

# Phase 1 (Desk Study) Ground Contamination Report

Residential Development, Area 8, Rendlesham, Woodbridge

# Capital Community Developments







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# **Document Control Sheet**

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# **Executive Summary**

Introduction	This Phase I (Desk Study) Ground Contamination Report is provided in support of a planning application (hybrid or detailed) for a Site known as Area 8, Rendlesham. The Site is located along the northern edge of Rendlesham and is arable farmland. Land to the east and south is formed by residential properties, with woodland and agricultural land to the west and north belonging to Rendlesham Hall Farm. Access can be gained from a private track leading to the farm. A sewage works is present just north of the Site boundary.	
Site Walkover Survey	A Site walkover was undertaken on the 23 November 2017 to identify potential contamination sources both within the Site curtilage, and in the immediate vicinity, resulting from current and previous use of the Site.  Access to the Site was limited and photographs could only be taken from the Site boundary with Garden Square and Tidy Road, but confirm that the land is currently used for arable farming. Considering the review of the historical maps it appears very unlikely that the Site has been subject to any potentially contaminative activities.	
Site History	The historical maps indicate that the Site has never been developed, however, early mapping dated between 1881 and 1905 indicates that the Site formed part of the gardens of Rendlesham Hall before the hall was demolished in 1949, and thereafter as arable land forming part of Rendlesham Hall Farm. Land to the immediate south of the Site has been developed twice. From the 1970's to around 2002 it formed part of the wider ancillary area of Bentwaters Airfield, before being redeveloped in two phases to dwellings in 2010 and 2014 after the closure of the airfield in 1993.	
Geology	The British Geological Survey 1:50,000 map indicates the Site to be directly underlain by superficial deposits of the Lowestoft Formation (Diamicton), which in turn is underlain by bedrock of the Chillesford Church Sand Member.	
Hydrogeology	The Lowestoft Formation is designated as a Secondary (Undifferentiated) Aquifer. The Chillesford Church Sand Member is designated as a Principal Aquifer. The Site is not within a Source Protection Zone.	
Hydrology  There is a drain located alongside the eastern boundary. This does not appear to be connected to a wider network.		

Environmental	No significant contaminative sources were identified within the Site curtilage or within a 250m radius of the Site boundary. Accordingly, no complete source-pathway-receptor pollutant linkages can be made. Therefore, the land is considered suitable for the proposed end use without the need for a Phase II investigation. This is subject to approval by the Local Planning Authority.		
Conclusions			
Geotechnical Conclusions	The Lowestoft Formation (Diamicton) is generally suitable for conventional concrete strip or trench fill foundations to support traditional residential houses.		

This Executive Summary contains an overview of the key findings and conclusions in this report. No reliance should be place on any part of the Executive Summary until the whole of this report has been read. Other sections of the report may contain information which puts into context the findings summarised in the Executive Summary.

#### 1 Introduction

- 1.1 BHA Consulting Ltd (BHA) has been commissioned by Capital Community Developments to produce a Phase I (Desk Study) Contamination Report in support of a planning application (hybrid or detailed) for residential development on land known as Area 8, Rendlesham, to be referred to hereafter as 'the Site'.
- 1.2 The purpose of this report is to identify, as far as is reasonably possible, the ground conditions beneath the Site and the potential for contamination which might affect Site users and the environment and give rise to legal liability to the Client or prompt regulatory action pursuant to any Environmental Laws, including Part 2A of the Environmental Protection Act 1990.
- 1.3 The scope of works included a Site walkover survey, review of available information including geological, hydrogeological and hydrological information; a commercially available environmental database, historical plans and previous reports. This information has been used to develop an initial conceptual Site model to consider any potentially complete pollution linkages.

#### **Limitations**

- 1.4 This document has been prepared for the titled project and should not be relied upon or used for any other project. BHA accepts no responsibility or liability for the consequences of this document being used for a purpose other than that for which it was commissioned. The assessments and judgments contained herein should not be relied upon as legal opinion.
- 1.5 The findings and opinions are relevant to the dates of the Site visit and information review and should not be relied upon to represent conditions at substantially later dates. Conditions at the Site will change over time due to natural variations and may be affected by human activities. The opinions included herein are based on the information obtained from the assessments undertaken at the Site and from our experience. No intrusive investigations have been carried out. If additional information becomes available which may alter our conclusions, we request the opportunity to review the information, reassess the potential concerns and modify our opinion, if warranted.

# 2 The Site & Site History

#### **Site Location & Current Land Use**

2.1 The Site is located along the northern edge of Rendlesham, as shown in Figures 2.1 and 2.2 below, and is arable farmland. Land to the east and south is formed by residential properties, with woodland and agricultural land to the west and north belonging to Rendlesham Hall Farm. Access can be gained from a private track leading to the farm. A sewage works is present just north of the Site boundary.

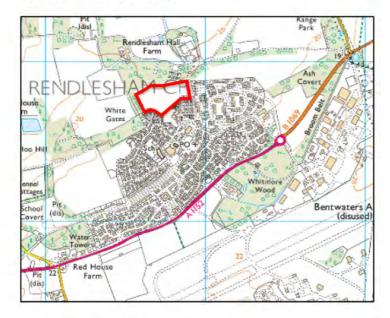


Figure 2.1: Site Location Plan



Figure 2.2: Site Location Plan: Aerial View

#### Site Walkover

- 2.2 A Site walkover was undertaken on the 23 November 2017 to identify potential contamination sources both within the Site curtilage, and in the immediate vicinity, resulting from current and previous use of the Site.
- 2.3 Access to the Site was limited and photographs could only be taken from the Site boundary at Garden Square and Tidy Road. It is established that the land is currently used for arable farming. Considering the review of the historical maps it appears very unlikely that the Site has been subject to any potentially contaminative activities. A Site Walkover Plan is provided in Appendix B.

#### **Site History**

- 2.4 Historical maps were obtained from Groundsure to assist in the desk study (Appendix C.)
- 2.5 The historical maps indicate that the Site has never been developed, however, early mapping dated between 1881 and 1905 indicates that the Site formed part of the gardens of Rendlesham Hall. The main hall was located just outside the northern boundary of the Site surrounded by associated lodges, gardens and woodlands. Information from Wikipedia states that the hall was built in 1780 and occupied over 100ha of land. In 1923 the hall was sold for use as a sanitorium and later occupied by the British Army during the Second World War. After the war the hall stood empty before being demolished in 1949, and thereafter the estate forms part of Rendlesham Hall Farm, with the Site area utilised for arable farming.
- 2.6 Land to the immediate south of the Site has been developed twice. From the 1970's to around 2002 it formed part of the wider ancillary area of Bentwaters Airfield. The buildings closest to the Site boundary were utilised as dormitories and as a mess hall with the main runway and operational buildings located beyond the A1152, approximately 750m to the south. The small scale mapping indicates this area was redeveloped in two phases to dwellings in 2010 and 2014 after the closure of the airfield in 1993.

#### **Review of Previous Site Investigations**

2.7 BHA is not aware of any previous site investigations that have been undertaken on the Site.

# 3 Environmental Setting

#### Geology

3.1 Published Geology – The British Geological Survey (BGS) 1:50,000 map indicates the Site to be directly underlain by superficial deposits of the Lowestoft Formation (Diamicton). This is underlain by bedrock geology of the Chillesford Church Sand Member.

#### **Ground Stability Hazards**

Stability Hazard	Hazard Potential	Comments
Collapsible Ground	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
Compressible Ground	Negligible	No indicators of compressible deposits identified.
Soluble Rocks	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional circumstances. No special actions required to avoid problems due to soluble rocks.
Landslides	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides.
Running Sand	Very Low	Very low potential for running sand problems if the water table rises or if sandy strata are exposed to water.
Shrinking or Swelling Clay	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE).

Table 3.1: Ground Stability Hazards

#### Hydrogeology

#### Aquifer Characteristics

- 3.2 The Chillesford Church Sand Member is designated as a Principal Aquifer (i.e. high intergranular and/or fracture permeability meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale).
- 3.3 The Lowestoft Formation (Diamicton) is designated as a Secondary (Undifferentiated) Aquifer. This is assigned in cases where it has not been possible to attribute either category A or B to a rock type. This means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

#### **Groundwater Vulnerability & Soil Leaching Potential**

3.4 The soils beneath the Site have an intermediate leaching potential.

#### **Source Protection Zone**

3.5 The Site is not within a Source Protection Zone.

#### **Groundwater Abstraction Licences**

3.6 There are no groundwater abstraction licences registered within a 250m radius of the Site

#### **Potable Water Abstraction Licences**

3.7 There are no potable water abstraction licences registered within a 250m radius of the Site.

#### **Hydrology**

3.8 There is a drain located alongside the eastern boundary. This does not appear to be connected to a wider network.

#### **Surface Water Abstraction Licences**

3.9 There are no surface water abstraction licences registered within a 250m radius of the Site.

#### **Preliminary Flood Risk Assessment**

3.10 The Environment Agency (EA) Flood Map indicates the Site to be located within FLOOD ZONE1; an area where flooding from rivers and the sea is very unlikely. There is less than a 0.1 per cent (1 in 1000) chance of flooding occurring each year.

#### **Designated Environmentally Sensitive Sites**

3.11 The Site is located in a Nitrate Vulnerable Zone; however, this will not affect the development.

#### 4 Land Use Data

#### **General**

4.1 Information provided by the Environment Agency and Local Authorities, provided as part of the Groundsure Environmental Data Pack (**Appendix D**) for environmental permits, incidents and registers (within 250m of the Site boundary) include:

#### **Historical and Current Industrial Data**

4.2 There are a few entries relating to the location of the former 'gasometer' within the grounds of Rendlesham Hall. Due to the distance from Site (greater than 100m), historical nature and the underlying impermeable Lowestoft Formation these are very unlikely to have had any impact upon the Site. There are further entries relating to the sewage works located adjacent to the northern boundary, current infrastructure associated with nearby residential areas, and historical electrical substations related to RAF Bentwaters, which for similar reasons are unlikely to have had any impact upon the Site.

#### **Fuel Station Entries**

4.3 There are no historical or current fuel station entries located within a 250m radius of the Site.

#### **5 Ground Gases**

#### **Landfill Sites**

5.1 There are no landfill sites recorded within a 250m radius of the Site.

#### **Registered Waste Treatment or Disposal Sites**

5.2 There are no registered waste treatment or disposal sites within a 250m radius of the Site.

#### **Radon Gas**

5.3 The Site is in a lower probability radon area (less than 1% of homes are above the action level), therefore no protective measures are required with respect to radon gas.

# Ground Gases Generated from BGS Made Ground Sources or Potentially Infilled Land

- 5.4 The Groundsure data indicates a few potentially infilled areas of land that relate to ponds, however, these are historical features and greater than 100m from the Site, therefore, any gassing regime (if present) would now be deemed complete.
- 5.5 The BGS 1:50,000 map does not indicate any areas of Made Ground within the area.

# 6 Conceptual Site Model & Environmental Risk Assessment

#### General

- 6.1 In accordance with the Environmental Protection Act 1990, for contaminated land to exist there should be a source of contamination, a receptor where 'significant harm' or 'significant possibility of significant harm' may be caused or pollution of controlled waters is being or likely to be caused and a pathway which connects the two. Should any element of this contaminant linkage not be present (or severed) then the land may not be regarded as contaminated land, as defined in Part 2A of the Environmental Protection Act 1990.
- 6.2 In accordance with the above approach, a conceptual model of the Site has been produced based on the findings of the desk study, which describes the likely sources and pathways associated with the Site and the potential receptors which may be adversely impacted by a pollutant linkage.

#### **Conceptual Site Model & Qualitative Risk Assessment**

6.3 Contamination sources can include neighbouring land uses and historical activities both on and off Site (<250m). This desk study has not identified any significant contaminative sources within the Site curtilage or within a 250m radius of the Site boundary. Accordingly, no complete source-pathway-receptor pollutant linkages can be made. Therefore, the land is considered suitable for the proposed end use without the need for a Phase II investigation.

### 7 Conclusions

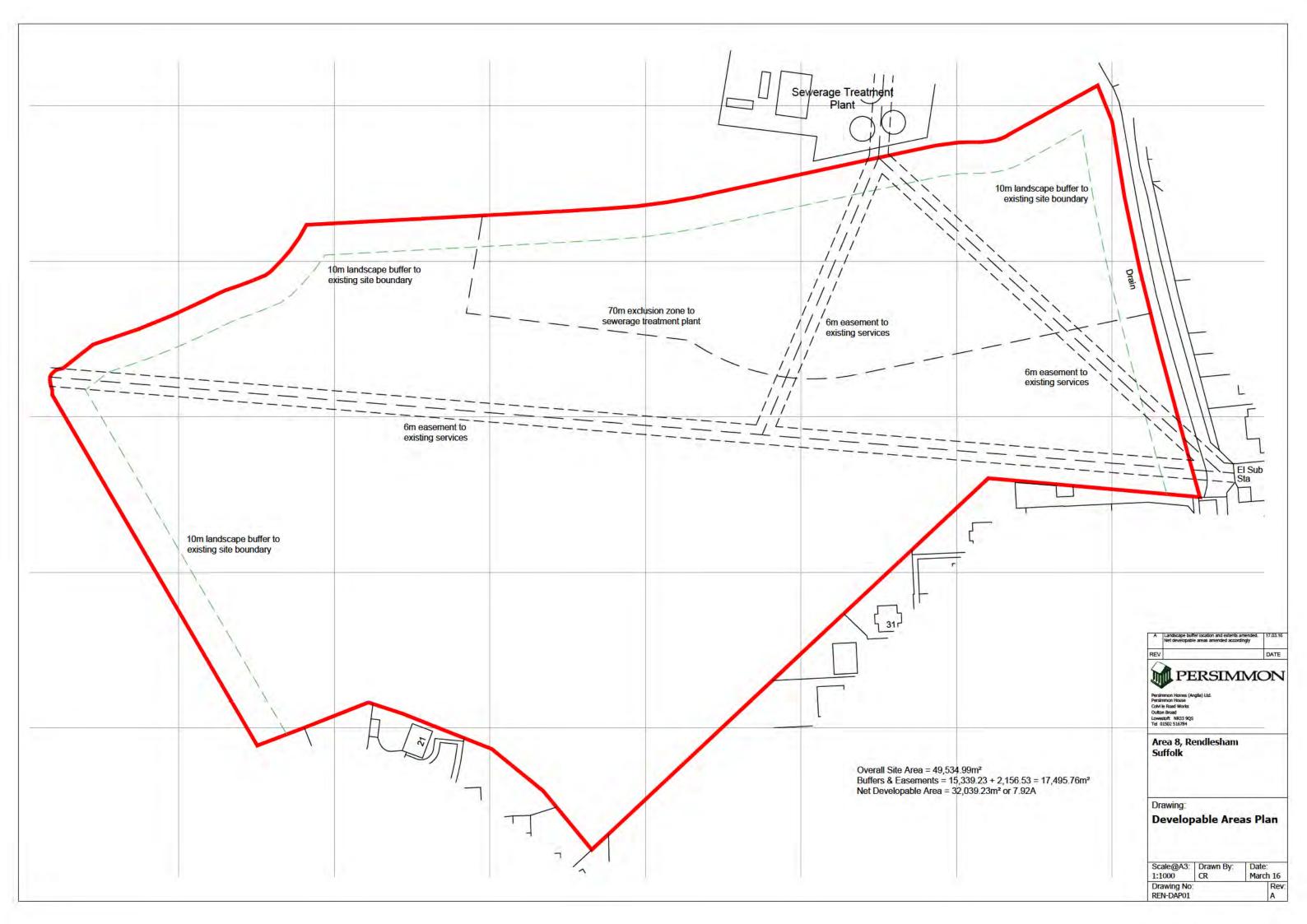
#### **Environmental**

- 7.1 This desk study has not identified any significant contaminative sources within the Site curtilage or within a 250m radius of the Site boundary. Accordingly, no complete source-pathway-receptor pollutant linkages can be made. Therefore, the land is considered suitable for the proposed end use without the need for a Phase II investigation.
- 7.2 The above is subject to approval by the LPA.

#### Geotechnical

7.3 The published geology indicates the Site is underlain by Lowestoft Formation (Diamicton). This is generally suitable for conventional concrete strip or trench fill foundations to support traditional residential houses. A summary of Ground Stability Hazards is provided in Table 3.1.

Appendix A: Developable Areas Plan



Appendix B: Site Walkover Plan













Image 4





Image 5

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Client

C. C. Developments

Drawing No.

2244 100

Area 8, Rendlesham

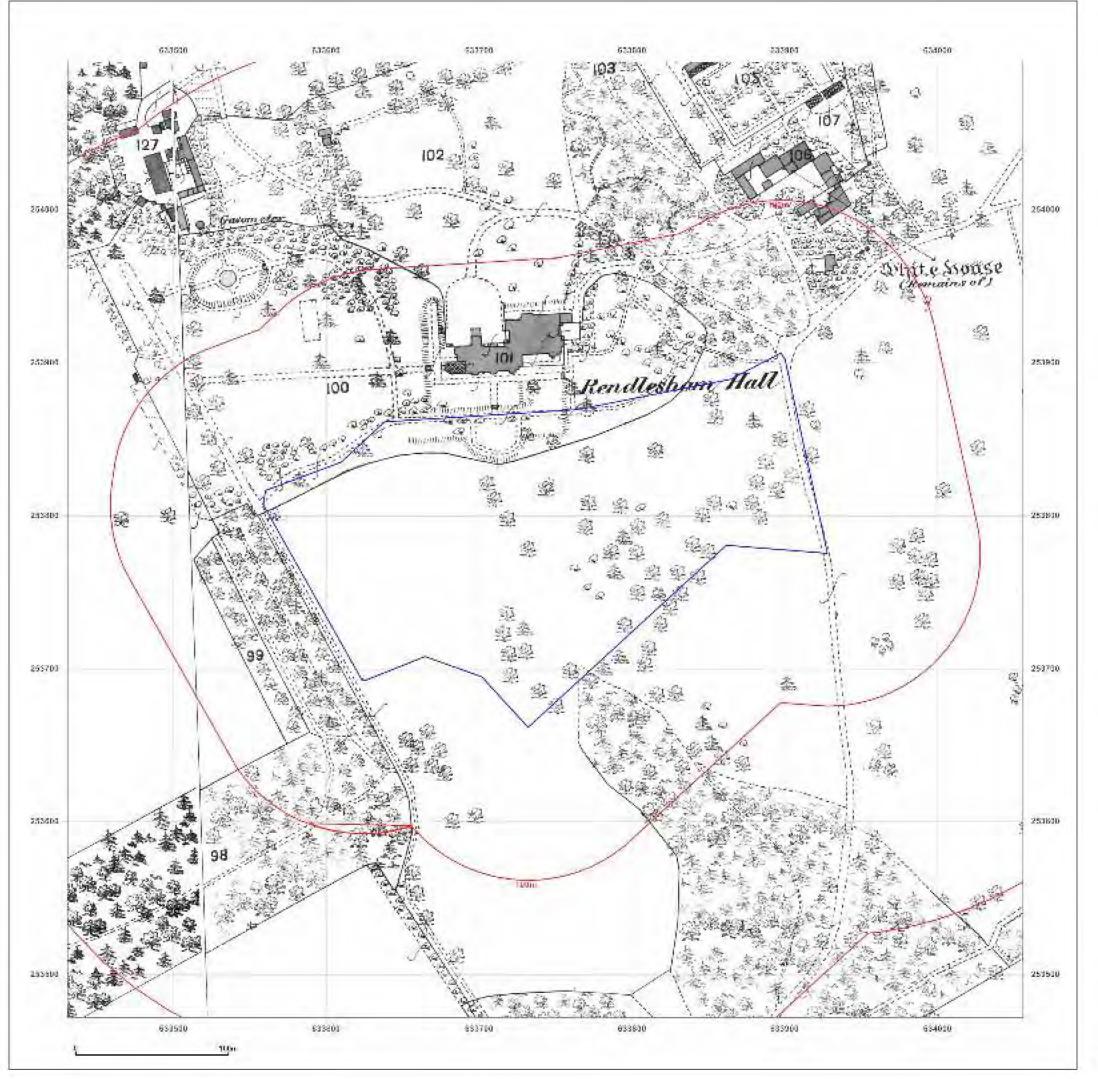
Walkover Plan

Scale NTS

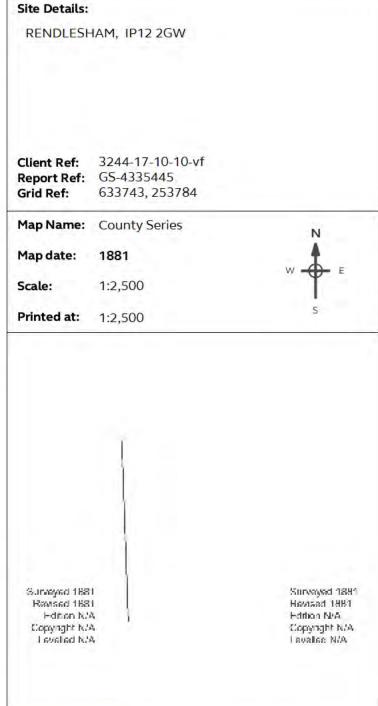
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Appendix C: Historical Maps



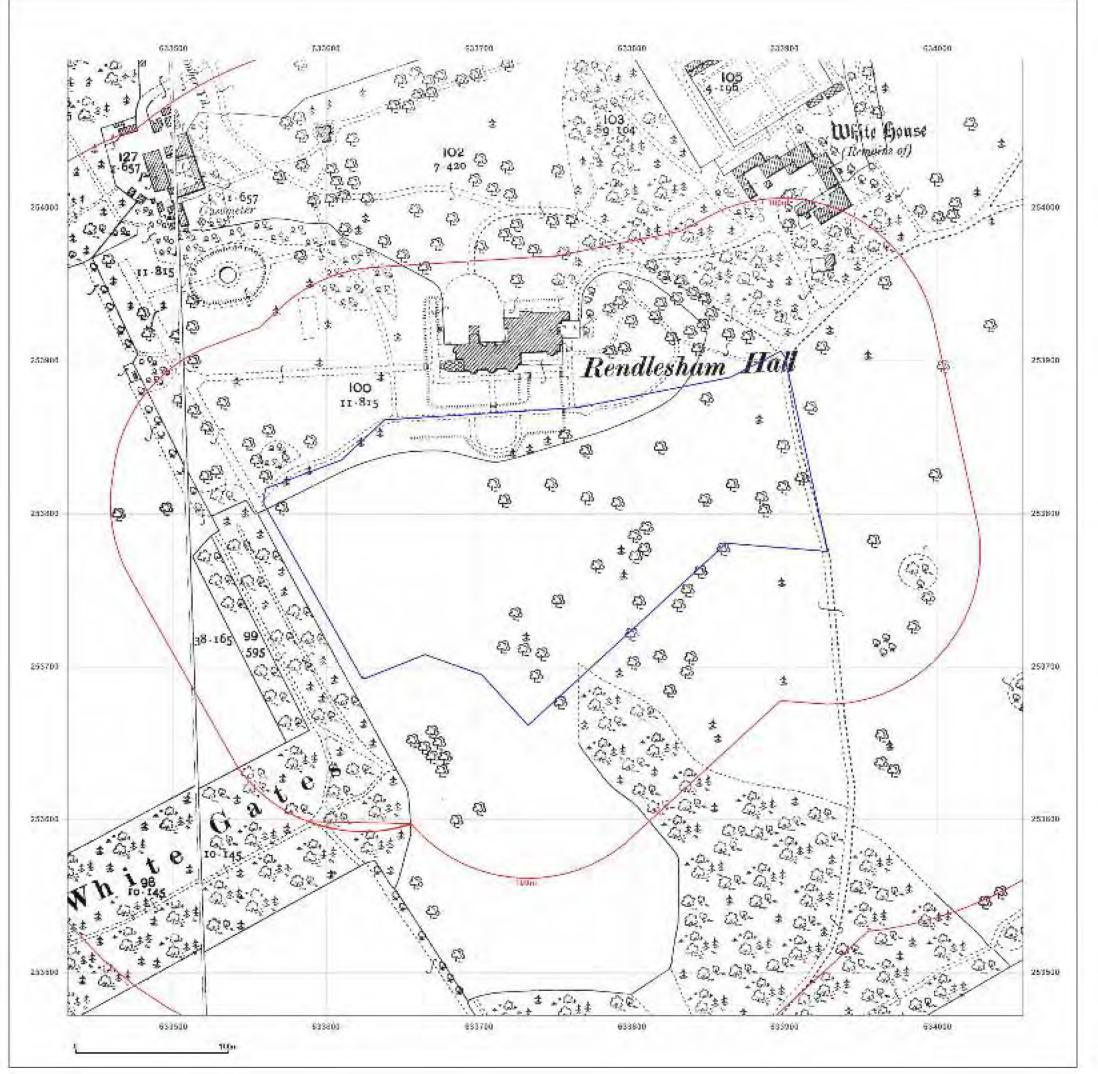




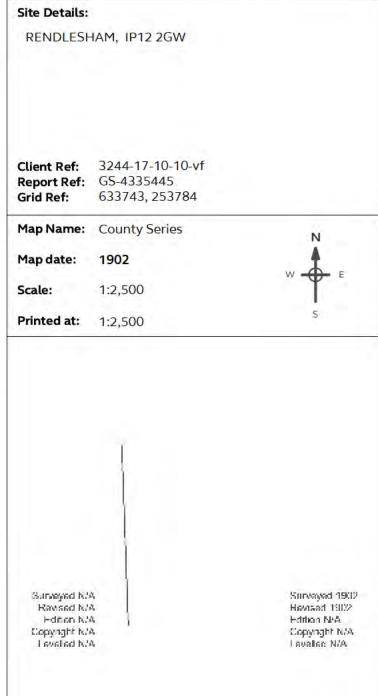


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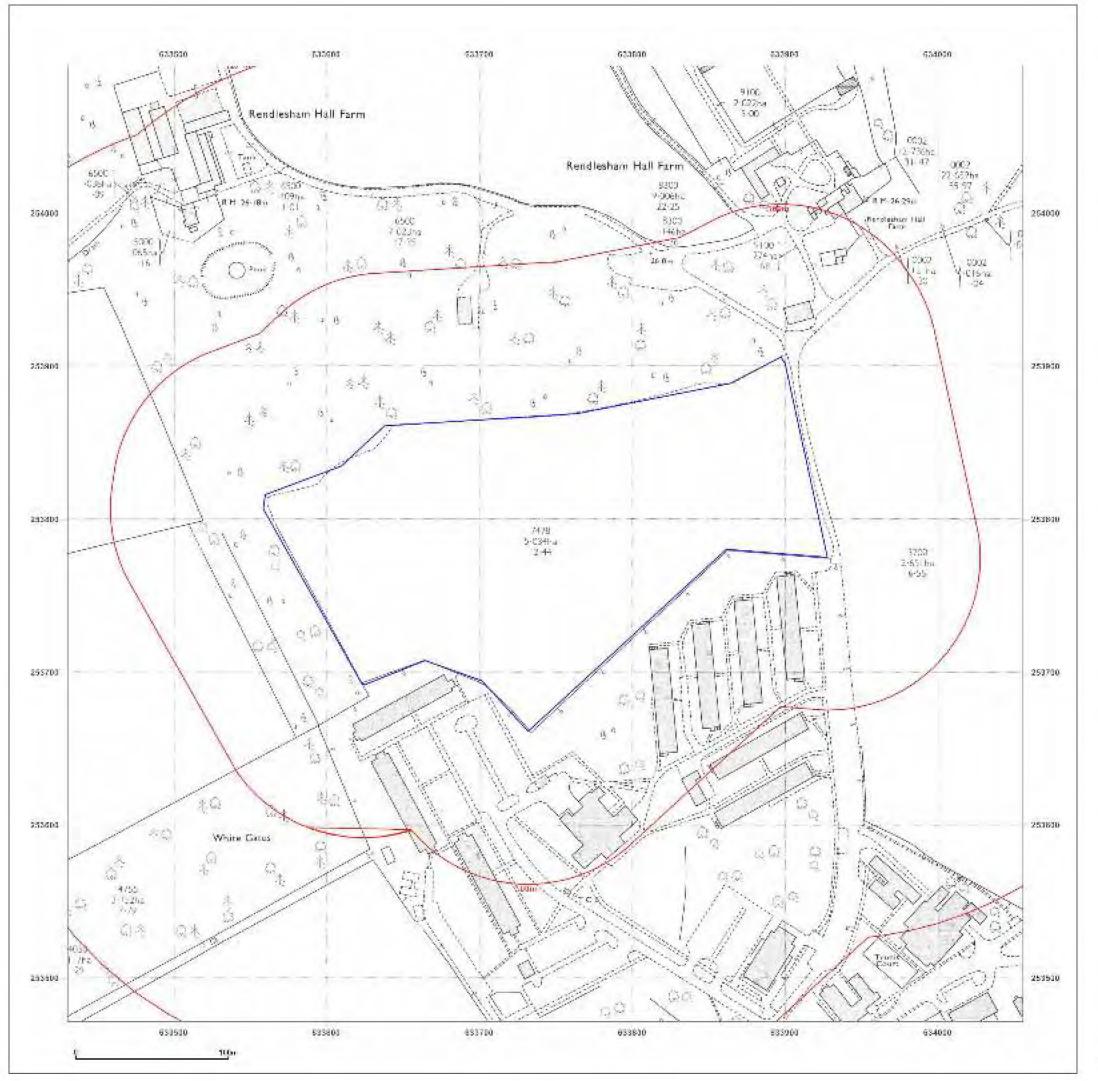




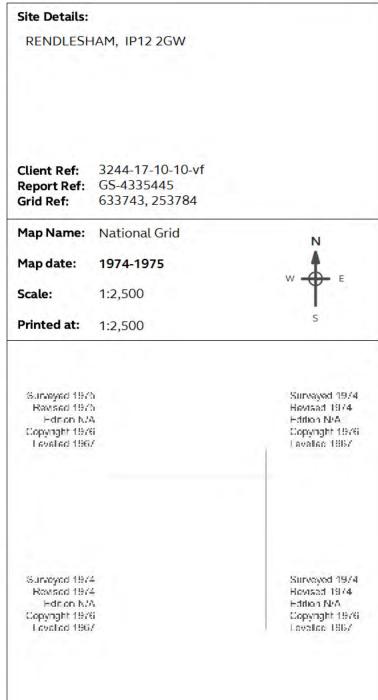


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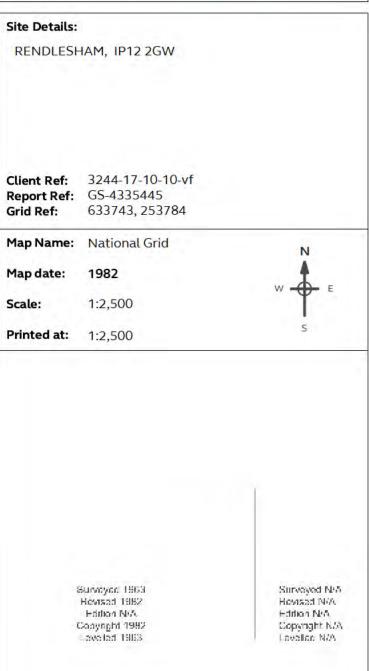
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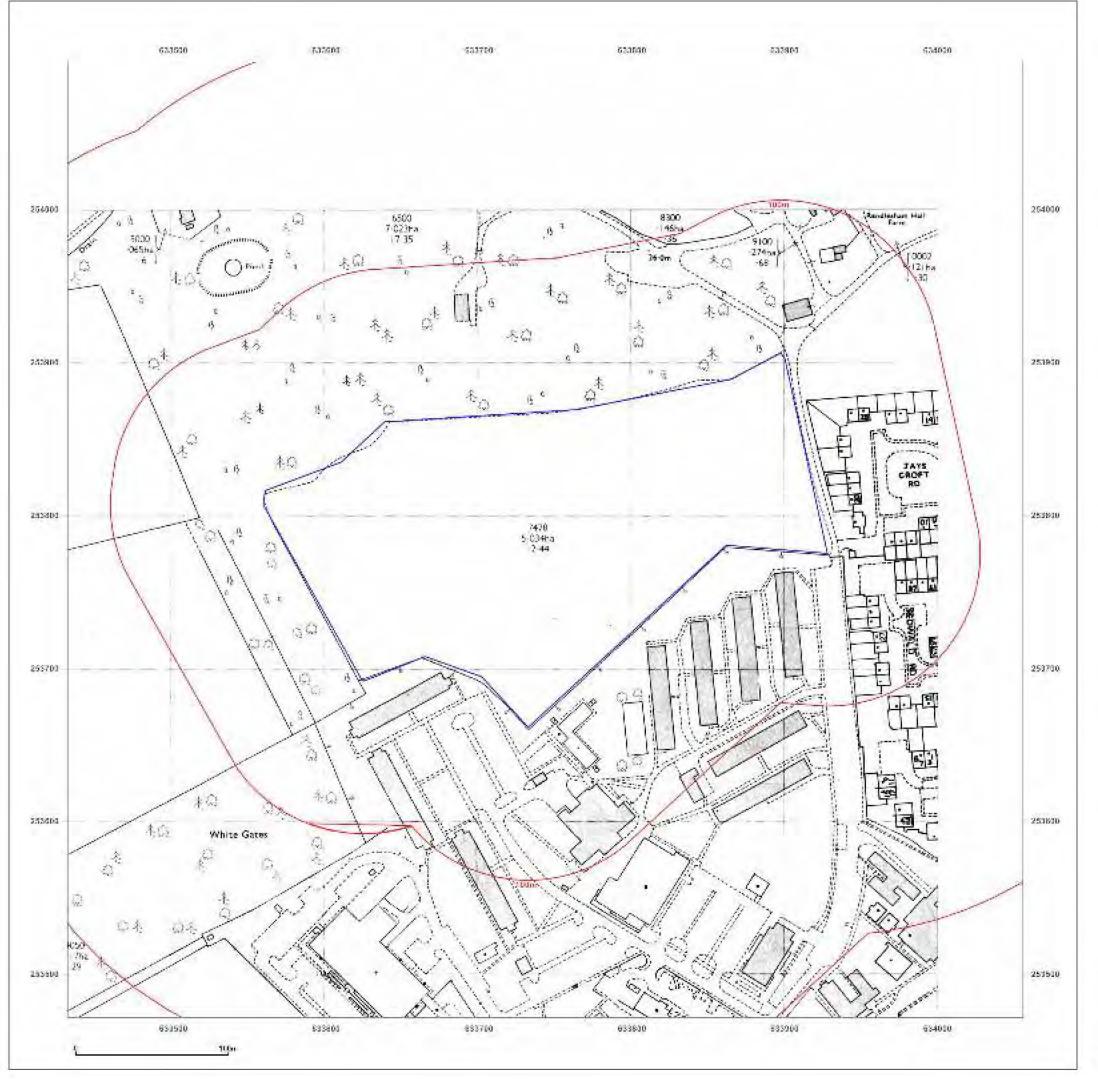




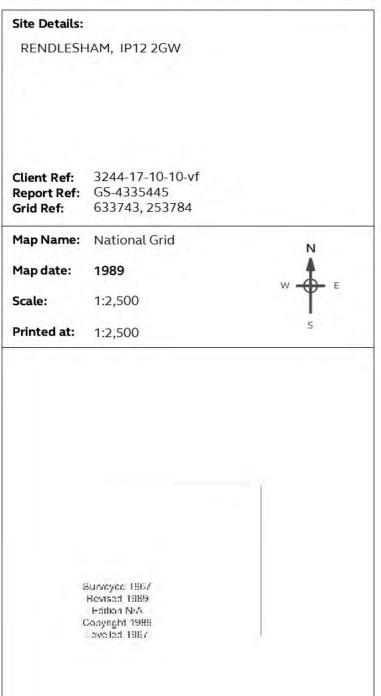


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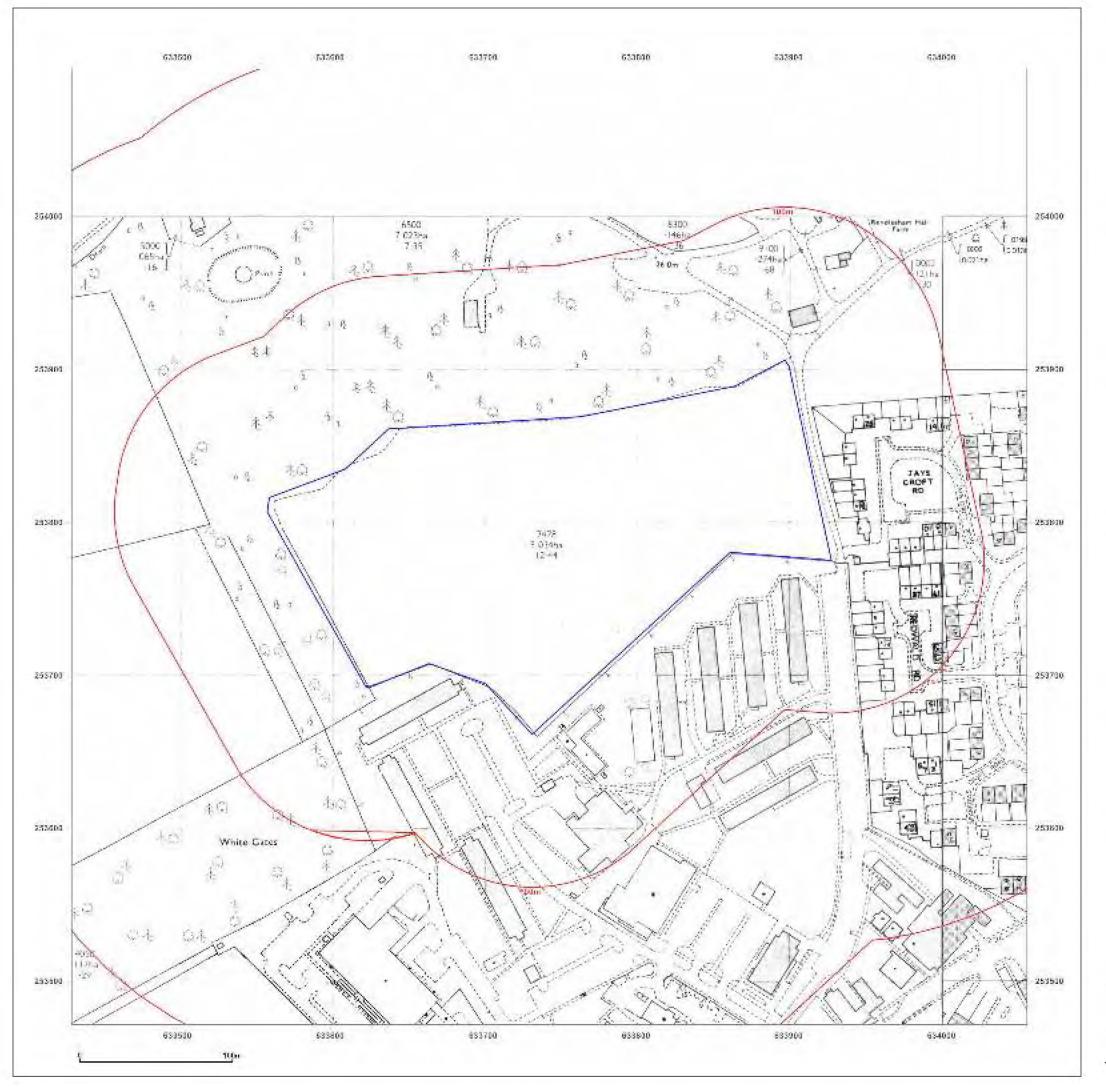




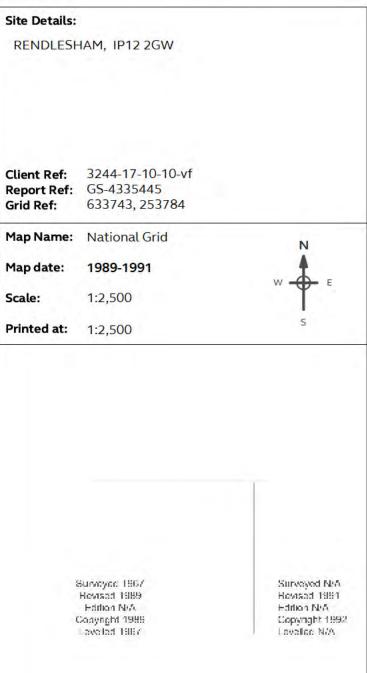


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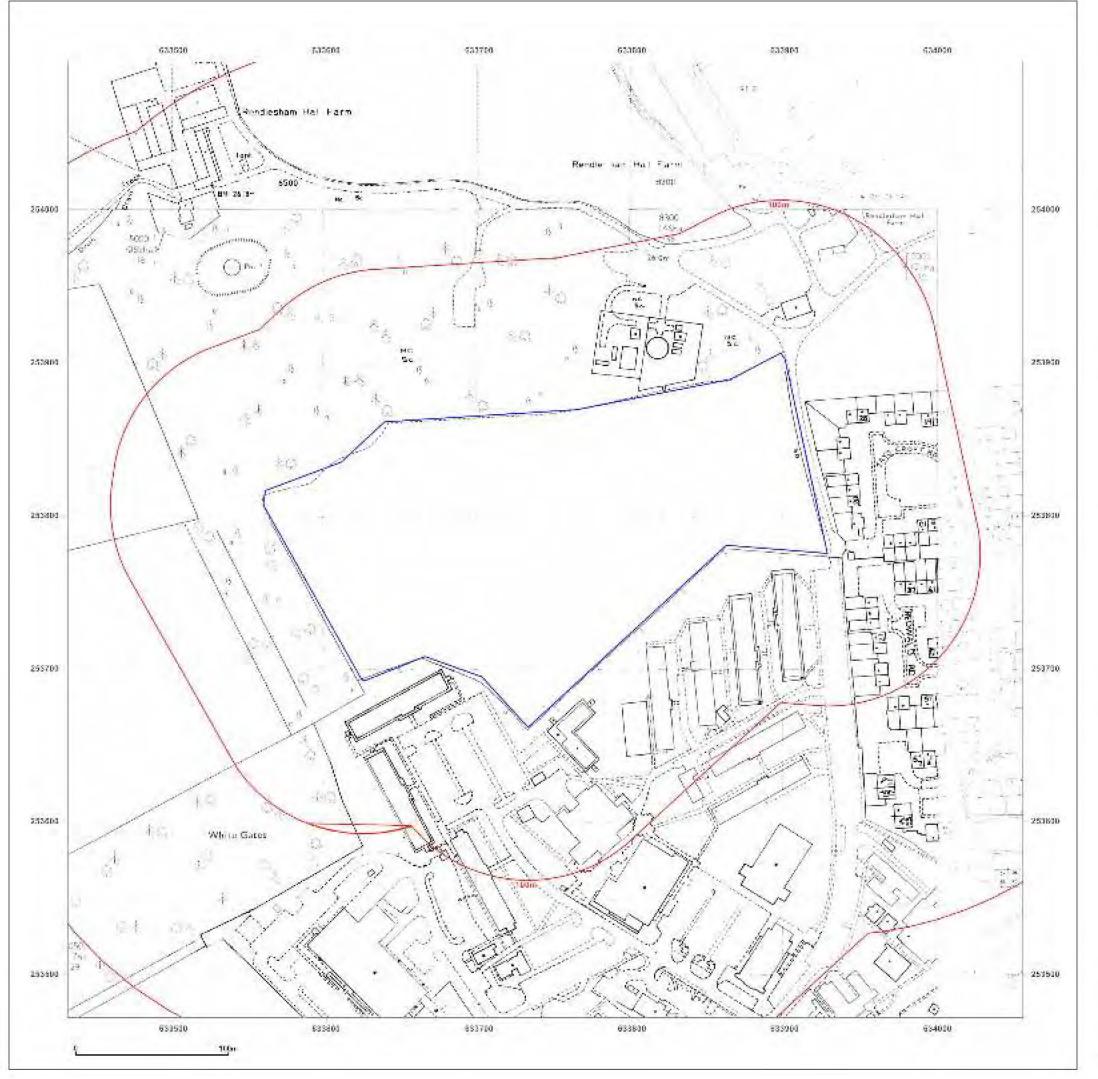




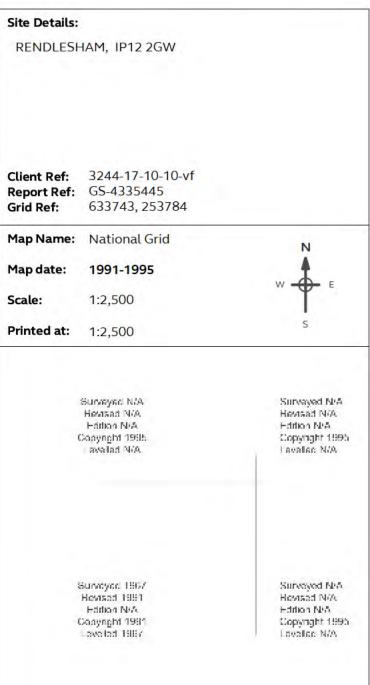


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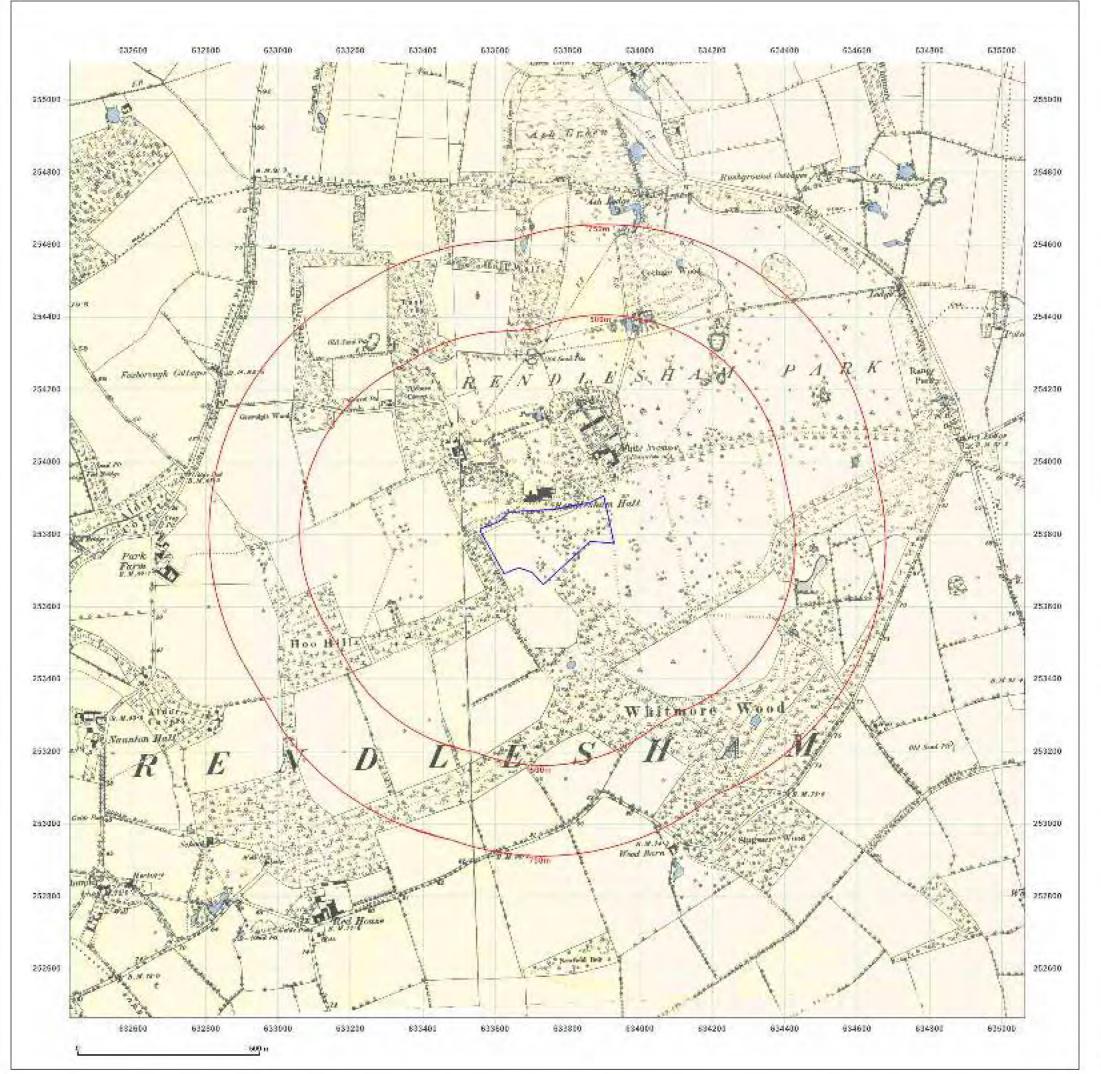




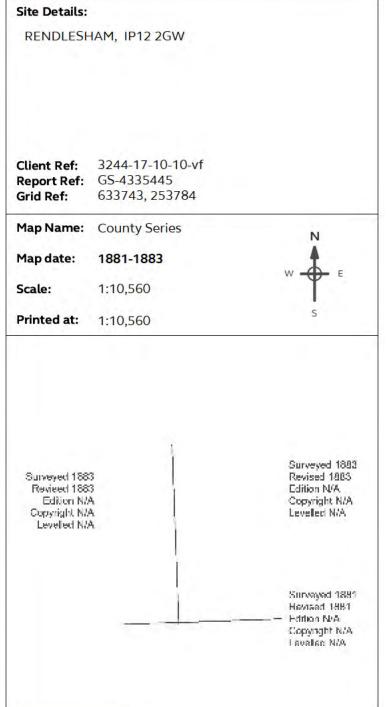


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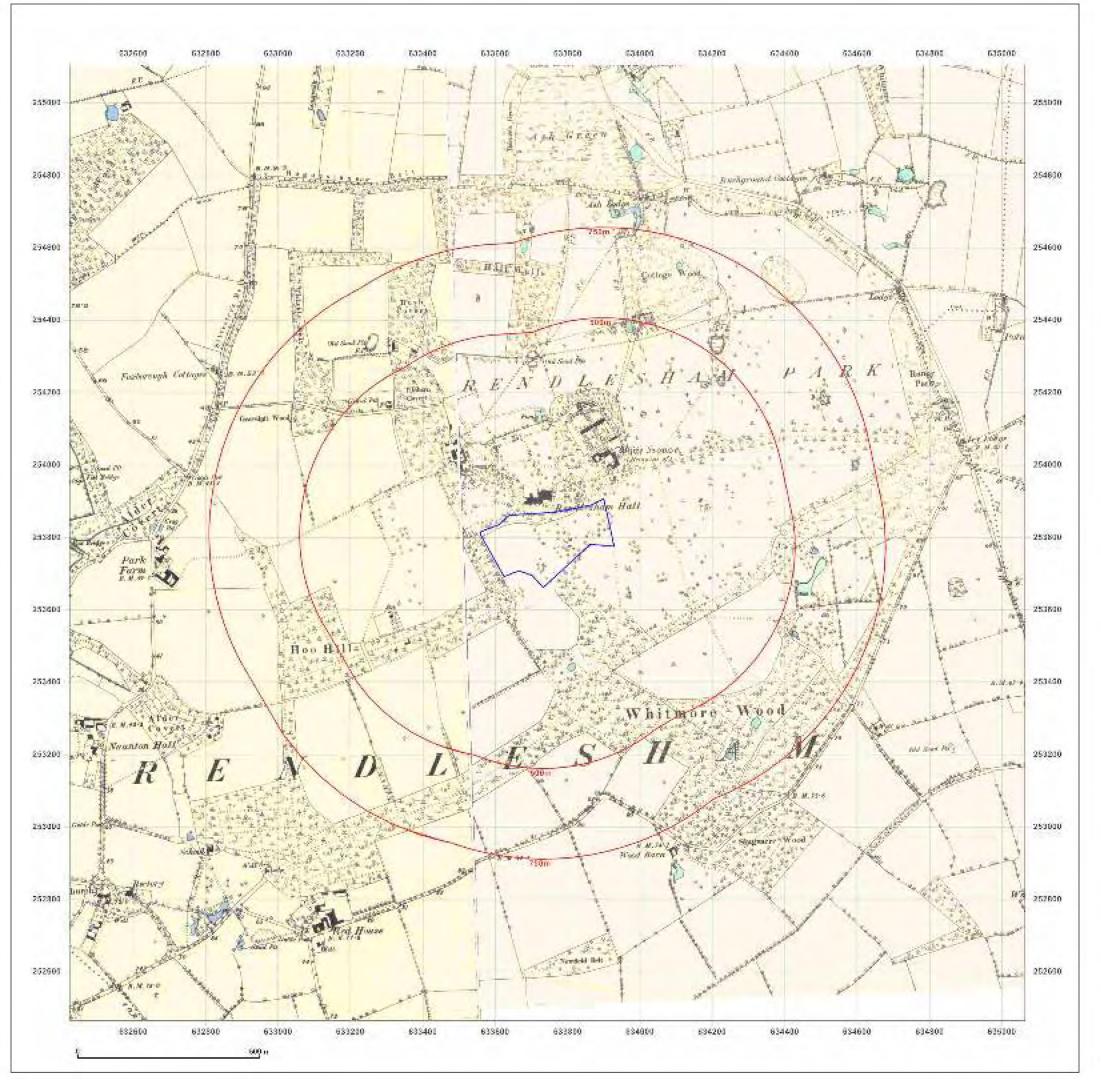




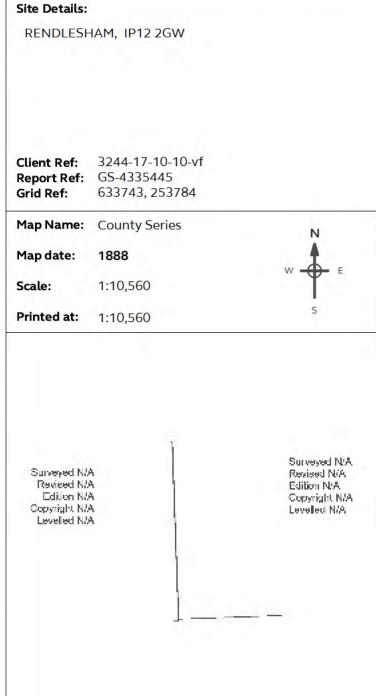


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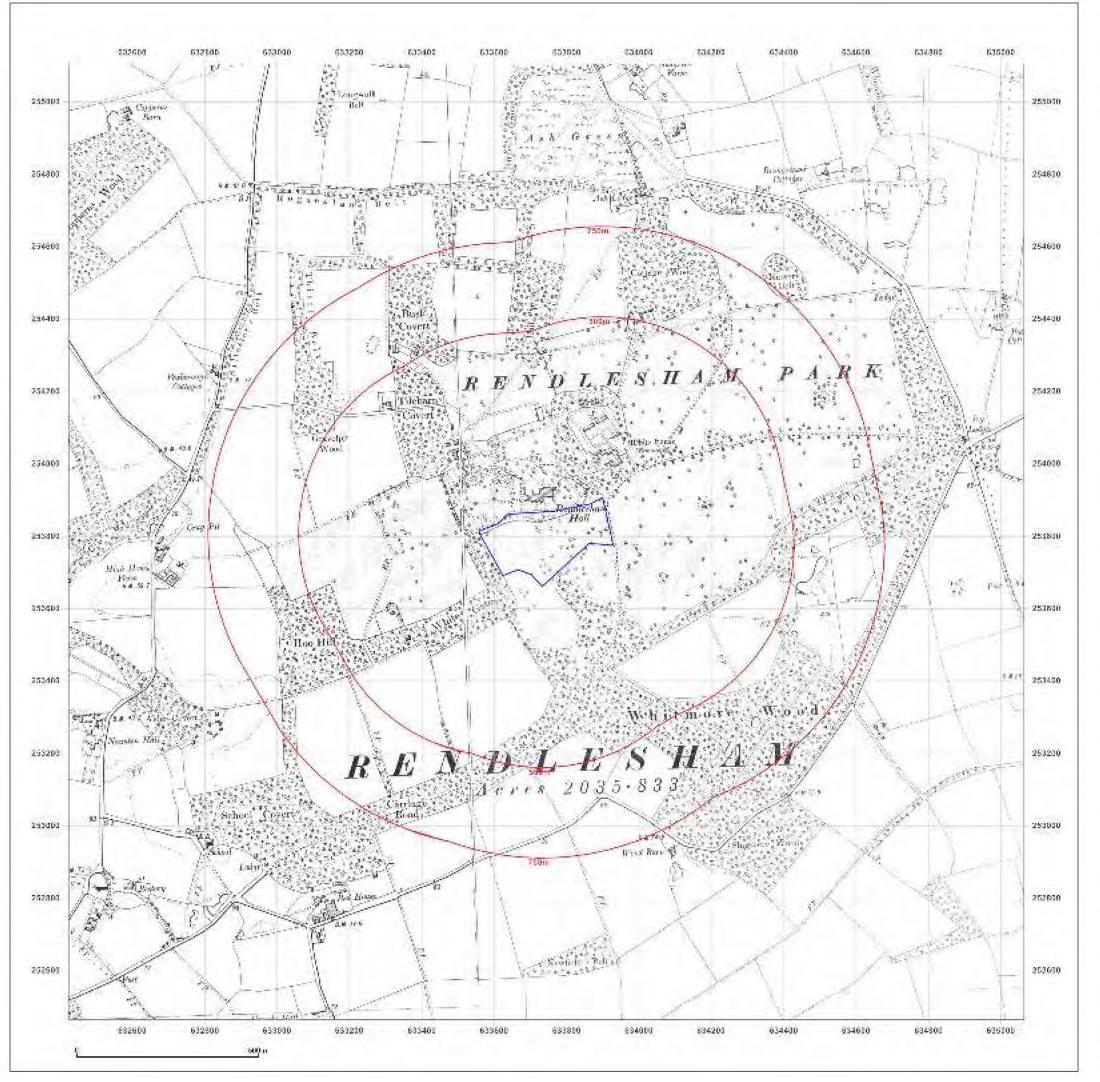




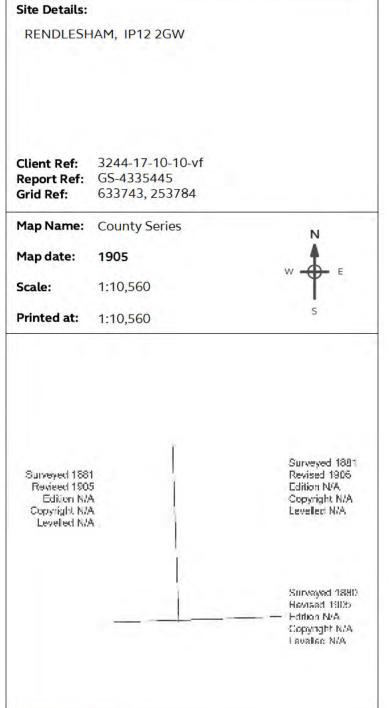


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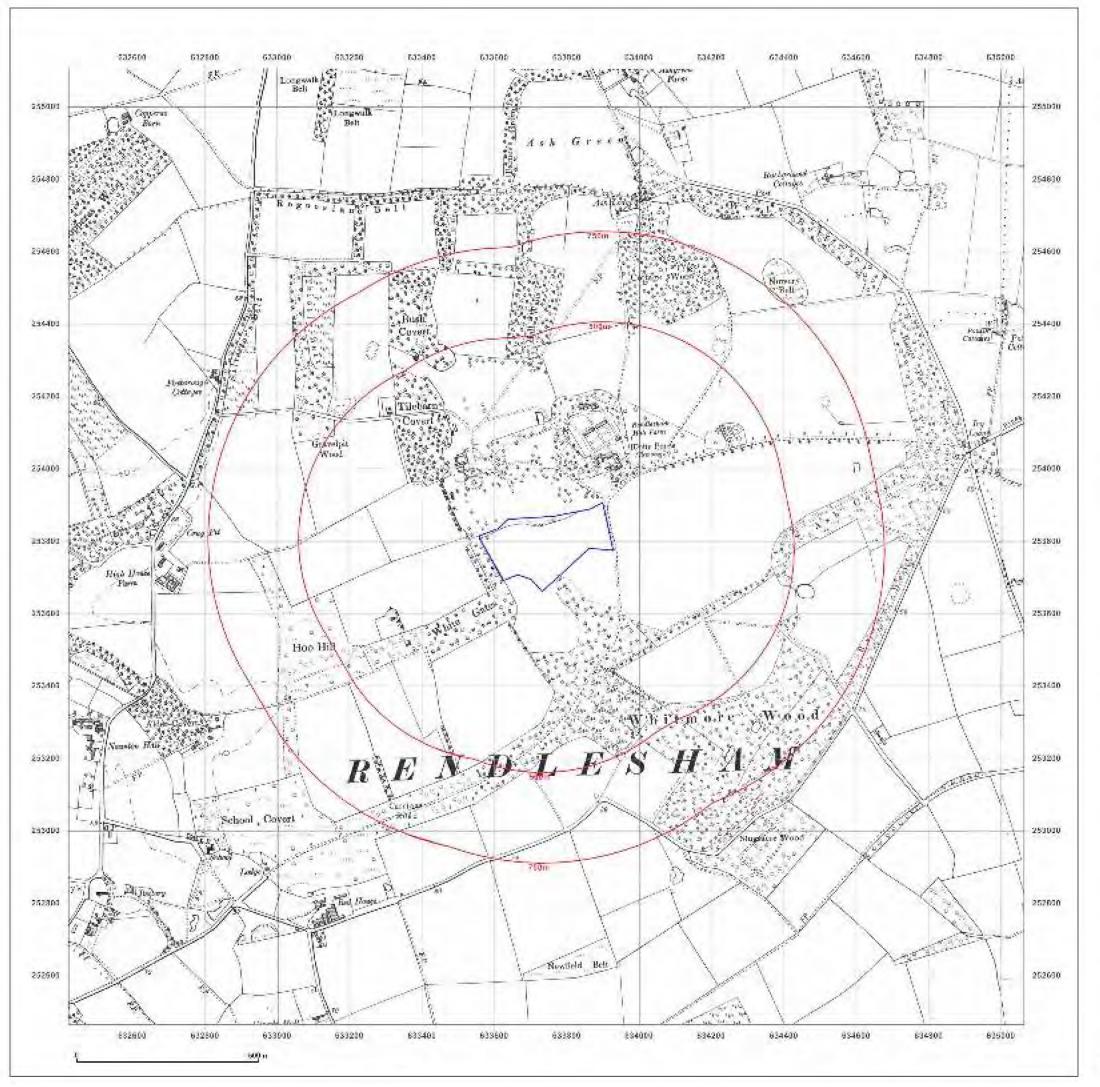




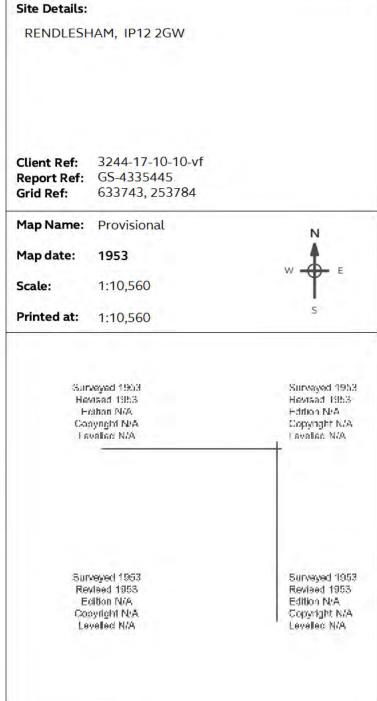


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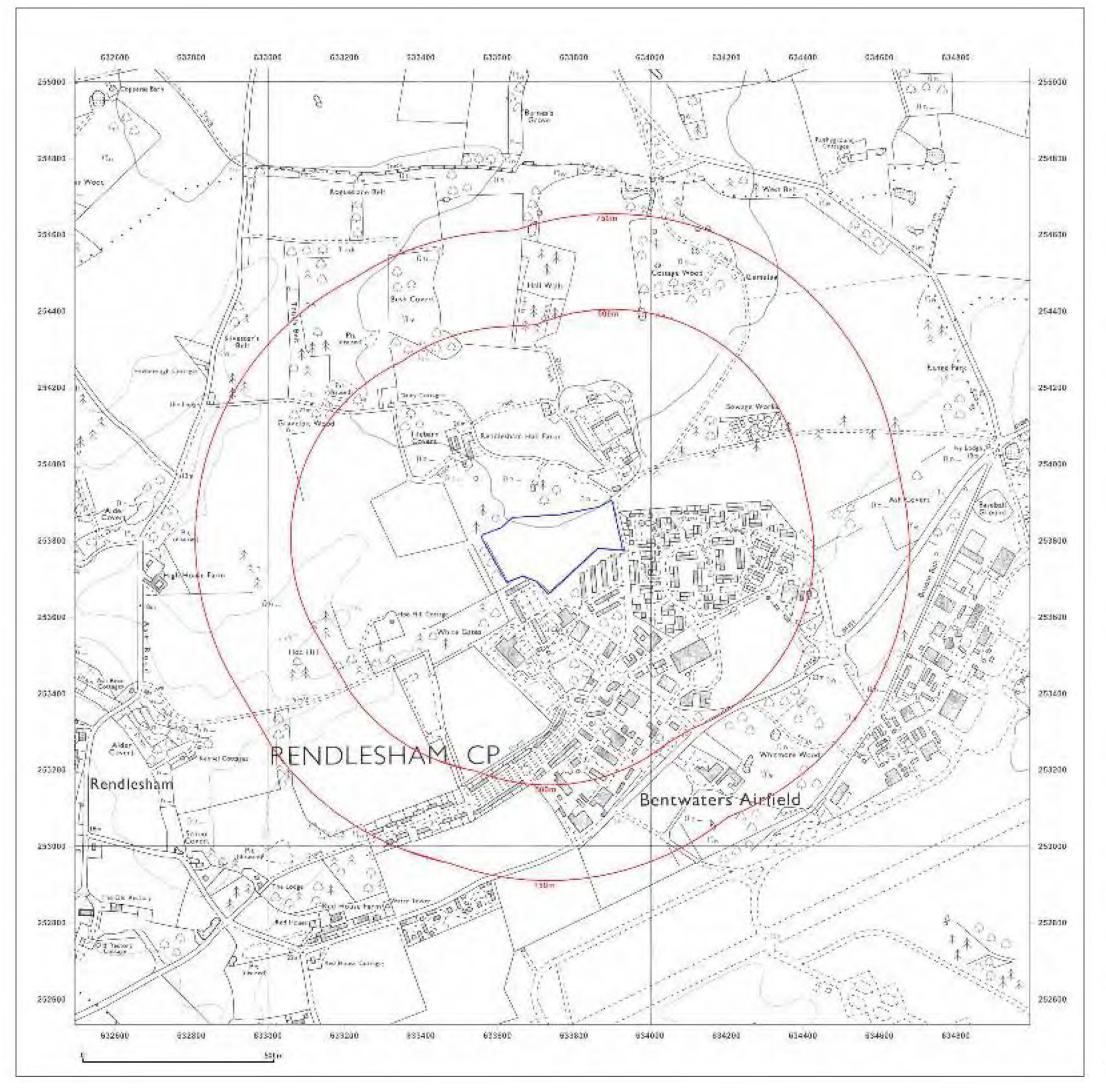






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Site Details:

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Map Name: National Grid

Map date: 1978-1982

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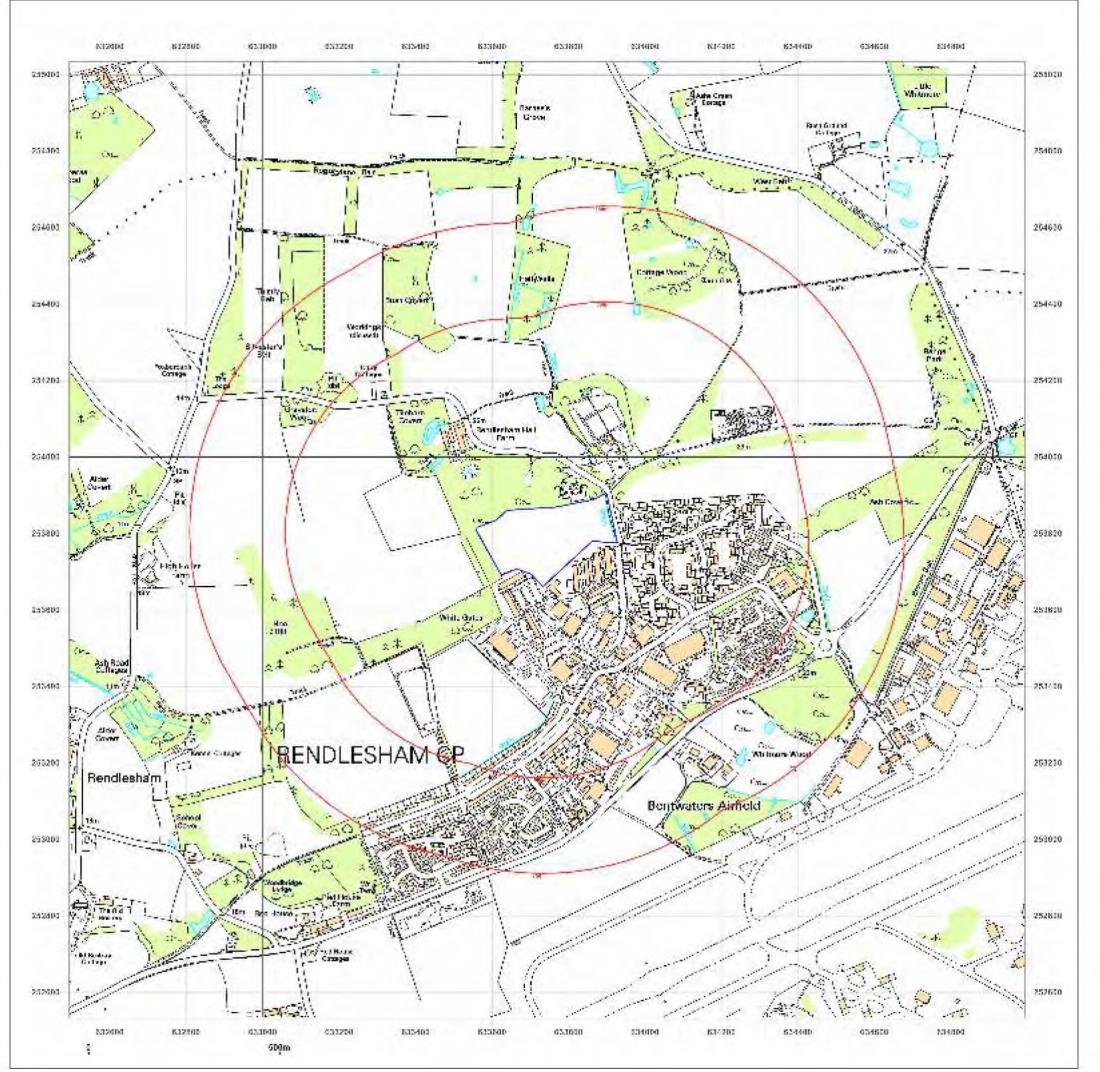
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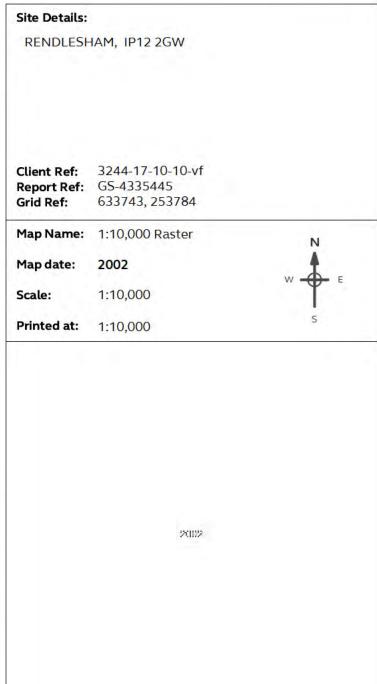
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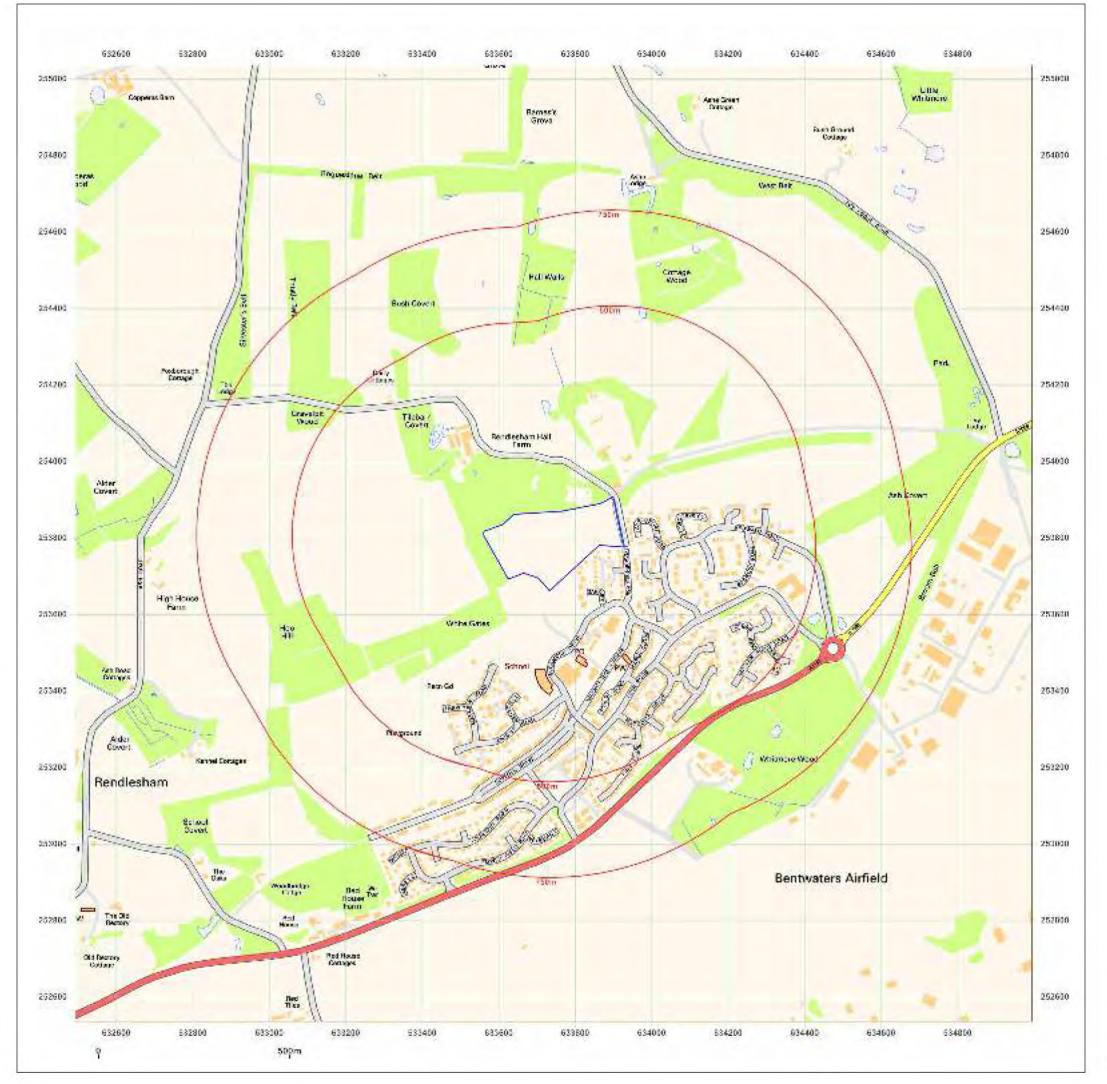




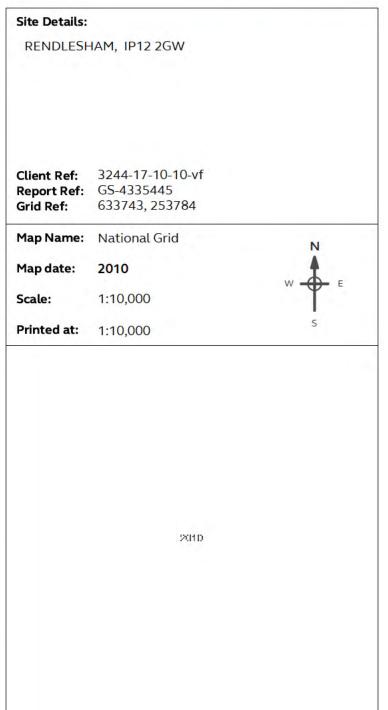


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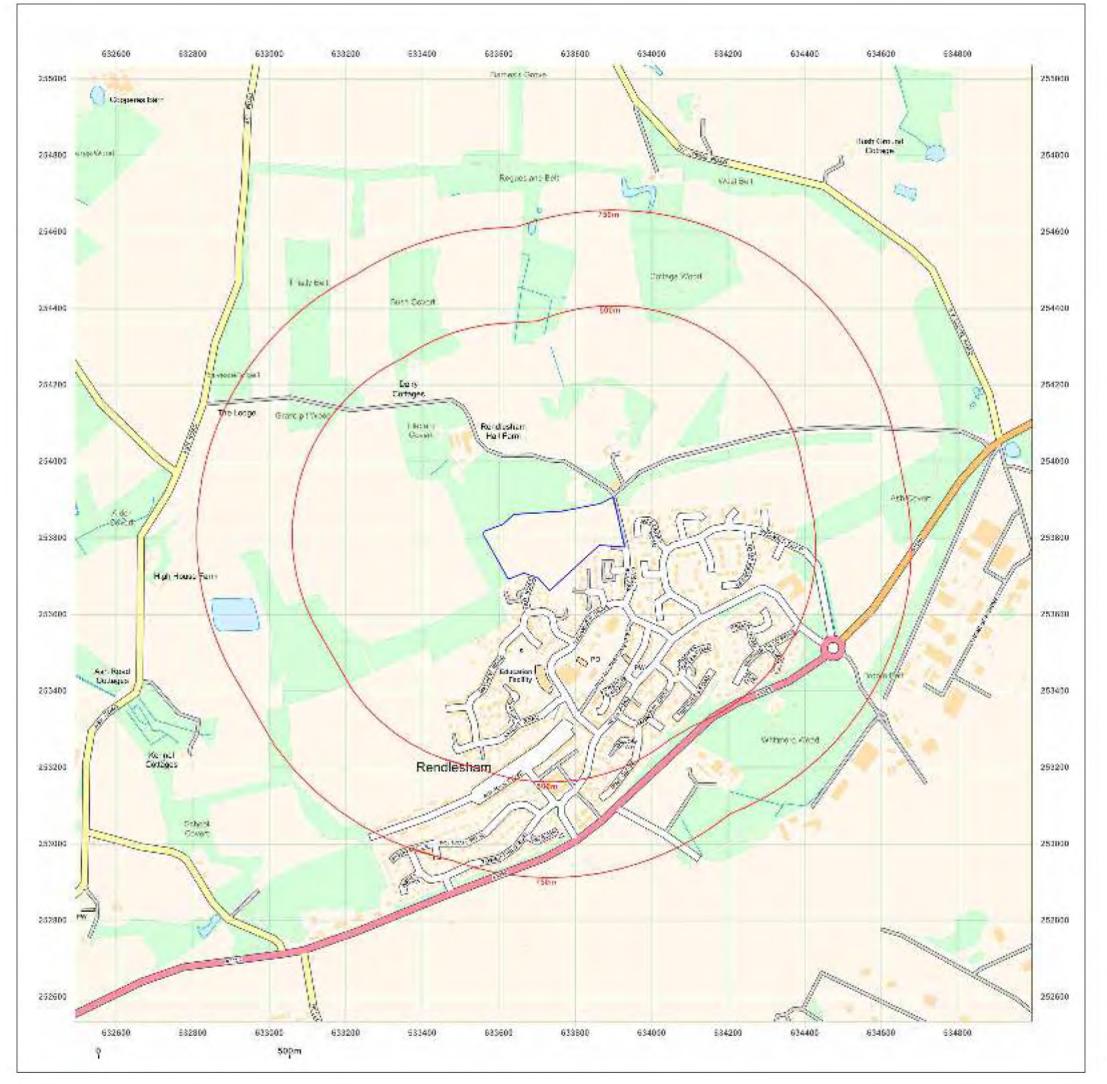




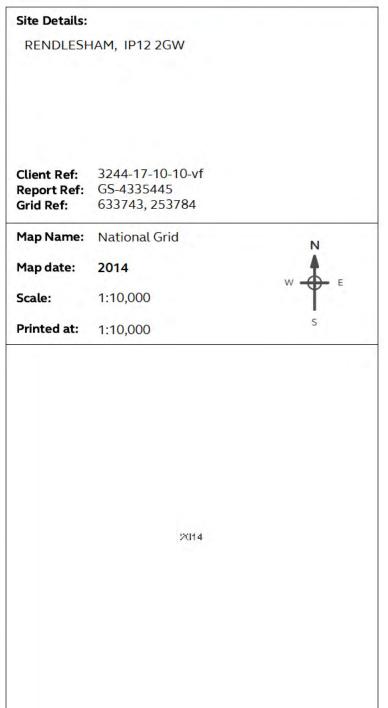


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