



CONTAMINATED LAND RISK ASSESSMENT

Phase 1 Desk Study Report

Site Address

Land at Worcester Close
Gravesend
Kent
DA13 9LB

Client

A&E Elkins Ltd

Report Reference

PH1-2024-000111

Prepared by

STM Environmental Consultants Ltd

Date

24/12/2024



CONSULTING GEO-ENVIRONMENTAL ENGINEERS AND SCIENTISTS

Phase 1 Contaminated Land Desk Studies, Geo-Environmental Site Investigations, Environmental Due Diligence, Flood Risk Assessments, Surface Water Management Strategies (SuDS), Ecology, Noise and Air Quality Assessments, Environmental Management Systems, GIS & Data Management Systems

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2 DOCUMENT CONTROL



CONTAMINATED LAND RISK ASSESSMENT Phase 1 Desk Study Report



Site Address:	Land at Worcester Close Gravesend Kent DA13 9LB
Site Coordinates:	563649, 170200
Prepared for:	A&E Elkins Ltd
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3 DISCLAIMER

This report and any information or advice which it contains, is provided by STM Environmental Consultants Ltd (STM) and can only be used and relied upon by A&E Elkins Ltd (Client). Any party other than the Client using or placing reliance upon any information contained in this report, do so at their own risk.

STM has exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant when undertaking works of this nature. However, STM gives no warranty, representation or assurance as to the accuracy or completeness of any information, assessments or evaluations presented within this report.

It is noted that some of the findings presented in this report are based on information obtained from third parties (i.e. Environmental Search Report). Whilst we assume that all information is representative of the site and of present conditions, we can offer no guarantee as to its validity regarding the short term or long-term history of the Site.

This report excludes consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

It should be noted that this report has been produced for environmental purposes only. It should not in any way be construed to be or used to replace a geotechnical survey, structural survey, asbestos survey, buried services survey, unexploded ordnance survey or Invasive Plant Survey.

4 EXECUTIVE SUMMARY

SECTION	SUMMARY
Site Location And Size	The site is located at Land at Worcester Close, Gravesend, Kent, DA13 9LB and is centred at national grid reference 563649, 170200. The site has an area of approximately 0.143ha.
Current Site Use	The site currently comprises open green space. The main current uses in the immediate surrounding area include residential dwellings and a Medical Centre to the north.
Proposed Development	The development proposal is for the ' <i>construction of 8 new affordable rent residential units (Use Class C3) with associated vehicular and pedestrian access, car parking, cycle parking, refuse storage and landscaping</i> '. It is understood that there are proposals to include soft landscaping in the development.
Site History	Examination of Ordnance Survey historic maps revealed that the site was open undeveloped land from the earliest mapping in c.1865-67. Orchards were present across the entire site from c.1931-32. The site was cleared in c.1976-79, and no further changes have been observed since then. The surrounding area has been predominately Agricultural until residential development occurred in the 1970s.
Geology	According to the BGS Geoindex, the site is located on bedrock of Lewes Nodular Chalk Formation, Seaford Chalk Formation And Newhaven Chalk Formation (Undifferentiated) comprising Chalk. No superficial deposits were identified during the search.
Topography	The site is at an elevation of approximately 65.0mAOD (above Ordnance Datum).
Hydrogeology	The site is underlain by a Principal Bedrock Aquifer.
Hydrology	There are no surface water bodies located on or within 250m of the site.
Ecology	There are no designated ecological receptors located on or within 250m of the site.
Relevant Previous Site Investigations	Gravesend Borough Council's online planning portal was searched in an effort to identify any relevant planning applications. No relevant documents were identified for the site or within 25m.
Contamination Assessment	On site potentially contaminative land uses (PCLUs) have included Orchards, which extended adjacent in all directions. A conceptual site risk model was developed and a qualitative risk assessment carried out. Potentially significant potential pollutant linkages were identified in respect of:  Human Health Receptors (i.e. Future Occupiers/Users) - via ingestion, dermal absorption;

	 Property Receptors - Damage to buildings and services due to exposure to aggressive chemicals in the soil.
	The identified risks are considered to be Low-Moderate.
Recommendations	Given that potentially significant potential pollutant linkages were identified, it is recommended that an intrusive site investigation is undertaken with the objective of determining the presence and extent of any soil contamination at the site.
This table is intended as a summary of the desk study findings and should be read in conjunction with the main report.	

5 INTRODUCTION

STM Environmental Consultants Ltd (STM) were commissioned by A&E Elkins Ltd (Client) to undertake a Phase 1 Contaminated Land Risk Assessment (CLRA) at a site located at Land at Worcester Close, Gravesend, Kent, DA13 9LB.

The study is required to support the discharge of Condition 4(a) attached to planning permission 20230136 (Refer to [Appendix 1](#) for the Decision Notice).

5.1 Development Proposal

The development proposal is for the '*construction of 8 new affordable rent residential units (Use Class C3) with associated vehicular and pedestrian access, car parking, cycle parking, refuse storage and landscaping*'. It is understood that there are proposals to include soft landscaping in the development.

The proposed development plans are contained in [Appendix 2](#).

6 CONTEXT AND OBJECTIVES FOR THE RISK ASSESSMENT

6.1 Legislative Context

6.1.1 Part IIA

Part IIA of the Environmental Protection Act 1990, which came into force in England in April 2000 and in Wales in July 2001, introduced a new statutory regime for the identification and remediation of contaminated land in the United Kingdom.

The legislation considers risks from contaminated land to human beings, controlled waters (surface and ground water), protected ecological systems and property. Under the legislation "contaminated land" is defined as:

"Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that: -

(a) Significant harm is being caused or there is significant possibility of such harm being caused: or

(b) Pollution of controlled waters is being caused, or is likely to be, caused."

In order for land to be considered contaminated, there must be a contaminant, a receptor and a pathway (via which the contaminant can reach the receptor) present at the site. When these three components are identified at a site, a *pollutant linkage* is said to exist.

Pollutant Linkage = Contaminant → Pathway → Receptor

In order for a local authority to determine that a site is contaminated land, it must be satisfied that the pollutant linkage is a *significant pollutant linkage* and that the land in question is causing, or that there is a significant possibility that it will cause significant harm (SPOSH) to humans, habitats, buildings or livestock and crops if remedial work is not carried out.

6.1.2 National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the government's policy on dealing with land contamination through the planning process. It states that planning policies and decisions should ensure that:

- a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);
- after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and
- adequate site investigation information, prepared by a competent person, is presented.

6.1.3 Environmental Damage Regulations

The Environmental Damage (Protections and Remediation) Regulations 2015 transpose the provisions of the EU Environmental Liability Directive into law in England and Wales.

The Regulations require action in response to the most significant cases of environmental damage. They cover specific types of:

- damage to species and habitats;
- damage to water; or
- risks to human health from contamination of land.

The Regulations apply to both imminent threats and actual cases of damage. Where these arise, those responsible must take immediate action to prevent damage occurring or remediate damage where it does occur.

The Regulations are based on the polluter pays principle 'requiring those responsible to meet the cost of preventive and remedial measures.

6.2 Objectives

This Desk Study has been written so as to provide an initial overview of the nature and extent of contamination hazards that may exist at the site. It has been undertaken in accordance with the specifications outlined in the British Standard BS 10175:2011+A2:2017 Code of Practice for the Investigation of potentially contaminated sites and the Environment Agency Document, LCRM: Stage 1 Risk Assessment.

The main objectives of the study were to:

- Enable a conceptual site risk model to be constructed;
- Provide sufficient information for a preliminary qualitative risk assessment to be undertaken;
- Inform the need for and scope of any intrusive investigations that may be required.

6.3 Summary of Research Undertaken

Details of information sources researched in order to compile this desk study are given below.

-  Environment Agency Open Data (GIS)
-  English Nature Open Data (GIS)
-  English Heritage Open Data (GIS)
-  British Geological Survey GeoIndex Web Map Service
-  Coal Authority Open Data and Web Map Service.
-  Historical Ordnance Survey Maps
-  Local Authority Planning Application Portal
-  Groundsure Enviro Insight Report & Historical Maps

7 SITE DESCRIPTION

7.1 Site Location and Size

The site is located at Land at Worcester Close, Gravesend, Kent, DA13 9LB and is centred at national grid reference 563649, 170200. The site has an area of approximately 0.143ha..

The site lies within the jurisdiction of Gravesham Borough Council in terms of the planning process. See Figure 1 below for the Site Location and Aerial Map.

7.2 Current Site Use

The site currently comprises open green space.

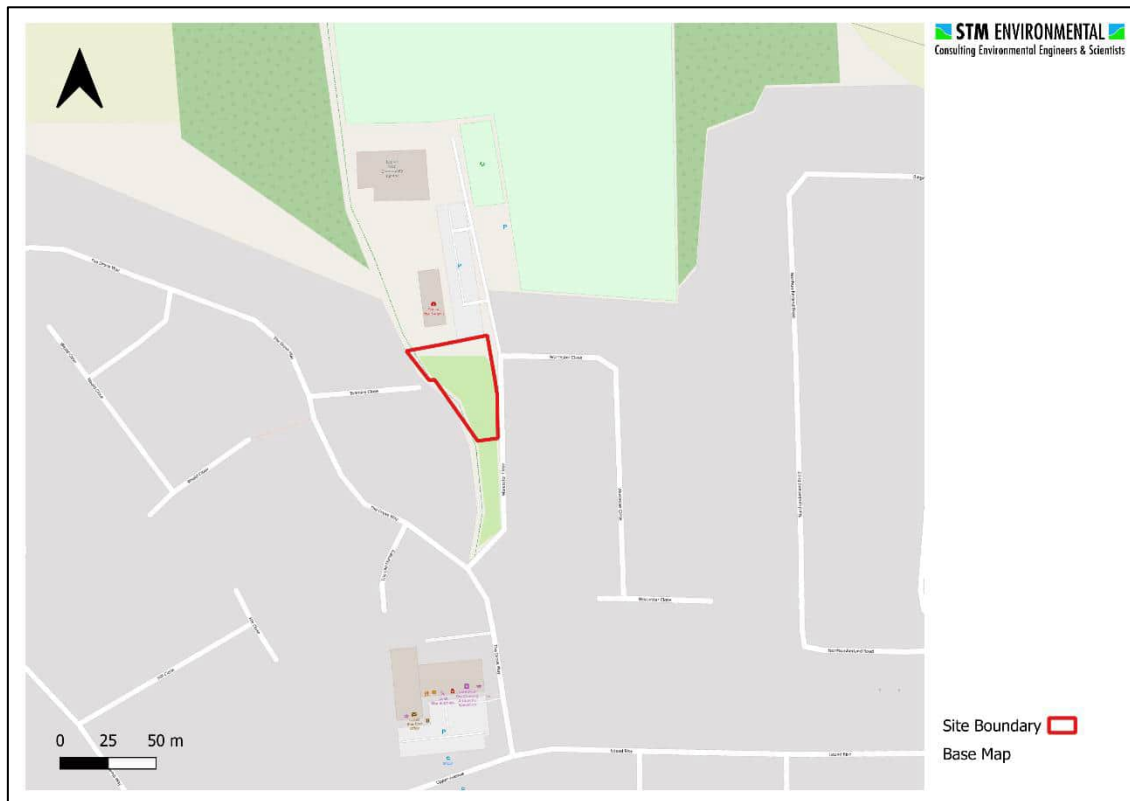
7.3 Surrounding Land Uses

A description of current land uses surrounding the boundaries of the site is given below in Table 1.

Table 1: Summary of surrounding land uses

Boundary	Adjacent Roads	Land Use Description
Northern	-	Medical Practice
Eastern	Worcester Close	Residential
Southern	-	Residential
Western	Bramley Close	Residential

Figure 1: Site Location and Aerial Map



8 SITE HISTORY

8.1 Analysis of Historical Ordnance Survey Mapping

Historical maps published by the Ordnance Survey dating back to the late 1800's were reviewed in order to ascertain any previous industrial use at the site. The Groundsure Historical Maps are presented in [Appendix 3](#). A summary of the historic map analysis is provided in Table 2.

Table 2: Summary of historical land use identified from historical maps

Map Year & Scale	POTENTIALLY CONTAMINATIVE LAND USES	
	On Site	Off Site
1865-67 1:2,500	The site comprises open undeveloped land.	The surrounding area comprises predominately open undeveloped land. Unspecified Ground Workings 235m NE.
1895-98 1:2,500 1:10,560	No significant changes.	No significant changes.
1907 1:10,560	No significant changes.	Glasshouses developed 70m W and 210m SW. 4no. Orchards 180m SE, 200m SE, 230m NE, and 230m SE.
1908 1:2,500	No significant changes.	No significant changes.
1931-32 1:10,560	Orchards present across the entire site.	Partial mapping; Glasshouses 70m W no longer present. Glasshouses 210m SW now labelled Istead Nurseries, and expanded to 100m SW. Multiple Orchards adjacent in all directions, extending further than 250m in the north and north west, and 200m to the east and south.
1933 1:2,500	No significant changes.	Tank associated with Istead Nurseries 155m SW.
1938-39 1:2,500 1:10,560	No significant changes.	Istead Nurseries 100m SW relabelled as Flowerhill Nurseries. Nurseries 200m SW.

Table 2: Summary of historical land use identified from historical maps

Map Year & Scale	POTENTIALLY CONTAMINATIVE LAND USES	
	On Site	Off Site
1955 1:10,560	No significant changes.	No significant changes.
1961 1:2,500	No significant changes.	Residential development to the S. Orchard from 100m E no longer present. Flowerhill Nurseries 100m SW no longer present, developed as residential dwellings. Orchards 180m SE no longer present. Nurseries 200m SW no longer present.
1965-68 1:2,500	No significant changes.	Residential development to the E. Orchards 200m SE and 230m SE no longer present.
1971-73 1:10,000	No significant changes.	No significant changes.
1976-79 1:2,500 1:10,000	Orchards no longer present; site is open undeveloped land.	Further residential development adjacent E, S and W. 3no. Electricity Transformer 70m W, 120m W and 200m NE.
1982-84 1:2,500	No significant changes.	3no. Electricity Transformer 70m W, 120m W and 200m NE relabelled as Electricity Substation.
2001 1:10,000	No significant changes.	No significant changes.
2003 1:1,250	No significant changes.	No significant changes.
2010 1:10,000	No significant changes.	No significant changes.
2024 1:10,000	No significant changes.	No significant changes.
Current Use	The site currently comprises open green space.	The main current uses in the immediate surrounding area include residential dwellings and a Medical Centre to the north.

9 ENVIRONMENTAL CHARACTERISTICS

A variety of Environmental datasets provided by the Environment Agency, British Geological Society, English Heritage and English Nature and others were screened in order to assess the environmental sensitivity of the site. The Groundsure Environmental Screen Report is presented in [Appendix 4](#). The results are summarised below.

9.1 Geology

9.1.1 Published Geology

According to the BGS Geoindex, the site is located on bedrock of Lewes Nodular Chalk Formation, Seaford Chalk Formation And Newhaven Chalk Formation (Undifferentiated) comprising Chalk. No superficial deposits were identified during the search.

9.1.2 Unpublished Geology

BGS borehole records for the immediate surrounding area were reviewed in order to obtain further information on the ground conditions beneath the site. No relevant information was identified.

9.2 Hydrogeology

The Environment Agency classifies bedrock as a Principal Aquifer. The site is located within Source Protection Zone 2.

9.3 Water Abstractions

No Surface Water Abstraction Licenses was identified on or within 1000m of the site.

The following Groundwater and Potable Water Abstraction Licenses were identified within 1000m of the site:

Table 3: Groundwater and Potable Water Abstraction Licenses identified within 1000m of the site

Point	Status	Details	Source	Distance/ Direction
CHALK BOREHOLES, WELLS AND ADITS AT NORTHFLEET PS	Active	Potable Water Supply - Direct	Southern Region Groundwater	981m S
LOWER GREENSAND BOREHOLES, WELLS AND ADITS AT NORTHFLEET PS	Active	Potable Water Supply - Direct	Southern Region Groundwater	981m S

9.4 Groundwater Level

According to BGS, the groundwater is likely to be more than 5.0 metres below the ground surface throughout the year.

9.5 Hydrology

No surface water bodies were identified on or within 250m of the site.

9.6 Flood Risk

9.6.1 River and Tidal (Fluvial and Tidal) Flooding

The risk of fluvial and tidal flooding is considered to be low. The site is located within Flood Zone 1, which is defined as land having less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).

9.6.2 Surface Water (Pluvial) Flooding

The Environment Agency (EA) long term flooding maps indicate that the site is at Very Low risk of surface water flooding. Very Low risk means that each year this area has a chance of flooding of less than 0.1%.

9.6.3 Groundwater Flooding

The BGS groundwater flood maps indicate that the risk of groundwater flooding at the site is Negligible.

9.7 Environmentally Sensitive Sites and Ecological Protection Zones

No Environmentally Sensitive Sites (e.g. Green Belt Land, Ancient Woodlands) or Ecological Protection Zones (e.g. Special Scientific Interest (SSSI), Ramsar Sites, Special Areas of Conservation (SAC)) were identified on or within 250m of the proposed development.

9.8 Conservation Areas, Designated Protected Buildings and Monuments

No Conservation Areas, Listed Buildings or Scheduled Ancient Monuments were identified on or within 50m of the proposed development.

9.9 Topography

According to [Google Earth](#), the general site level is at 65.0mAOD.

9.10 Waste Disposal Activities & Landfill Sites

No evidence of Waste Disposal Activities or Landfill Sites were identified on or within 250m of the site.

9.11 Petrol and Fuel Sites

No Petrol or Fuel Sites were identified on or within 500m of the site.

9.12 Historical Tanks

The Groundsure report includes a summary of Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale.

No Historical Tanks were indicated to have been on site. The nearest Tank was identified approximately 153m SW of the site.

9.13 Sites Determined as Contaminated Land under Part 2A EPA 1990

No Sites Determined as Contaminated Land were identified on or within 500m of the site.

9.14 Dangerous or Hazardous Sites

No Control of Major Accident Hazards (COMAH) or Notification of Installations Handling Hazardous Substances (NIHHS) Sites were identified on or within 500m of the site.

9.15 Hazardous Substance Storage/Usage

No consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015 were identified on or within 500m of the site.

9.16 IPC Authorisations

No Integrated Pollution Control (IPC) Authorisations were identified on or within 500m of the site.

9.17 Part A(1) and IPPC Authorised Activities

No Part A(1) or Integrated Pollution Prevention Control (IPPC) Authorised Activities were identified on or within 500m of the site.

9.18 Part A(2) and Part B Activities and Enforcements

The following Part A(2) and Part B Activity and Enforcement was identified within 250m of the site:

Table 4: Part A(2) and Part B Activity and Enforcement identified within 1000m of the site

Site Address	Process	Permit Type	Status	Distance/Direction
Northfleet Dry Cleaners, 52 Istead Rise, Northfleet, DA13 9JF	Dry Cleaning	Part B	Current Permit	124m S

9.19 Category 3 or 4 Radioactive Substance Authorisations

No Category 3 or 4 Radioactive Substance Authorisations were identified on or within 500m of the site.

9.20 Discharge Consents

No Red List or Licensed Discharge Consents were identified on or within 500m of the site.

9.21 List 1 and List 2 Dangerous Substance Inventory Sites

No List 1 and List 2 Dangerous Substances Inventory Sites were identified on or within 500m of the site.

9.22 Pollution Incidents

No Pollution Incidents occurred on or within 50m of the site.

9.23 Coal Mining

The site is not located in an area potentially affected by Coal Mining.

9.24 Non-Coal Mining

The following Non-Coal Mining Area was identified onsite:

Table 5: Non-Coal Mining Area was identified onsite

Commodity	Assessment of Likelihood	Distance/ Direction
Chalk	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.	On site

9.25 Radon

A search of the BGS Radon dataset indicates that the property lies in an area with between 1 – 3 % chance of being affected by naturally occurring Radon gas. However, no Radon protective measures are considered necessary for the site in accordance with publication BR211 by the Building Research Establishment.

9.26 Unexploded Ordnance

An Unexploded Ordnance (UXO) risk assessment in line with CIRIA C681 is beyond the scope of this report and should be considered depending on the site's location.

10 RELEVANT PLANNING HISTORY

Gravesham Borough Council's online planning portal was searched in an effort to identify any relevant planning applications. No relevant documents were identified for the site.

10.1 Planning Applications for Adjacent Sites

Table 6 below provides a summary of the previously submitted planning applications identified for sites within 25m. Although other planning applications were identified on nearby sites; they were not deemed relevant to this report.

Table 6: Summary of planning applications for adjacent sites

Application Reference	Date	Description of Proposal	Status
20050685	15 Aug 2005	Erection of two storey building to provide a medical centre comprising five GP surgeries, three nurse consulting rooms, treatment room, minor operations room, dispensary, two waiting areas with ancillary offices, rooms and stores and the laying out of 43 car parking spaces for staff and patients - Land And Car Park Beside The Community Centre Worcester Close Istead Rise Gravesend Kent DA13 9LB (adjacent N)	Granted – without Contaminated Land Condition

11 SITE WALKOVER

A site walkover was not undertaken as part of the initial scope of works. Photographs of the site, which have been taken from Google Maps, are presented in [Appendix 5](#).

12 PRELIMINARY CONCEPTUAL SITE RISK MODEL (CSM)

A conceptual site risk model (CSM) aims to summarise all the potential pollutant linkages or risk that may be associated with a site. It considers the potential pollution sources, receptors and pathways by which receptors can be impacted.

12.1 Potential Sources

Potentially contaminative land uses (PCLUs) of concern were identified based on their proximity to the site and whether they had the potential to generate significant quantities of ground gases, vapours and/or mobile volatile contamination (i.e. high pollution migration potential).

Any PCLUs within a 50m radius of the site as well as any PCLUs with high pollution migration potential within 250m of the site were considered to be of concern and were included within the assessment.

A summary is provided in Table 7 below.

Table 7: Summary of potential contamination sources, period of operation and distance from site.

Site Name/ Description	Industrial Profile	Approx. Year Use Established	Approx. Year Use Ended	Direction	Approx. Distance from Site (m)
Orchards	-	c.1931-32	c.1976-79	Onsite All Directions	0 Adjacent

Typical contaminants that may be associated with the above PCLUs are:

-  Acids & Alkalis
-  Chlorinated & Non-Chlorinated Solvents
-  Fuels & Fuel Oils
-  Heavy Metals
-  Organic & Inorganic Compounds
-  Pesticides
-  Polycyclic Aromatic Hydrocarbons (PAHs)
-  Total Petroleum Hydrocarbons (TPHs)
-  Volatile Organic Compounds (VOCs)

Please note, this list is not exhaustive of all contaminants that may be present on or off site.

12.2 Potential Receptors

The potential receptors include human, water, ecological and infrastructure receptors.

12.2.1 Potential Human Health receptors

Potential human health receptors include construction workers, future occupants or users of the site and the proposed development and neighbours of the site.

12.2.2 Potential Groundwater Receptors

Potential groundwater receptors include the Principal Bedrock Aquifer.

12.2.3 Potential Surface Water Receptors

There are no potential surface water receptors in the vicinity of the site.

12.2.4 Potential Ecological Receptors

There are no potential ecological receptors in the vicinity of the site.

12.2.5 Potential Property Receptors

Potential property receptors include the proposed development as well as neighbouring properties and associated services.

12.3 Potential Pathways

12.3.1 Potential Pathways for Human Receptors

The main pathways via which on and off-site human receptors are likely to come into contact with, or be affected by any contamination present on the site can be summarised as follows:

-  Dermal contact with contaminated soil (i.e. absorption through the skin) – through garden activities such as children playing, gardening etc.
-  Ingestion of contaminated soil (either directly or via soil adhering to vegetables grown on the site)
-  Inhalation of contaminated soil, fugitive dust and vapours.
-  Explosion of landfill gases leading to death/injury

12.3.2 Potential Pathways for Groundwater Receptors

The principal means by which contaminants can reach the groundwater is by leaching (i.e. downward movement through the soil pores with percolating and infiltrating water).

12.3.3 Potential Pathways for Surface Water Receptors

Routes by which contaminants from the site could reach surface water include via overland run-off, drainage and groundwater entering nearby rivers as base flow.

12.3.4 Potential Pathways for Ecological Receptors

The exposure pathways for terrestrial ecological receptors will be similar to those for humans. Pathways for aquatic receptors are via uptake of contaminated sediments and water.

12.3.5 Potential Pathways for Property Receptors

Pathways by which property receptors are exposed to potential contaminants include ground gas and vapour migration through the unsaturated zone and absorption of water containing dissolved contaminants (i.e. as in the case of sulphate attack).

12.4 Potential Pollutant Linkages

The Potential Pollutant Linkages (PPLs) were identified as part of the CSM. These were concerned with the following:

-  Risk of direct contact (ingestion and absorption) with and inhalation of contaminants to on-site human health receptors including future occupiers and site visitors (PPL1a)
-  Risk of injury/death to future occupiers and visitors as a result of explosion due to accumulation of ground gas from on and off-site sources in confined spaces within on-site dwellings. (PPL1b)
-  Risk of direct contact (ingestion and absorption) with and inhalation of contaminants to on-site human health receptors such as Construction Workers (PPL1c)

- Risk of injury/death to construction workers as a result of explosion due to accumulation of ground gas from on and off-site sources in confined spaces within on-site dwellings. (PPL1d)
- Risk of direct contact with (ingestion and absorption) and inhalation of contaminants to off-site human health receptors as a result of on-site contaminants migrating off-site (PPL2a)
- Risk of injury/death to off-site human health receptors as a result of explosion due to migration of on-site ground gas and subsequent accumulation in confined spaces in off-site buildings. (PPL2b)
- Risk of deterioration of groundwater quality resulting from the migration of on-site contaminants into the underlying aquifer (PPL3)
- Risk of deterioration of surface water quality resulting from the migration and entry of on-site contaminants into the surface water receptor (PPL4)
- Risk of deterioration of ecological quality resulting from the migration and entry of on-site contaminants to the ecological receptor during development and after completion (PPL5);
- Risk of damage to buildings and services from on and off-site contaminants (PPL6a)
- Risk of damage to property as a result of explosion due to accumulation of ground gas from on and off-site sources in confined spaces within buildings (PPL6b).

13 QUALITATIVE RISK ASSESSMENT

For land to be considered ‘contaminated land’ under Part IIA, the potential contamination source must be causing or have the significant possibility of causing harm to designated receptors. It is therefore necessary to focus on pollutant linkages that have the potential to be significant (i.e. those that are most likely to lead to a determination).

The identified PPLs were therefore individually qualitatively assessed using a basic risk assessment methodology which considers “Likelihood” and “Severity” to assess the magnitude of the potential risk. The methodology is summarised in [Appendix 6](#).

Table 8 below summarises the conceptual site risk model (CSM) including the identified PPLs and the results of the qualitative risk assessment.

Table 8: Conceptual Site Risk Model - Potential Sources, Pathways and Receptors identified on the site.

Source/ Potential Contaminants	Potential Contaminants Associated with Site and Adjacent Uses as Orchards: i.e. Acids & Alkalis, Chlorinated & Non-Chlorinated Solvents, Fuels & Fuel Oils, Heavy Metals, Organic & Inorganic Compounds. Pesticides, PAHs, TPHs, VOCs.										
	On and Off-Site Contaminants				On Site Contaminants		On Site Contaminants			On and Off-Site Contaminants	
Potential Pathways	• Ingestion of soils, garden vegetables and dust • Ingestion of contaminated drinking water • Dermal absorption • Inhalation of dusts and vapours indoors and outdoors • Migration of ground gases and vapours into properties					Leaching in the unsaturated zone & diffusion in the saturated zone		• Overland run-off • Drainage channels • Base flow	• Direct contact via absorption and ingestion; • Inhalation	• Migration of ground gases and vapours through the unsaturated zone • Attack on water supply service pipes	
Potential Receptors	ON SITE HUMANS (AFTER COMPLETION) Future Occupiers & Visitors		ON SITE HUMANS (DURING DEVELOPMENT) Construction Workers		OFF SITE HUMANS Neighbours		GROUND WATER Principal Aquifer	SURFACE WATER None	ECOLOGICAL None	ON SITE PROPERTY Buildings and Services	
Potential Hazards	• Adverse health effects • Injury/ • Death	Explosion/ Fire - Build-up of Methane/ VOCs in confined spaces	• Adverse health effects • Injury/ • Death	Explosion/ Fire - Build-up of Methane/ VOCs in confined spaces	• Adverse health effects • Injury/ • Death	Explosion/ Methane build-up in confined spaces	Degradation of groundwater quality	• Degradation of surface water quality • Ecological impacts	Degradation of ecological receptor quality	Damage to property and services	Explosion/ Fire - Build-up of Methane/ VOCs in confined spaces
Plausible?	Yes	No	Yes	No	Yes	No	Yes	No	No	Yes	No
PPL ID	PPL1a	PPL1b	PPL1c	PPL1d	PPL2a	PPL2b	PPL3	PPL4	PPL5	PPL6a	PPL6b
SEVERITY	Major (4)	Major (4)	Major (4)	Major (4)	Major (4)	Major (4)	Moderate (3)	Moderate (3)	Moderate (3)	Moderate (3)	Moderate (3)
LIKELIHOOD	Remote (2)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Remote (2)	Improbable (1)
RISK	Low to Moderate (8)	Low (4)	Low (4)	Low (4)	Low (4)	Low (4)	Very Low (3)	Very Low (3)	Very Low (3)	Low to Moderate (6)	Very Low (3)
POTENTIALLY SIGNIFICANT?	YES	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO

13.1 Assessment of Potential Significance of Potential Pollutant Linkages

13.1.1 Potential Risks to On-Site Human Health Receptors

PPL1a is concerned with the risk of direct contact (ingestion and dermal absorption) with and inhalation of on and off-site contaminants by on site human health receptors. PPL1a is considered to have the potential to be significant as a potentially contaminative land use was identified on and in the vicinity of the site.

PPL1c is concerned with the risk of direct contact (ingestion and dermal absorption) with and inhalation of on and off-site contaminants by construction workers. PPL1c is considered unlikely to have the potential to be significant as no ground break is proposed.

PPL1b and PPL1d are concerned with the risk of injury/death of future occupiers, construction workers and site visitors as a result of explosion due to the potential accumulation of ground gases and vapours from on and off-site sources. PPL1b and PPL1d are considered unlikely to have the potential to be significant as no potential sources of explosive ground gases and/or vapours (i.e. Landfills, Movable Coal, Petrol Stations etc.) were identified on or in the vicinity of the site.

13.1.2 Potential Risks to Off-Site Human Health Receptors

PPL2a is concerned with the risk of direct contact and inhalation of contaminants emanating from the site by off-site human health receptors. PPL2a is considered unlikely to have the potential to be significant. Although Orchards were identified onsite, the surrounding area shares the same history. Therefore, it is considered unlikely that any potential contaminants present at the site would be of sufficient magnitude and mobility as to significantly impact off-site human receptors.

PPL2b is concerned with the risk of injury/death of off-site human health receptors as a result of explosion due to accumulation of ground gases from on-site sources. PPL2b is considered unlikely to have the potential to be significant as no potential sources of explosive ground gases and/or vapours (i.e. Landfills, Movable Coal, Petrol Stations etc.) were identified on the site.

13.1.3 Potential Risks to Groundwater Receptors

PPL3 is concerned with the risk of degradation of groundwater quality resulting from the migration of on-site contaminants into the underlying aquifer. PPL3 is considered unlikely to have the potential to be significant. Although the site is underlain by a Principal Aquifer, it is considered unlikely that any potential contaminants present at the site would be of sufficient magnitude and mobility as to significantly impact groundwater receptors.

13.1.4 Potential Risks to Surface Water Receptors

PPL4 is concerned with the risk of degradation of surface water quality resulting from the migration and entry of on-site contaminants into surface water receptors. PPL4 is considered unlikely to have the potential to be significant as no surface water bodies were identified on or within 250m of the site.

13.1.5 Potential Risks to Ecological Receptors

PPL5 is concerned with the risk of degradation of ecological receptors resulting from potential on-site contaminants. PPL5 is considered unlikely to have the potential to be significant as no designated ecological receptors were identified on or within 250m of the site.

13.1.6 Potential Risks to Property Receptors

PPL6a is concerned with the risk of damage to on site buildings and services from on and off-site contaminants. If contaminated, the soil may contain aggressive chemicals (i.e. Sulphates, VOCs) that can attack building materials and services. PPL6a is considered to have the potential to be significant as a potentially contaminative land use was identified on and in the vicinity of the site.

PPL6b is concerned with the risk of damage to property as a result of explosion due to migration of on and off-site ground gases and vapours and their subsequent accumulation in confined spaces in on-site buildings. PPL6b is considered unlikely to have the potential to be significant for the same reasons as PPL1b.

14 CONCLUSIONS

This Phase 1 Desk Study was carried out to support the discharge of Condition 4(a) attached to planning permission 20230136 for the *'construction of 8 new affordable rent residential units (Use Class C3) with associated vehicular and pedestrian access, car parking, cycle parking, refuse storage and landscaping'*.

A review of historical maps and planning records suggests that the site and surrounding land have been subject to previous potentially contaminative land uses (PCLUs). On site and adjacent PCLUs have included Orchards.

A conceptual site risk model was developed and a qualitative risk assessment undertaken. The conclusions of the risk assessment are presented in Table 9 below.

Table 9: Summary of qualitative risk assessment

Potential Receptor	Potential Pathway	Potential Hazard	PSPPL?	Risk
On-Site Human Health (Future Occupiers)	Ingestion/Absorption Inhalation	Adverse health Injury/Death	Yes	Low to Moderate
	Buildup of Methane/ VOCs in confined spaces	Explosion/ Fire Injury/Death	No	Low
On-Site Human Health (Construction Workers)	Ingestion/Absorption Inhalation	Adverse health Injury/Death	No	Low
	Buildup of Methane/ VOCs in confined spaces	Explosion/ Fire Injury/Death	No	Low
Off-Site Human Health	Ingestion/Absorption Inhalation	Adverse health Injury/Death	No	Low
	Buildup of Methane/ VOCs in confined spaces	Explosion/ Fire Injury/Death	No	Low
Groundwater	Percolation/Leaching	Adverse groundwater quality	No	Very Low
Surface Water	Lateral Migration Groundwater baseflow	Adverse Surface water quality	No	Very Low
Ecology	Ingestion/Absorption	Adverse health Injury/Death	No	Very Low

Potential Receptor	Potential Pathway	Potential Hazard	PSPPL?	Risk
Property	Physical Contact/Absorption	Damage to building and services	Yes	Low to Moderate
	Buildup of Methane/ VOCs in confined spaces	Explosion/ Fire Damage to building	No	Very Low

15 RECOMMENDATIONS

15.1 Intrusive Site Investigation

Given that potentially significant potential pollutant linkages (PSPPLs) were identified, it is recommended that an intrusive site investigation is undertaken with the objective of determining the presence and extent of any soil contamination at the site.

15.2 Watching Brief and Discovery Strategy

Therefore, it is recommended that a “watching brief” is kept at all times during the development. Should any unexpected contamination be encountered then the discovery strategy outlined below should be followed.

- Works should be halted if any suspicious ground conditions are identified by groundworkers;
- The Contractor should assess the need for any immediate health and safety or environmental management control measures. If control measures are considered to be required, they should be implemented;
- The Contractor should notify the Client's Environmental Consultant and the Local Planning Authority;
- The Environmental Consultant should attend the site to record the extent of 'contamination' and if necessary, to collect samples;
- If remedial action is considered necessary then the proposed works should be agreed with the Local Planning Authority prior to implementation;
- Once remediation is complete, the Environmental Consultant should collate evidence of work carried out for inclusion in a Remediation Verification Report which should be submitted to the Local Planning Authority.

15.3 Health and Safety

All site works should be carried out in accordance with Health and Safety Executive regulations and guidelines, the Contractor's Construction Health and Safety Plan and the Construction (Design and Management) Regulations 2015.

Precautions should be taken to minimise exposure of site workers during ground works through the implementation of site safety. Such precautions should include, but not be limited to:

- Provision of appropriate Personal Protective Equipment (PPE);
- Availability of site welfare;
- Good personal hygiene, washing and changing procedures;
- Daily safety briefings.

15.4 Services

The local Statutory Water Undertaker should be contacted in the event that new services are proposed as part of the redevelopment in order to determine their specification for the type of pipework which should be used on this site.

Further information can be found within the published guidance for the '*Selection of Water Supply Pipes to be used in Brownfield Sites*', issued in January 2011 by the UK Water Industry Research.

16 INFORMATION GAPS AND UNCERTAINTIES

Assumptions have been made regarding the nature and scale of the activities that took place on the site and the types of potential contaminants that may have resulted. These assumptions will need to be reviewed along with the Conceptual Site Model should further information come to light.

17 APPENDIX 1 – DECISION NOTICE

Application: 20230136

**TOWN AND COUNTRY PLANNING ACT 1990
THE TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE)
(ENGLAND) ORDER 2015 (AS AMENDED)**

NOTIFICATION OF GRANT OF PERMISSION TO DEVELOP LAND
--

To: **Ms S Holmes, Gravesham Borough Council
C/O Mr Jack Lewis, Frankham Projects
Irene House
7B Five Arches Business Park
Maidstone Road
Sidcup
DA14 5AE**

TAKE NOTICE that the **GRAVESHAM BOROUGH COUNCIL**, the Local Planning Authority under the Town and Country Planning Acts, has **GRANTED PERMISSION** for development of land situate at:

**Land At
Worcester Close
Istead Rise
Gravesend
Kent
DA13 9LB**

and being **Construction of 8 new affordable rent residential units (Use Class C3) with associated vehicular and pedestrian access, car parking, cycle parking, refuse storage and landscaping.** Your application dated 20th February 2023 is permitted subject to the following:-

Time Limit

1. The development to which this permission relates must be begun not later than the expiration of three years beginning with the date on which this permission is granted.

Reason In pursuance of Section 91 of the Town and Country Planning Act 1990, as amended by Section 51 of the Planning and Compulsory Purchase Act 2004.

Approved Plans

2. The development hereby permitted shall be carried out only in precise accordance with the following schedule of approved plans:

Drawings/Plans

- Drawing no. WCL-BPTW-S01-ZZ-DR-A-0102 - Rev. C01 - Site Location Plan;
- Drawing no. WCL-BPTW-S01-ZZ-DR-A-0103 - Rev. C01 - Existing Block Plan;
- Drawing no. WCL-BPTW-S01-ZZ-DR-A-0112 - Rev. C01 - Proposed Block Plan;
- Drawing no. WCL-BPTW-S01-00-DR-A-1001 - Rev. C01 - Proposed Ground Floor Plan;

- Drawing no. WCL-BPTW-S01-01-DR-A-1002 - Rev. C01 - Proposed First Floor Plan;
- Drawing no. WCL-BPTW-S01-02-DR-A-1003 - Rev. C01 - Proposed Roof Plan;
- Drawing no. WCL-BPTW-S01-ZZ-DR-A-2001 - Rev. C01 - Existing and Proposed Elevations (Sheet 1);
- Drawing no. WCL-BPTW-S01-ZZ-DR-A-2002 - Rev. C01 - Existing and Proposed Elevations (Sheet 2);
- Drawing no. WCL-BPTW-S01-ZZ-DR-A-2003 - Rev. C01 - Existing and Proposed Elevations (Sheet 3);
- Drawing no. WCL-BPTW-S01-ZZ-DR-A-2004 - Rev. C01 - Existing and Proposed Elevations (Sheet 4);
- Drawing no. WCL-BPTW-S01-ZZ-DR-A-2201 - Rev. C01 - Existing and Proposed Sections (Sheet 1);
- Drawing no. WCL-BPTW-S01-ZZ-DR-A-2202 - Rev. C01 - Existing and Proposed Sections (Sheet 2);
- Drawing no. 2208032-TK01 - Rev. B - Swept Path Analysis (Large Car).

Documents

- Planning Application Form - dated 17/02/2023 (updated 07/2023);
- Covering Letter - prepared by Frankham (dated 17/03/2023);
- Design and Access Statement - including Landscape Strategy prepared by BPTW - WCL-BPTW-DO-XX-XX-A-0650-C01-A3 (January 2023);
- Planning Statement - prepared by Frankham - 700564 - Rev. P01 (January 2023);
- Statement of Community Involvement - prepared by Frankham - 700564 - Rev. P01 (January 2023);
- Transport Statement - prepared by Motion (20th January 2023);
- Arboricultural Report - prepared by The Mayhew Consultancy Ltd - AR/116322 (December 2022);
- Archaeological Desk Based Assessment - prepared by Allen Archaeology Limited - AAL2022111 (September 2022);
- Drainage Impact Assessment & Flood Risk Assessment - prepared by Tridax - T-2022-097 - Rev. 4 (8th February 2023);
- Energy Statement - prepared by Weald Energy (27th January 2023);
- Preliminary Ecological Appraisal - prepared by the Ecology Partnership (September 2022);
- Ecological Mitigation and Enhancement Strategy - prepared by the Ecology Partnership (January 2023);
- Ground Investigations Main Investigation Report - prepared by Soils Limited - 20374/MIR - Rev. 1.2 (October 2022);
- Ground Investigations Preliminary Assessment - prepared by Soils Limited - 20374/PIR - Rev. 1.0 (September 2022);
- Detailed Unexploded Ordnance Risk Assessment - prepared by 1st Line Defence - PA16287-00 (11th August 2022);
- External Lighting Strategy Report - prepared by Frankham - 522326-FCG-ZZ-XX-RP-E-0501-S2-P04 (February 2023).

Reason For the avoidance of doubt and in the interests of proper planning.

Pre-commencement Condition(s)

Construction Environmental Management Plan (CEMP)

3. No development shall take place until a Construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority. The document shall cover all environmental impacts from the clearance and construction phases of this development including details of the following, as well as any other measures deemed reasonably necessary:
 - (a) Suitable mitigation measures to minimise noise pollution and vibration during the construction phase including the insulation of fixed plant and the silencing of vehicles and

mobile machinery.

- (b) A Dust Management Plan to minimise emissions to air and to prevent nuisance from wind-blown dust including fencing and the dampening down with water of excavated construction and cover materials on site, and other areas traversed by plant vehicles and machinery.
- (c) A Construction Traffic Management Plan covering:
 - Means of direct access to the site from the adjoining maintainable public highway
 - Surface treatment of the access to avoid spill of migratory material on to the maintainable public highway.
 - Details of numbers and routing of construction and delivery vehicles to / from site
 - Timing of deliveries and waste movement.
 - Loading and unloading of plant and materials away from the maintainable public highway.
 - Parking and turning areas for construction and delivery vehicles and site personnel.
 - Type and location of wheel washing and chassis cleaning facilities.
 - Temporary traffic management / signage.
- (d) Details of the location of the proposed construction compound.
- (e) Details of security fencing and other site security measures.
- (f) Details of stockpile areas for building materials or for fill or removed topsoil.
- (g) A Construction Drainage Design Plan to identify the required devices to prevent construction run off from flowing into existing drainage.
- (h) Ecological mitigation measures.
- (i) Measures to be undertaken to protect any public sewers and water apparatus.
- (j) Details of vibration monitoring and mitigation during any necessary piling works.
- (k) Details of temporary construction or security lighting; and
- (l) Monitoring and review provisions with the Local Planning Authority.
- (m) A Community Engagement Strategy covering how local residents, community groups and businesses will be kept informed about the development and construction timetable and works taking place, until completion of the development.

The construction of the development shall adhere at all times and be carried out in full accordance with the relevant approved document or any subsequent variations that may be approved in writing by the Local Planning Authority.

Reason To ensure that a suitable programme of all works is set out from the commencement of development, to demonstrate that the free flow of traffic on the highway and to minimise the impact on local residents and businesses, in accordance with policies CS11, CS12 and CS19 of the Gravesham's Local Plan: Core Strategy (September 2014).

Contaminated Land Strategy

4. No development approved by this permission shall be commenced until a strategy to deal with the potential risks associated with any contamination of the site has been submitted to, and approved in writing by, the Local Planning Authority. This strategy will include the following components:
- (a) A preliminary risk assessment which has identified all previous uses; potential contaminants associated with those uses; a conceptual model of the site indicating sources, pathways and receptors; and potentially unacceptable risks arising from contamination at the site.
 - (b) A site investigation scheme, based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site.
 - (c) The results of the site investigation and the detailed risk assessment referred to in (2) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.
 - (d) A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (3) are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

The scheme shall be implemented as approved.

Reason To ensure that the development does not contribute to, or is not put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution in line with paragraph 174 of the National Planning Policy Framework (2023) and to accord with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Archaeology

5. No development shall take place until the applicant, or their agents or successors in title, has secured the implementation of an archaeological field evaluation works in accordance with a Written Scheme of Investigation and timetable which has been submitted to and approved in writing by the Local Planning Authority. Following on from the evaluation, any safeguarding measures to ensure preservation in situ of important archaeological remains and/or further archaeological investigation and recording in accordance with a Written Scheme of Investigation and timetable shall be submitted to and approved in writing by the Local Planning Authority.

Reason To ensure that features of archaeological interest are properly examined and recorded in accordance with Policies CS19 and CS20 of the Gravesham Local Plan Core Strategy (September 2014) and saved Policy TC7 of the Gravesham Local Plan First Review (1994).

Sustainable Surface Water Drainage

6. No development approved by this permission shall be commenced until a scheme for sustainable surface water drainage has been submitted to and approved, in writing, by the Local Planning Authority. The detailed drainage scheme submitted shall
- (i) demonstrate that both the rate and volume of run-off leaving the site post-development will be restricted to that of the existing site during any rainfall event (up to and including the climate change adjusted 100yr critical storm)
 - (ii) demonstrate that the existing on-site surface water flow-routes and accumulation points will not be altered in such a way that the development places property at risk from flooding during any rainfall event, up to and including the climate change adjusted critical 100yr storm,
 - (iii) demonstrate that infiltration features are not located on parts of the site where contamination might be present
 - (iv) include a timetable for its implementation, and
 - (v) include a management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage system throughout its lifetime.

The surface water drainage scheme shall thereafter be implemented in full prior to first residential occupation of the development and thereafter maintained and managed in accordance with the approved scheme.

Reason To ensure that the principles of sustainable drainage are incorporated into this proposal; to ensure that the development does not contribute to, or is not put at risk from, or adversely affected by, unacceptable levels of water pollution caused by mobilised contaminants and to ensure ongoing efficacy of the drainage provisions, in accordance with policies CS18 and CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Tree Protection

7. Prior to the commencement of the development hereby approved (including demolition and all preparatory work), a scheme for the protection of the retained trees, in accordance with BS 5837:2012, including a tree protection plan(s) (TPP) and an arboricultural method statement (AMS) shall be submitted to and approved in writing by the Local Planning Authority.

Specific issues to be dealt with in the TPP and AMS:

- (a) Location and installation of services/ utilities/ drainage.
- (b) Methods of demolition within the root protection area (RPA as defined in BS 5837: 2012) of the retained trees.
- (c) Details of construction within the RPA or that may impact on the retained trees.
- (d) a full specification for the installation of boundary treatment works.
- (e) a full specification for the construction of any roads, parking areas and driveways, including details of the no-dig specification and extent of the areas of the roads, parking areas and driveways to be constructed using a no-dig specification. Details shall include relevant sections through them.
- (f) Detailed levels and cross-sections to show that the raised levels of surfacing, where the installation of no-dig surfacing within Root Protection Areas is proposed, demonstrating that they can be accommodated where they meet with any adjacent building damp proof courses.
- (g) A specification for protective fencing to safeguard trees during both demolition and construction phases and a plan indicating the alignment of the protective fencing
- (h) a specification for scaffolding and ground protection within tree protection zones.
- (i) Tree protection during construction indicated on a TPP and construction and construction activities clearly identified as prohibited in this area.
- (j) Details of site access, temporary parking, on site welfare facilities, loading, unloading and storage of equipment, materials, fuels and waste as well concrete mixing and use of fires
- (k) Boundary treatments within the RPA
- (l) Methodology and detailed assessment of root pruning
- (m) Arboricultural supervision and inspection by a suitably qualified tree specialist
- (n) Reporting of inspection and supervision
- (o) Methods to improve the rooting environment for retained and proposed trees and landscaping

The development thereafter shall be implemented in strict accordance with the approved details.

Reason Required prior to commencement of development to satisfy the Local Planning Authority that the trees to be retained will not be damaged during demolition or construction and to protect and enhance the appearance and character of the site and locality, in accordance with Policies CS12 and CS19 of the Gravesham Local Plan Core Strategy (September 2014) and pursuant to section 197 of the Town and Country Planning Act 1990.

Prior to Above Ground Works

Foul and Surface Water Sewerage Disposal

8. Notwithstanding the details shown on the approved plans, submitted documents and application form, before any above ground works commence details of the proposed means of foul and surface water sewerage disposal shall be submitted to, and approved in writing by, the Local Planning Authority in consultation with Southern Water. The development shall be carried out in accordance with the approved details.

Reason To ensure that the principles of sustainable drainage are incorporated into this proposal; to ensure that the development does not contribute to, or is not put at risk from, or adversely affected by, unacceptable levels of water pollution caused by mobilised contaminants and to ensure ongoing efficacy of the drainage provisions in accordance with Policies CS18 and CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Biodiversity and Ecological Enhancement

9. Within six months of works commencing, details of how the development will offset biodiversity loss/enhance biodiversity will be submitted to, and approved in writing by, the

local planning authority. This will include a native species-only landscape scheme. The approved details will be implemented and thereafter retained.

Reason In order to enhance the biodiversity of the site in accordance with Policy CS12 of the Gravesham Local Plan Core Strategy (September 2014).

Biodiversity and Lighting

10. Prior to above ground works, a lighting design plan for biodiversity will be submitted to, and approved in writing by, the local planning authority. The plan will show the type and locations of external lighting, as well as expected light spill in lux levels, to demonstrate that areas to be lit will not adversely impact biodiversity. All external lighting will be installed in accordance with the specifications and locations set out in the plan and will be maintained thereafter.

Reason In order to enhance the biodiversity of the site in accordance with Policy CS12 of the Gravesham Local Plan Core Strategy (September 2014).

External Facing Materials

11. Notwithstanding the details shown on the approved plans, submitted documents and application form, before any above ground works commence details (and samples where requested by the Local Planning Authority) of all the external facing materials to be used in the construction of the development hereby permitted shall be submitted to and approved in writing by the Local Planning Authority. The development shall thereafter be carried out in accordance with the approved details prior to any part of the development first being brought into use.

Reason To maintain the character and appearance of the building and to ensure a satisfactory visual relationship between the existing and new development in accordance with adopted Policy CS19 Gravesham Local Plan: Core Strategy (September 2014).

Crime Prevention Measures

12. Notwithstanding the details shown on the approved plans, submitted documents and application form, before any above ground works commence, details of crime prevention measures according to the principles and physical security requirements of Crime Prevention through Environmental Design (CPTED) shall be submitted to and approved in writing by the Local Planning Authority. The approved measures shall be implemented prior to any of the residential units hereby permitted first being occupied and shall thereafter retained.

Reason To ensure the development protects the environment of the site and its locality generally, in the interest of security, crime prevention and community safety and is in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Prior to occupation

Obscure Glazing

13. Prior to first occupation of any of the residential units hereby permitted and notwithstanding the details shown on the approved plans, submitted documents and application form, a schedule and details of all windows within the development to be obscure glazed (and where applicable fixed shut) shall be submitted to and approved, in writing, by the Local Planning Authority and shall thereafter be implemented as approved prior to any of the residential units hereby permitted first being occupied. For the avoidance of doubt any obscure windows shall be glazed with obscure glass to a level equivalent to Pilkington Level

3 or above (or the nearest equivalent standard) and shall be permanently retained as such. All fixed shut windows shall be permanently retained as such.

Reason To protect the amenity and privacy of neighbouring properties in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Hard Surface and Boundary Treatments

14. Prior to any part of the permitted development being occupied or used, and notwithstanding the details shown on the approved plans a scheme of hard landscaping shall be submitted to and approved in writing by the Local Planning Authority. For the avoidance of doubt the details shall include the following:

- proposed boundary treatments,
- proposed finished levels and contours,
- hard surface finishes to the vehicle parking areas, pedestrian accesses, private gardens and amenity areas;
- details of any retaining walls, steps, railings, walls, fencing, gates or other supporting structures
- details of the pedestrian access and circulation areas
- minor structures such as play equipment, log piles, and any proposed seating.

The approved works shall be completed in accordance with the approved details prior to first occupation of any of the residential units hereby permitted.

Reason To ensure that the landscaped elements of the scheme as proposed are properly designed and suitably implemented in the interests of visual amenity and highway safety in accordance with Policies CS11 and Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014) and saved policy T5 of the Gravesham Local Plan First Review (1994).

Soft Landscaping Scheme

15. Prior to any part of the permitted development being occupied or used, and notwithstanding the details shown on the approved plans, submitted documents and application form, a scheme detailing the proposed soft landscaping shall be submitted to and approved, in writing, by the Local Planning Authority. The scheme shall include the type and species of planting to be carried out, to include their quantity and size as well as arrangements for aftercare. Thereafter the approved soft landscaping scheme shall be carried out in full during the first available planting season following first occupation of the development. Any trees or plants that die, are damaged, removed or become diseased within five years from the date that the development is first brought into use shall be replaced with a species of a similar size and species during the next available planting season.

Reason To ensure that the landscaped elements of the scheme as proposed are properly designed and suitably implemented in the interests of visual amenity in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Formation of Parking Spaces

16. Prior to any part of the permitted development being occupied or used, and notwithstanding the details shown on the approved plans, submitted documents and application form, the vehicle parking areas shown on the approved plans shall be formed, surfaced, drained and marked out in accordance with a scheme first to be submitted to and approved in writing by the Local Planning Authority. Thereafter, notwithstanding the provisions of the Town and Country (General Permitted Development) (England) Order 2015 (as amended), or any provision equivalent to it in any statutory instrument revoking and re-enacting that Order, with or without modification, no development shall be carried out on the site in such a

manner or in such a position as to preclude the use of or access to the reserved vehicle parking and turning areas.

Reason To ensure sufficient off street car parking provision is available to serve the development, in accordance with Policy CS11 of the Gravesham Local Plan Core Strategy (September 2014) and saved Policy P3 of the Gravesham Local Plan First Review (1994).

Allocation and Safeguarding of Parking Spaces

17. Prior to any part of the permitted development being occupied or used, and notwithstanding the details shown on the approved plans, submitted documents and application form, a strategy for the allocation and safeguarding of parking spaces for the occupiers of the development shall be submitted to and approved in writing by the Local Planning Authority. The approved strategy and measures to safeguard the use of the spaces shall be implemented prior to any of the residential units hereby permitted first being occupied and maintained thereafter.

Reason In order to ensure an acceptable standard of development upon completion, in accordance with adopted Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Visibility Splays

18. Notwithstanding the details shown on the approved plans, prior to any part of the development first coming into use full details of visibility splays for the vehicular access onto Valley Drive shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details prior to the vehicular access first being brought into use and retained as such thereafter.

Reason In the interests of highway safety in accordance with Policy CS11 of the Gravesham Local Plan Core Strategy (September 2014).

Cycle Storage

19. Prior to any part of the permitted development being occupied or used, the cycle storage facilities as shown on the approved plans, shall be provided prior to any of the residential units hereby permitted first being occupied and thereafter be retained for such purposes at all times.

Reason In order to encourage options for sustainable travel in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014) and saved Policy P3 of Gravesham Local Plan First Review (1994).

External Lighting

20. Prior to any part of the permitted development being occupied or used, and notwithstanding the details shown on the approved plans, submitted documents and application form, details of all proposed external lighting shall be submitted to and approved, in writing, by the Local Planning Authority. The development shall thereafter be carried out in accordance with these approved details prior to any of the residential units hereby permitted first being occupied and no additional external lighting shall be provided on the site.

Reason In order to ensure the development does not cause harm to residential amenity by reason of the installation of intrusive lighting and in accordance Policy CS19 of the Gravesham Local Plan of the Core Strategy (September 2014).

Refuse Arrangements

21. Prior to any part of the permitted development being occupied or used, and notwithstanding the details shown on the approved plans, submitted documents and application form, details of the refuse arrangements along with a refuse collection management plan shall be submitted to and approved in writing by the Local Planning Authority. The submitted details shall ensure adequate provision for non-recyclable waste, food waste and recyclable waste and security arrangements for the refuse stores and the management plan shall include arrangements for how the bins shall be taken nearer to the public highway on collection days and then returned to the bin store after the refuse has been collected. The development shall be carried out in accordance with the approved details prior to first occupation of any of the residential units hereby permitted and shall thereafter be retained for such purposes at all times.

Reason In order to ensure the development is served by a suitable refuse storage area in the interest of amenity and in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Deliveries and Servicing the Proposed Development

22. Prior to any part of the permitted development being occupied or used, and notwithstanding the details shown on the approved plans, submitted documents and application form, details and arrangements for deliveries and servicing the proposed development, shall be submitted to and approved, in writing, by the Local Planning Authority and shall thereafter be implemented as approved. The servicing strategy shall include the following:

- Details for the servicing of the residential apartments and communal spaces to be provided as part of the development, to have regard to the phased delivery of the development and interim arrangements required until such time as the whole development is built out and operating

Reason To ensure acceptable delivery and servicing arrangements to enable the efficient operation of the development and to minimise any potential impacts on the road network and existing properties and businesses and in accordance with adopted Local Plan Core Strategy Policies CS11 and CS19 of the Gravesham Local Plan: Core Strategy (September 2014).

Broadband

23. Prior to any part of the permitted development being occupied or used a fibre to premises (FTTP) Statement shall have been submitted to and approved by the Local Planning Authority in writing for the installation of a high speed wholly FTTP connection to the development hereby approved, unless otherwise agreed in writing by the Local Planning Authority (where supported by evidence detailing reasonable endeavours to secure the provision of FTTP and alternative provisions that have been made in the absence of FTTP). Thereafter, the infrastructure shall be laid out in accordance with the approved details and be available for use on the first occupation of any of the residential units hereby approved.

Reason To ensure that the new development in Gravesham is provided with high quality broadband services enhancing Gravesham as an attractive location in accordance with Policy CS19 and CS20 Gravesham Local Plan Core Strategy (September 2014).

Prior to Installation

Noise Impact Assessment

24. Notwithstanding the details shown on the approved plans and application form, prior to the installation of the Air Source Heat Pumps a noise impact assessment (BS4141:2014) shall be submitted to and approved, in writing by the Local Planning Authority, the approved details shall then be implemented.

Reason To ensure the development does not cause harm to residential amenity by reason of the noise nuisance and in accordance Policy CS19 of the Gravesham Local Plan of the Core Strategy (September 2014).

Plant Equipment

25. Notwithstanding the details shown on the approved plans and application form prior to the installation of plant equipment, details of any services and plant systems, including roof top plant equipment shall be submitted to and approved, in writing, by the Local Planning Authority. The details shall include the siting, external appearance and any proposed screening. The works shall thereafter be carried out in accordance with the approved details prior to first occupation of any of the residential units hereby permitted.

Reason In the interest of the amenities of neighbouring properties and the area generally and in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

On-going Conditions

Infiltration of Surface Water Drainage

26. No infiltration of surface water drainage into the ground is permitted other than with the written consent of the Local Planning Authority.

Reason To ensure that the development does not contribute to, or is not put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution caused by mobilised contaminants in line with paragraph 174 of the National Planning Policy Framework (2023) and in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

Watching Brief

27. If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved.

Reason To ensure that the development does not contribute to, or is not put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution from previously unidentified contamination sources at the development site in line with paragraph 174 of the National Planning Policy Framework (2023).

Dishes/Telecommunication

28. No satellite antenna, apparatus or plant of any sort (including structures or plant in connection with the use of telecommunication systems or any electronic communications apparatus) shall be erected on the site or roofs/walls of the development hereby approved.

Reason In the interests of the visual amenity of the development and in accordance with Policy CS19 of the Gravesham Local Plan Core Strategy (September 2014).

INFORMATIVES:-

1 STATEMENT OF POSITIVE AND PROACTIVE APPROACH TO DECISION-MAKING

In accordance with Article 35 (2) of the Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended), and paragraph 38 of the National Planning Policy Framework (NPPF) 2023, the Local Planning Authority has approached the assessment and determination of this application in a positive and creative way and, where appropriate, has worked pro-actively with the applicant to secure a development that is sustainable and that improves the economic, social and environmental conditions of the area, and that is in accordance with the Development Plan for the area.

2 REASON FOR IMPOSITION OF PRE-COMMENCEMENT CONDITIONS

Pursuant to Articles 35 (1) and (2) of the Town and Country Planning (Development Management Procedure) (England) Order 2015, the Local Planning Authority is satisfied that the requirements of conditions 3 - 7 (including the timing of compliance) are so fundamental to the development permitted that such details must be submitted prior to the works commencing on site.

Due to the importance attached to these details, it is reasonable and necessary to seek full approval in advance of works commencing. The applicant has agreed in writing on 28 November 2023 to all the pre-commencement conditions.

3 DEVIATION FROM APPROVED PLANS

It is possible that any proposed deviation from the approved plans could be classed as a 'material' change requiring a further application/permission. In the event that any change is proposed, applicants are advised to seek advice from the Local Planning Authority as proceeding without the necessary permissions could nullify this permission.

4 BUILDING REGULATIONS AND PARTY WALL ACT

This decision DOES NOT imply any consent which may be required under the Building Regulations or under any other enactment or provision. Nor does it override any private rights which any person may have relating to the land affected by this decision, including the provisions of the Party Wall etc. Act 1996.

5 NAMING & NUMBERING

As a result of the proposal, it appears that a change has to be made to the national property gazetteer. It is a legal requirement that a property or premises is registered. The Naming and Numbering Certificate, when issued, will reduce location or delivery problems via Royal Mail or other carriers, and importantly for the Police, Ambulance, and Fire & Rescue services. Registration is also necessary to register to vote, for utility connections, and will avoid duplicate addresses.

The Naming and Numbering service is provided by the Borough Council. The on-line form is available at the Planning/House Numbering page of the council's web-site <http://www.gravesham.gov.uk/street-naming>. Please submit the application and the requisite fee in accordance with the guidance on the form.

6 SOUTHERN WATER

A formal application for connection to the public sewerage system is required in order to service this development, please contact Southern Water, Sparrowgrove House, Sparrowgrove, Otterbourne, Hampshire SO21 2SW (Tel: 0330 303 0119) or www.southernwater.co.uk.

Please read their New Connections Services Charging Arrangements documents which has now been published and is available to read on their website via the following link <https://beta.southernwater.co.uk/infrastructure-charges>.

7 DRAINAGE / SEWERAGE

The foul sewage shall be removed by means of the mains drainage system and not by the use of non-mains sewerage systems, unless connection to the drainage system is not reasonably practicable. If foul sewage is to be removed using non-mains sewerage systems, a sewage treatment plant or septic tank system will be considered in preference to a cesspool. Such a system may require the prior consent of the Environment Agency under the terms of the Water Resources Act 1991. Applicants are therefore advised to discuss their requirements with the Environment Agency at the earliest opportunity. It should be ensured that the septic tank or cesspool is of adequate capacity to serve the proposed development and suitable access and hardstanding area shall be maintained to it on site.

8 KCC ECOLOGY ADVICE SERVICE - BREEDING BIRD INFORMATIVE

The applicant is reminded that, under the Wildlife and Countryside Act 1981, as amended (section 1), it is an offence to remove, damage or destroy the nest of any wild bird while that nest is in use or being built. Planning consent for a development does not provide a defence against prosecution under this Act. Breeding bird habitat is present on the application site and assumed to contain nesting birds between 1st March and 31st August, unless a recent survey has been undertaken by a competent ecologist and has shown that nesting birds are not present.

9 KENT COUNTY COUNCIL HIGHWAYS AND TRANSPORTATION

It is the responsibility of the applicant to ensure, before the development hereby approved is commenced, that all necessary highway approvals and consents where required are obtained and that the limits of highway boundary are clearly established in order to avoid any enforcement action being taken by the Highway Authority.

Across the county there are pieces of land next to private homes and gardens that do not look like roads or pavements but are actually part of the road. This is called 'highway land'. Some of this land is owned by The Kent County Council (KCC) whilst some are owned by third party owners. Irrespective of the ownership, this land may have 'highway rights' over the topsoil.

Information about how to clarify the highway boundary can be found at <https://www.kent.gov.uk/roads-and-travel/what-we-look-after/highway-land/highway-boundary-enquiries>.

The applicant must also ensure that the details shown on the approved plans agree in every aspect with those approved under such legislation and common law. It is therefore important for the applicant to contact KCC Highways and Transportation to progress this aspect of the works prior to commencement on site.

Dated: 29 November 2023

Civic Centre
Windmill Street
Gravesend
Kent
DA12 1AU

Shazad Ghani
MPhil, MA, BA (Hons)
Head of Planning
Planning Service

NOTIFICATION TO APPLICANT

APPEALS TO THE SECRETARY OF STATE

- If you are aggrieved by the decision of your Local Planning Authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under Section 78 of the Town and Country Planning Act 1990.

- If this is a **householder application*** which has been refused and you want to appeal against your Local Planning Authority's decision then you must do so within **12 weeks of the date of this notice**.
- For all other applications, refused or permitted, if you want to appeal against your Local Planning Authority's decision then you must do so within 6 months of the date of this notice.
- **For further information regarding Appeals and to make an application please click the relevant link:**
<https://www.gov.uk/appeal-householder-planning-decision>
<https://www.gov.uk/appeal-planning-decision>
- The Secretary of State can allow a longer period for giving notice of an appeal, but he will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to him that the Local Planning Authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.
- In practice, the Secretary of State does not refuse to consider appeals solely because the Local Planning Authority based their decision on a direction given by him.

***Householder applications**

These are:

- applications for planning permission for development of an existing dwellinghouse, or development within the curtilage of such a dwellinghouse for any purpose incidental to the enjoyment of the dwellinghouse, or
- an application for any consent, agreement or approval required by or under a planning permission, development order or local development order in relation to such development

but does **not** include –

- an application for change of use;
- an application to change the number of dwellings in a building.

PURCHASE NOTICES

If either the Local Planning Authority or the Secretary of State for the Environment refuses permission to develop land or grants it subject to conditions, the owner may claim that he/she can neither put the land to a reasonably beneficial use in its existing state nor can he/she render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.

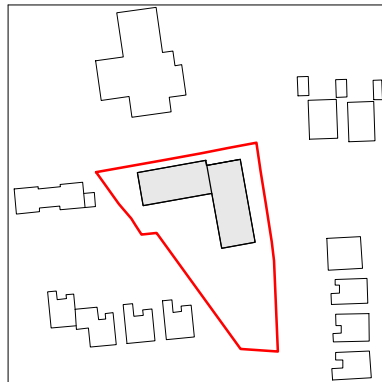
In these circumstances, the owner may serve a purchase notice on the Council (District Council, London Borough Council or Common Council of the City of London) in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

18 APPENDIX 2 – PROPOSED DEVELOPMENT PLANS



Key

- 1B2P
- 2B3P
- 2B4P
- Proposed Tree
- Retained Tree



Key Plan

Notes:
Do not scale. All dimensions are in millimetres unless otherwise stated. This drawing should be read in conjunction with all relevant project information and contract documentation. All dimensions to be checked prior to fabrication and or commencement of works. All works to comply with all relevant legal standards, building regulations and warranty provider requirements. Report any discrepancies, if in doubt ask.

Revisions:					Drn	Chkd
Rev	Status	Date	Description			
C01	A3	23.01.23	Planning Issue		HLB	AA

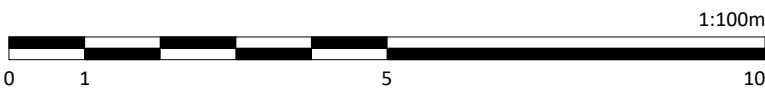
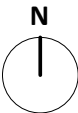
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Project Name:				20-102 Worcester Close		
Drawing Name:				First Floor Plan		
Drawing Number:				Rev:	C01	Status: A3
WCL-BPTW-S01-01-DR-A-1002						
Project No:	RIBA Stage:	Drawn By:	Scale:			
20-102	3	HLB	1:100 @ A2			

PLANNING ISSUE

40 Norman Road,
Greenwich, London
SE10 9QX
t. 020 8293 5175
bptw.co.uk



Note:
Existing context based on Ordnance Survey data, Topographical Survey and Arboriculture Survey (by others).
Landscape design is illustrative of design intent only.
Size, location and orientation of ASHP (including acoustic enclosure) and PV Panels subject to detailed design.



19 APPENDIX 3 – HISTORICAL MAPS

Site Details:

LA WORCESTER CLOSE, ISTEAD
RISE, GRAVESEND, KENT, DA13
9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1865

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
Levelled N/A

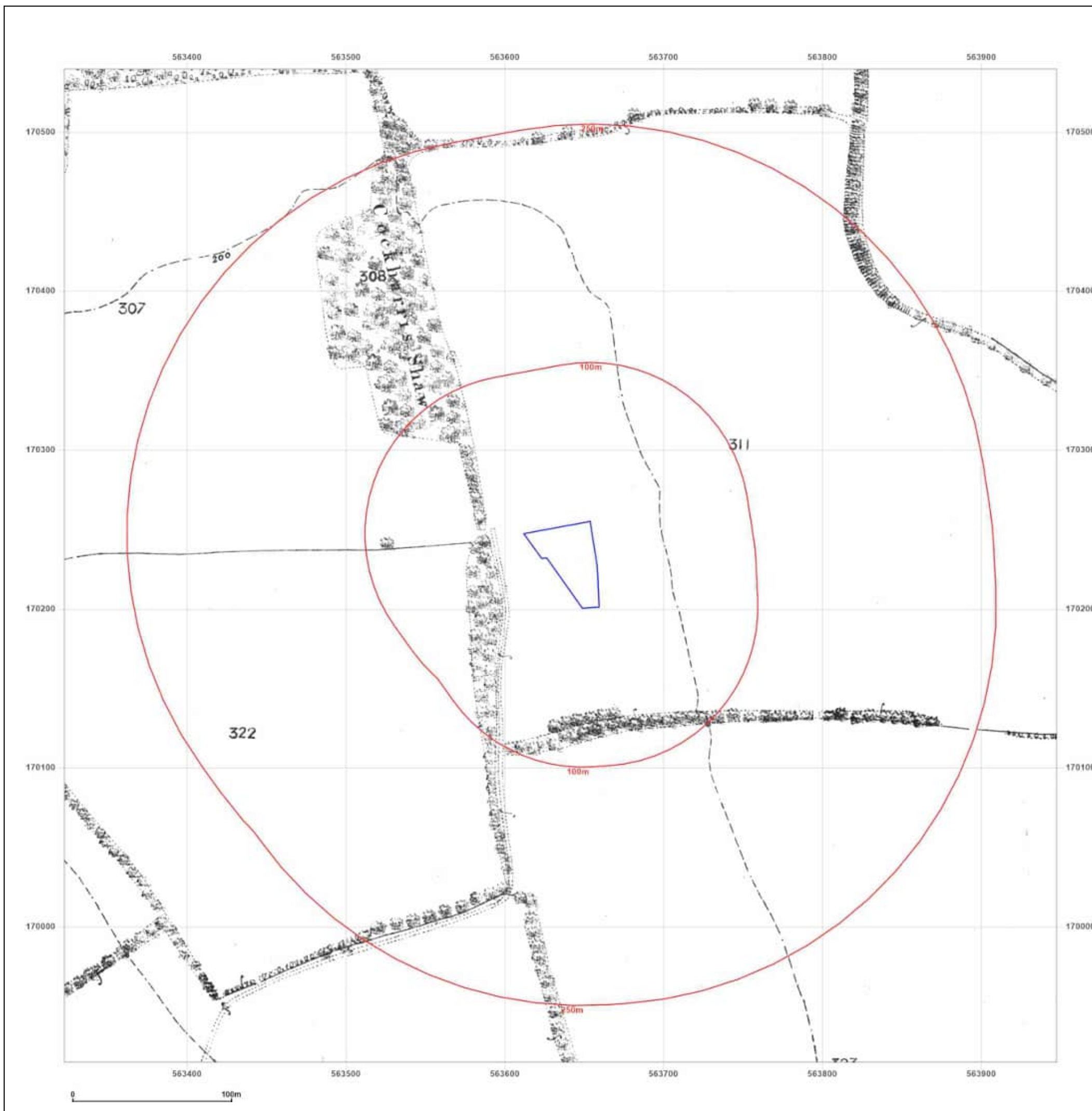


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Production date: 20 December 2024

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Site Details:

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Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1897

Scale: 1:2,500

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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1908

Scale: 1:2,500

Printed at: 1:2,500



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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1933

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1933
Revised 1933
Edition N/A
Copyright N/A
Levelled N/A

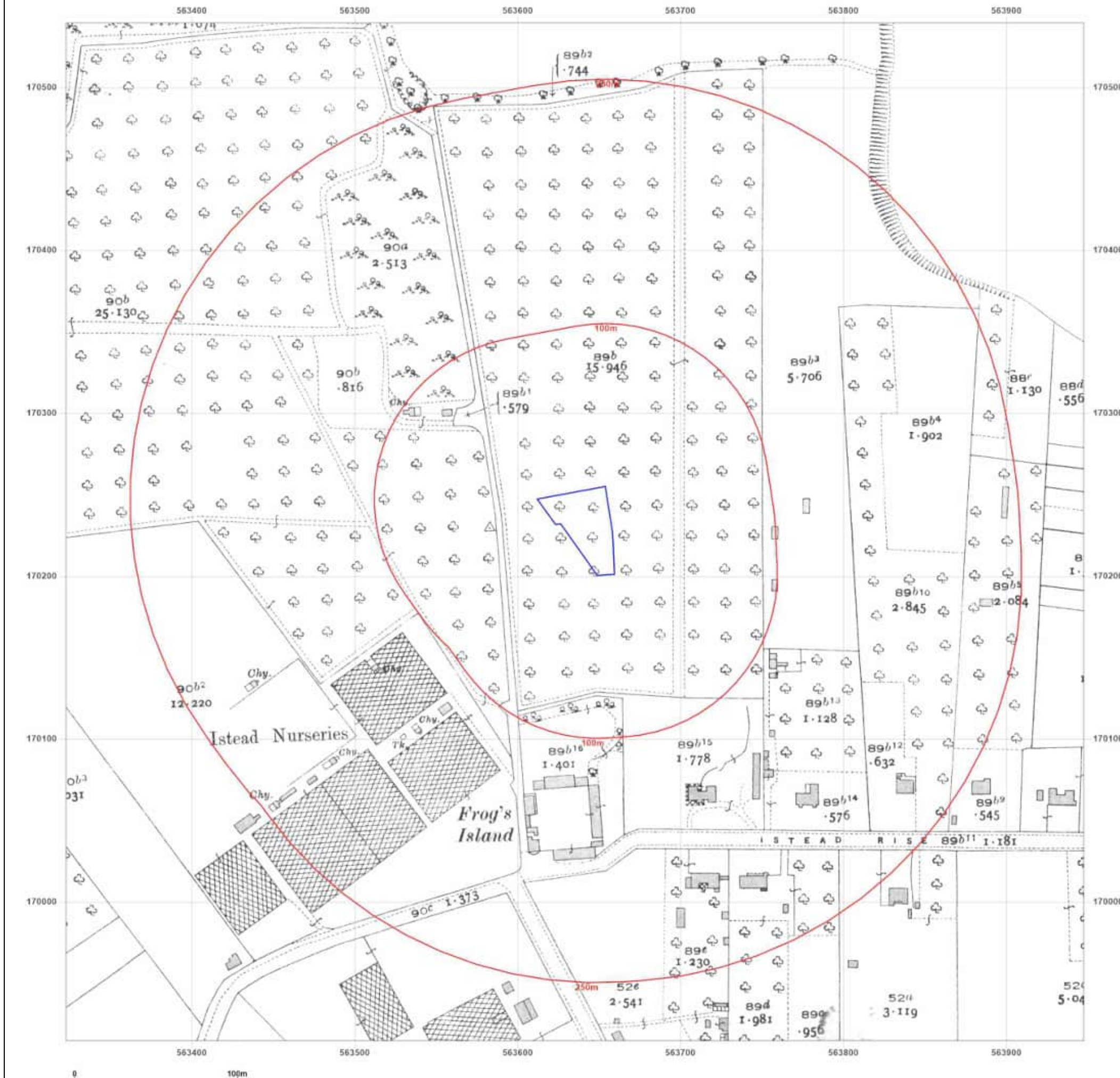


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Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 1961

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1961
Edition N/A
Copyright 1961
Levelled 1952

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1952

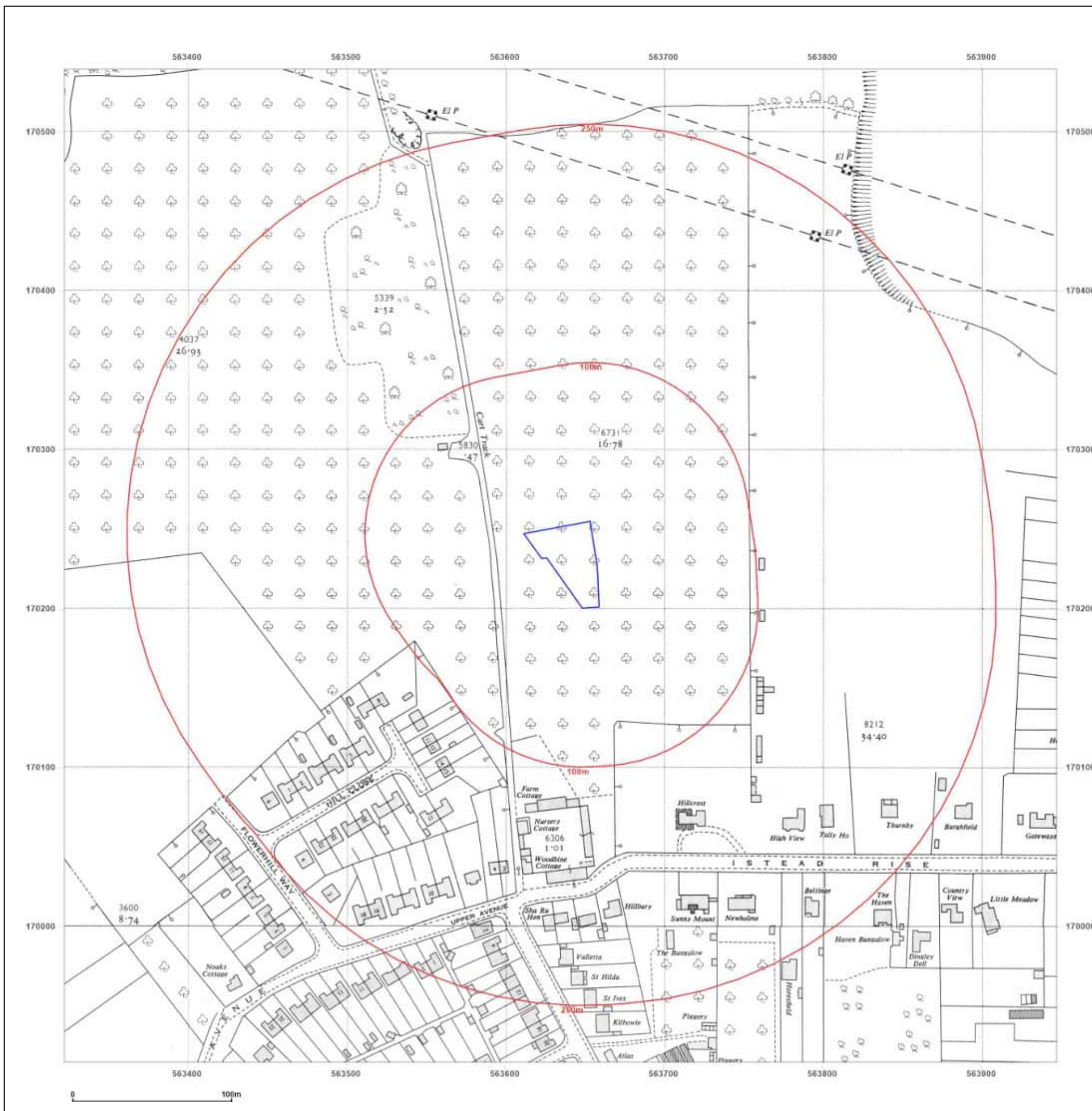


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Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

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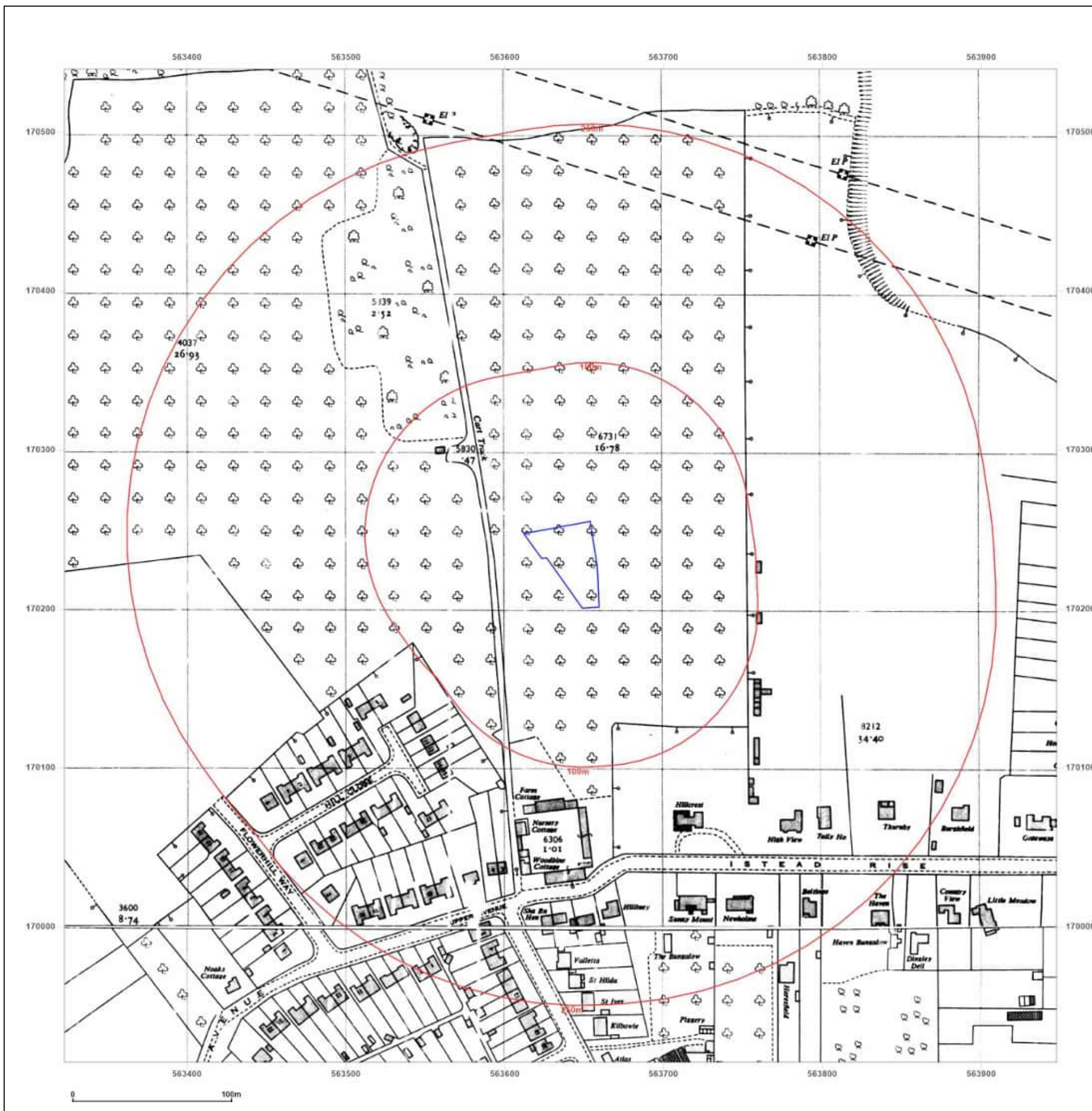


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 1966-1968

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1965
Revised 1965
Edition N/A
Copyright 1966
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Surveyed 1967
Revised 1967
Edition N/A
Copyright 1968
Levelled 1952

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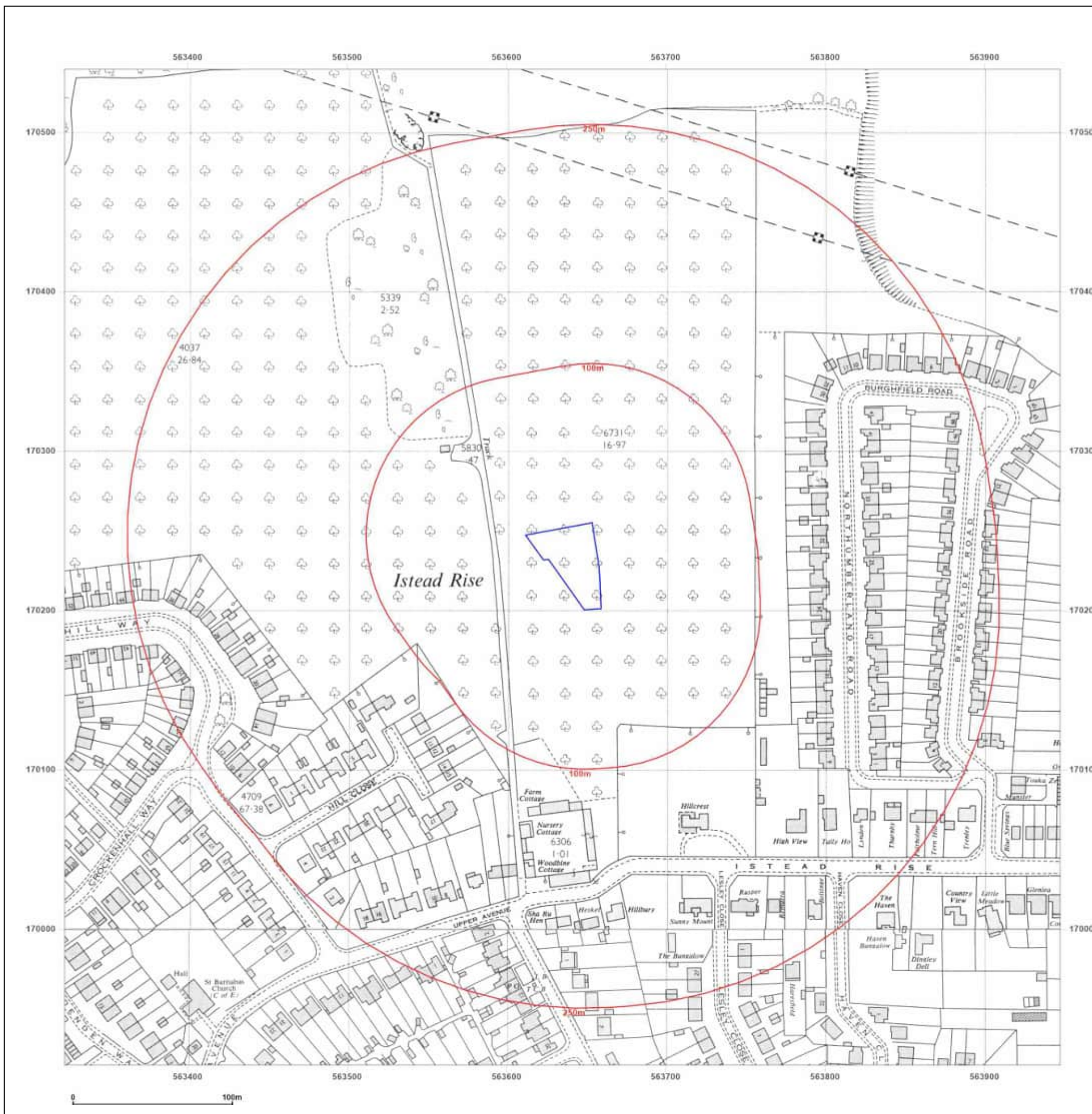


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
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Edition N/A
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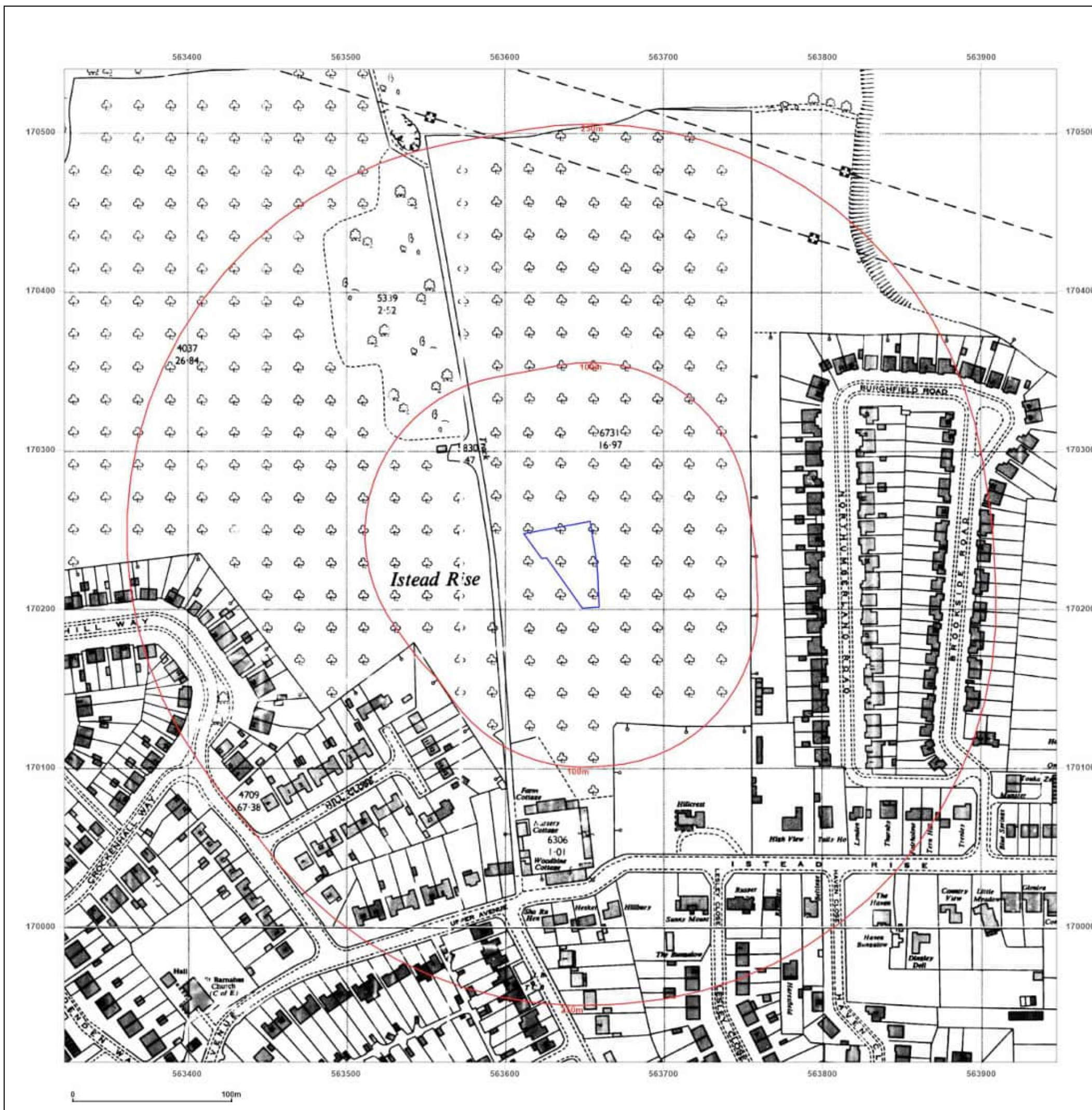


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Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 1976

Scale: 1:2,500

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Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 1976-1978

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
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Revised 1978
Edition N/A
Copyright 1978
Levelled 1952

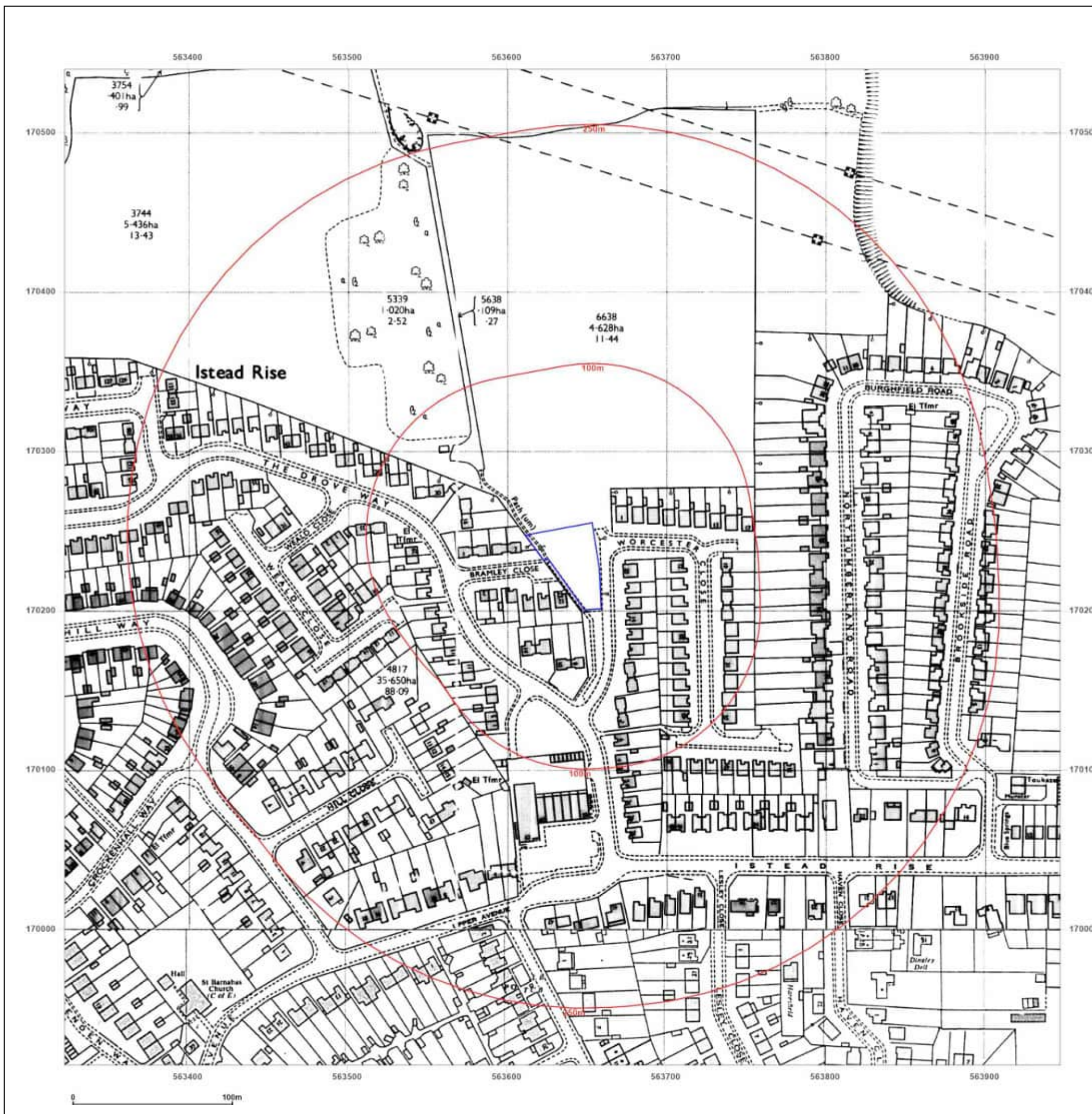


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Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 1982-1984

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1983
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Copyright 1984
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Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



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Production date: 20 December 2024

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Site Details:

LA WORCESTER CLOSE, ISTEAD
RISE, GRAVESEND, KENT, DA13
9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1865-1867

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1867
Revised 1867
Edition N/A
Copyright N/A
Levelled N/A

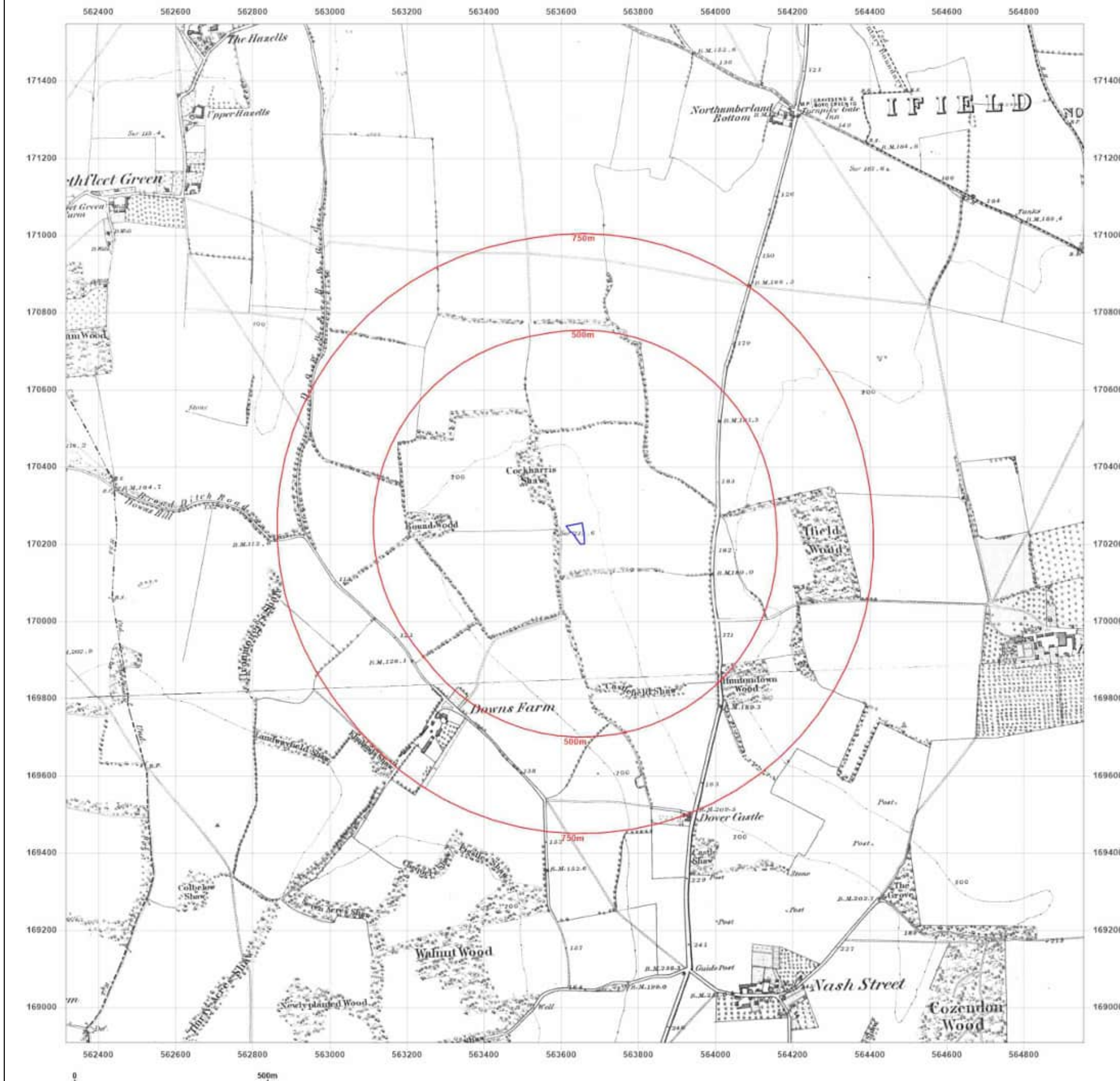


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Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

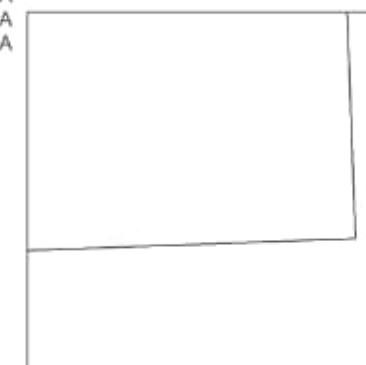
Map date: 1895

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

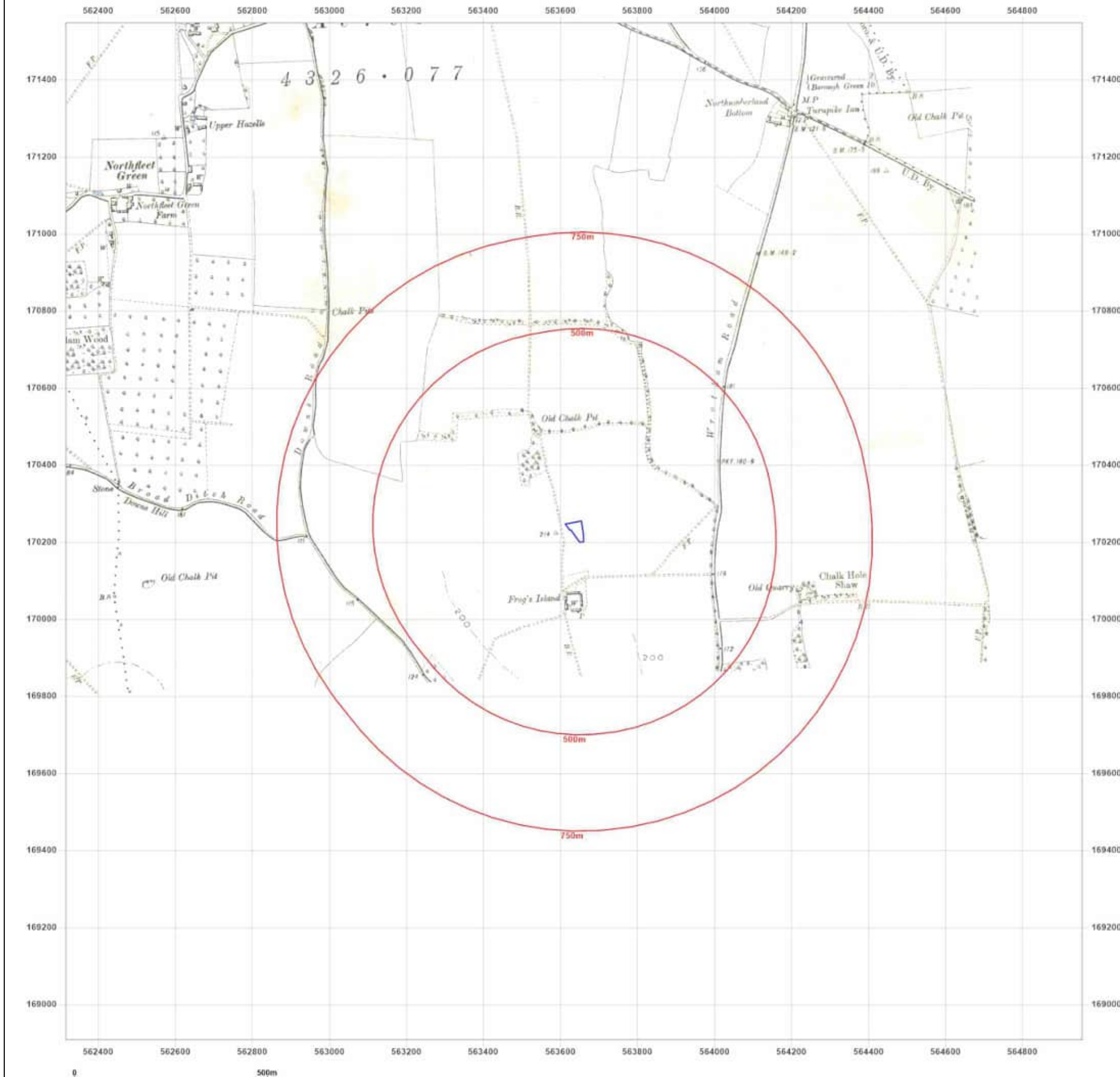


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1907

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1864
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1862
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1865
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1862
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

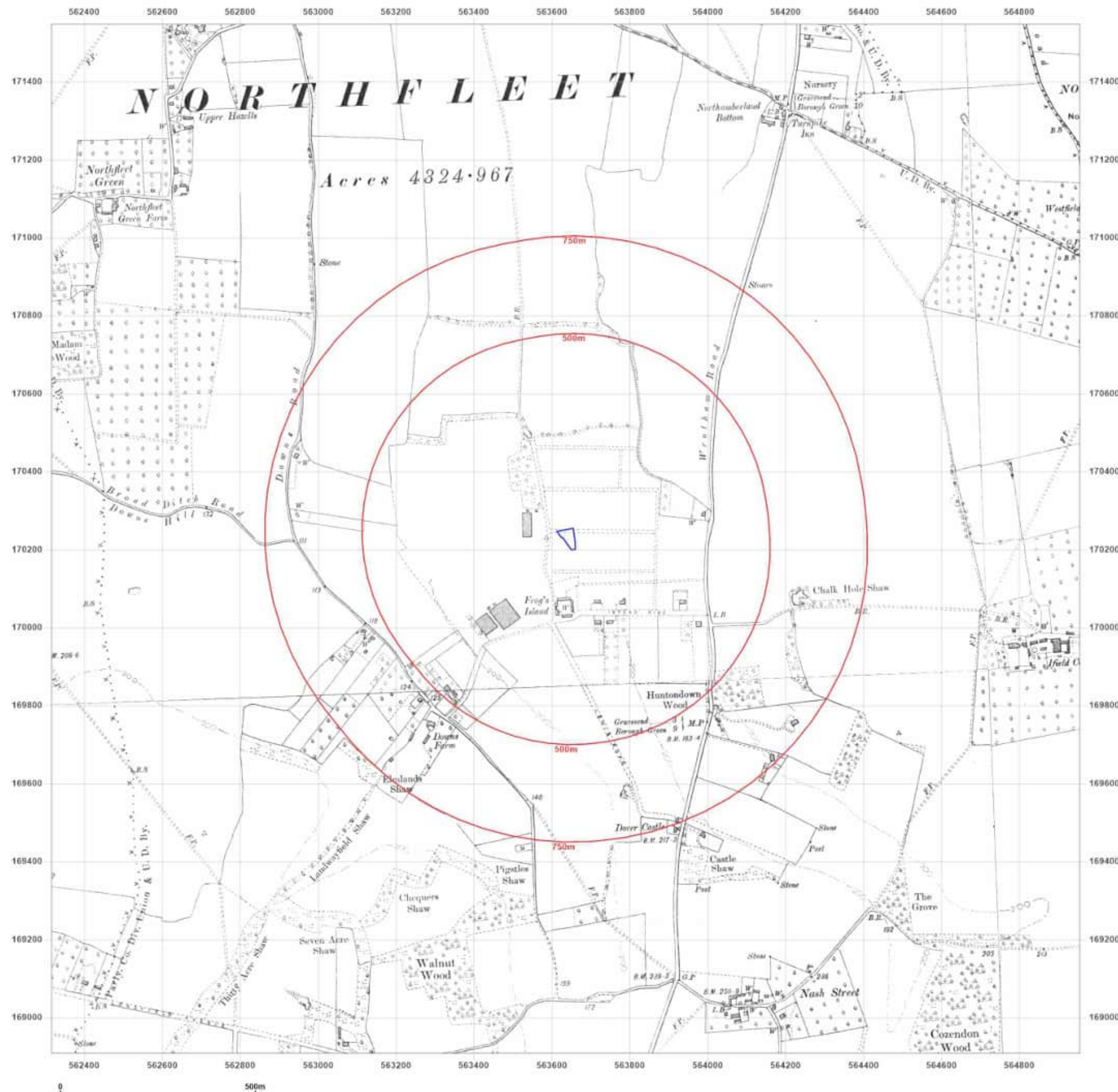


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1931

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1885
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1862
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

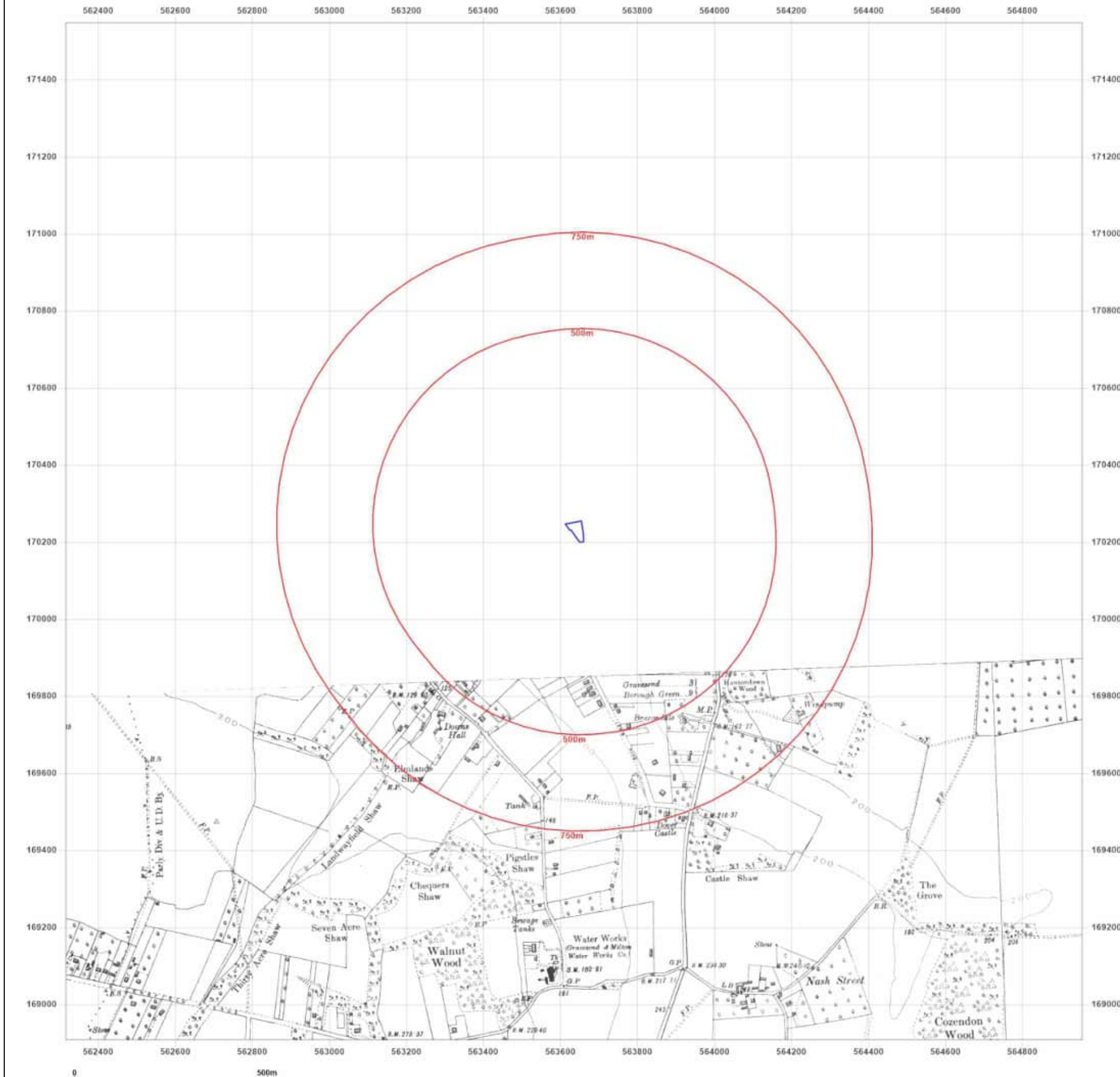


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1931-1932

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1864
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1862
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

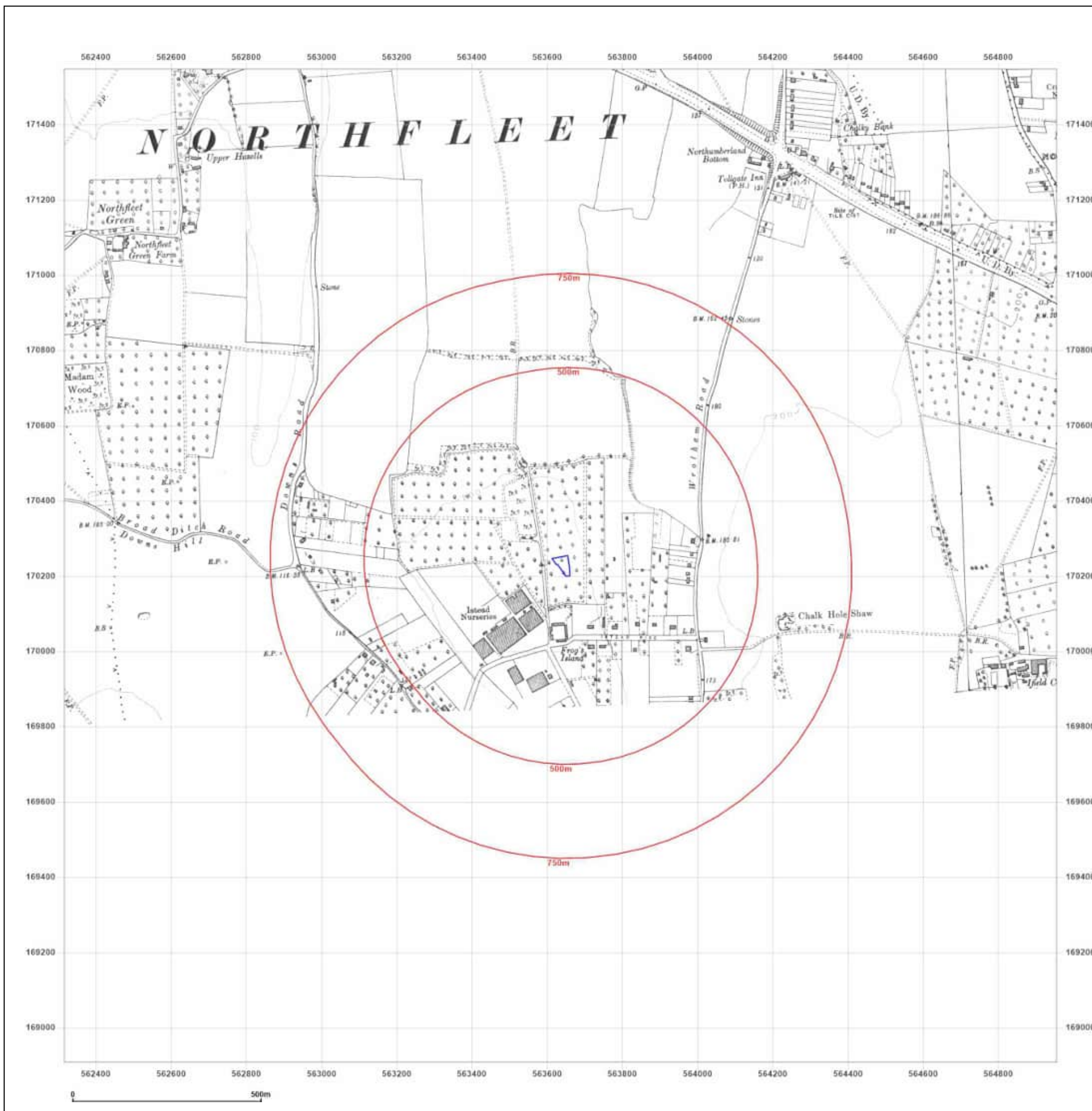


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1938-1939

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1864
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1862
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1865
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1862
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A

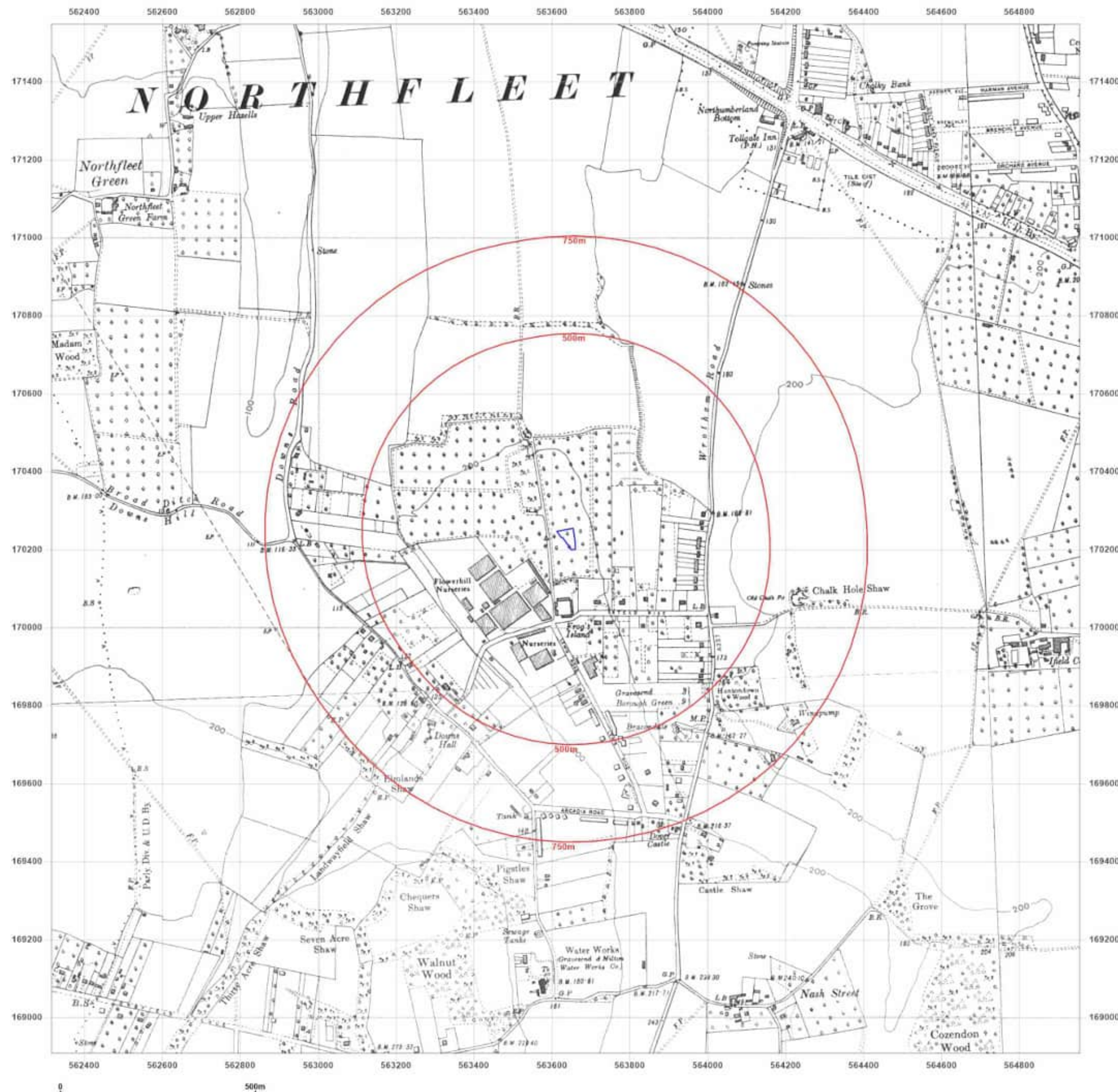


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: County Series

Map date: 1938-1939

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1864
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1865
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A



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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: Provisional

Map date: 1955

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1864
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1955
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

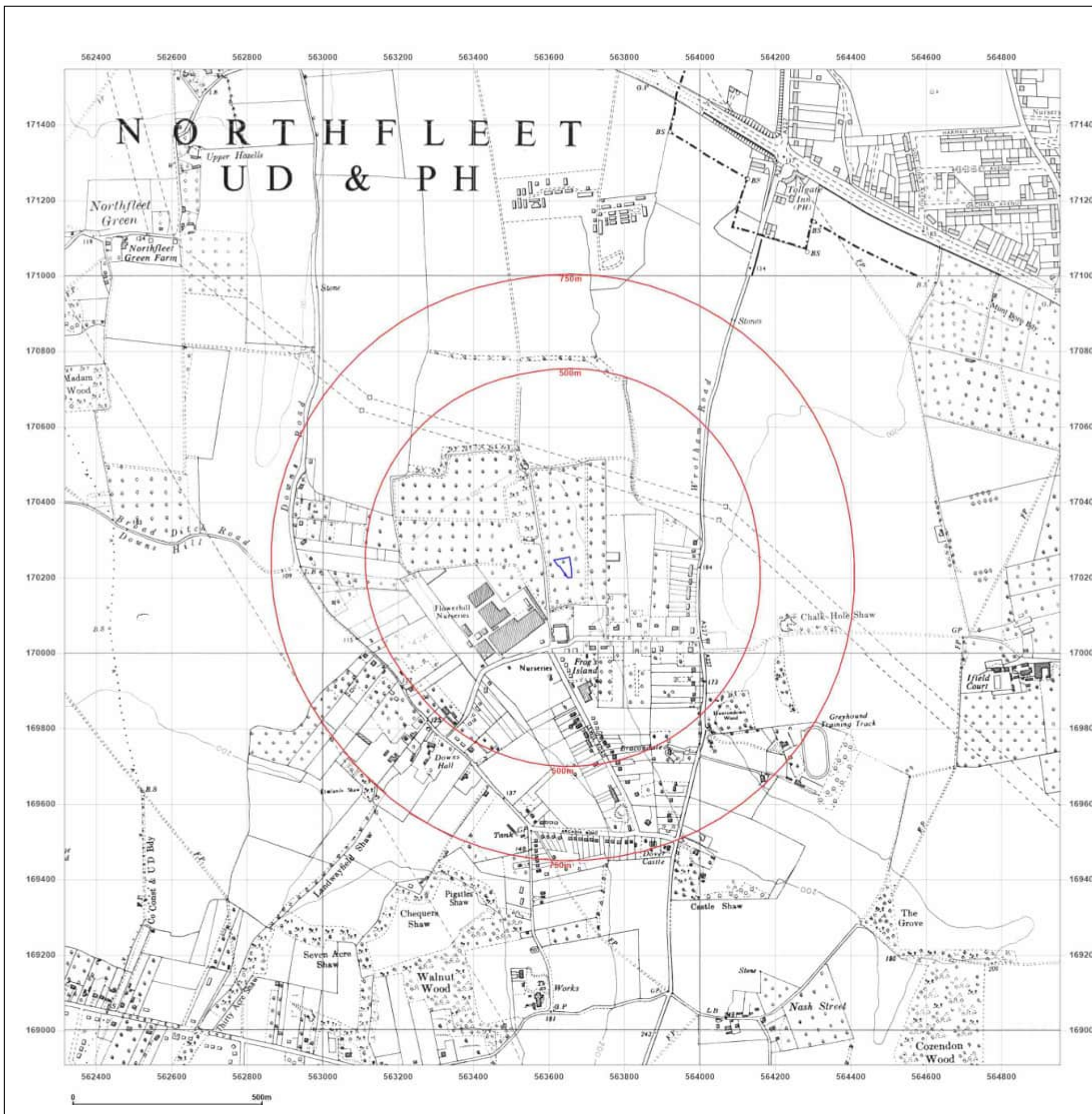


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: Provisional

Map date: 1965-1966

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1966
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1965
Revised 1965
Edition N/A
Copyright N/A
Levelled N/A

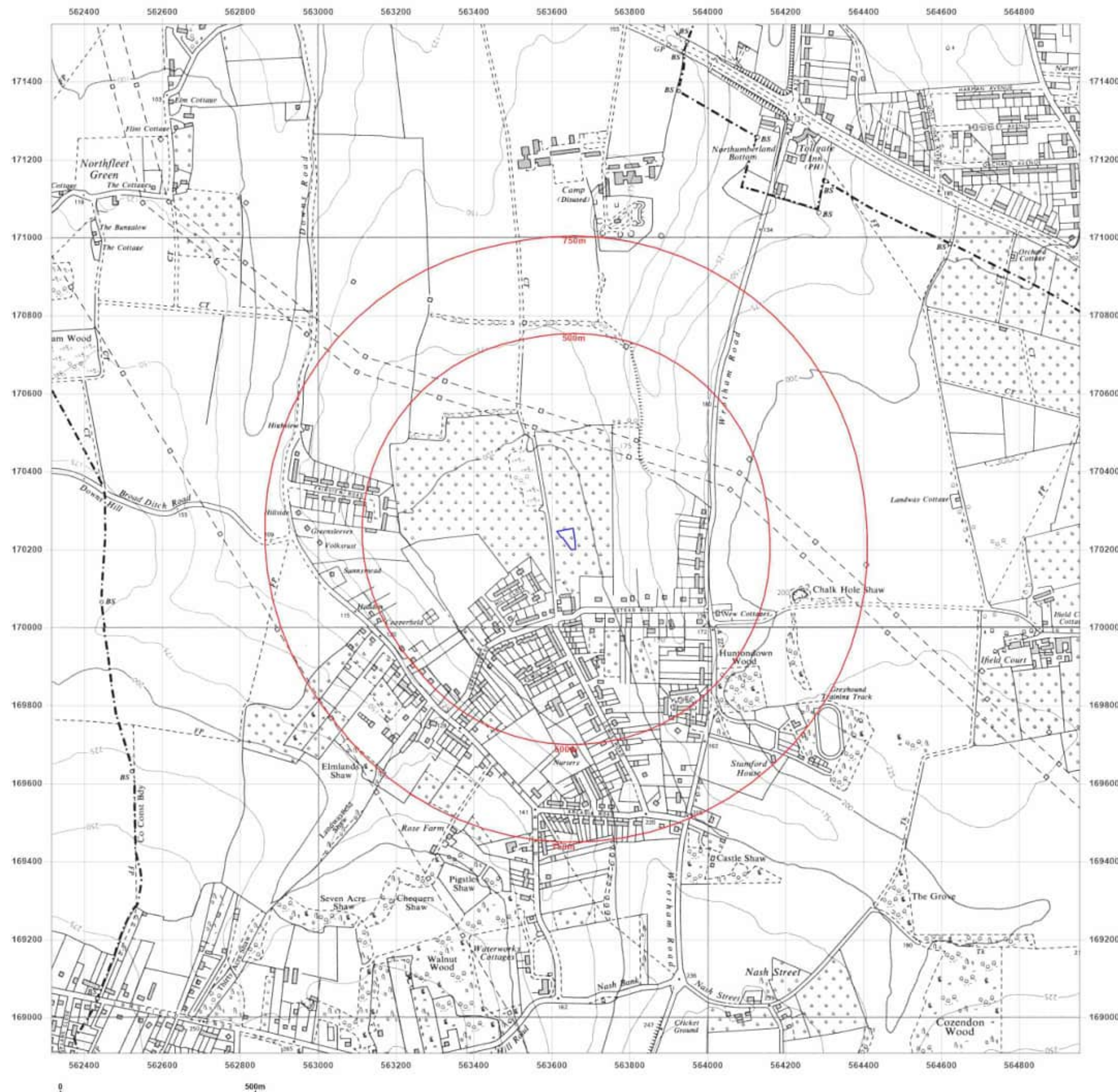


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RISE, GRAVESEND, KENT, DA13
9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 1971-1973

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1971
Revised 1971
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1973
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A

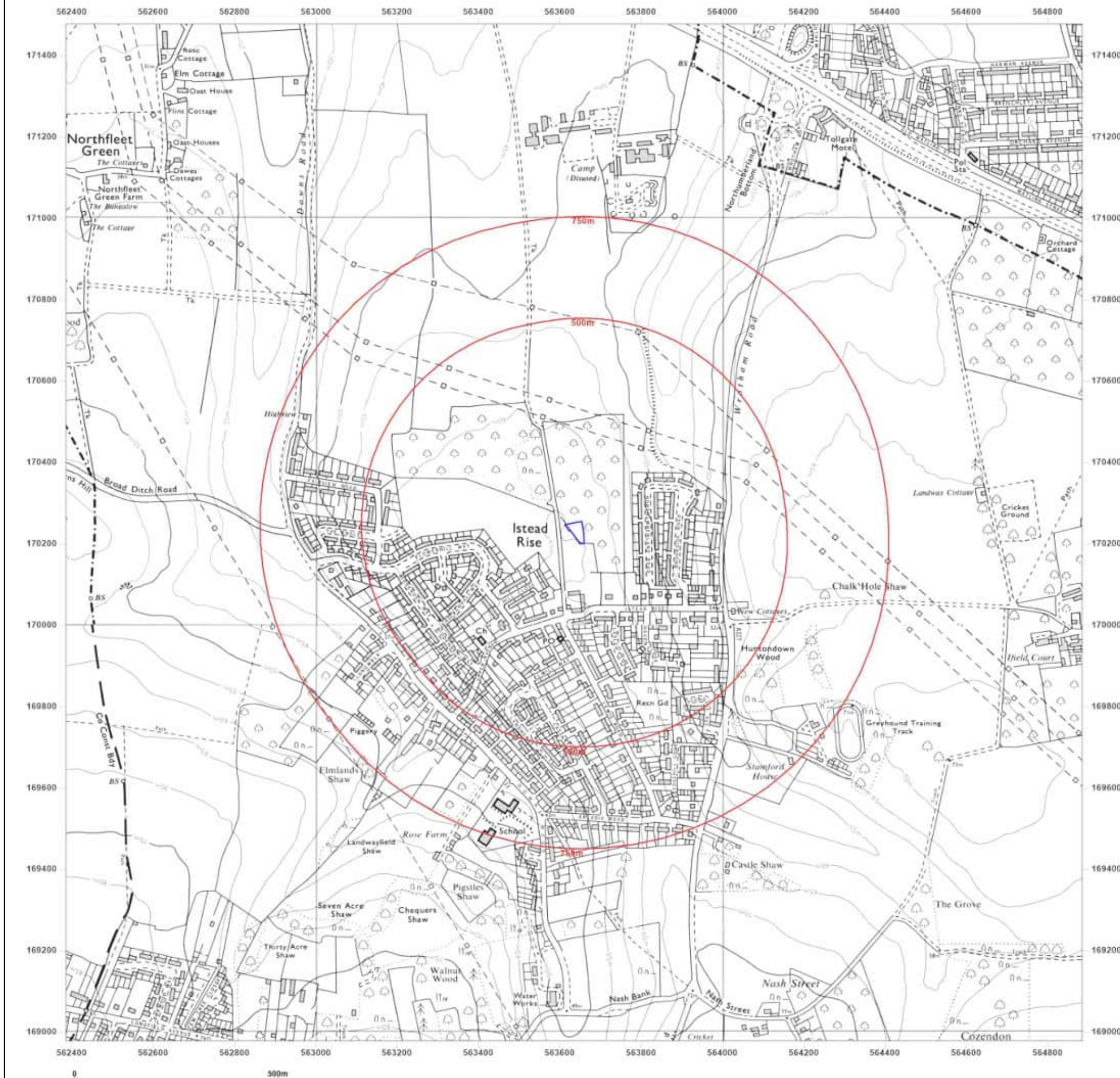


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 1977-1979

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1977
Revised 1977
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1979
Revised 1979
Edition N/A
Copyright N/A
Levelled N/A

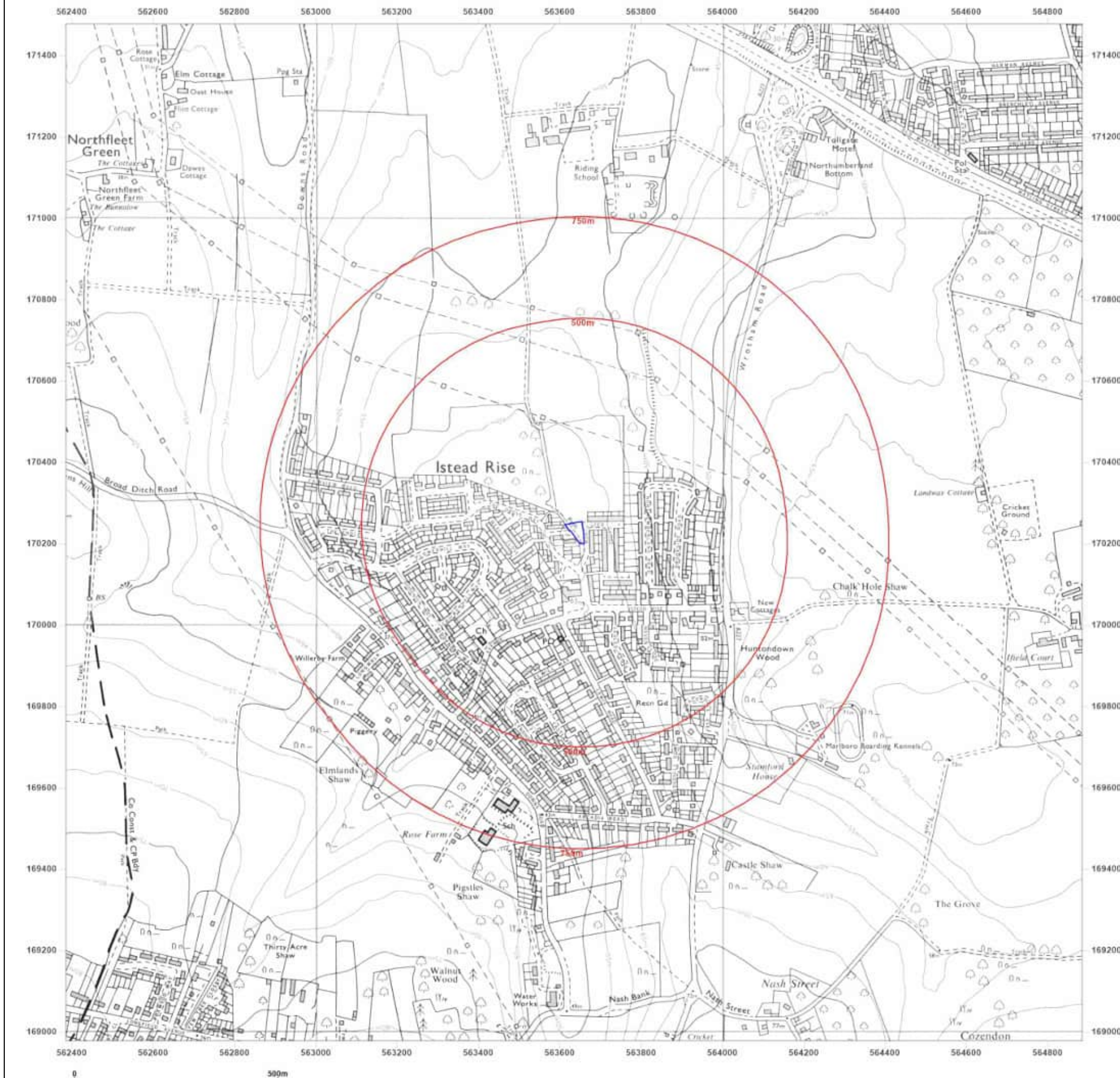


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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 1990

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1988
Revised 1990
Edition N/A
Copyright N/A
Levelled N/A

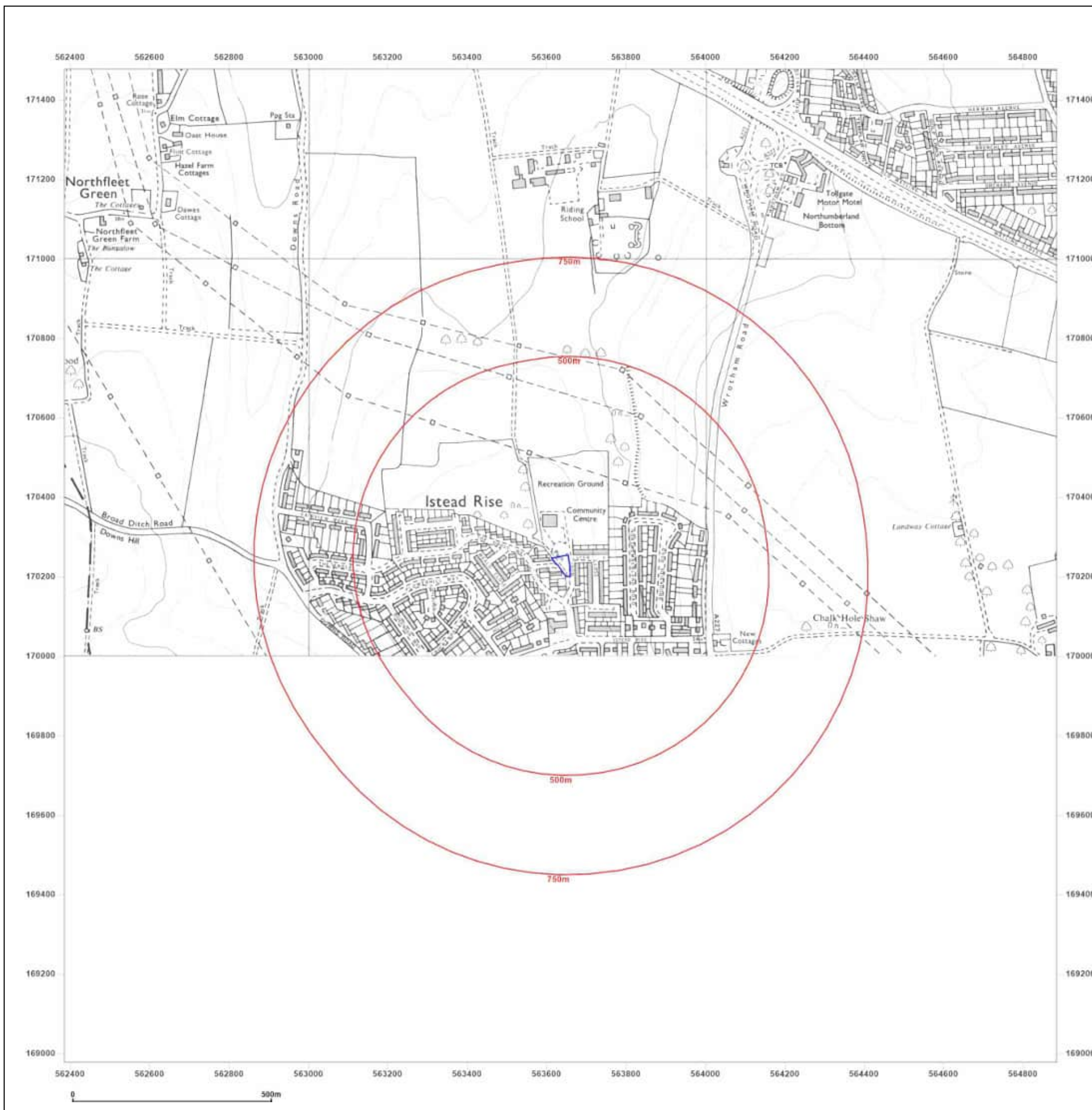


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Site Details:

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9LB

Client Ref: PH1-2024-000111
Report Ref: GS-RP7-9XW-LUV-6TR
Grid Ref: 563635, 170227

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

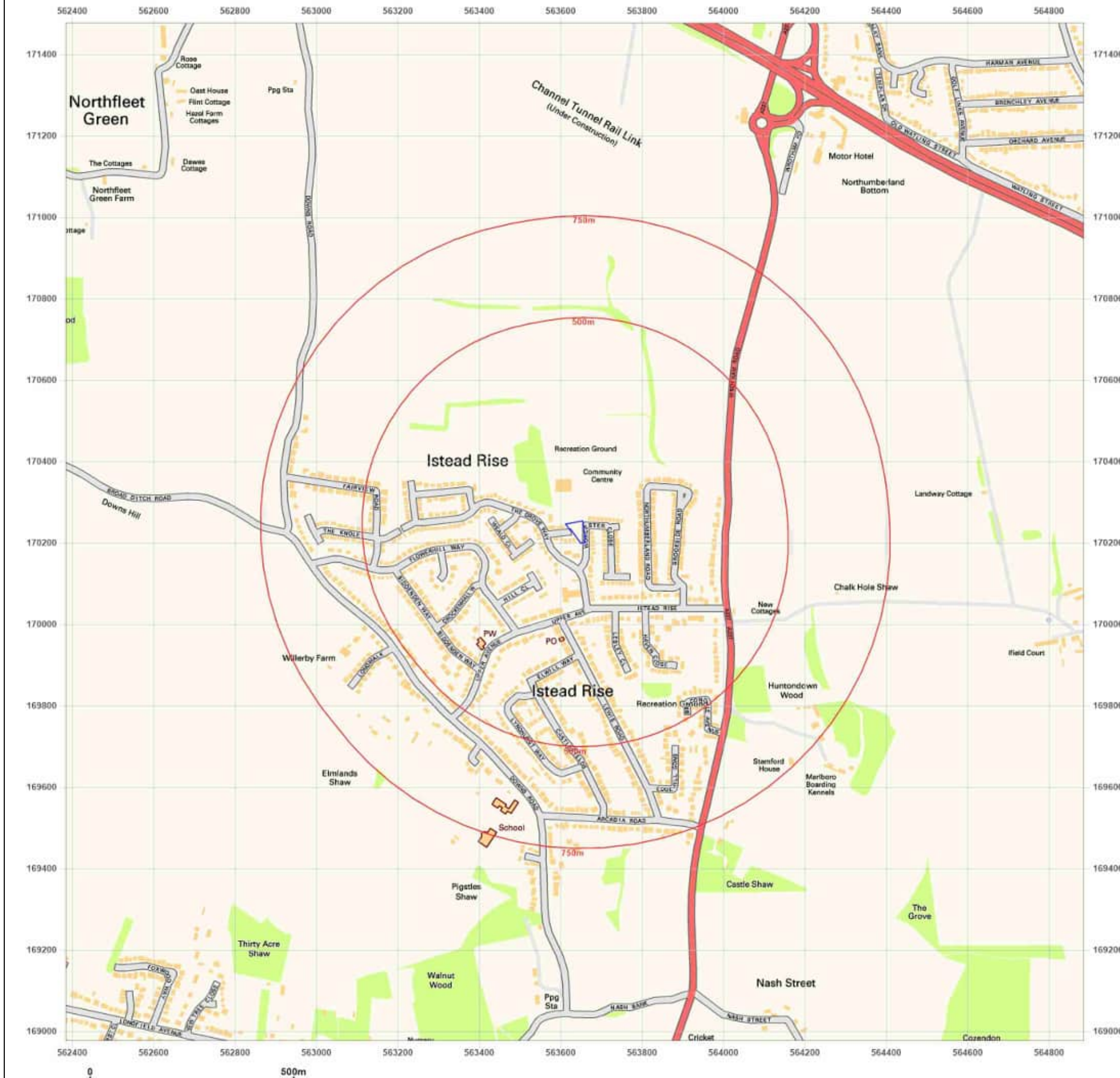


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20 APPENDIX 4 – ENVIRONMENTAL SCREENING REPORT



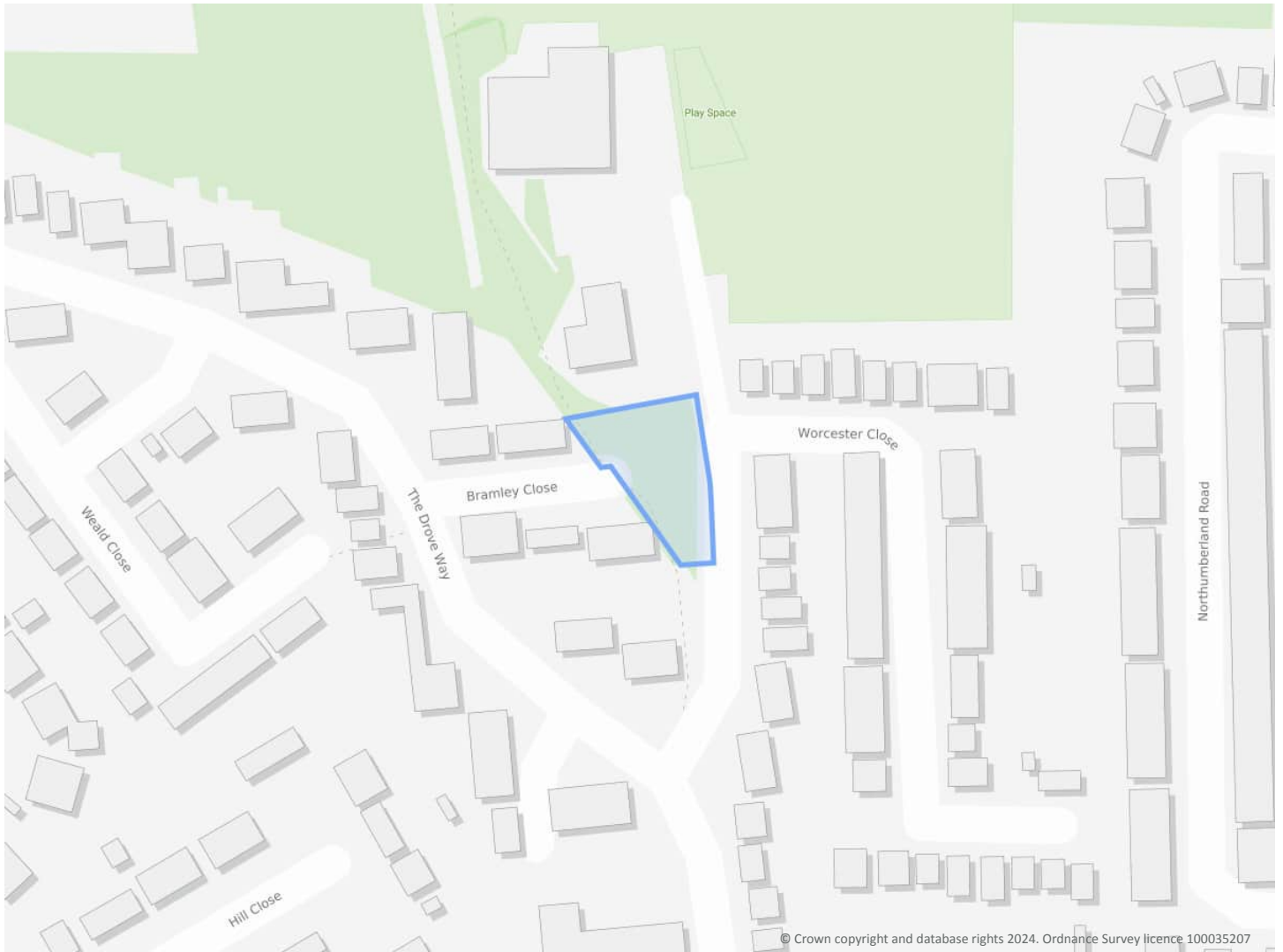
LA WORCESTER CLOSE, ISTEAD RISE, GRAVESEND, KENT, DA13 9LB

Order Details

Date: 20/12/2024
Your ref: PH1-2024-000111
Our Ref: GS-DCF-H7D-E65-9XL

Site Details

Location: 563641 170231
Area: 0.14 ha
Authority: [Gravesham Borough Council](#) ↗



Summary of findings

[p. 2 >](#) **Aerial image**

[p. 9 >](#)

OS MasterMap site plan

[p.14 >](#) [Insight User Guide](#) ↗

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	0	7	1	-
16 >	1.2 >	Historical tanks >	0	0	1	0	-
16 >	1.3 >	Historical energy features >	0	0	6	5	-
17	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
18	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
19 >	2.1 >	Historical industrial land uses >	0	0	12	1	-
20 >	2.2 >	Historical tanks >	0	0	2	0	-
20 >	2.3 >	Historical energy features >	0	0	6	6	-
21	2.4	Historical petrol stations	0	0	0	0	-
21	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	0	0	-
22	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
23	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
23	3.5	Historical waste sites	0	0	0	0	-
23	3.6	Licensed waste sites	0	0	0	0	-
23 >	3.7 >	Waste exemptions >	0	4	4	1	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
25 >	4.1 >	Recent industrial land uses >	0	0	6	-	-
26	4.2	Current or recent petrol stations	0	0	0	0	-
26	4.3	Electricity cables	0	0	0	0	-
26 >	4.4 >	Gas pipelines >	0	0	0	2	-
27	4.5	Sites determined as Contaminated Land	0	0	0	0	-



27	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
27	4.7	Regulated explosive sites	0	0	0	0	-
27	4.8	Hazardous substance storage/usage	0	0	0	0	-
28	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
28	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
28 >	4.11 >	<u>Licensed pollutant release (Part A(2)/B) ></u>	0	0	1	0	-
28	4.12	Radioactive Substance Authorisations	0	0	0	0	-
29	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
29	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
29	4.15	Pollutant release to public sewer	0	0	0	0	-
29	4.16	List 1 Dangerous Substances	0	0	0	0	-
29	4.17	List 2 Dangerous Substances	0	0	0	0	-
30	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
30	4.19	Pollution inventory substances	0	0	0	0	-
30	4.20	Pollution inventory waste transfers	0	0	0	0	-
30	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	<u>Hydrogeology ></u>	On site	0-50m	50-250m	250-500m	500-2000m
31 >	5.1 >	<u>Superficial aquifer ></u>	Identified (within 500m)				
33 >	5.2 >	<u>Bedrock aquifer ></u>	Identified (within 500m)				
35 >	5.3 >	<u>Groundwater vulnerability ></u>	Identified (within 50m)				
36 >	5.4 >	<u>Groundwater vulnerability- soluble rock risk ></u>	Identified (within 0m)				
36	5.5	Groundwater vulnerability- local information	None (within 0m)				
37 >	5.6 >	<u>Groundwater abstractions ></u>	0	0	0	0	7
39	5.7	Surface water abstractions	0	0	0	0	0
40 >	5.8 >	<u>Potable abstractions ></u>	0	0	0	0	3
41 >	5.9 >	<u>Source Protection Zones ></u>	1	1	0	2	-
41	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	<u>Hydrology ></u>	On site	0-50m	50-250m	250-500m	500-2000m
42	6.1	Water Network (OS MasterMap)	0	0	0	-	-



42	6.2	Surface water features	0	0	0	-	-
43 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
43	6.4	WFD Surface water bodies	0	0	0	-	-
43 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
45	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
45	7.2	Historical Flood Events	0	0	0	-	-
45	7.3	Flood Defences	0	0	0	-	-
46	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
46	7.5	Flood Storage Areas	0	0	0	-	-
47	7.6	Flood Zone 2	None (within 50m)				
47	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
48	8.1	Surface water flooding	Negligible (within 50m)				
Page	Section	Groundwater flooding >					
49 >	9.1 >	Groundwater flooding >	Negligible (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
50	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
51	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
51	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
51	10.4	Special Protection Areas (SPA)	0	0	0	0	0
51	10.5	National Nature Reserves (NNR)	0	0	0	0	0
52	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
52 >	10.7 >	Designated Ancient Woodland >	0	0	0	0	7
52	10.8	Biosphere Reserves	0	0	0	0	0
53	10.9	Forest Parks	0	0	0	0	0
53	10.10	Marine Conservation Zones	0	0	0	0	0
53 >	10.11 >	Green Belt >	1	0	0	0	1
53	10.12	Proposed Ramsar sites	0	0	0	0	0



54	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
54	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
54	10.15	Nitrate Sensitive Areas	0	0	0	0	0
54 >	10.16 >	Nitrate Vulnerable Zones >	1	0	0	1	1
56 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
57	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
58	11.1	World Heritage Sites	0	0	0	-	-
58	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
58	11.3	National Parks	0	0	0	-	-
58	11.4	Listed Buildings	0	0	0	-	-
59	11.5	Conservation Areas	0	0	0	-	-
59	11.6	Scheduled Ancient Monuments	0	0	0	-	-
59	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
60 >	12.1 >	Agricultural Land Classification >	Grade 3 (within 250m)				
61	12.2	Open Access Land	0	0	0	-	-
61	12.3	Tree Felling Licences	0	0	0	-	-
61	12.4	Environmental Stewardship Schemes	0	0	0	-	-
61 >	12.5 >	Countryside Stewardship Schemes >	0	0	1	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
62 >	13.1 >	Priority Habitat Inventory >	1	0	4	-	-
63	13.2	Habitat Networks	0	0	0	-	-
63	13.3	Open Mosaic Habitat	0	0	0	-	-
63	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
64 >	14.1 >	10k Availability >	Identified (within 500m)				
65 >	14.2 >	Artificial and made ground (10k) >	1	1	4	1	-
67 >	14.3 >	Superficial geology (10k) >	0	0	1	2	-



68	14.4	Landslip (10k)	0	0	0	0	-
69 >	14.5 >	Bedrock geology (10k) >	1	0	2	0	-
70	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
71 >	15.1 >	50k Availability >	Identified (within 500m)				
72 >	15.2 >	Artificial and made ground (50k) >	0	0	3	0	-
73	15.3	Artificial ground permeability (50k)	0	0	-	-	-
74 >	15.4 >	Superficial geology (50k) >	0	0	1	0	-
75	15.5	Superficial permeability (50k)	None (within 50m)				
75	15.6	Landslip (50k)	0	0	0	0	-
75	15.7	Landslip permeability (50k)	None (within 50m)				
76 >	15.8 >	Bedrock geology (50k) >	1	0	1	0	-
77 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
77	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
78 >	16.1 >	BGS Boreholes >	0	0	2	-	-
Page	Section	Natural ground subsidence >					
79 >	17.1 >	Shrink swell clays >	Negligible (within 50m)				
80 >	17.2 >	Running sands >	Negligible (within 50m)				
81 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
82 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
83 >	17.5 >	Landslides >	Negligible (within 50m)				
84 >	17.6 >	Ground dissolution of soluble rocks >	Very low (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
86 >	18.1 >	BritPits >	0	0	1	1	-
87 >	18.2 >	Surface ground workings >	0	0	6	-	-
88	18.3	Underground workings	0	0	0	0	0
88	18.4	Underground mining extents	0	0	0	0	-
88	18.5	Historical Mineral Planning Areas	0	0	0	0	-

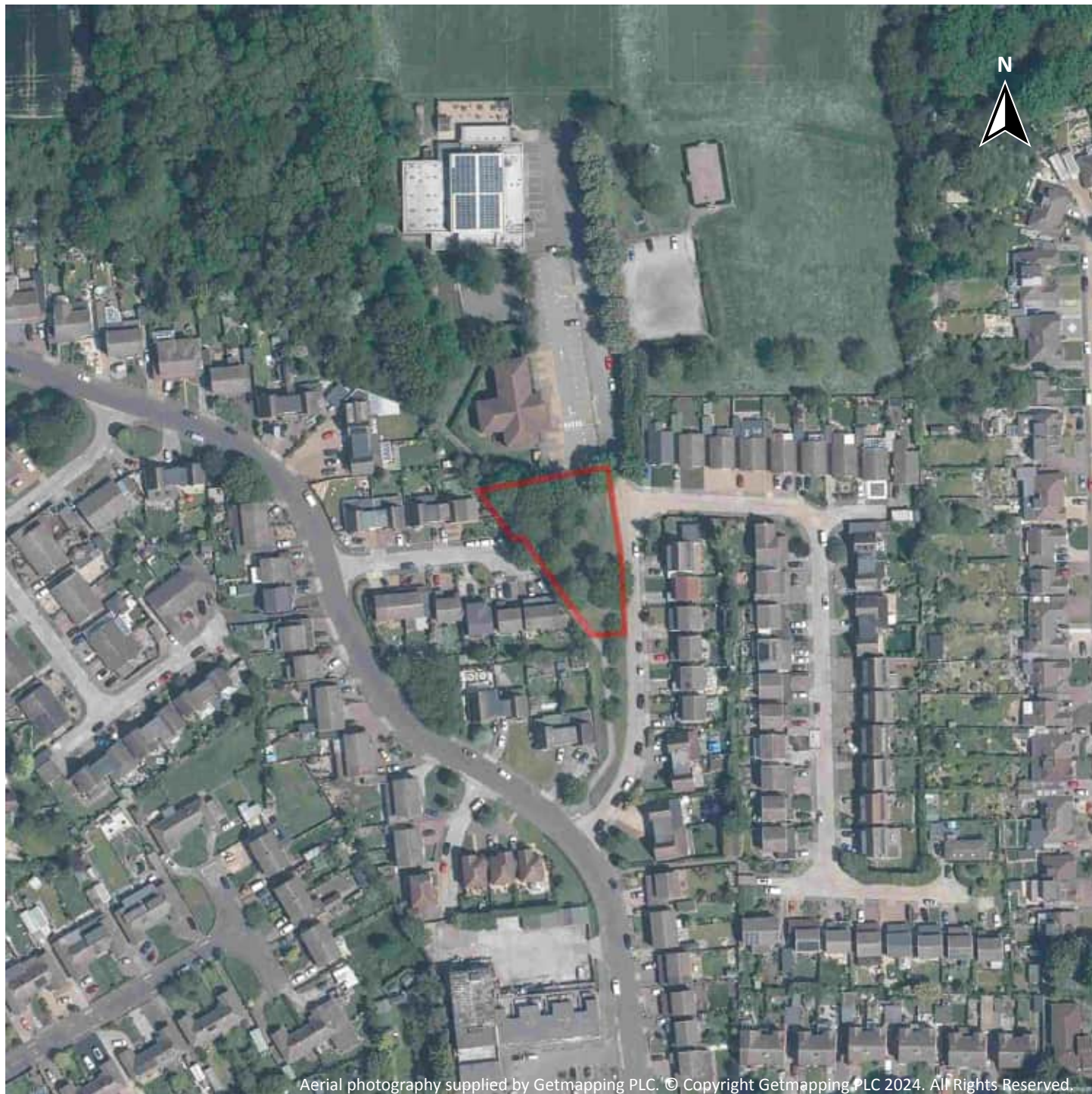


88 >	18.6 >	Non-coal mining >	1	0	3	0	4
89	18.7	JPB mining areas	None (within 0m)				
90	18.8	The Coal Authority non-coal mining	0	0	0	0	-
90 >	18.9 >	Researched mining >	0	0	2	1	-
90	18.10	Mining record office plans	0	0	0	0	-
91	18.11	BGS mine plans	0	0	0	0	-
91	18.12	Coal mining	None (within 0m)				
91	18.13	Brine areas	None (within 0m)				
91	18.14	Gypsum areas	None (within 0m)				
91	18.15	Tin mining	None (within 0m)				
92	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes >	On site	0-50m	50-250m	250-500m	500-2000m
93	19.1	Natural cavities	0	0	0	0	-
94 >	19.2 >	Mining cavities >	0	0	0	1	1
94	19.3	Reported recent incidents	0	0	0	0	-
94	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
95 >	20.1 >	Radon >	Between 1% and 3% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
97 >	21.1 >	BGS Estimated Background Soil Chemistry >	1	0	-	-	-
97	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
97	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
98	22.1	Underground railways (London)	0	0	0	-	-
98	22.2	Underground railways (Non-London)	0	0	0	-	-
98	22.3	Railway tunnels	0	0	0	-	-
98	22.4	Historical railway and tunnel features	0	0	0	-	-
98	22.5	Royal Mail tunnels	0	0	0	-	-
99	22.6	Historical railways	0	0	0	-	-



99	22.7	Railways	0	0	0	-	-
99	22.8	Crossrail 2	0	0	0	0	-
99	22.9	HS2	0	0	0	0	-

Recent aerial photograph



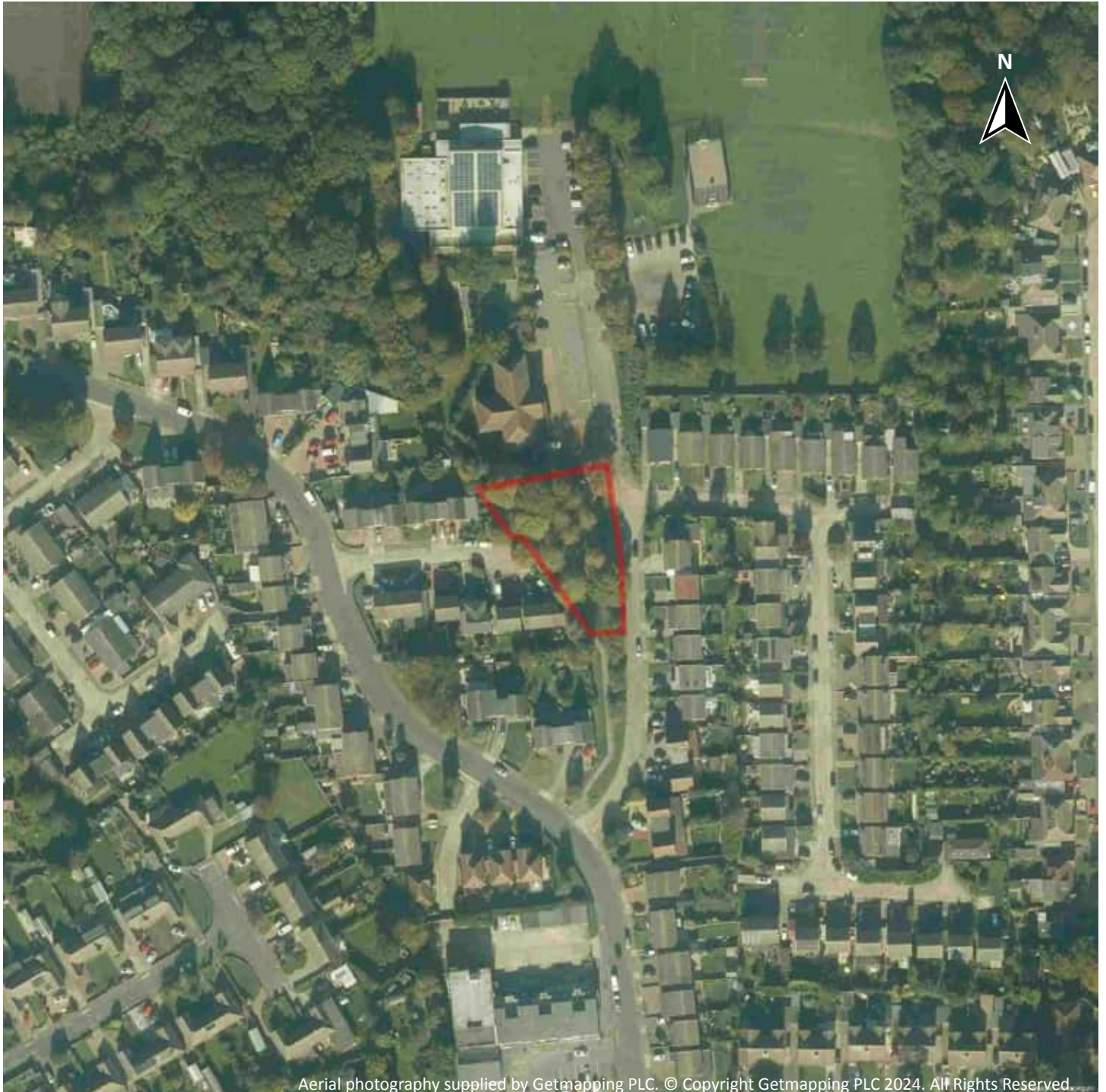
Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2024. All Rights Reserved.

Capture Date: 31/05/2021

Site Area: 0.14ha



Recent site history - 2018 aerial photograph



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Capture Date: 21/10/2018

Site Area: 0.14ha



Recent site history - 2012 aerial photograph



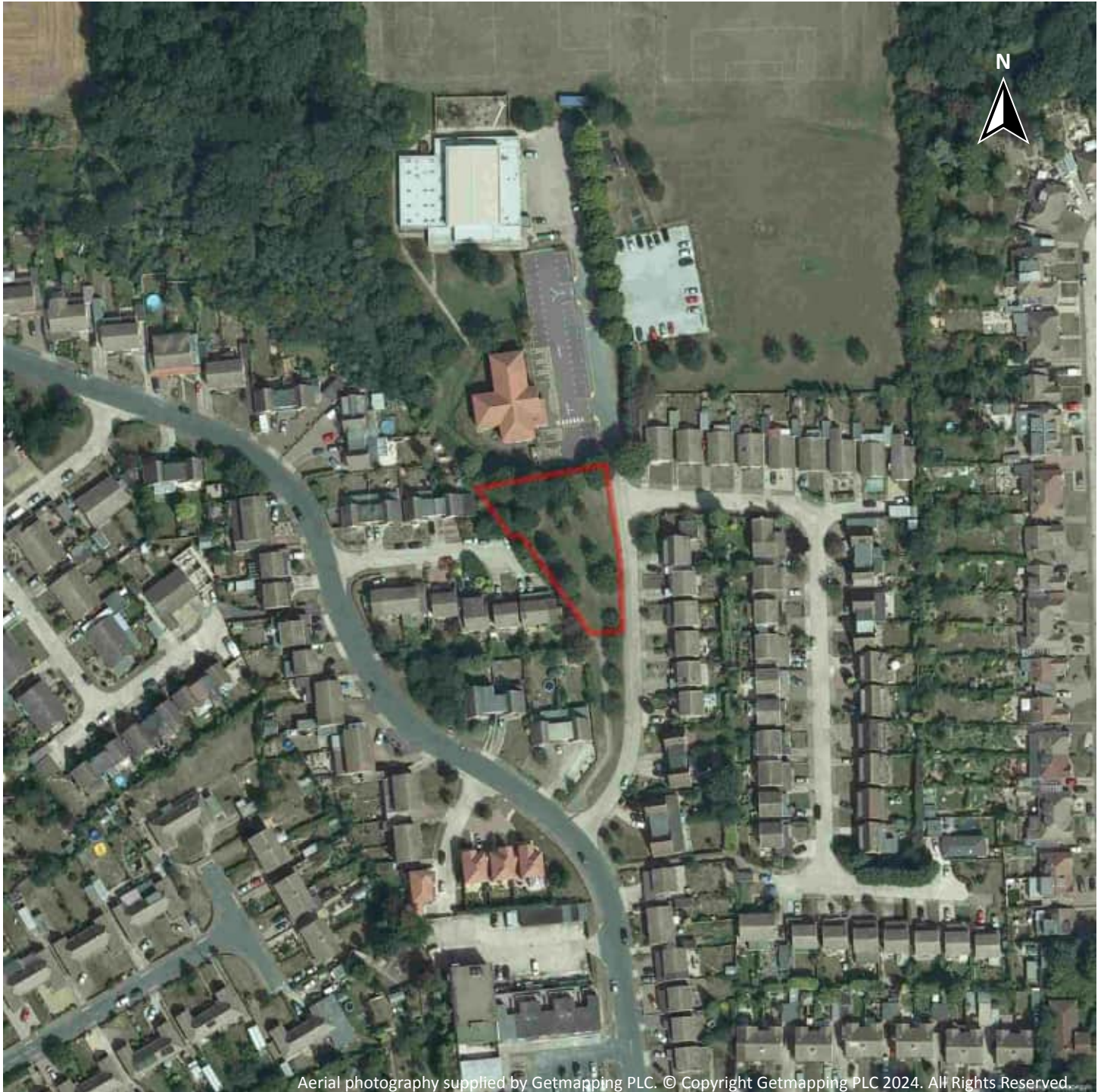
Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2024. All Rights Reserved.

Capture Date: 25/05/2012

Site Area: 0.14ha



Recent site history - 2009 aerial photograph



Capture Date: 23/08/2009

Site Area: 0.14ha



Recent site history - 1999 aerial photograph

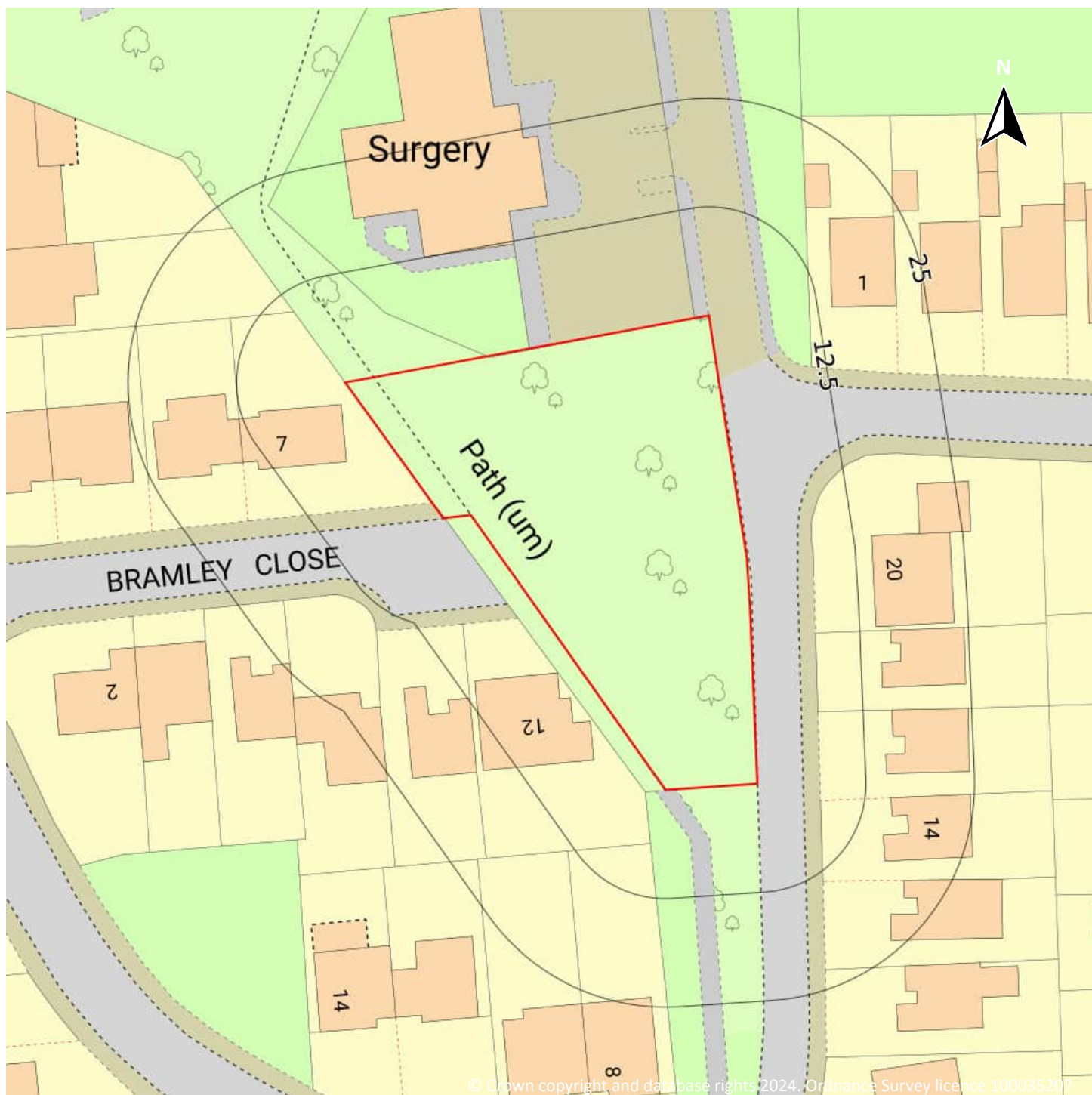


Capture Date: 03/09/1999

Site Area: 0.14ha



OS MasterMap site plan



Site Area: 0.14ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

1.1 Historical industrial land uses

Records within 500m

8

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
B	101m SW	Nurseries	1931 - 1938	2309623



ID	Location	Land use	Dates present	Group ID
B	101m SW	Nurseries	1955	2293440
B	102m SW	Nurseries	1938	2318829
D	203m S	Nurseries	1938	2260198
D	206m S	Nurseries	1955	2290248
1	238m NE	Unspecified Ground Workings	1966 - 1990	2205760
2	246m N	Old Chalk Pit	1895 - 1898	2218827
3	429m S	Nursery	1965	2179638

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

1

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
C	153m SW	Unspecified Tank	1933 - 1938	427367

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

11

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on [page 15 >](#)



ID	Location	Land use	Dates present	Group ID
A	80m W	Electricity Transformer	1976	276964
A	83m W	Electricity Substation	1982	272588
C	119m S	Electricity Transformer	1976	276965
C	130m SW	Electricity Substation	1982	272589
E	207m NE	Electricity Substation	1982	272586
E	208m NE	Electricity Transformer	1976	276968
F	301m SW	Electricity Transformer	1976	276966
F	303m SW	Electricity Substation	1982	272590
G	452m W	Electricity Substation	1982	272587
G	454m W	Electricity Transformer	1976	276969
4	465m SW	Electricity Substation	1984 - 1995	316371

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0
----------------------------	----------

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0
----------------------------	----------

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



1.6 Historical military land

Records within 500m

0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

2.1 Historical industrial land uses

Records within 500m

13

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on [page 19](#) >

ID	Location	Land Use	Date	Group ID
B	101m SW	Nurseries	1938	2309623
B	101m SW	Nurseries	1931	2309623
B	101m SW	Nurseries	1955	2293440



ID	Location	Land Use	Date	Group ID
B	102m SW	Nurseries	1938	2318829
D	203m S	Nurseries	1938	2260198
D	206m S	Nurseries	1955	2290248
F	238m NE	Unspecified Ground Workings	1990	2205760
F	238m NE	Unspecified Ground Workings	1977	2205760
F	238m NE	Unspecified Ground Workings	1971	2205760
F	238m NE	Unspecified Ground Workings	1966	2205760
G	246m N	Old Chalk Pit	1895	2218827
G	250m N	Old Chalk Pit	1898	2218827
1	429m S	Nursery	1965	2179638

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	2
----------------------------	----------

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on [page 19 >](#)

ID	Location	Land Use	Date	Group ID
C	153m SW	Unspecified Tank	1938	427367
C	153m SW	Unspecified Tank	1933	427367

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	12
----------------------------	-----------

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on [page 19 >](#)



ID	Location	Land Use	Date	Group ID
A	80m W	Electricity Transformer	1976	276964
A	83m W	Electricity Substation	1982	272588
C	119m S	Electricity Transformer	1976	276965
C	130m SW	Electricity Substation	1982	272589
E	207m NE	Electricity Substation	1982	272586
E	208m NE	Electricity Transformer	1976	276968
H	301m SW	Electricity Transformer	1976	276966
H	303m SW	Electricity Substation	1982	272590
I	452m W	Electricity Substation	1982	272587
I	454m W	Electricity Transformer	1976	276969
J	465m SW	Electricity Substation	1995	316371
J	466m SW	Electricity Substation	1984	316371

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



— Site Outline
Search buffers in metres (m)
● Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m**0**

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m**0**

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m**0**

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m**0**

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m**9**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on [page 22 >](#)

ID	Location	Site	Reference	Category	Sub-Category	Description
A	22m N	Worcester Close, Istead Rise, Gravesend, Da13 9lb	WEX399008	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal



ID	Location	Site	Reference	Category	Sub-Category	Description
A	22m N	Worcester Close, Istead Rise, Gravesend, Da13 9Lb	WEX131666	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	22m N	Worcester Close, Istead Rise, Gravesend, Da13 9Lb	WEX271516	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	23m N	Istead Rise Surgery Worcester Close Gravesend Kent Da13 9Lb	EPR/KF0603TU /A001	Treating waste exemption	Non-agricultural waste only	Sorting and de-naturing of controlled drugs for disposal
B	120m S	54, Istead Rise, Gravesend, Da13 9jf	WEX150671	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	120m S	54, Istead Rise, Gravesend, Da13 9jf	WEX101969	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	120m S	54, Istead Rise, Gravesend, Da13 9jf	WEX001537	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
1	188m S	Istead Rise Pharmacy 54 Istead Rise Gravesend Kent Da13 9jf	EPR/DE5452ET /A001	Treating waste exemption	Non-agricultural waste only	Sorting and de-naturing of controlled drugs for disposal
2	483m N	-	WEX251369	Storing waste exemption	On a farm	Storage of sludge

This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- Gas pipelines
- Licensed pollutant release (Part A(2)/B)

4.1 Recent industrial land uses

Records within 250m

6

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 25 >](#)

ID	Location	Company	Address	Activity	Category
1	84m W	Electricity Sub Station	Kent, DA13	Electrical Features	Infrastructure and Facilities
2	117m SW	Electricity Sub Station	Kent, DA13	Electrical Features	Infrastructure and Facilities



ID	Location	Company	Address	Activity	Category
4	182m E	C & C Security Kent	13, Northumberland Road, Istead Rise, Gravesend, Kent, DA13 9JP	Electronic Equipment	Industrial Products
5	212m NE	Electricity Sub Station	Kent, DA13	Electrical Features	Infrastructure and Facilities
6	216m E	Red Kite Flutes	28, Brookside Road, Istead Rise, Gravesend, Kent, DA13 9JJ	Musical Instruments	Consumer Products
7	228m NE	Pylon	Kent, DA13	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0
----------------------------	----------

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0
----------------------------	----------

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	2
----------------------------	----------

High pressure underground gas transmission pipelines.

Features are displayed on the Current industrial land use map on [page 25 >](#)

ID	Location	Pipe Name	Details	
A	333m N	SHORNE TO FARNINGHAM	Pipe Number: - Pipeline Safety Regulations Number: - Ownership: National Grid Maximum Operating Pressure (Bar): -	Pipeline Diameter (mm): 750 Wall Thickness (mm): - Year of commission: Not specified Abandonment Status: Not abandoned



ID	Location	Pipe Name	Details	
A	418m N	GRAVESEND THAMES SOUTH TO TATSFIELD	Pipe Number: - Pipeline Safety Regulations Number: - Ownership: National Grid Maximum Operating Pressure (Bar): -	Pipeline Diameter (mm): 750 Wall Thickness (mm): - Year of commission: Not specified Abandonment Status: Not abandoned

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m

0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m

0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m

0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m

0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.



4.9 Historical licensed industrial activities (IPC)

Records within 500m**0**

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m**0**

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m**1**

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on [page 25 >](#)

ID	Location	Address	Details	
3	124m S	Northfleet Dry Cleaners, 52 Istead Rise, Northfleet, DA13 9JF	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m**0**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.



4.13 Licensed Discharges to controlled waters

Records within 500m**0**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m**0**

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m**0**

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.



4.18 Pollution Incidents (EA/NRW)

Records within 500m**0**

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m**0**

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m**0**

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

Records within 500m**0**

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.



5 Hydrogeology - Superficial aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

3

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on [page 31](#) >

ID	Location	Designation	Description
1	217m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	322m SE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

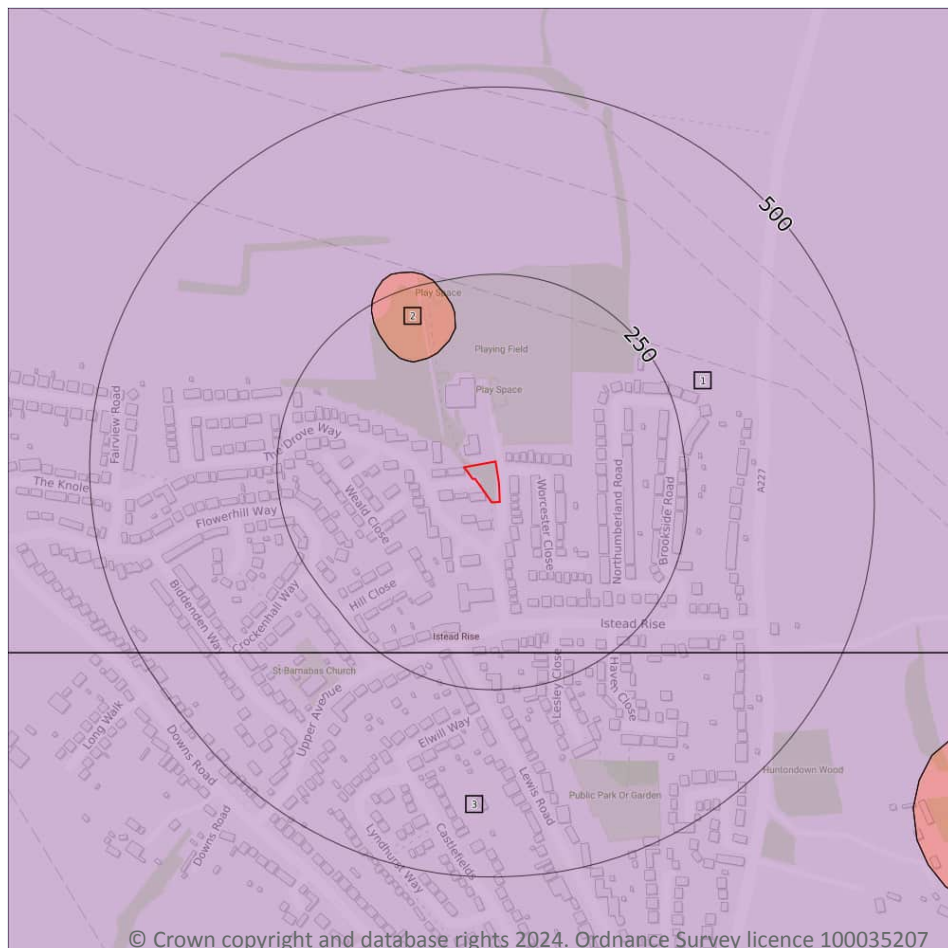


ID	Location	Designation	Description
3	484m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m

3

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on [page 33](#) >

ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	154m NW	Secondary A	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. These are generally aquifers formerly classified as minor aquifers

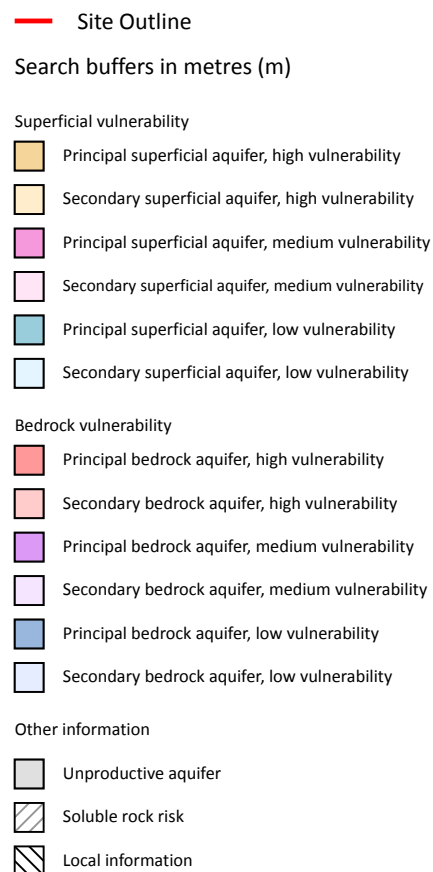
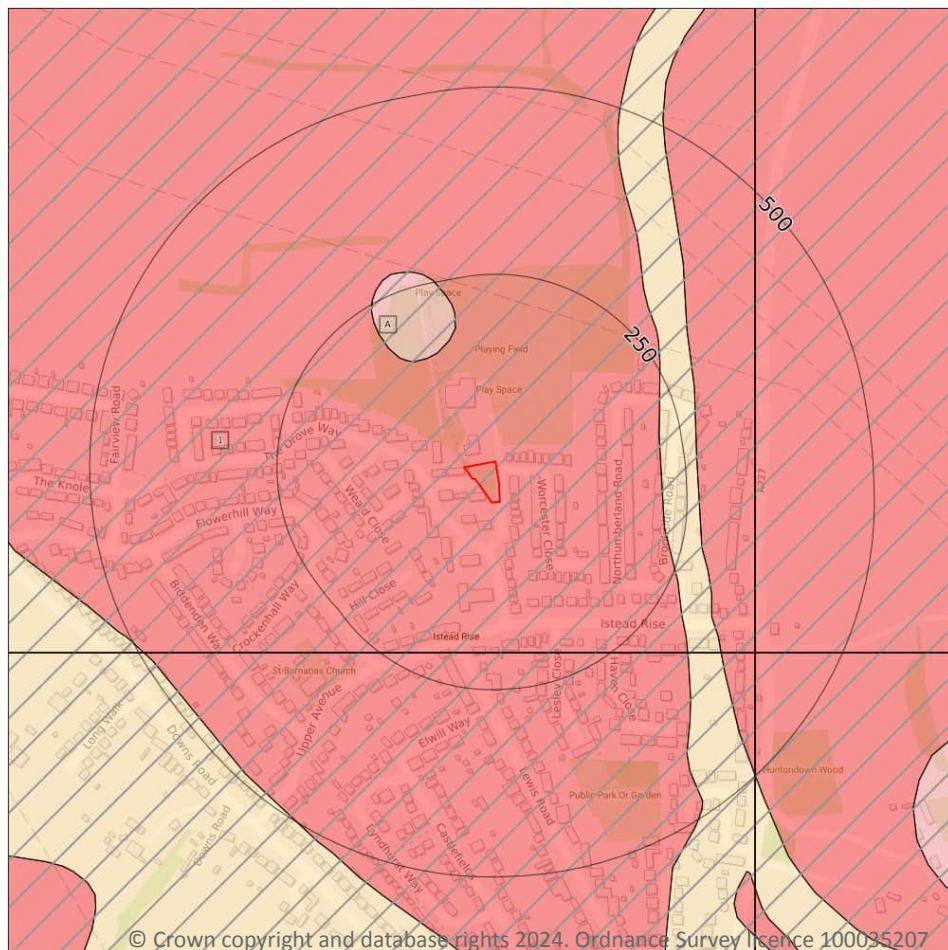


ID	Location	Designation	Description
3	201m S	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on [page 35](#) >



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	1
------------------------	----------

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
A	Very significant soluble rocks are likely to be present with a moderate possibility of localised natural subsidence or dissolution-related degradation of bedrock, especially in adverse conditions such as concentrated surface or subsurface water flow.	8.0%

This data is sourced from the British Geological Survey and the Environment Agency.

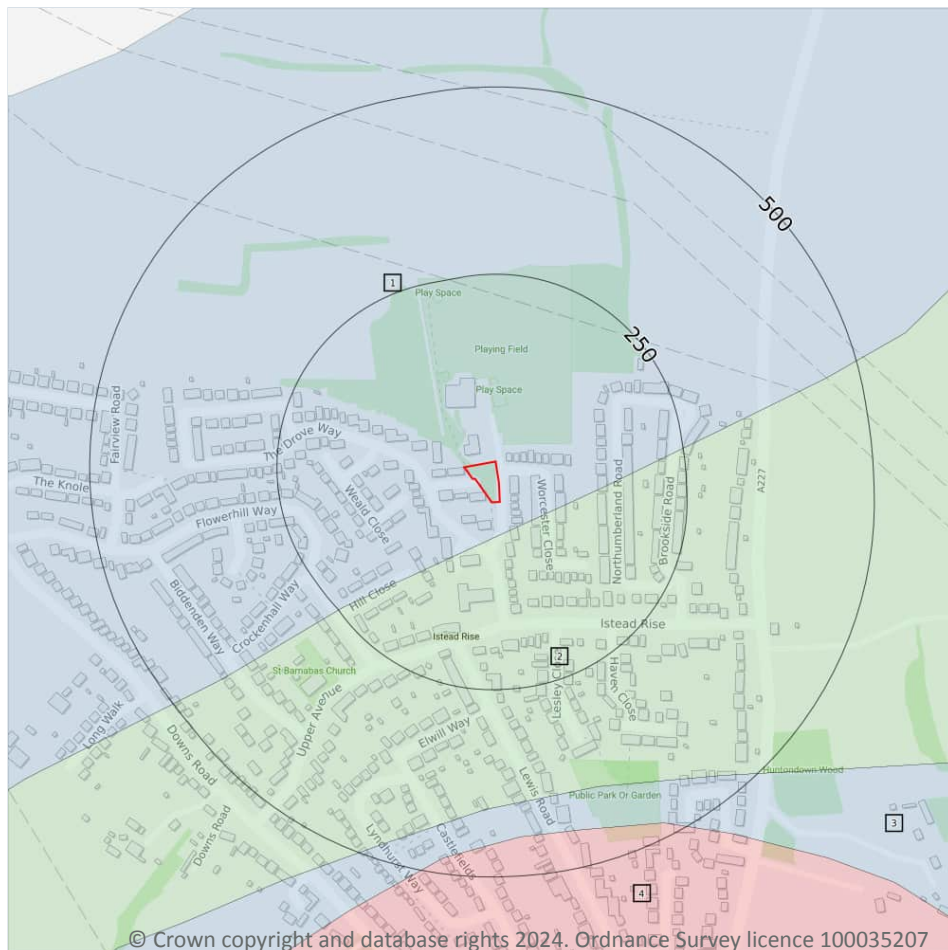
5.5 Groundwater vulnerability- local information

Records on site	0
------------------------	----------

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

7

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on [page 37](#) >



ID	Location	Details	
-	981m S	Status: Active Licence No: 9/40/01/0511/G Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: CHALK BOREHOLES, WELLS AND ADITS AT NORTHFLEET PS Data Type: Poly4 Name: Southern Water Services Ltd Easting: 563900 Northing: 169250	Annual Volume (m ³): 17700000 Max Daily Volume (m ³): 92000 Original Application No: 169/0639D Original Start Date: 24/03/1986 Expiry Date: - Issue No: 100 Version Start Date: 27/11/2006 Version End Date: -
-	981m S	Status: Active Licence No: 9/40/01/0511/G Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: LOWER GREENSAND BOREHOLES, WELLS AND ADITS AT NORTHFLEET PS Data Type: Poly4 Name: Southern Water Services Ltd Easting: 563900 Northing: 169250	Annual Volume (m ³): 17700000 Max Daily Volume (m ³): 92000 Original Application No: 169/0639D Original Start Date: 24/03/1986 Expiry Date: - Issue No: 100 Version Start Date: 27/11/2006 Version End Date: -
-	981m S	Status: Historical Licence No: 9/40/01/0511/G Details: Transfer between sources Direct Source: Southern Region Groundwater Point: LOWER GREENSAND BOREHOLES, WELLS AND ADITS AT NORTHFLEET PS Data Type: Poly4 Name: Southern Water Services Plc Easting: 563900 Northing: 169250	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 06/12/1988 Version End Date: -
-	1025m N	Status: Historical Licence No: 01/164 Details: Dust Suppression Direct Source: Southern Region Groundwater Point: TOLLGATE JUNCTION Data Type: Point Name: Skanska Civil Engineering Easting: 563900 Northing: 171250	Annual Volume (m ³): 38220 Max Daily Volume (m ³): 156 Original Application No: - Original Start Date: 01/11/2007 Expiry Date: 31/10/2008 Issue No: 1 Version Start Date: 01/11/2007 Version End Date: -



ID	Location	Details	
-	1193m NW	Status: Active Licence No: 9/40/01/0511/G Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: BOREHOLES, WELLS AND ADITS AT HAZELLS PS, NORTHFLEET Data Type: Poly4 Name: Southern Water Services Ltd Easting: 562950 Northing: 171340	Annual Volume (m ³): 17700000 Max Daily Volume (m ³): 92000 Original Application No: 169/0639D Original Start Date: 24/03/1986 Expiry Date: - Issue No: 100 Version Start Date: 27/11/2006 Version End Date: -
-	1748m NE	Status: Historical Licence No: SO/040/0001/019 Details: Spray Irrigation - Storage Direct Source: Southern Region Groundwater Point: MID KENT GOLF CLUB BOREHOLE Data Type: Point Name: Mid Kent Golf Club Limited Easting: 564325 Northing: 171869	Annual Volume (m ³): 10000 Max Daily Volume (m ³): 50 Original Application No: NPS/WR/013047 Original Start Date: 29/10/2014 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 29/10/2014 Version End Date: -
-	1748m NE	Status: Active Licence No: SO/040/0001/019/R01 Details: Spray Irrigation - Storage Direct Source: Southern Region Groundwater Point: MID KENT GOLF CLUB BOREHOLE Data Type: Point Name: Mid Kent Golf Club Limited Easting: 564325 Northing: 171869	Annual Volume (m ³): 10000 Max Daily Volume (m ³): 50 Original Application No: NPS/WR/0039714 Original Start Date: 24/04/2024 Expiry Date: 31/03/2036 Issue No: 1 Version Start Date: 24/04/2024 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	0
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Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m

3

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on [page 37 >](#)

ID	Location	Details	
-	981m S	Status: Active Licence No: 9/40/01/0511/G Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: CHALK BOREHOLES, WELLS AND ADITS AT NORTHFLEET PS Data Type: Poly4 Name: Southern Water Services Ltd Easting: 563900 Northing: 169250	Annual Volume (m ³): 17700000 Max Daily Volume (m ³): 92000 Original Application No: 169/0639D Original Start Date: 24/03/1986 Expiry Date: - Issue No: 100 Version Start Date: 27/11/2006 Version End Date: -
-	981m S	Status: Active Licence No: 9/40/01/0511/G Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: LOWER GREENSAND BOREHOLES, WELLS AND ADITS AT NORTHFLEET PS Data Type: Poly4 Name: Southern Water Services Ltd Easting: 563900 Northing: 169250	Annual Volume (m ³): 17700000 Max Daily Volume (m ³): 92000 Original Application No: 169/0639D Original Start Date: 24/03/1986 Expiry Date: - Issue No: 100 Version Start Date: 27/11/2006 Version End Date: -
-	1193m NW	Status: Active Licence No: 9/40/01/0511/G Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: BOREHOLES, WELLS AND ADITS AT HAZELLS PS, NORTHFLEET Data Type: Poly4 Name: Southern Water Services Ltd Easting: 562950 Northing: 171340	Annual Volume (m ³): 17700000 Max Daily Volume (m ³): 92000 Original Application No: 169/0639D Original Start Date: 24/03/1986 Expiry Date: - Issue No: 100 Version Start Date: 27/11/2006 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.



5.9 Source Protection Zones

Records within 500m	4
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Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on [page 37 >](#)

ID	Location	Type	Description
1	On site	2	Outer catchment
2	40m SE	3	Total catchment
3	399m S	2	Outer catchment
4	447m S	1	Inner catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0
---------------------	---

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



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- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

0

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

0

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.



This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on [page 42](#) >

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	Coastal Catchment	Not part of a river WB catchment	130	Lower Medway	Medway

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified

0

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on [page 42](#) >

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	North Kent Medway Chalk	GB40601G500300 ↗	Poor	Poor	Poor	2019



This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m**0**

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m**0**

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m**0**

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.



7.4 Areas Benefiting from Flood Defences

Records within 250m

0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m

0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m

0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m

0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.



8 Surface water flooding

8.1 Surface water flooding

Highest risk on site

Negligible

Highest risk within 50m

Negligible

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

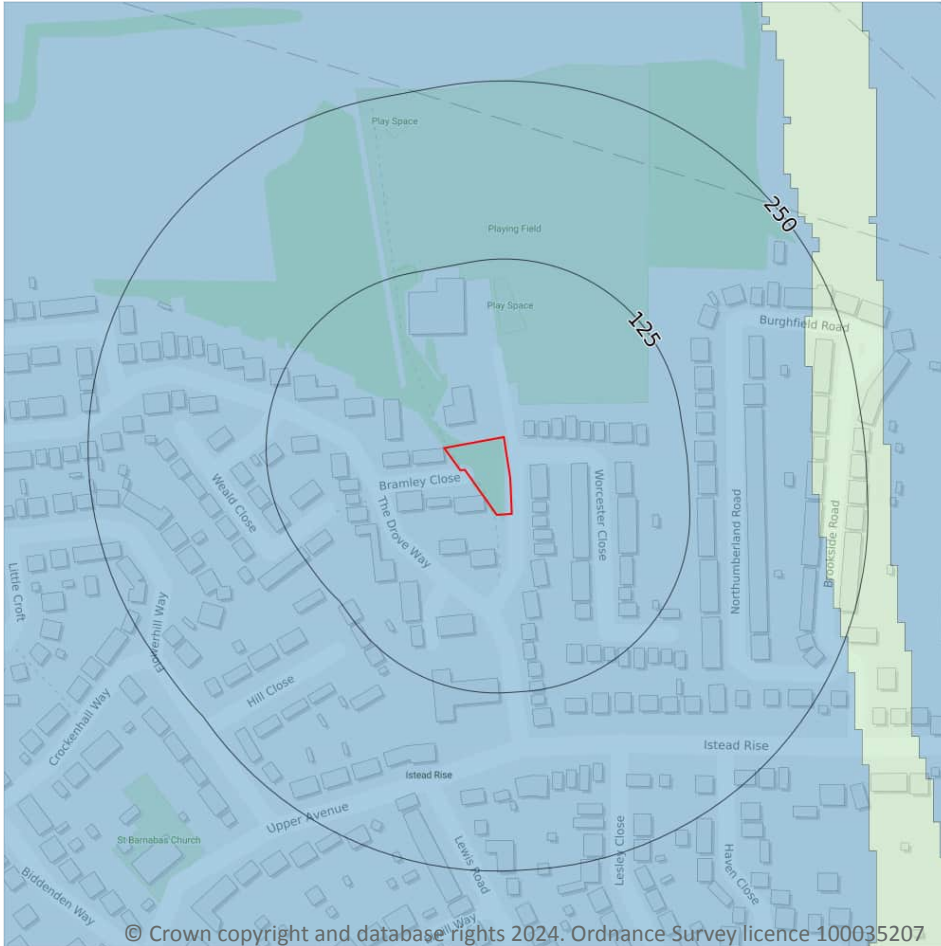
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site. The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.



9 Groundwater flooding



— Site Outline
Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

Highest risk on site

Negligible

Highest risk within 50m

Negligible

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on [page 49](#) >

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- Designated Ancient Woodland
- Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0
----------------------	---

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	7
----------------------	---

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on [page 50 >](#)

ID	Location	Name	Woodland Type
2	830m S	Walnut Wood	Ancient & Semi-Natural Woodland
4	1174m SW	Unknown	Ancient & Semi-Natural Woodland
5	1177m SE	Cozenden Wood	Ancient & Semi-Natural Woodland
6	1220m SW	Unknown	Ancient & Semi-Natural Woodland
-	1329m S	Unknown	Ancient & Semi-Natural Woodland
-	1520m W	Court Wood	Ancient & Semi-Natural Woodland
-	1996m S	Unknown	Ancient & Semi-Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0
----------------------	---

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m**0**

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m**0**

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m**2**

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on [page 50 >](#)

ID	Location	Name	Local Authority name
1	On site	London Green Belt	Gravesham
3	1164m W	London Green Belt	Dartford

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m**0**

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.



10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

3

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

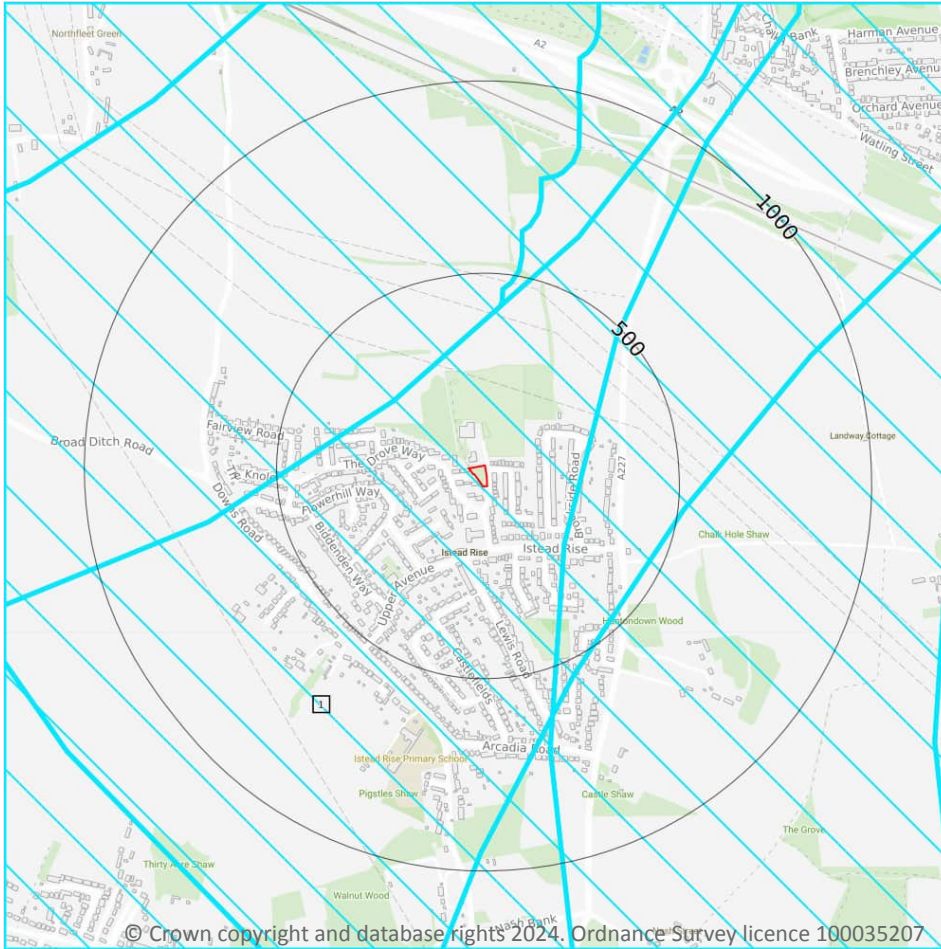
Location	Name	Type	NVZ ID	Status
On site	North Kent	Groundwater	65	Existing



Location	Name	Type	NVZ ID	Status
433m E	North Kent	Groundwater	65	Existing
1756m E	COASTAL STREAMS TO LOWER THAMES NVZ	Surface Water	665	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on [page 56 >](#)



ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t. Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream. Notes: Strategic solutions for recreational impacts are in place. Please contact your Local Planning Authority as they have the information to advise on specific requirements.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
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Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.



11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.



This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m

0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m

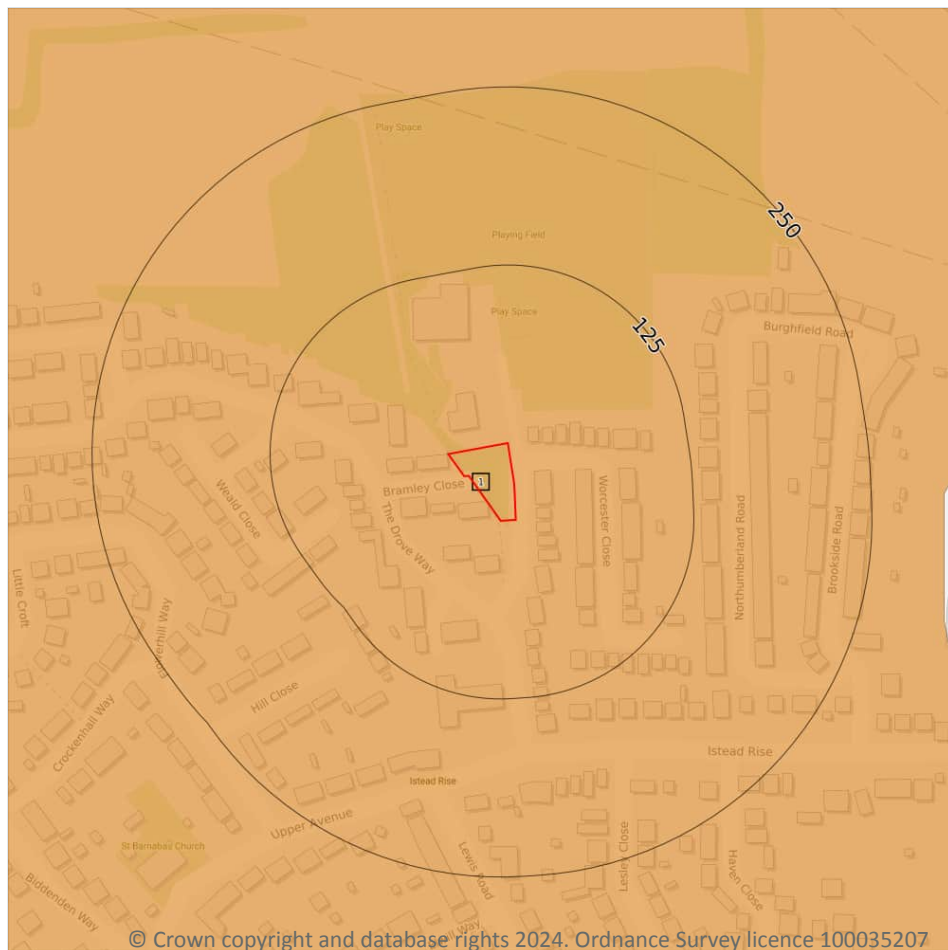
0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on [page 60](#) >

ID	Location	Classification	Description
1	On site	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

This data is sourced from Natural England.



12.2 Open Access Land

Records within 250m**0**

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m**0**

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m**0**

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m**1**

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

Location	Reference	Scheme	Start Date	End Date
236m NE	1272885	Countryside Stewardship (Middle Tier)	01/01/2022	31/12/2026

This data is sourced from Natural England.



13 Habitat designations



- Site Outline
- Search buffers in metres (m)
- Priority Habitat Inventory
- Open Mosaic Habitat
- Limestone Pavement Orders
- Habitat Networks
- Primary Habitat
- Restorable Habitat
- Associated Habitats
- Habitat Restoration-Creation
- Network Enhancement Zone 1
- Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

5

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on [page 62](#) >

ID	Location	Main Habitat	Other habitats
1	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	52m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	110m NW	Traditional orchard	Overruled by Traditional Orchards HAP Inventory dataset
4	157m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)



ID	Location	Main Habitat	Other habitats
5	241m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0
----------------------------	----------

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0
----------------------------	----------

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

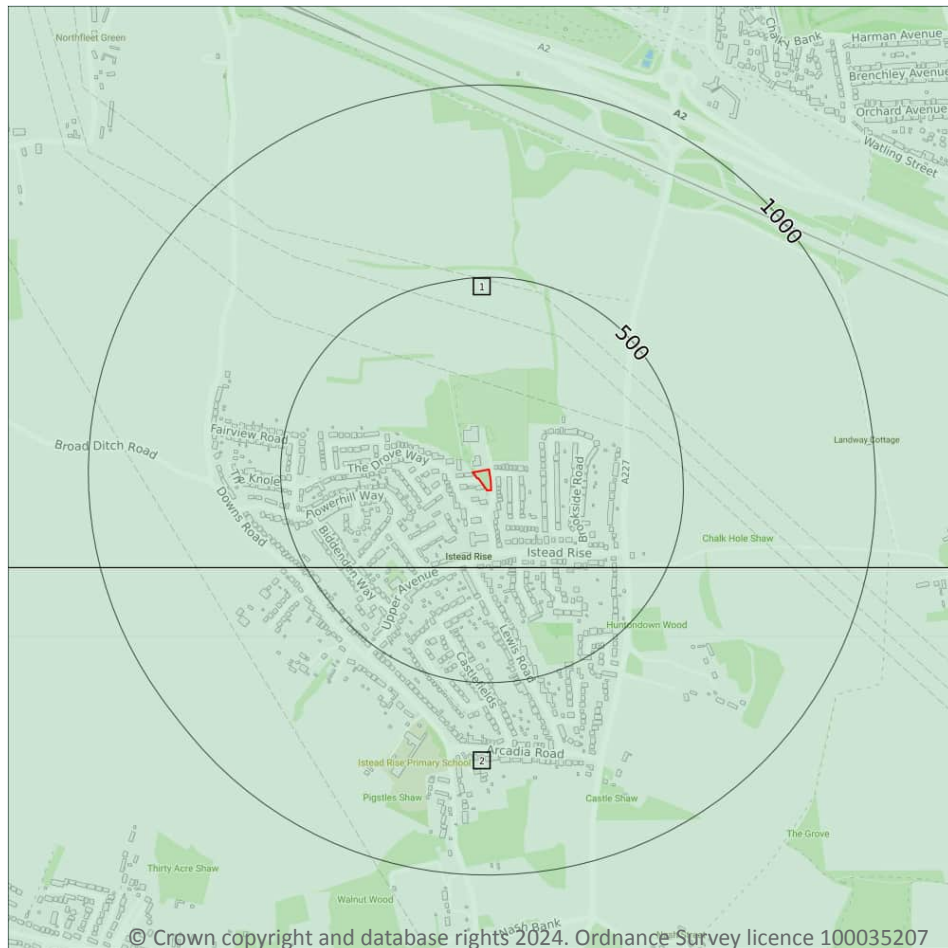
13.4 Limestone Pavement Orders

Records within 250m	0
----------------------------	----------

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

2

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on [page 64](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	TQ67SW
2	201m S	Full	Full	Full	No coverage	TQ66NW

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Artificial and made ground



- Site Outline**
- Search buffers in metres (m)
- Reclaimed ground
 - Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

7

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on [page 65](#) >

ID	Location	LEX Code	Description	Rock description
A	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	28m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
B	119m N	WGR-VOID	Worked Ground (Undivided)	Void
B	153m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit



ID	Location	LEX Code	Description	Rock description
B	204m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
B	221m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
1	253m N	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m

3

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 67](#) >

ID	Location	LEX Code	Description	Rock description
1	216m E	HEAD-XSC	Head - Sand And Clay	Sand And Clay
2	320m SE	HEAD-XSC	Head - Sand And Clay	Sand And Clay
3	497m SW	HEAD-XSC	Head - Sand And Clay	Sand And Clay

This data is sourced from the British Geological Survey.



14.4 Landslip (10k)

Records within 500m

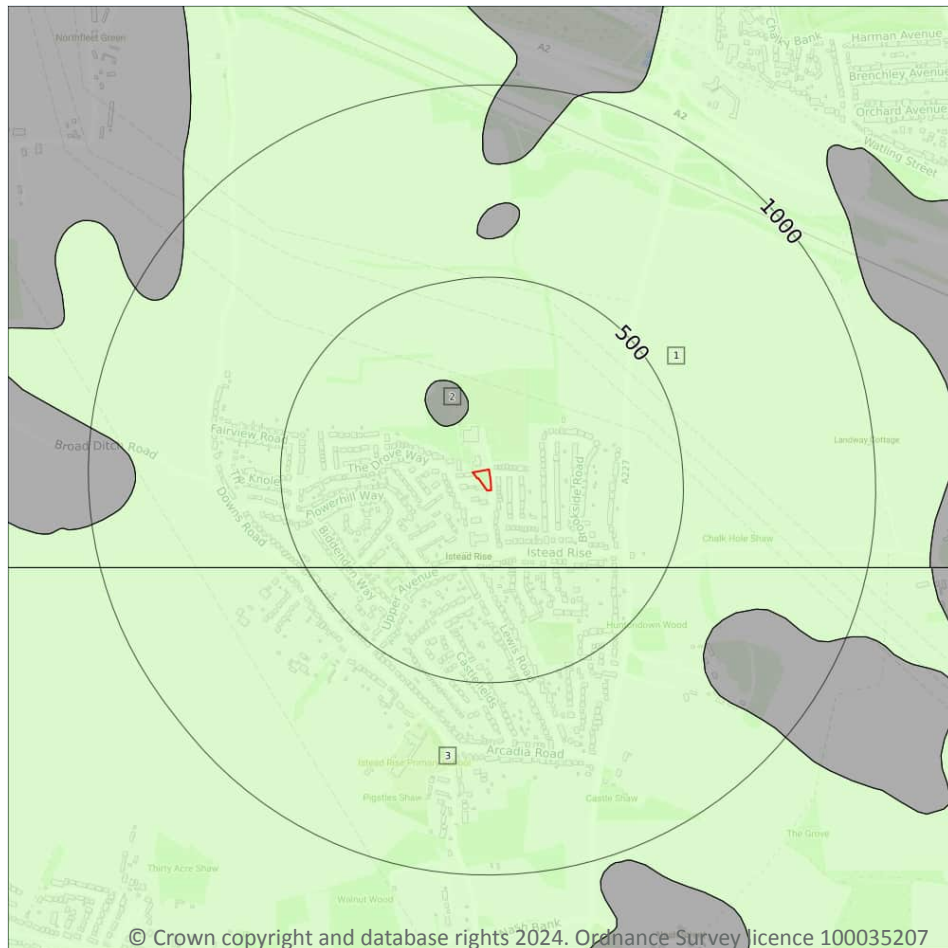
0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

..... Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m

3

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on [page 69](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	SECK-CHLK	Seaford Chalk Formation - Chalk	Santonian Age - Coniacian Age
2	134m NW	TAB-SANDU	Thanet Sand Formation - Sand	Thanetian Age
3	201m S	SECK-CHLK	Seaford Chalk Formation - Chalk	Santonian Age - Coniacian Age

This data is sourced from the British Geological Survey.



14.6 Bedrock faults and other linear features (10k)

Records within 500m

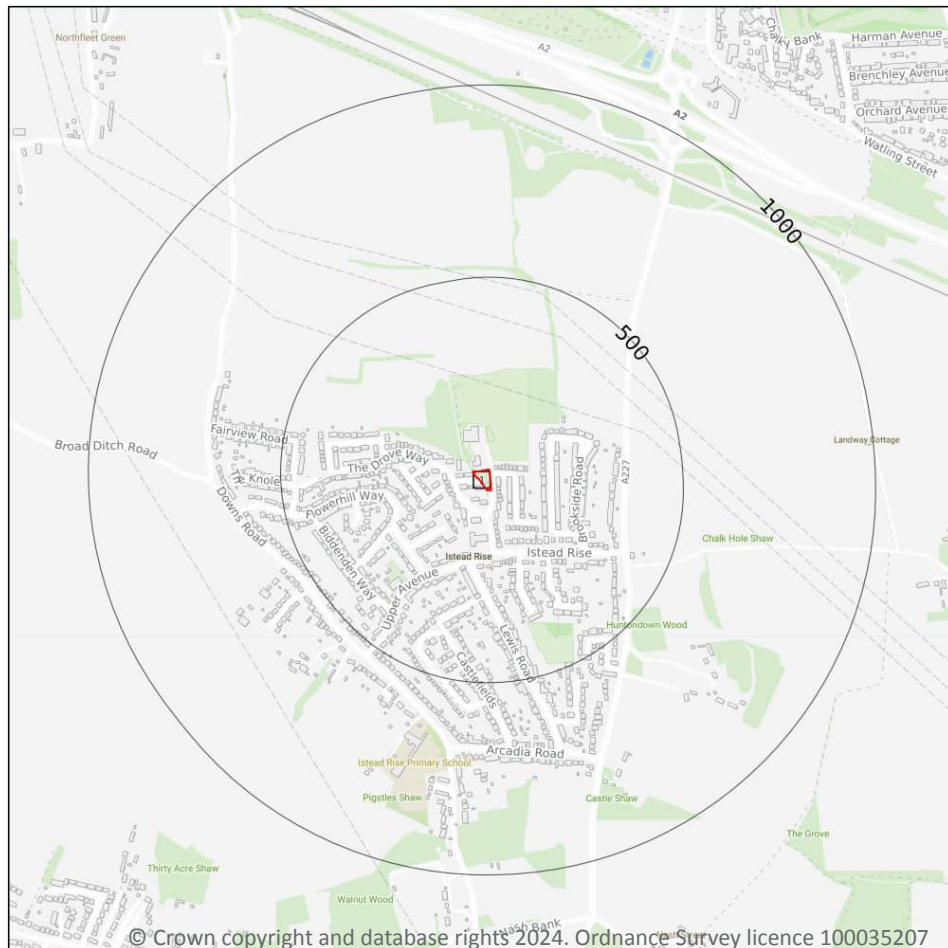
0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on [page 71](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW271_dartford_v4

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Artificial and made ground



- Site Outline**
- Search buffers in metres (m)**
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

3

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on [page 72](#) >

ID	Location	LEX Code	Description	Rock description
A	140m N	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
A	171m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
A	236m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.



15.3 Artificial ground permeability (50k)

Records within 50m

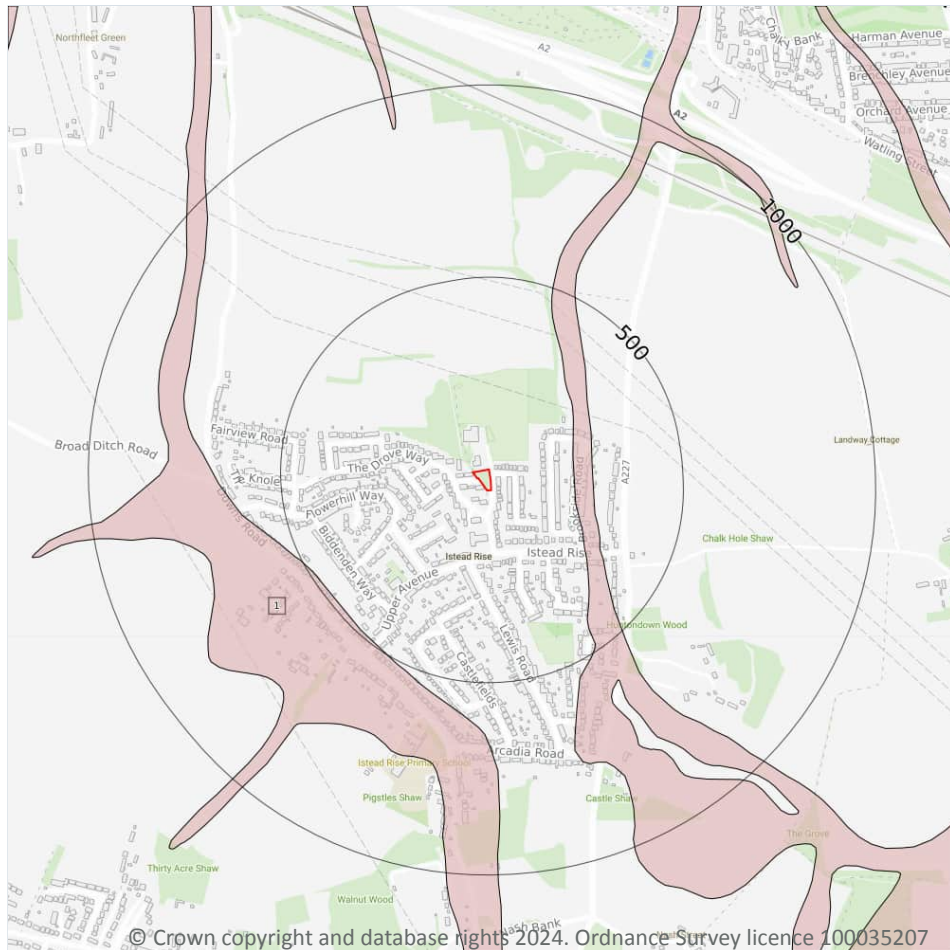
0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m

1

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 74 >](#)

ID	Location	LEX Code	Description	Rock description
1	217m E	HEAD- XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m

0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m

0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

Records within 50m

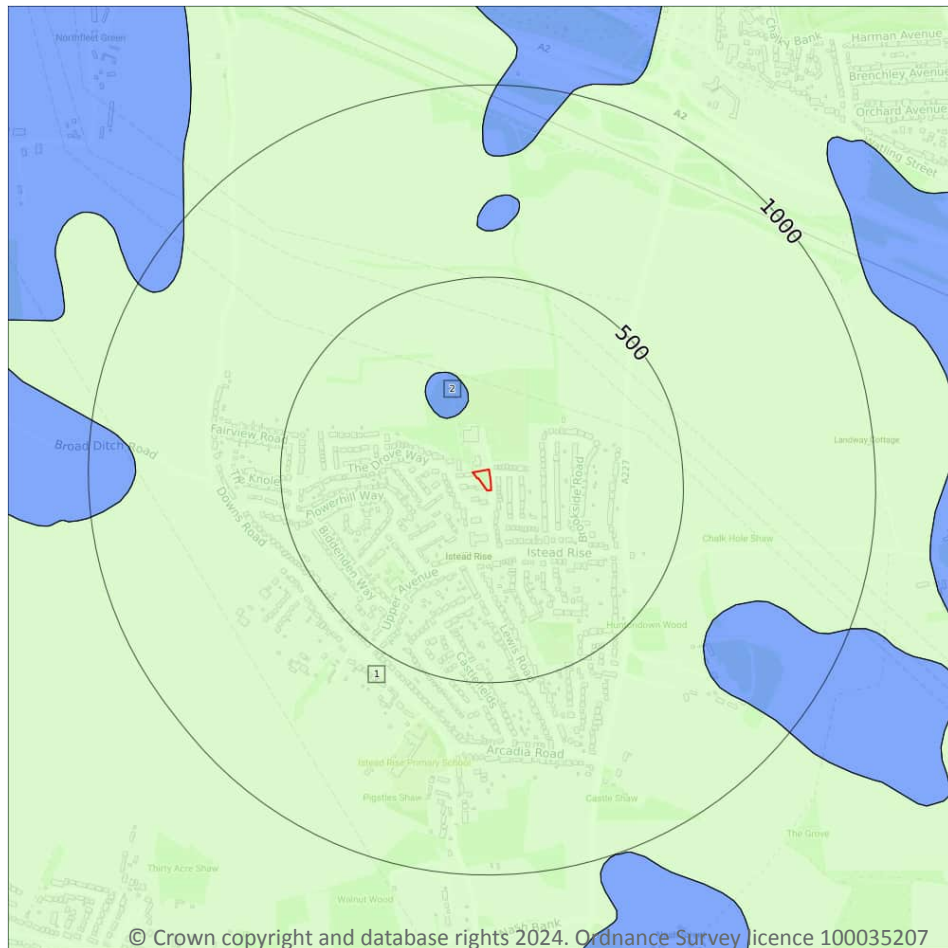
0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m

2

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 76](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	LSNCK-CHLK	LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION (UNDIFFERENTIATED) - CHALK	TURONIAN
2	154m NW	TAB-S	THANET FORMATION - SAND	THANETIAN

This data is sourced from the British Geological Survey.



15.9 Bedrock permeability (50k)

Records within 50m

1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Very High	Very High

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

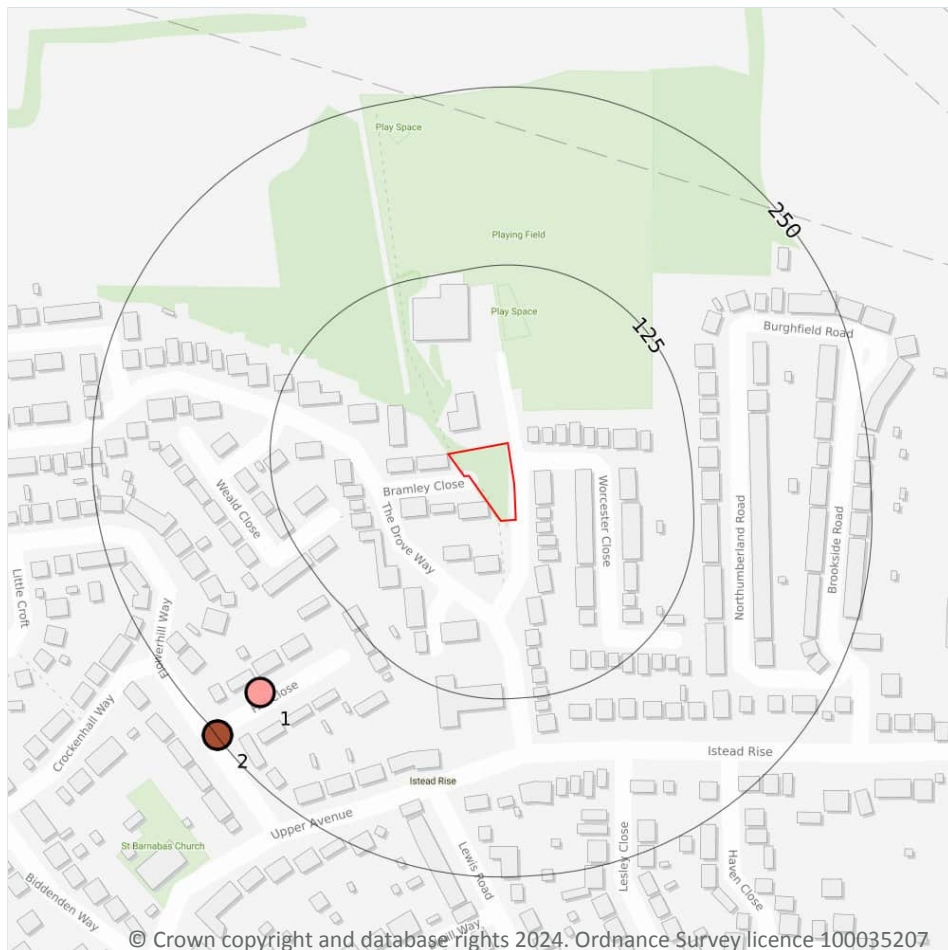
0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



16 Boreholes



- Site Outline**
- Search buffers in metres (m)**
- Confidential
 - 0 - 10m
 - 10 - 30m
 - 30m+
 - Unknown

16.1 BGS Boreholes

Records within 250m

2

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

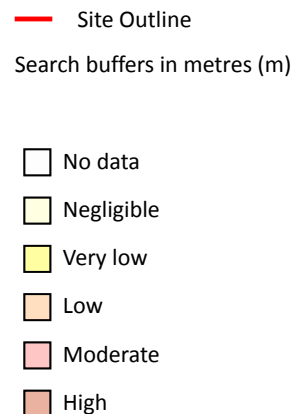
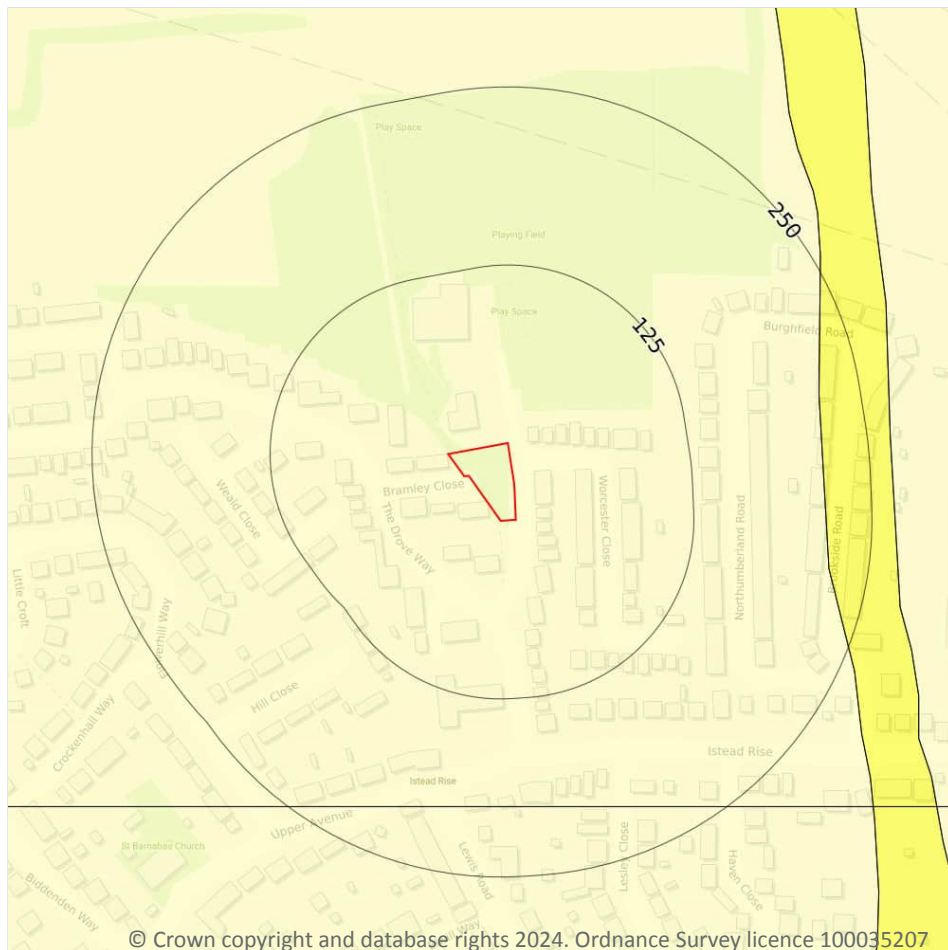
Features are displayed on the Boreholes map on [page 78](#) >

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	207m SW	563480 170080	FLOWERHILL NURSERY ISTEAD RISE MEOPHAN	131.67	N	838354 ↗
2	249m SW	563450 170050	ISTEAD RISE	-1.0	N	838815 ↗

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m

1

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

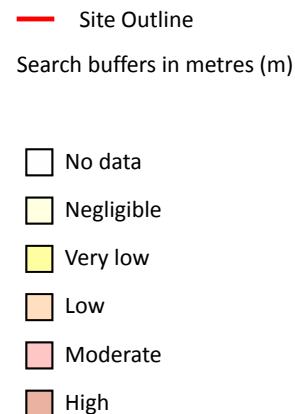
Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 79 >](#)

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



17.2 Running sands

Records within 50m

1

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

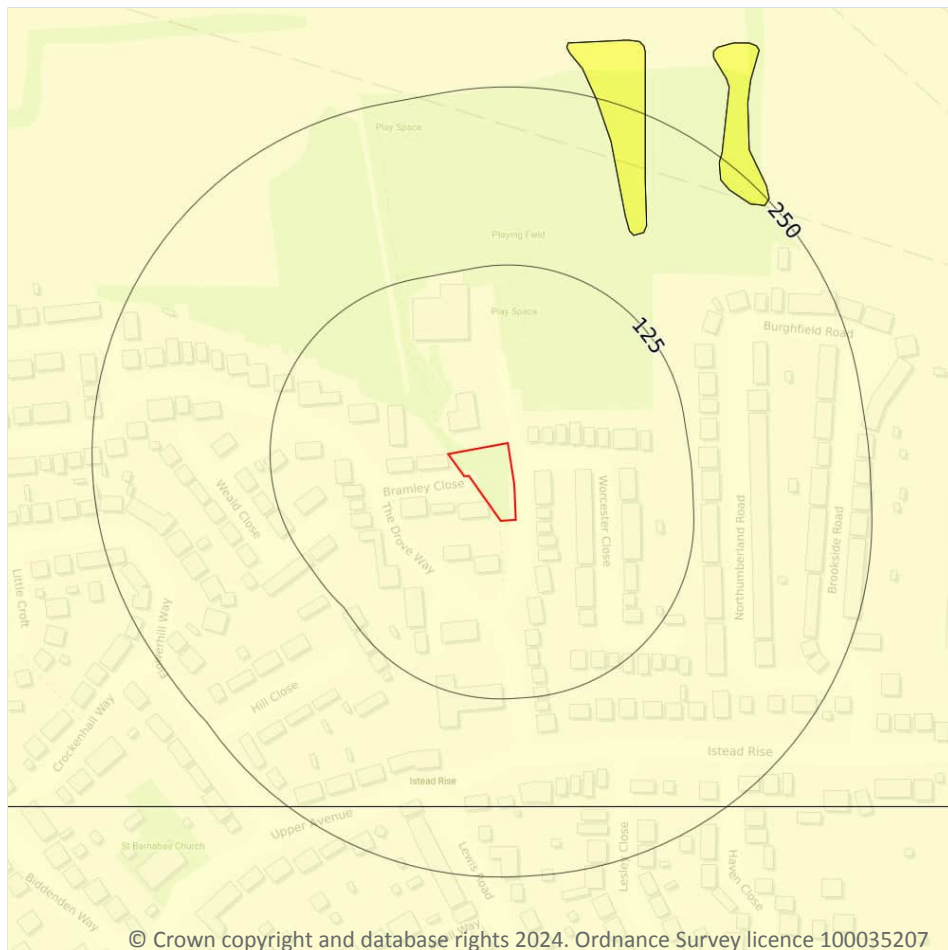
Features are displayed on the Natural ground subsidence - Running sands map on [page 80](#) >

Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



- Site Outline**
- Search buffers in metres (m)**
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.3 Compressible deposits

Records within 50m

1

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

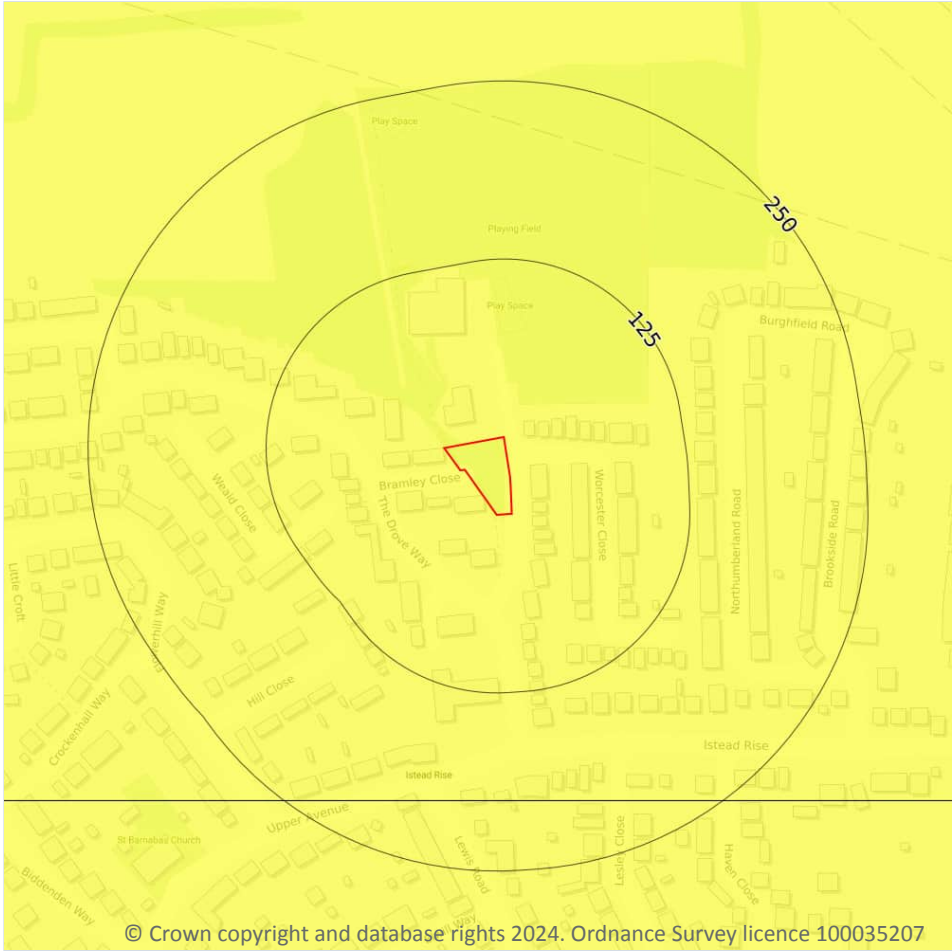
Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 81](#) >

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



17.4 Collapsible deposits

Records within 50m	1
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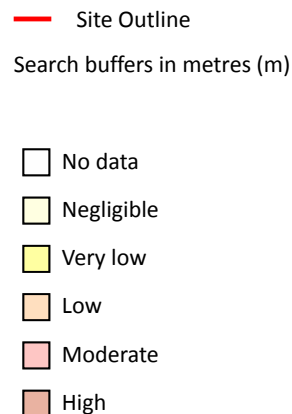
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 82 >](#)

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



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17.5 Landslides

Records within 50m

1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

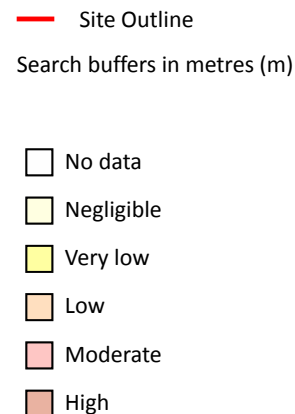
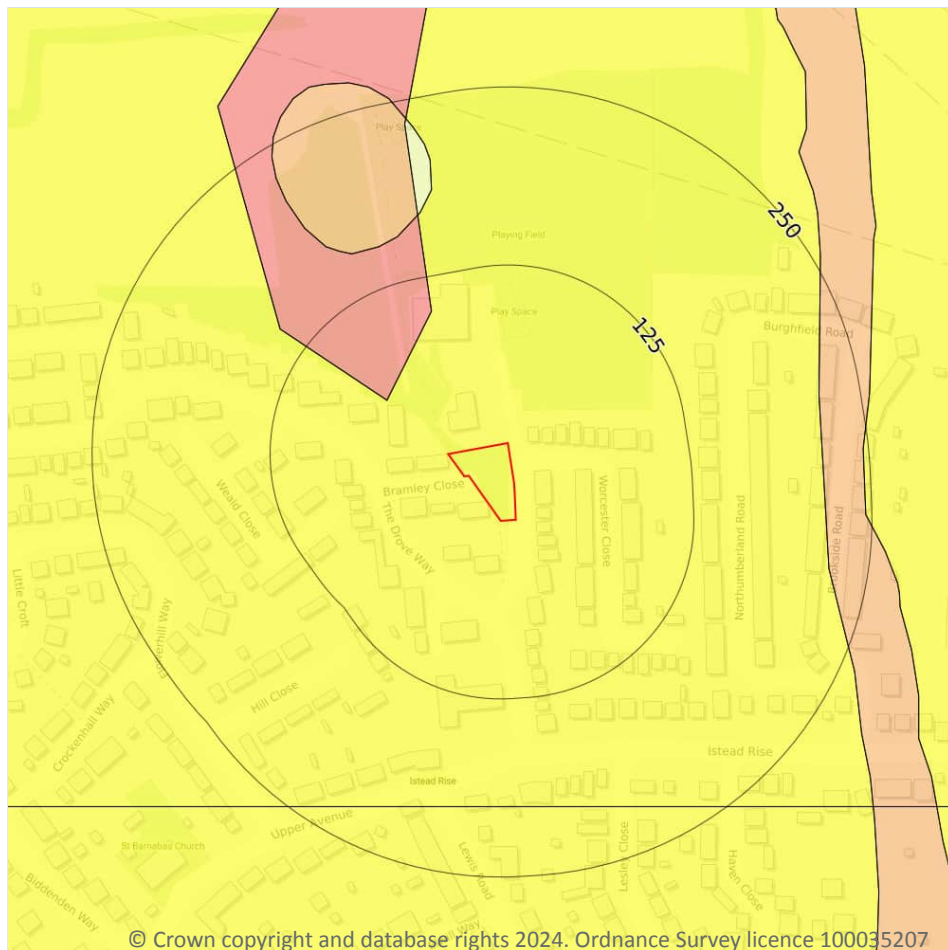
Features are displayed on the Natural ground subsidence - Landslides map on [page 83](#) >

Location	Hazard rating	Details
On site	Negligible	Slope instability problems are not thought to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



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17.6 Ground dissolution of soluble rocks

Records within 50m

1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on [page 84](#)

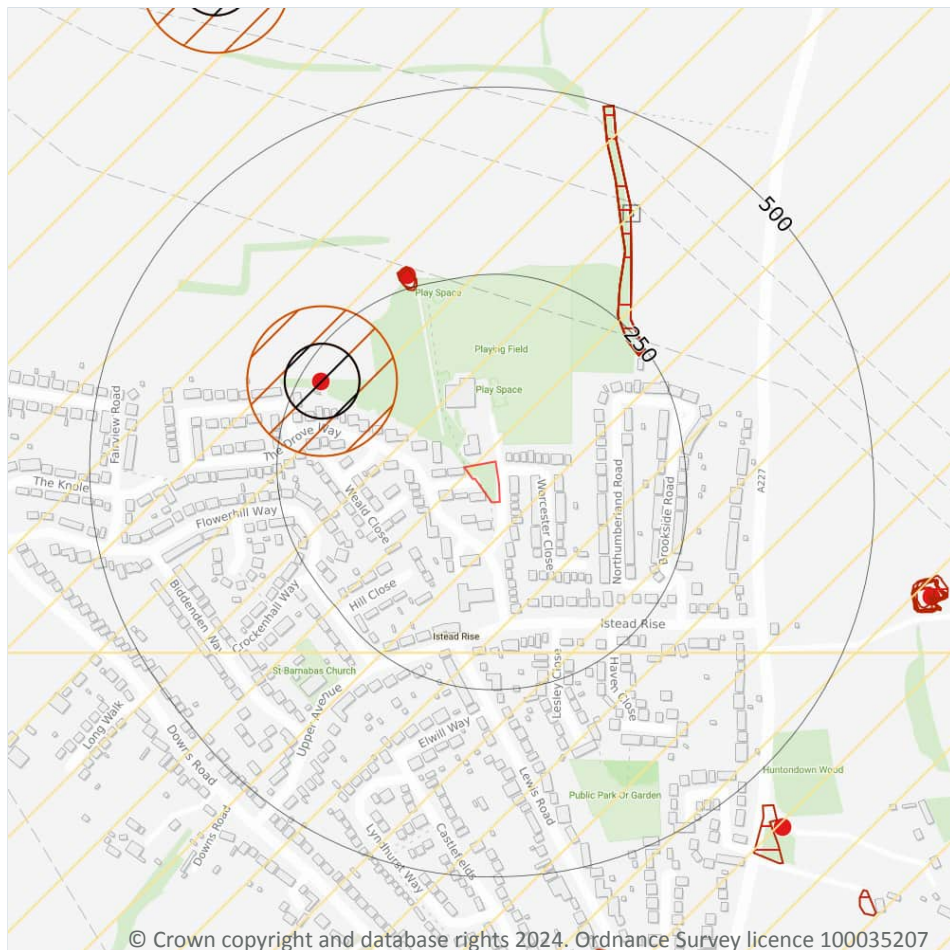
Location	Hazard rating	Details
On site	Very low	Soluble rocks are present within the ground. Few dissolution features are likely to be present. Potential for difficult ground conditions or localised subsidence are at a level where they need not be considered.



This data is sourced from the British Geological Survey.



18 Mining and ground workings



- Site Outline
- Search buffers in metres (m)
- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining
- Non Coal Mining
 - Sporadic underground mining of restricted extent possible
 - Localised small scale underground mining possible
 - Small scale mining possible
 - Underground mining known or likely within or in close proximity
 - Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m

2

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on [page 86](#) >

ID	Location	Details	Description
A	223m NW	Name: Istead Rise Chalkwell Address: Istead Rise, GRAVESEND, Kent Commodity: Chalk Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
C	268m N	Name: Frog's Island Chalk Pit Address: Istead Rise, GRAVESEND, Kent Commodity: Chalk Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	6
----------------------------	----------

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on [page 86](#) >

ID	Location	Land Use	Year of mapping	Mapping scale
B	238m NE	Unspecified Ground Workings	1990	1:10000
B	238m NE	Unspecified Ground Workings	1977	1:10000
B	238m NE	Unspecified Ground Workings	1971	1:10000
B	238m NE	Unspecified Ground Workings	1966	1:10560
C	246m N	Old Chalk Pit	1895	1:10560
C	250m N	Old Chalk Pit	1898	1:10560

This data is sourced from Ordnance Survey/Groundsure.



18.3 Underground workings

Records within 1000m**0**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m**0**

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m**0**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m**8**

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining and ground workings map on [page 86](#) >

ID	Location	Name	Commodity	Class	Likelihood
1	On site	Not available	Chalk	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.



ID	Location	Name	Commodity	Class	Likelihood
A	122m NW	The Drove Way	Chalk	D	Underground mining is considered likely to have occurred within or close to the area. The location, extent and nature of mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
A	172m NW	The Drove Way	Chalk	E	Underground mining is known or considered likely within or very close to the area. The location, extent and nature of mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
2	201m S	Not available	Chalk	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
G	632m NW	Istead Rise	Chalk	D	Underground mining is considered likely to have occurred within or close to the area. The location, extent and nature of mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
G	682m NW	Istead Rise	Chalk	E	Underground mining is known or considered likely within or very close to the area. The location, extent and nature of mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
-	873m W	Stanhill Farm	Chalk	D	Underground mining is considered likely to have occurred within or close to the area. The location, extent and nature of mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
-	923m W	Stanhill Farm	Chalk	E	Underground mining is known or considered likely within or very close to the area. The location, extent and nature of mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0
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Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.



18.8 The Coal Authority non-coal mining

Records within 500m**0**

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m**3**

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

Location	Mineral type
139m NW	Stone
232m W	Stone
276m NW	Stone

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m**0**

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.



18.11 BGS mine plans

Records within 500m**0**

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site**0**

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site**0**

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.14 Gypsum areas

Records on site**0**

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site**0**

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.



18.16 Clay mining

Records on site	0
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Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).



19 Ground cavities and sinkholes



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- Mining cavities
- Reported recent incidents
- Historical incidents

19.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m

2

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

Features are displayed on the Ground cavities and sinkholes map on [page 93](#) >

ID	Location	Mine Address	Mineral	Data source	Publisher
1	261m NW	Istead Rise, Kent	Chalk	-	Chelsea Speleological Society
-	723m NW	Istead Rise, Kent	Chalk	-	Chelsea Speleological Society

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m

0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m

0

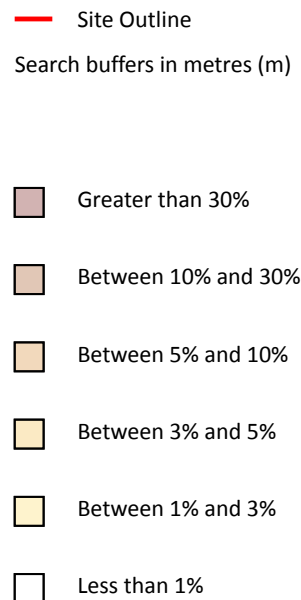
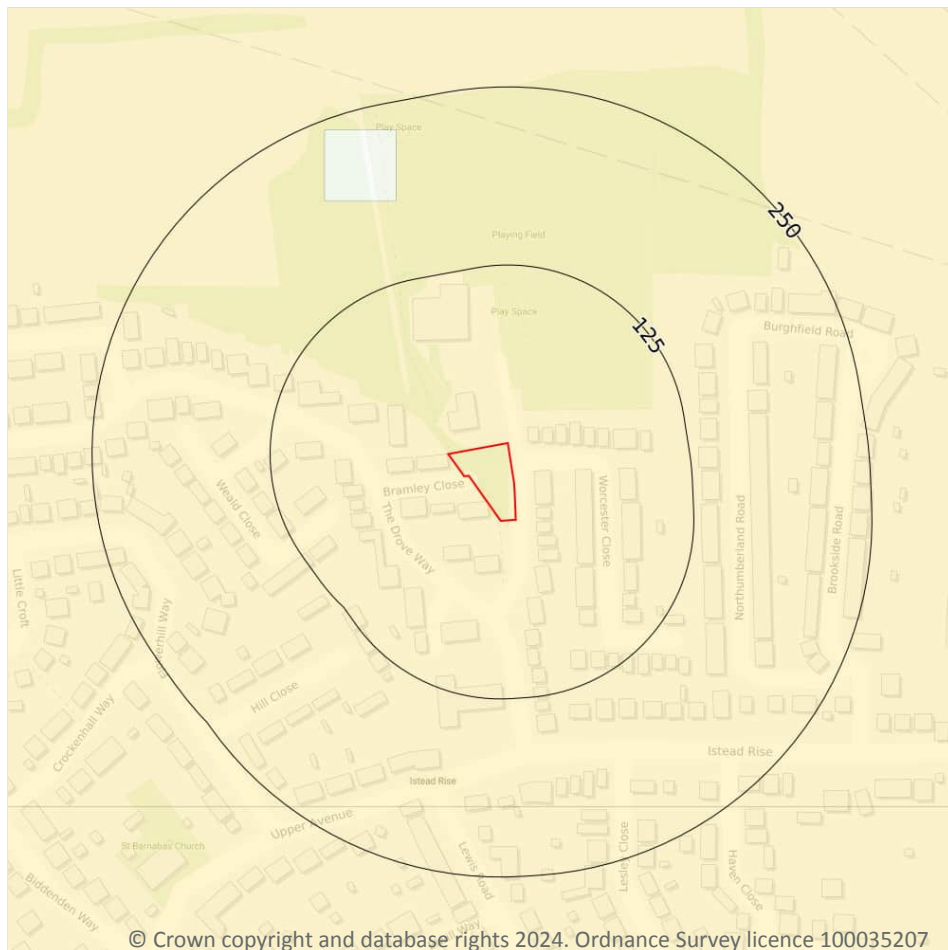
This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.



20 Radon



20.1 Radon

Records on site

1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on [page 95](#) >

Location	Estimated properties affected	Radon Protection Measures required
On site	Between 1% and 3%	None



This data is sourced from the British Geological Survey and UK Health Security Agency.



21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m

1

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	25 - 35 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



22 Railway infrastructure and projects

22.1 Underground railways (London)

Records within 250m**0**

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m**0**

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m**0**

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m**0**

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m**0**

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.



This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m

0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m

0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 2

Records within 500m

0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

22.9 HS2

Records within 500m

0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference> ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.



21 APPENDIX 5 – SITE PHOTOGRAPHY



22 APPENDIX 6 - RISK ASSESSMENT METHODOLOGY

- Severity considers the potential impact of the linkage on the receptors, if the linkage was active. Categories range from slight/superficial to fatal.
- Likelihood considers the chances of the linkage occurring and is classified into categories from improbable to frequent.

By assigning scores with each of the above categories, the risk assessment can be undertaken using the formula:

$$\text{RISK} = \text{LIKELIHOOD} \times \text{SEVERITY}$$

The matrix given in Table 10 provides a means of calculating the overall risk; while Table 11 provides the qualitative assessment based on the risk score.

Table 10: Contamination Risk Matrix

		Potential Severity				
		Fatal 5	Major 4	Moderate 3	Minor 2	Slight 1
Probable Likelihood	Frequent 5	Very High	High	Moderate	Low - Moderate	Low
	Probable 4	High	High	Moderate	Low - Moderate	Low
	Possible 3	Moderate	Moderate	Low - Moderate	Low - Moderate	Very Low
	Remote 2	Low - Moderate	Low - Moderate	Low - Moderate	Low	Very Low
	Improbable 1	Low	Low	Very Low	Very Low	Very Low

Table 11: Assessment description for risk scores

Risk Score	Risk Assessment
1-3	Very Low
4-5	Low
6-10	Low to Moderate
11-15	Moderate
16-20	High
21-25	Very High

Table 12: Risk Classification System

Risk Term	Description
Very Low	The presence of an identified hazard does not give rise to the potential to cause significant harm to groundwater, surface water, ecological and/or property receptors. In the event of such harm being realized, it is not likely to be Severe.
Low	The presence of an identified hazard does not give rise to the potential to cause significant harm to human health receptors. In the event of such harm being realized, it is not likely to be Severe.
Low to Moderate	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realized, would at worst normally be mild.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
High	Harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remedial action. Investigation is required and remedial works may be necessary in the short term and are likely over the longer term.
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or, there is an evidence that severe harm to a designated receptor is currently happening. Urgent investigation and remediation are likely to be required.

23 ABBREVIATIONS

Below is a generic list of commonly used abbreviations.

Abbreviation	Description
ACM	Asbestos Containing Materials
AOD	Above Ordnance Datum
AONB	Areas of Outstanding Natural Beauty
BGS	British Geological Survey
c.	circa
CLRA	Contaminated Land Risk Assessment
COMAH	Control of Major Accident Hazards
CSM	Conceptual Site Risk Model
EA	Environment Agency
IPC	Integrated Pollution Control
IPPC	Integrated Pollution Prevention Control
LAPC	Local Authority Pollution Control
LNR	Local Nature Reserves
NIHHS	Notification of Installations Handling Hazardous Substances
NNR	National Nature Reserves
NP	National Parks
NPPF	National Planning Policy Framework
OS	Ordnance Survey
PAHs	Polycyclic Aromatic Hydrocarbons
Part IIA	Part IIA of the Environmental Protection. Act 1990
PCBs	Polychlorinated Biphenyls
PCLU	Potentially Contaminative Land Use
PPL	Potential Pollutant Linkage
PSPPL	Potentially Significant Potential Pollutant Linkage
SAC	Special Areas of Conservation
SI	Site Investigation
SPA	Special Protection Area
SPOSH	Significant Possibility of Significant Harm
SSSIs	Sites of Special Scientific Interest
TPHs	Total Petroleum Hydrocarbons
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds