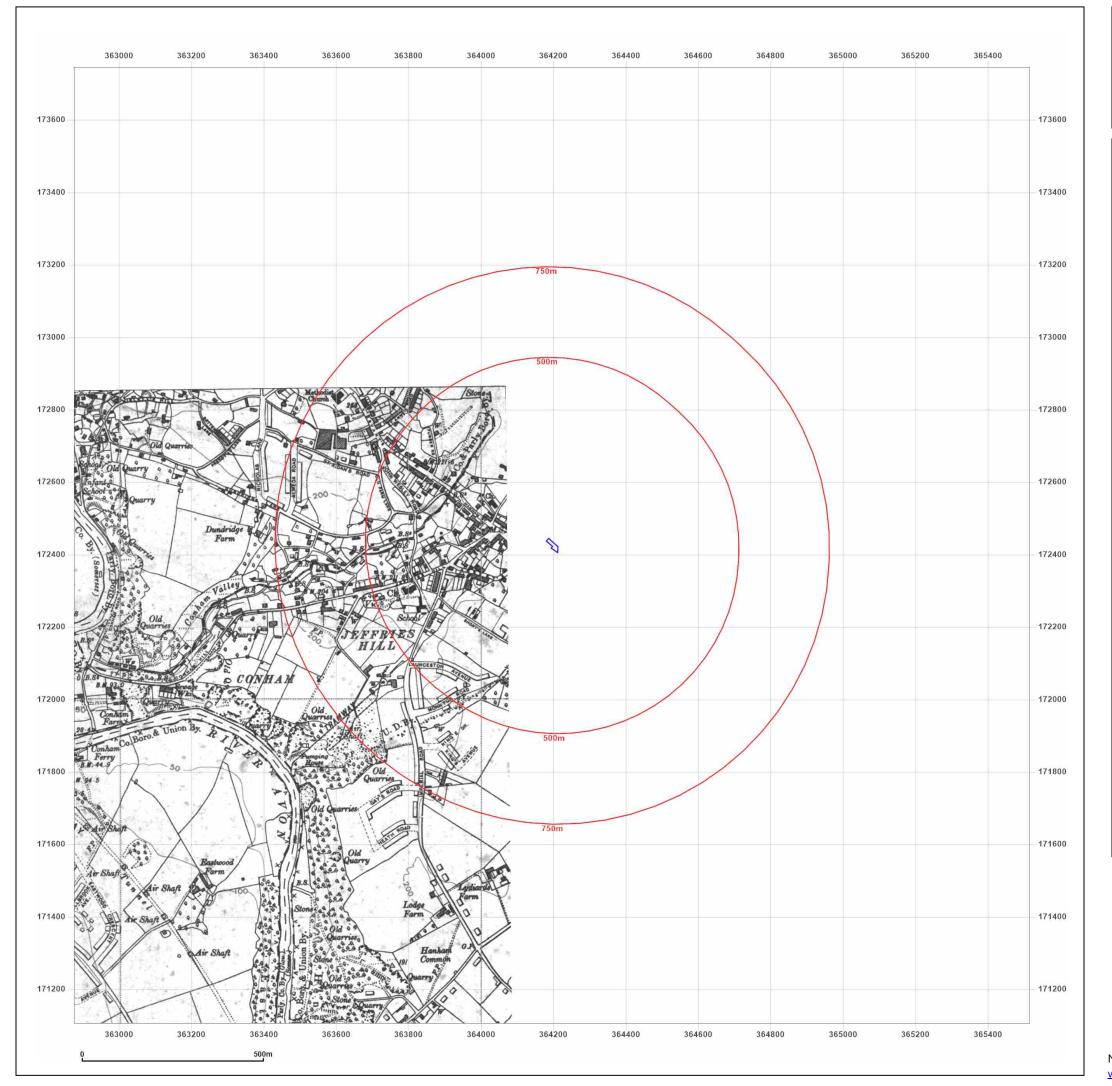




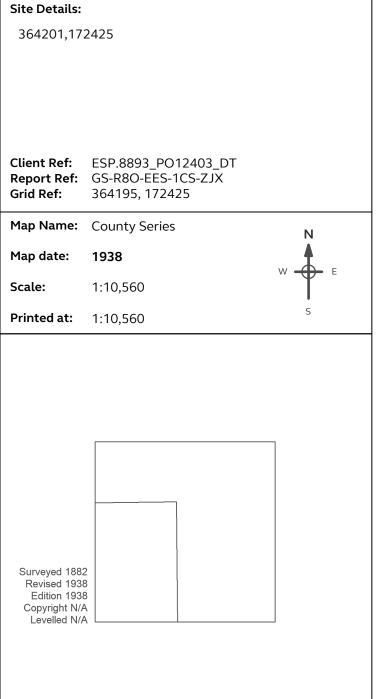
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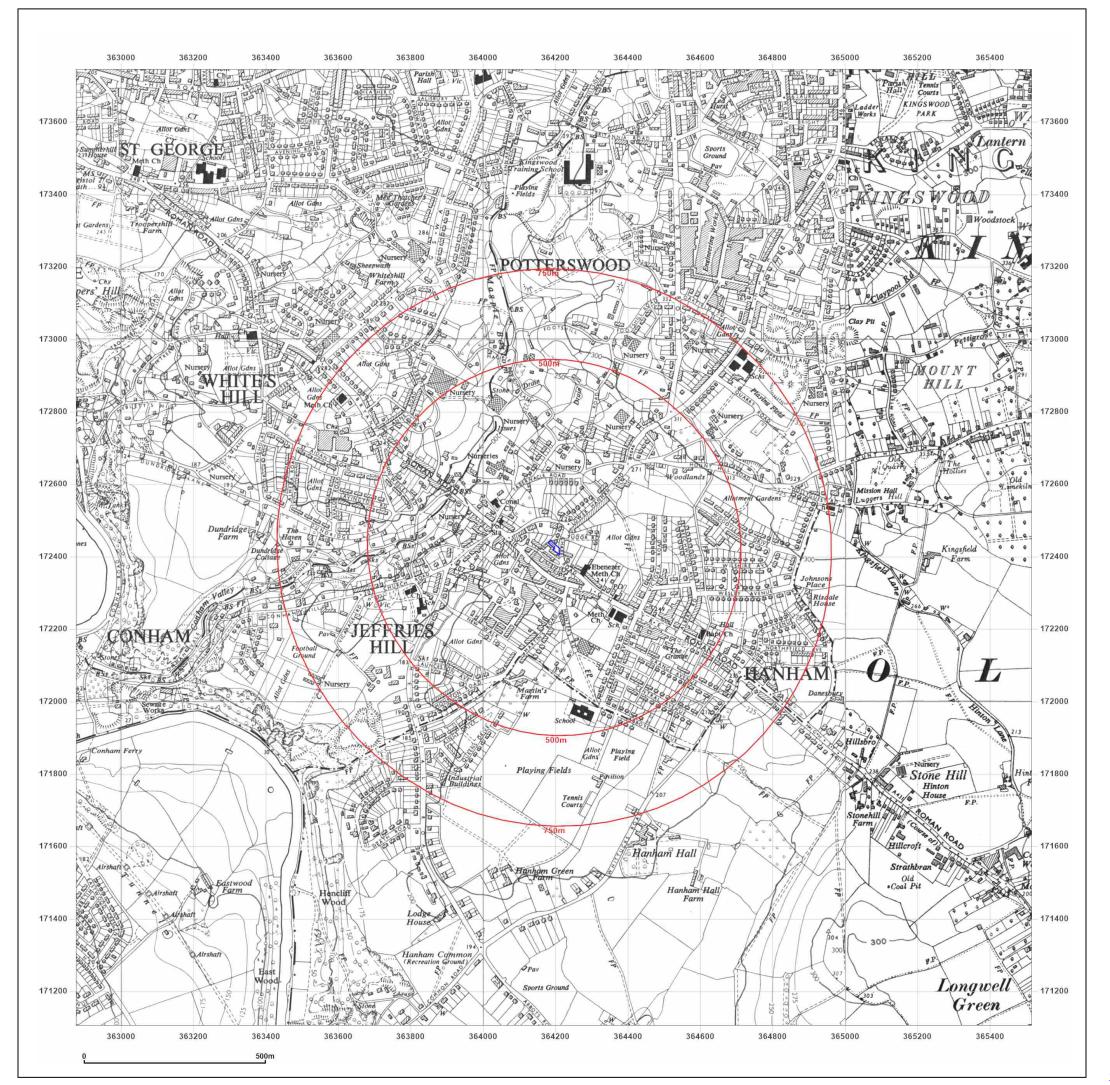




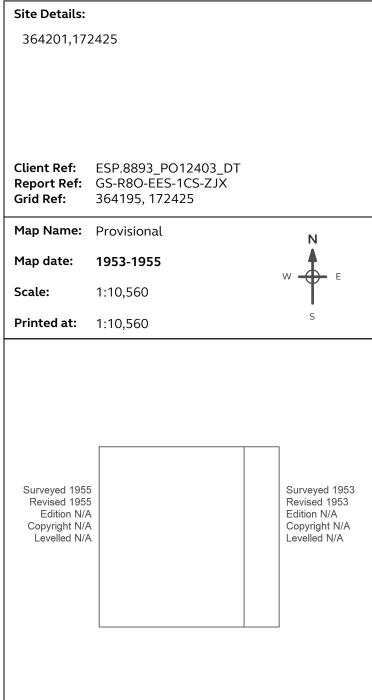
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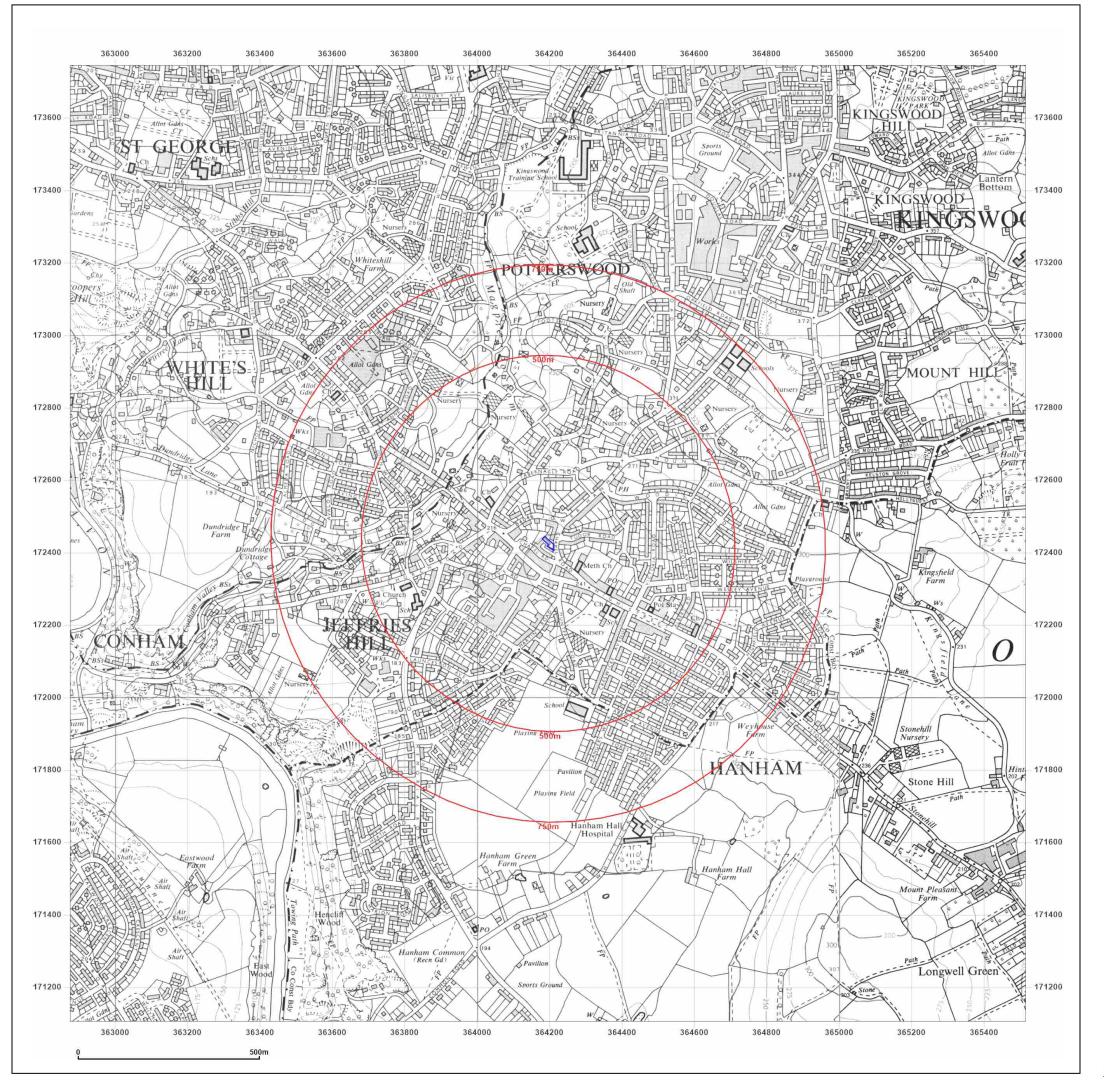




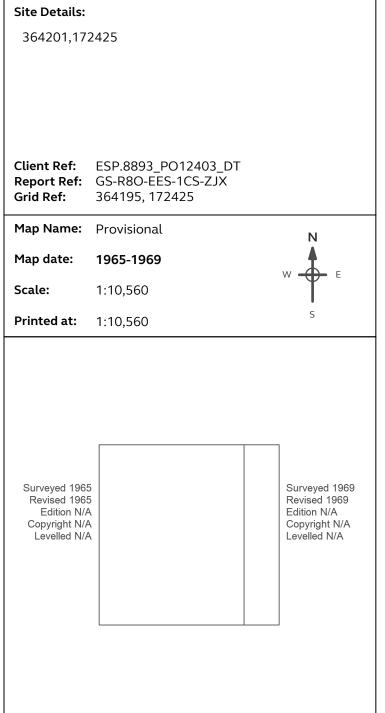
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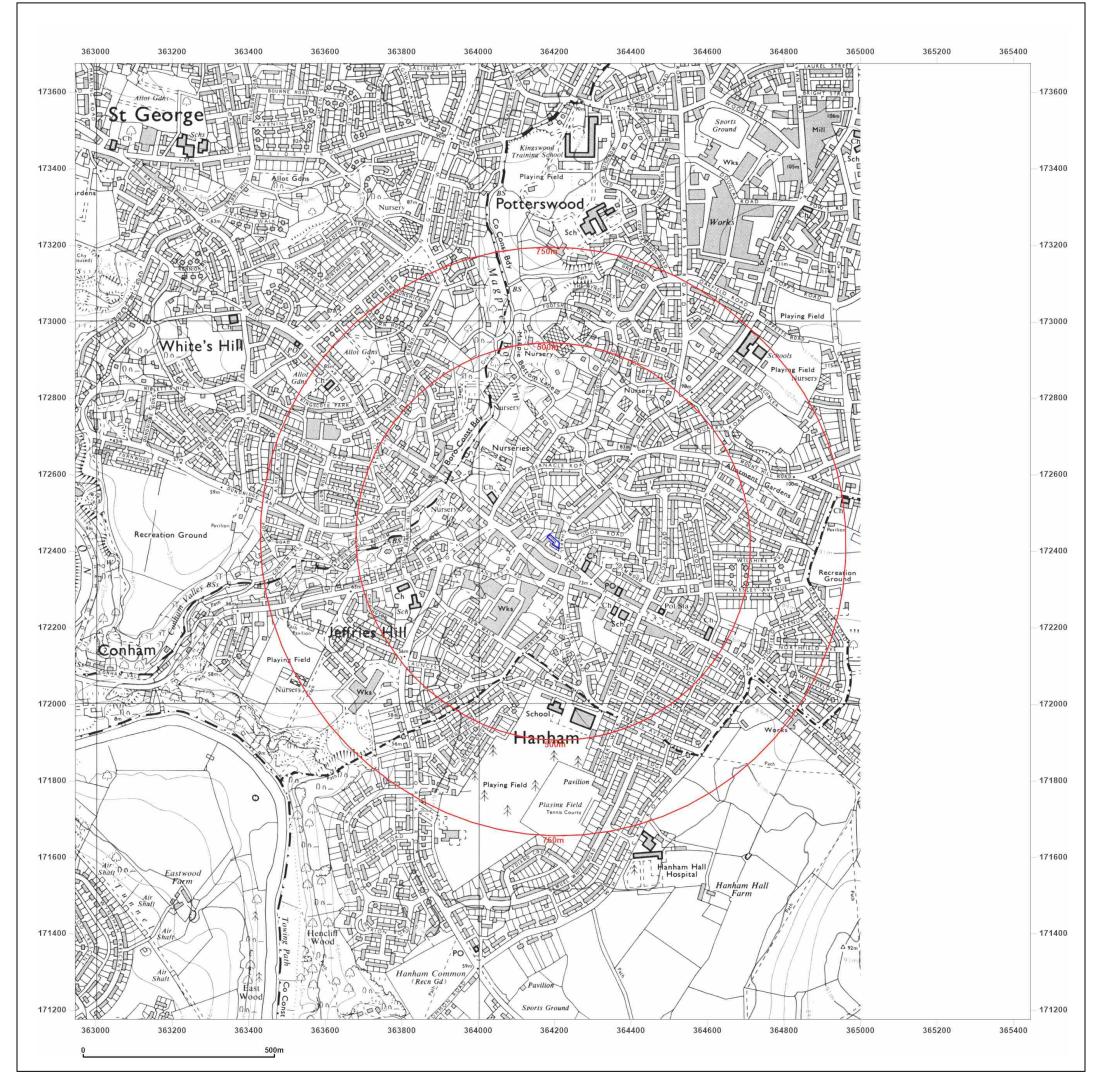




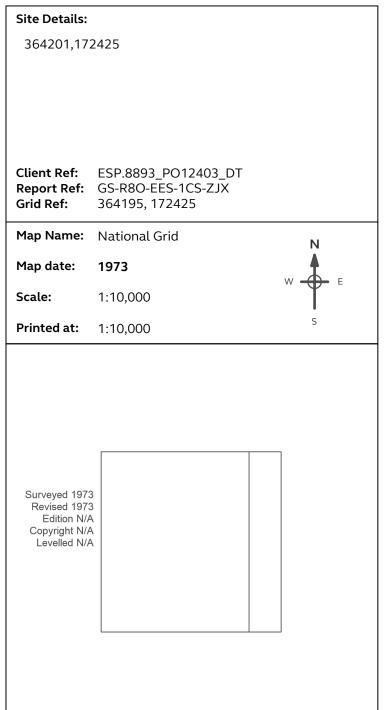
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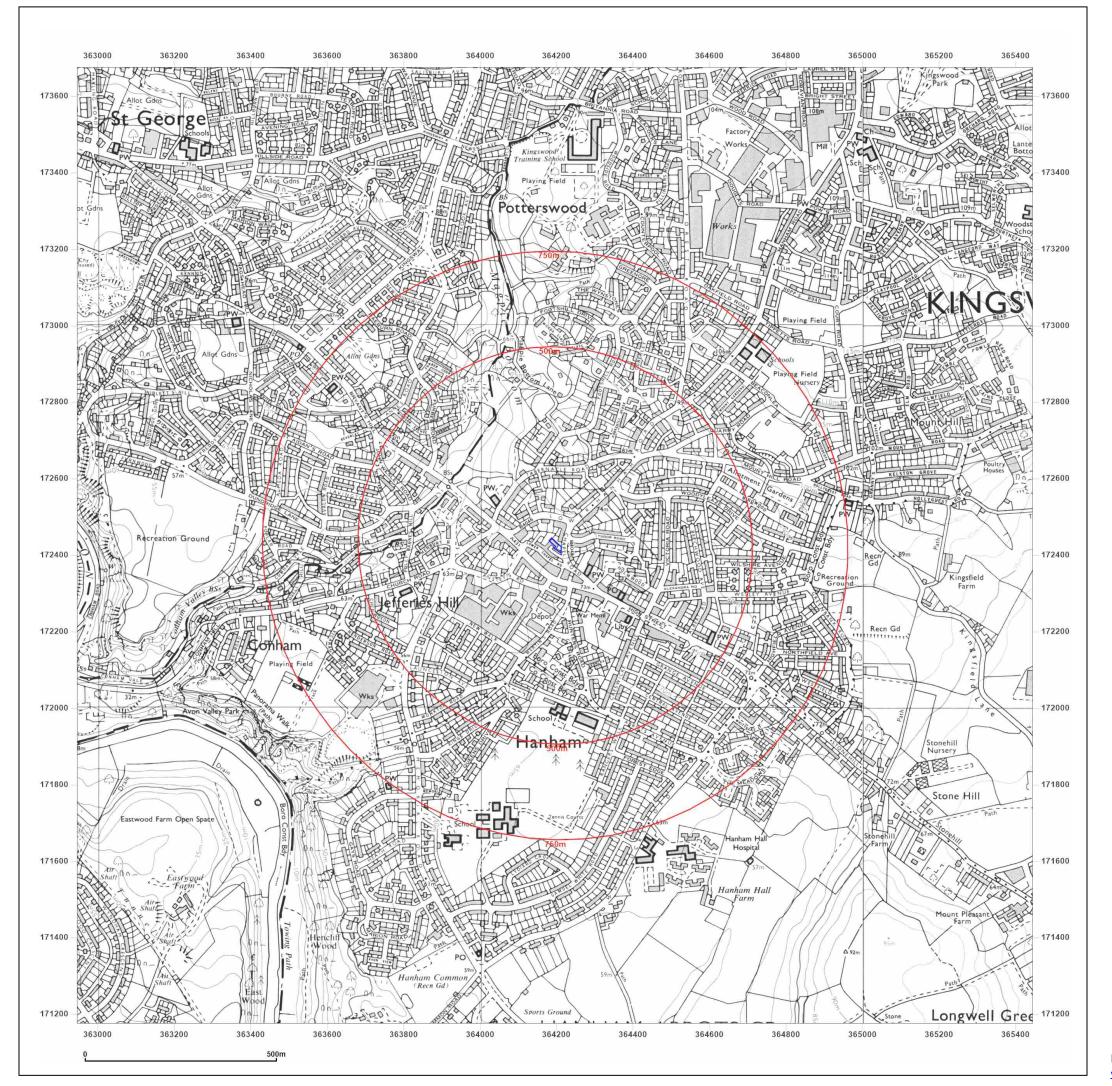




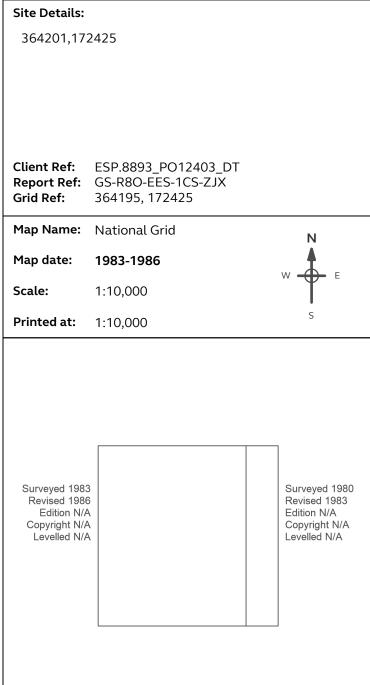
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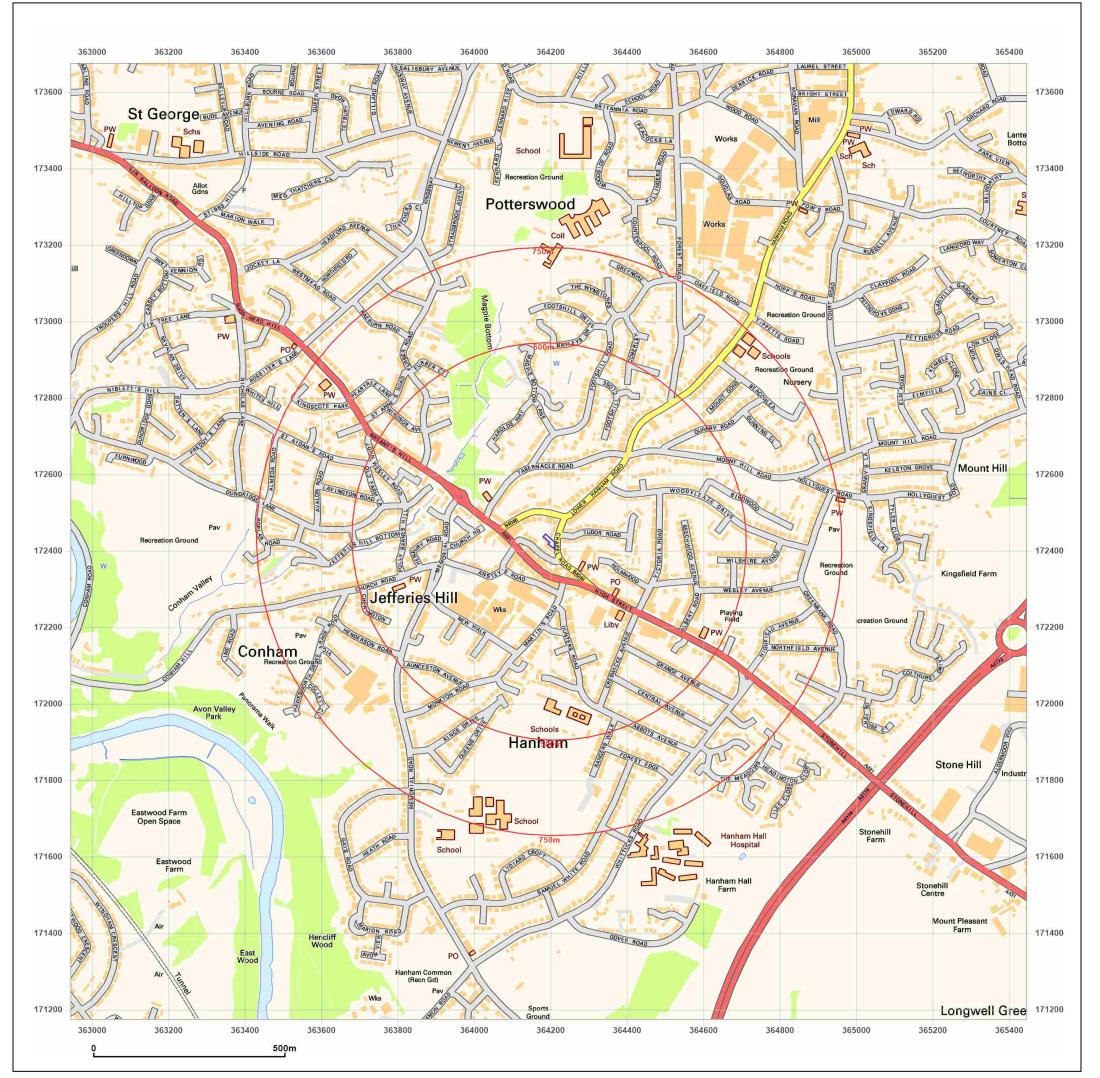




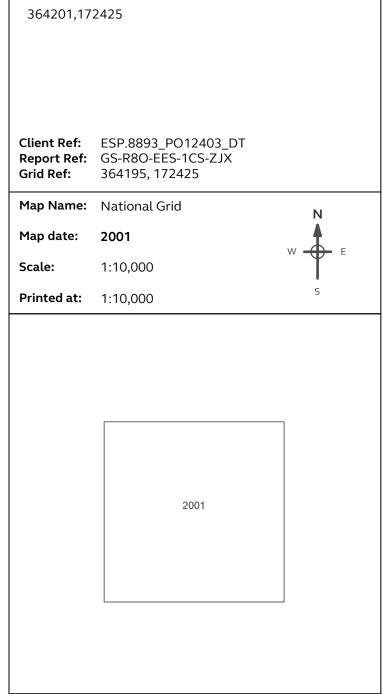
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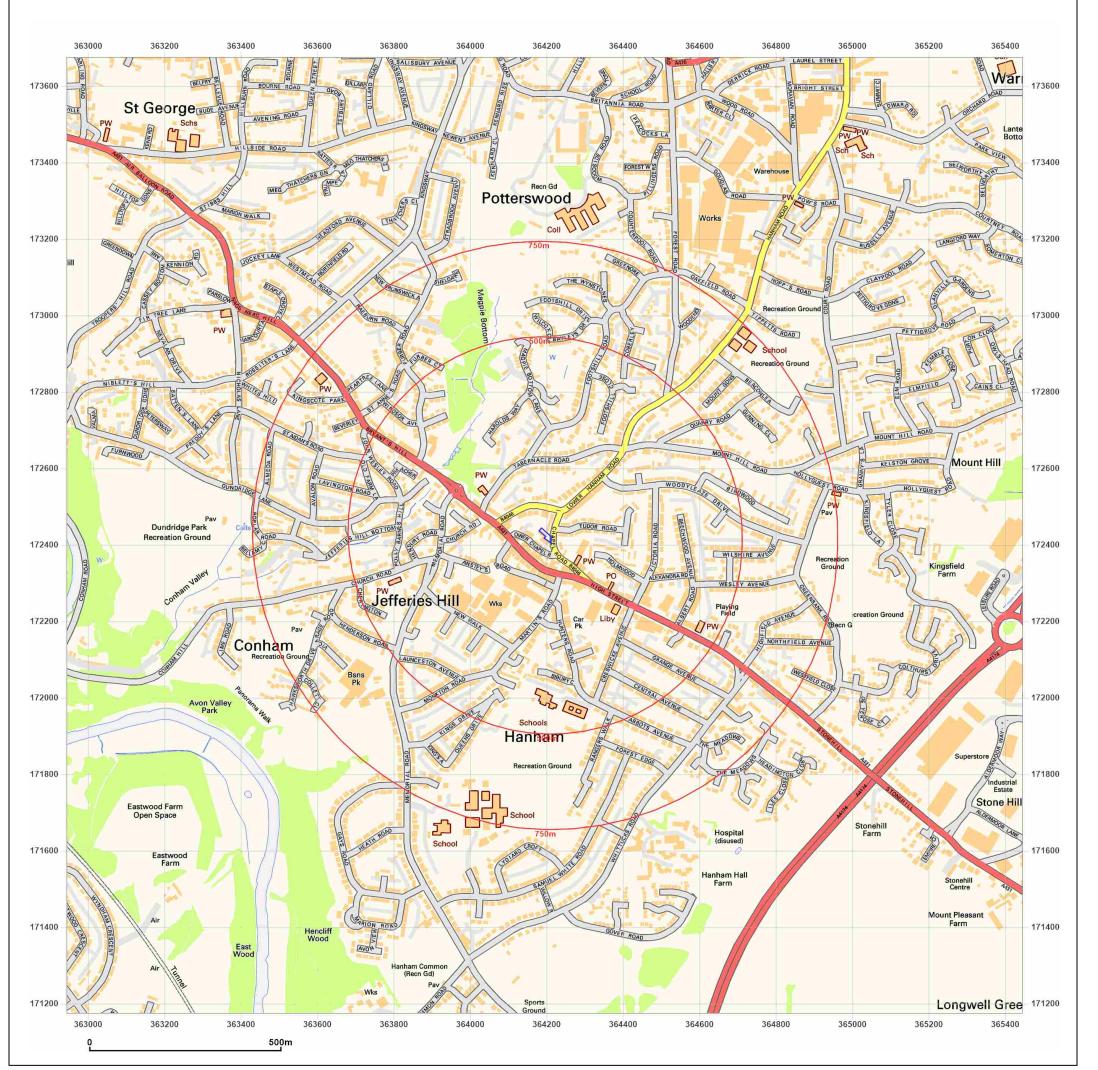


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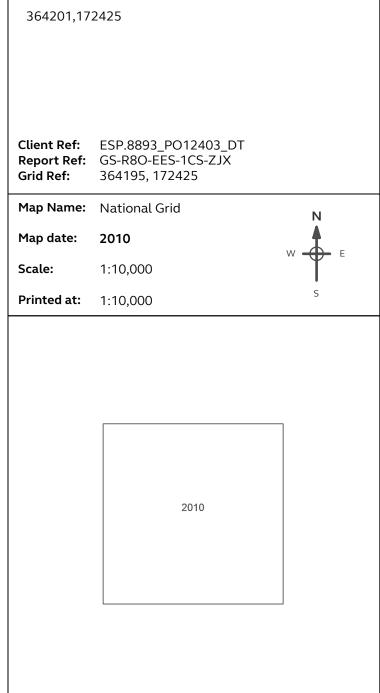
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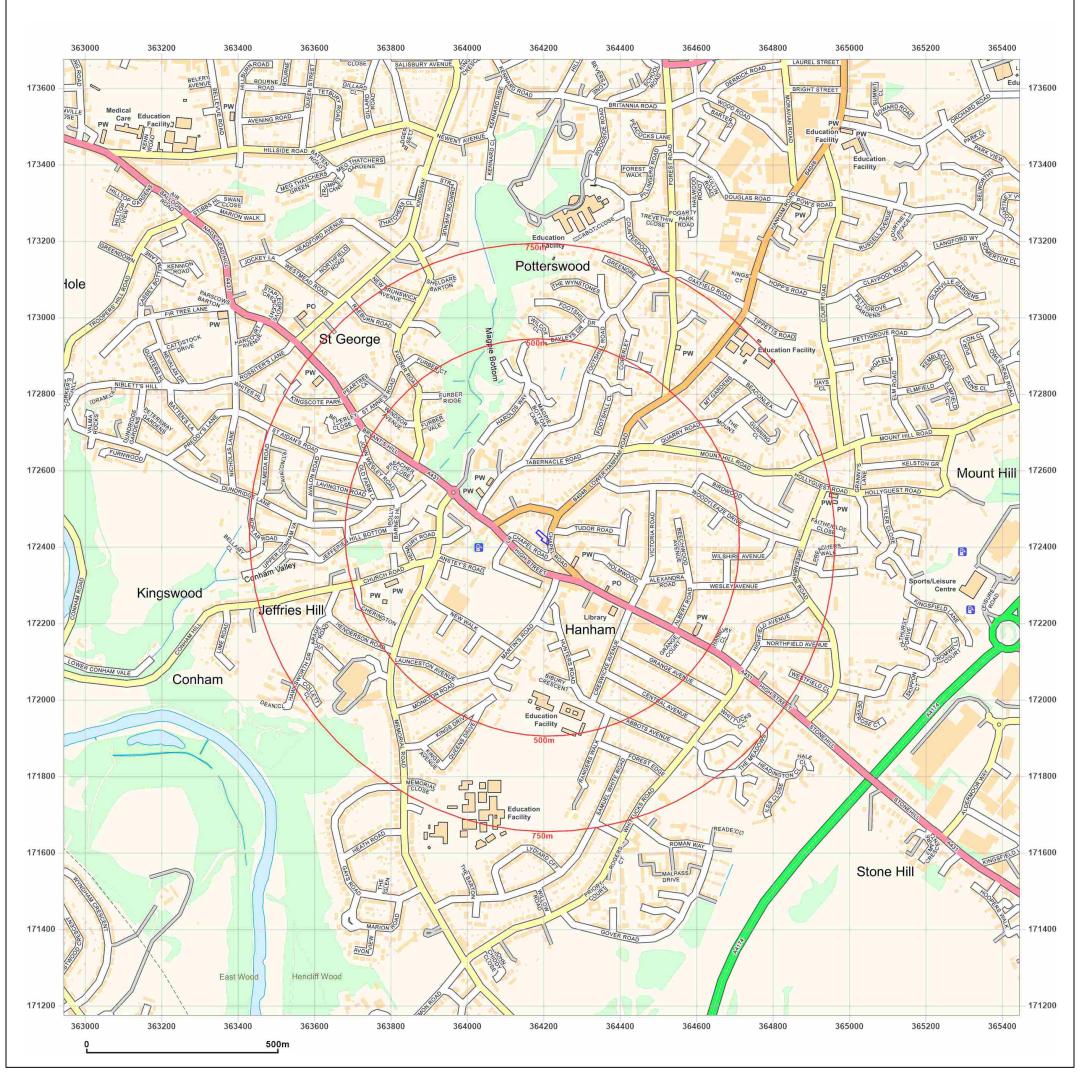


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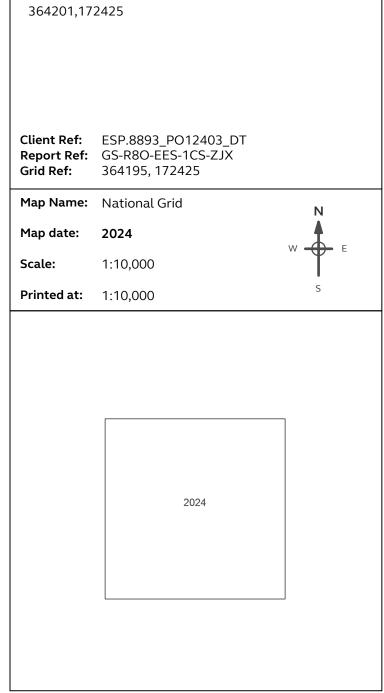
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Appendix B



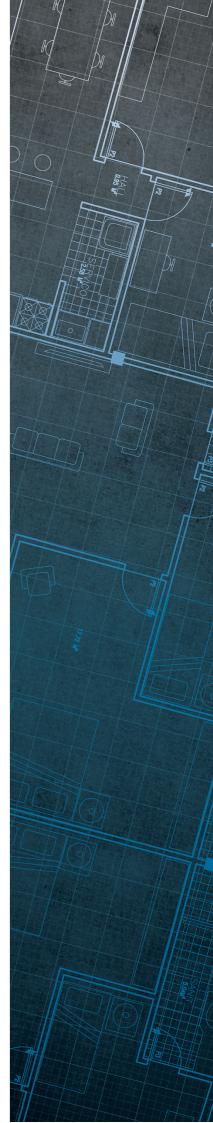
Consultants Coal Mining Report

1 Chapel Road Hanham South Gloucestershire BS15 8SD

Date of enquiry: 19 March 2024
Date enquiry received: 19 March 2024
Issue date: 19 March 2024

Our reference: 51003412473001

Your reference: ESP_8893_PO_12404_DT



Consultants Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Earth Science Partnership

Enquiry address

1 Chapel Road Hanham South Gloucestershire BS15 8SD

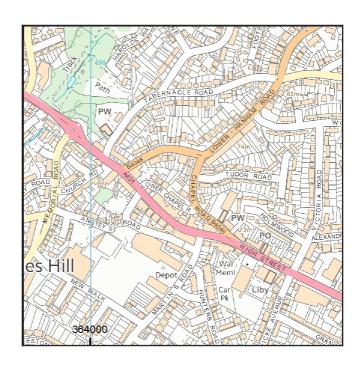
How to contact us

0345 762 6848 (UK) +44 (0)1623 637 000 (International)

200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG

www.groundstability.com





Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	PARROT	Coal	3VEC	26	Beneath Property	18.8	South-West	60	1900
unnamed	FOUR FEET	Coal	3VDW	318	North-East	17.0	South-West	100	1873
unnamed	BUTE TOP LEAF	Coal	3B8B	318	North	18.4	South-West	50	1890
unnamed	SEVEN FOOT (RED ASH)	Coal	3B90	509	North-East	17.5	South	90	1900
unnamed	SEVEN FOOT	Coal	3B8U	551	North	23.6	South	80	1920

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

SWR3406	17639	8953
SWR3407	3556	

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
PARROT	Coal	Yes	Within	N/A	103

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 - Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 - Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 - Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 - Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

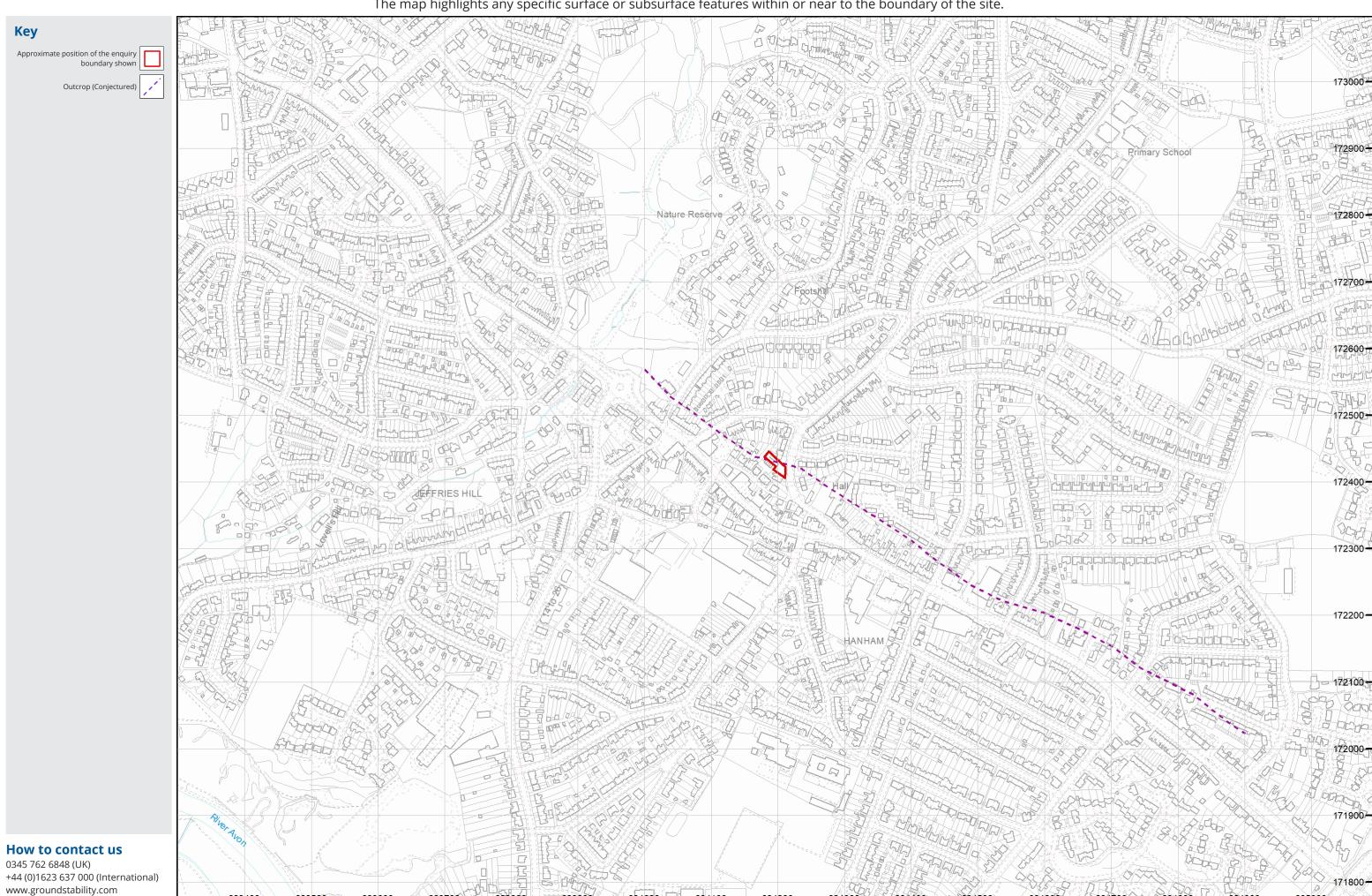
Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

Summary of findings

365000

The map highlights any specific surface or subsurface features within or near to the boundary of the site.



364200



GENERAL NOTES

- 1. Earth Science Partnership (ESP) believes that providing information about limitations is essential to help clients identify and therefore manage their risks. These risks can be mitigated through further investigation or research, but they cannot be eliminated. This report may not be used for any purpose other than that for which it was commissioned.
- 2. This report includes available factual data for the site as obtained only from the sources described in the text. The data are related to the site on the basis of the site location and boundary information provided by the client. The findings and opinions conveyed in this assessment are based on the information obtained from a variety of sources as detailed in the report, which ESP believe are reliable. Nevertheless, ESP cannot and does not guarantee the authenticity or reliability of the information it has relied on. It is possible that the assessment failed to indicate the existence of further sources of information on the site. Assuming such sources do exist, their information could not have been considered in the formulation of the opinions and findings in this report. It should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.
- 3. In preparing this report it has been assumed that all past and present occupants of the site have provided all relevant and other information, especially relating to known or potential hazards. This report is not required to identify insufficiencies or mistakes in the information provided by the user/owner or from any other source, but has sought to compensate for these where obvious in the light of other information.
- 4. Reports are normally prepared and written in the context of a stated purpose, and should not, therefore be used in a different context. Furthermore, new information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission.
- 5. The opinions presented in this report are based on the findings derived from a site inspection, investigations and a review of historical and other records. The report details any indicators that may suggest that hazardous substances exist at the site at levels likely to warrant mitigation. Not finding such indicators does not mean that hazardous substances do not exist at the site. The most recent site inspection was undertaken as detailed within the report. Circumstances on sites are subject to change and certain indicators of the presence of hazardous substances that may have been latent at the time of this inspection may subsequently have become observable.
- 6. The work carried out for the assessment can only investigate a small portion of the subsurface conditions. Certain indicators or evidence of hazardous substances may have been outside the limited portion of the subsurface investigated, latent at the time of the work or only partially intercepted by the works, and thus their full significance could not be appreciated. In this regard, groundwater levels are particularly susceptible to variation and it should be noted that groundwater levels are subject to diurnal, seasonal, and climatic changes and are solely dependent on the time the ground investigation was carried out and the weather before and during the investigation.
- 7. Accordingly, it is possible that the assessment failed to indicate the presence or significance of hazardous substances. Assuming such substances exist, their presence could not have been considered in the formulation of the report's findings and opinions. The conclusions resulting from this study and contained in this report are not necessarily indicative of future conditions or operating practices at or adjacent to the site. Where differing ground conditions or suspect materials are encountered during future site works, additional specialist advice should be sought to assess whether the new information will materially affect the recommendations currently provided herein and whether further consideration is required. Any limiting factors should be assessed by an appropriately qualified specialist.
- 8. The assessment was prepared for the sole internal use and reliance of the Client. The report shall not be relied upon by or transferred to other parties without the express written authorisation of the Earth Science Partnership. If an unauthorised party comes into possession of the report, they rely on it at their peril and the authors owe them no duty of care and skill.
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