



Goldfinch
ENVIRONMENTAL LTD

**PROPOSED RESIDENTIAL
DEVELOPMENT
LAND R-O POST OFFICE
158 BRIDGE ROAD
SUTTON BRIDGE
SPALDING
LINCS**

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**TIER 1 ~ CONTAMINATION RISK
ASSESSMENT**

Report Ref.: 1019/1

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Date:

July 2025

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PROPOSED RESIDENTIAL DEVELOPMENT
LAND R-O POST OFFICE 158 BRIDGE ROAD
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1. INTRODUCTION.

1.1 General.

This report describes the findings of a [Tier 1~] contamination assessment [formerly 'Phase 1 Desk Study'] undertaken by Goldfinch Environmental Limited on the instruction of Lavish Estates Ltd (the Client), via the offices of Swann Edwards Architects Ltd, at a site off Gashouse Lane, Bridge Road, Sutton Bridge, Spalding, Lincs..

The Desk Study was required to support a planning application for the development of the site to a residential land use by establishment of new residential dwellings as shown in Figure 2 towards the back of this report.

Planning Reference H18-1174-22 refers.

A site location plan has been included as Figure 1 with the proposed layout shown in Figure 2 towards the back of this report to assist the reader.

A review of the SHDC Planning Portal and this Authors previous involvement with the site this 2025 Tier 1 Assessment draws in the planning history of the site, previous geoenvironmental investigations together with Regulatory comments issued at various stages in the history of the site across a number of planning applications with the aim of presenting as full a review as possible in order to present a new baseline from which to address Planning Condition 9 and its component parts.

2. LIMITATIONS.

This report is for the sole reliance and use of the Client. Any Third Party coming into possession of this report relies on it at their risk, unless written permission is expressly sought from, and provided by, Goldfinch Environmental Limited. The author owes them no duty of care and skill. Goldfinch Environmental Ltd accepts no responsibility or liability for the consequences of this document being used for purposes other than that for which it was commissioned and the assessments provided herein should not be relied on as a legal opinion.

The findings and opinions expressed are relevant to the time of the site visit and information review and should not be relied upon to represent conditions at substantially later dates. The assessments and opinions given in this report are based upon information available at the time of the report. Where additional information comes available which may affect or identify a need to review our conclusions or assessments we request the opportunity (and reserve the right), to review the information and where warranted, modify our assessment / opinion in part or wholly, accordingly.

The purpose of this desk study report was to determine the historical use of the site and adjacent areas from searches of Public Registers and a review of available historical maps and included a site reconnaissance ('walkover') survey together with brief internet searches. The outcome of these activities is described below and this information was used to construct a conceptual model for the site from which a risk assessment was completed in the context of the proposed residential development of the site.

The risk assessment was based on the source-pathway-receptor framework, with respect to the geoenvironmental condition of the site in the context of various sensitive receptors. Goldfinch Environmental Ltd have based this desk study upon the sources given in this report, and believes them to be reliable but cannot and does not guarantee the authenticity or reliability of the data it has relied upon.

This desk study does not include any geotechnical considerations pertaining to the site as these were outside the agreed brief.

The recommendations given in this report are based on guidance and best practice in place at the time of issue of the report, the information available at the time of the investigation, the nature of the indicated proposed development and associated end user behaviour patterns. Should any of the foregoing change at any time, then this report should be reviewed in the context of proposed changes.

The absence of indicators in search data, or from on site observations does not rule out their presence in other parts of the site. This desk study report has been based on information supplied in the 'GroundSure' report and its component parts included at Appendix 1 towards the back of this report, discussions with the Client and in-house searches.

3. LEGISLATIVE & REGULATORY SETTING.

The Environmental Protection Act of 1990 created the framework for the identification and remediation of contaminated land. The Act defines “contaminated land” as any land, which appears by the Local Authority to be “in such a condition, by reason of substances, in, on, or under the land that significant harm is being caused or there is significant possibility of such harm being caused, or, pollution of Controlled Waters is being, or is likely to be, caused”.

Land potentially affected by ‘contamination’ is a material consideration for planning purposes together with its relationship with ‘regulatory intervention’ (Part IIa), and ‘voluntary’ investigation (which includes redevelopment of sites which may be affected by contamination). LCRM (Environment Agency 2020 updated April 2021), provide a generic framework indicating key technical activities applicable in each of these contexts.

The management of land contamination broadly comprises three components that are identified as ‘Risk assessment’, ‘Options appraisal’ and ‘Implementation’. These, in turn, determine if any *unacceptable* risks exist, ascertain the most appropriate remediation strategy for the site and, finally, demonstrate that the strategy will be effective.

In accordance with this and other current guidance, where a ‘land quality’ risk assessment is required each ‘Relevant Pollutant Linkage’ (RPL, formerly referred to as “source-pathway-receptor” framework), is separately identified and a level of risk attached. This is documented in the form of a ‘Conceptual Model’.

The outcome of the assessment of established, plausible relevant pollutant linkages is used to determine qualitatively the need for further investigation, or remediation with ensuing mitigation of the determined unacceptable risk. (In accordance with the Model Procedures and Regulatory preference, detailed remedial measures should be provided in a separate phase).

The risk assessment takes account of the local environment, end user behaviour patterns, and the nature of the development in relation to proven ‘unacceptable’ risk. This is the approach advocated by current guidance (LCRM 2021 and BS10175 etc), and therefore has been adopted in the assessment of this site.

4. PLANNING HISTORY

A review of the planning portal revealed the following history of planning applications associated with the site, as summarised in Table 1 below. These have not been reproduced in full and the Reader is referred to the individual application numbers on the Planning Portal for further details.

Application Number	Date [Type]	Proposal	Decision
<i>H18-0070-05</i>	<i>20-01-05 Outline</i>	Pair Semi-Detached Houses	Approved
<i>H18-0960-05</i>	<i>15-07-05 Outline</i>	Erection of one dwelling	Appealed
<i>H18-0986-07</i>	<i>23-07-07 Full</i>	Erection of Semi-detached house	Refusal
<i>H18-0985-07</i>	<i>23-07-07 Full</i>	Erection of Semi-detached house	Refused
<i>H18-0517-08</i>	<i>25-04-08 Full</i>	Erection of Pair of Semi-Detached Houses	Approved
<i>H18-0907-16</i>	<i>09-09-16 Full</i>	Erection of two Dwelling Houses	Approved
<i>H18-0631-17*</i>	<i>30-06-17</i>	Condition Compliance 3, 4 & 8 of H18-0907-16. Pair Semi-Detached Houses	Permitted
<i>H18-1070-19</i>	<i>18-02-20</i>	Pair Semi-detached dwellings	Granted

<i>H18-1174-22</i> **			Granted

* Historic documents [See Section 5.1 of this report] prepared by this Author submitted under this Application.

** This 2025 Tier 1 Assessment prepared for this Application.

5. REGULATORY POSITION & HISTORIC INVESTIGATIONS.

5.1 Overview

The site has been subject to four phases of investigation/assessment by this Author with reports being issued between June 2017 and May 2019. The four documents are referenced as follows:~

1. Goldfinch Environmental Ltd. GeoEnvironmental Desk Study. Proposed Residential Development Land Off Gas House Lane Bridge Road Sutton Bridge Lincs.. Report Ref 0441/1. Dated June 2017.
2. Goldfinch Environmental Ltd. GeoEnvironmental Ground Investigation Report – Phase 2. Proposed Residential Development Land Off Gas House Lane Bridge Road Sutton Bridge Lincs.. Report Ref 0460/2. Dated October 2017.
3. Goldfinch Environmental Ltd. Risk Assessment / Remediation Method Statement Proposed Residential Development Land Off Gas House Lane Sutton Bridge Spalding Lincs.. Report Ref 0460/3. Dated April 2018.
4. Goldfinch Environmental Ltd. GeoEnvironmental Ground Gas Investigation Report – Phase 2. Proposed Residential Development Land Off Gas House Lane Bridge Road Sutton Bridge Lincs.. Report Ref 0578/2. Dated May 2019.

Sections 5.2 - 5.5 inclusive provide a summary of each of these documents centred on the Conceptual Model & Risk Assessment respectively. However the Reader is advised that these documents have not been reproduced in full so they advised to read these historic reports in conjunction with this new 2025 Tier 1 Assessment which only carries pertinent information forwards. For the purposes of clarity and completeness SHDC Planning comments area included for each document where available. Equally where Regulator comments require further information these comments have been provided in the section titled '*Recommendations Following Preliminary Risk Assessment*' in Section 8 of this 2025 Tier 1 document.

5.2 Goldfinch Environmental Ltd. GeoEnvironmental Desk Study. Proposed Residential Development Land Off Gas House Lane Bridge Road Sutton Bridge Lincs.. Report Ref 0441/1. Dated June 2017.

5.2.1 Overview.

The site description references a circular feature towards the approximate site centre, possibly associated with a nearby development annotated 'Gas Works' which appeared to have been removed by the time of issue of the 1965 Edition. More recently in the history of the site the site had been associated with the Post Office. At the time of the

walkover survey carried out in preparation of this document the site was fronted by a brick wall and access via a pair of wooden gates. The Site Description reports the presence of a three bay brick building with a concrete floorslab with a roof formed from corrugated cementised panels [possibly with an asbestos content]. The report states that it was fitted out with “domestic units” and shelving which appeared to have been used for “sorting mail”. A large concrete slab was present towards the approximate site centre as can be seen in Photograph 1 below taken in 2017 before the site was completely cleared.



Photograph 1: View of the Site Showing Concrete Slab.

Photograph 2 below shows the construction of the edge of the referred slab.



Photograph 2: View of the Site Showing Concrete Slab.

Environmental database searches in Appendix 1 of the report listed thirteen [13] records for historic industrial land uses for the site which included 'Gas Works' (x3); 'Police Station'; 'Gasometer' (3); 'Unspecified Tank' (x3); 'Unspecified Works'; 'Unspecified Commercial/Industrial' (x2). [Author Note: The Reader should note that searches information also 'carries' a 50m buffer.].

Additional Searches by this Author at the time also revealed the following:~

Internet-based searches by this Author have shown that a 'Gas Works' was established in Sutton Bridge in approximately 1856. This may or may not be coincident with the Gas Works at the site. It was understood from the publication "Sutton Bridge And Long Sutton Lincolnshire An Industrial History" by N R Wright (Copyright acknowledged), 1970 and 1980 that (page 17, our italics)

"The Sutton Bridge Gas Co. was formed in 1864 and opened its Gas Works on the north side of Bridge Road (TF 475214) in 1866. They cost £2,400 and the only remains now are a house occupied by the Post Master and a few pieces of walls. A small gasholder remained until the 1970's.

Author Note: The above grid reference (TF475214) is only accurate to approximately 100m and locates approximately 100m to the west of the site whereas the grid reference on the historic sheets e.g. ⁵47556, ³21407 is accurate to approximately 1metre.

The Conceptual Model & Risk assessment has been included from this historic document below as a summary together with Recommendations Following Preliminary Risk Assessment.

5.2.2 PRELIMINARY QUALITATIVE RISK ASSESSMENT. [FROM REPORT REF 0441/1 DATED JUNE 2017.]

5.2.2.1 Introduction.

There are three factors that are taken into account whilst undertaking a qualitative risk assessment. These have been described in Section 3 of this document. At the time of this report, the site had been proposed for residential development.

5.2.2.2 Conceptual Model.

Source (s) (Potential)	Pathway	Target	Risk
Soil: The site had accommodated all or part of a Gas Works since at least 1864 until	❖ Dermal contact, ingestion and inhalation	• Present users • End users • Construction workers • General public	• Low-Med • Low-Med • Low-Med • Low

Proposed Residential Development, Land R-O Post Office, 158 Bridge Road, Sutton Bridge, Spalding, Lincs..
Tier 1 Contamination Risk Assessment

sometime between 1958 and 1965 when all buildings except one at the western boundary of the site had been removed. At the time of the site walkover survey carried by this Author during 26 May 2017 the site had been within the curtilage of the adjacent (former) Post Office and had been used as a garden area. Former Gas Works sites are documented sources of potential contamination which typically includes (but is not restricted to) metals e.g. arsenic, lead, antimony, cadmium, chromium, copper, mercury, nickel, selenium and zinc; Speciated PAHs; Sulphate; Sulphide; TPHs and Complex & Free Cyanides. There were no site-specific indicators of potential soil-borne contamination. Visual and olfactory indicators of potential contamination immediately nearby off site were not noted.	❖ Wind erosion and atmospheric dispersion	• Adjacent properties • General public • Ecological Systems • Archaeological Sites & Monuments	• Low • Low • Low • n/a
	❖ Leaching	• Adjacent properties • Shallow groundwater • Services/construction materials • Plant life • Surface water • Ecological Systems • Arch. & Monuments	• Low • Low • Low • Low • Low • Low • Low
Shallow groundwater: The site overlies 'Unproductive' aquifers, which were not considered to be pollution sources.	❖ Groundwater migration	• Adjacent properties • Deep groundwater • Services/construction materials • Plant life • Ecological Systems • Archaeological Sites & Monuments	• Low • Low • Low • n/a • Low • Low
	❖ Dermal contact, ingestion and inhalation	• Present users • End users • Construction workers • General public	• Low • Low • Low • Neg-Low
Gas: Measurable (background) concentrations of ground gas would not (reasonably) be anticipated to be present as a result of historical site use or the underlying natural geology.	❖ Direct inhalation ❖ Soil migration ❖ Services migration	• End users • Construction workers • Buildings • Ecological Systems • Arch. Sites & Monuments	• Low • Low • Low • Low • Neg
Negligible Risk Defined as the site should be considered suitable for present or future use and environmental setting. Contaminants unlikely to be present, which might have unacceptable impact on key targets. Low Risk Defined as the site should be considered suitable for present or future use and environmental setting. Contaminants may be present but unlikely to have unacceptable impact on key targets. Medium Risk Defined as the site may not be suitable for present or future use and environmental setting. Contaminants are probably present and might have unacceptable impact on key targets. High Risk Defined as the site is probably or certainly not suitable for present or future use and environmental setting. Contaminants probably or certainly present and likely to have an unacceptable impact on key targets. Notes: n/a = not applicable			

The risk assessment follows below:-

5.2.2.3 Targets.

Potential targets, in the context of the risk assessment (based on the relevant pollutant linkage), where a plausible pathway can be proven, are discussed as follows.

At the time of this report, the proposed scheme comprised residential development.

5.2.2.3i Human Health (Site Users & Construction Workers)

The site had a documented developmental history, which included accommodation of a

Gas Works as described above. There is potential for the presence of Made Ground.

Based upon the foregoing and the final paragraph of this report, regarding 'unanticipated contamination:-

A Low-Medium risk has been identified until proven otherwise.

5.2.2.3ii Services and Construction Materials

5.2.2.3ii.a Concrete & Potable water supplies.

Adverse effects on services and construction materials may be anticipated where soils are impacted by localised raised/lowered pH values, PAH's, TPHs and metals contamination and where these are present in Made Ground materials. However, in this instance, based on the potential for the presence of Made Ground and the foregoing:-

A Low risk has been identified.

5.2.2.4 Landscaping & Planting

Based on the foregoing a 'Low' risk is presented to this receptor.

5.2.2.5 Groundwater (Controlled Waters)

The site is underlain by 'Unproductive' Aquifers. However, there remains the potential for small quantities of perched groundwater in any superficial fills (or Made Ground), where these are present. However, searches indicated in this instance that the presence of significant thicknesses of Made Ground would not be reasonably anticipated given the documented history of the site.

A Low risk to deeper groundwater has been identified.

5.2.2.6 Ground Gas

Measurable concentrations of soil gases (predominantly carbon dioxide) would not be reasonably anticipated to be present as a function of any made ground present. However, where present, any granular overburden would mitigate the risk of ground gas buildup via natural ventilation of ground gas to atmosphere.

On the basis of the foregoing:~

A Low risk has been identified.

5.2.3 RECOMMENDATIONS FOLLOWING PRELIMINARY RISK ASSESSMENT [FROM REPORT REF] 0441/1 DATED JUNE 2017.

5.2.3.1 Overview.

The desk study information (including the outcome of the walkover survey), showed the site had a documented developmental history which included use of the site to accommodate a small Town Gas Manufacturing Works.

The site walkover survey and the searches carried out as part of this Desk Study indicated that there were no readily identifiable sources of contamination although there is the potential for the presence of Made Ground.

On that basis, and subject to the final paragraph in this report (in blue text), the need for a Phase 2 intrusive investigation is considered **warranted** on a precautionary basis. It is reasonably anticipated by this Author that a further assessment would be required by the Regulator. It is recommended that the scope of work for the further assessment should be in accordance with the size and scale of the development i.e. two dwellings with garden areas. Consideration may be given to (for example) obtaining two soil samples from each rear garden (surficial 600mm of the soil profile) and chemical laboratory testing for e.g. heavy metals, speciated PAHs and associated parameters to include pH, organic matter content etc. It is recommended that, in accordance with current practice, a more definitive scope of works is agreed with the Regulator prior to the work being carried out in site.

The opinions and recommendations in this report are subject to the agreement of the Regulators.

5.2.3.2 Regulator Response.

No written response was received from the Regulator.

AUTHOR NOTE:

Goldfinch Environmental were asked to provide a strategy for a Phase 2 investigation for Regulator approval together with associated fees for the Client via their then Agent.

Following Client approval the works were carried out as described in the document referenced in Section 5.3 of this Tier 1 Assessment.

5.3 Goldfinch Environmental Ltd. GeoEnvironmental Ground Investigation Report – Phase 2. Proposed Residential Development Land Off Gas House Lane Bridge Road Sutton Bridge Lincs.. Report Ref 0460/2. Dated October 2017.

This document was prepared in pursuance of discharge of the contaminated land condition within Application Reference **H18-0907-16**. The Reader should note that this report has not been reproduced in full here but can be viewed on the SHDC Planning Portal and it is recommended it is read in conjunction with this Tier 1 Assessment.

5.3.1 Phase 2 Investigation Summary

5.3.2 Overview

The Phase 2 investigation followed the proposed scope of work submitted to SHDC in accordance with the planning process, with the proviso that in accordance with ‘best practice’ and guidance of the time that the scope may be changed based upon findings at the time of the fieldwork e.g. potentially additional boreholes based on observations of the condition of arising soils.

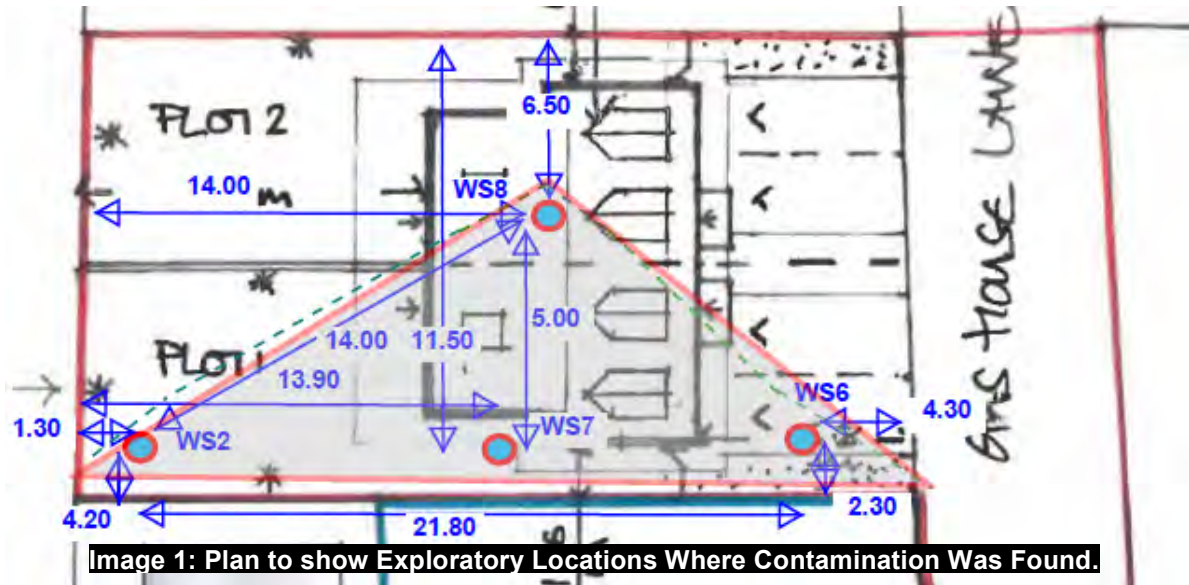
The scope comprised initially six number boreholes weighted towards the proposed soft cover areas. On completion eight boreholes were advanced based upon findings as the works progressed.

5.3.3 Proven Ground Conditions

In summary the encountered ground conditions were described as Made Ground [variously comprising concrete and clay] to depths between 0.35 and 0.42m underlain by firm to stiff dark brown clay with anthropogenic inclusions which included comminuted brick hence the Made Ground [albeit ‘inert’] classification.

5.3.4 Evidence of Potential Contamination

Section 5.5 of the Phase 2 report states olfactory indicators of the presence of ‘contamination’ in the arising soils in exploratory locations WS2, WS6 WS7 and WS8 located in the western corner, approximate mid-point of the southern boundary, southern corner and approximate site centre as shown in the image below extracted from the referred report.



The olfactory indicators comprised [variously-] strong ammoniacal and phenolic odours from between approximately 0.70 and 0.85m and free-phase coal-tar liquids from [between-] approximately 1.70m depth to approximately 2.0m depth.

Given the poor recovery experienced in the exploratory locations [due to the 'liquid' nature of the arisings ~ see Image 2 & 3 below] it was not possible to determine precisely the base/depth that the coal tar wastes extended to but, in location WS6 in the southern corner of the site no further staining or odours was noted below approximately 3.5-3.60m below existing ground level.

Groundwater was only encountered as 'slow seepage' i.e. 'wet' sands but there was insufficient to sample.



Image 2: Typical ['Soil'] Arisings.



Image 2: Example of 'Poor Recovery'.

5.3.5 Results of Chemical Laboratory Testing

When the factual results of the chemical laboratory testing were compared to the guidance of the time elevated concentrations of arsenic, the PAH congeners benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[a]pyrene, indeno [1,2,3-c,d] pyrene dibenz[a,h]anthracene, variously exceeded their respective guidance criteria.

The chemical laboratory testing schedule included a 'coal tar suite' which included BTEX¹ species and styrene commonly employed to 'characterise' this type of contaminant.

Other 'volatile' hydrocarbons species such as trimethylbenzene[s] and propylbenzene[s] were also recorded.

The BTEX species all exceeded their respective ['S4UL'] guidance values.

There is currently no ['S4UL'] guidance value for styrene.

The conceptual model & risk assessment from this Phase 2 investigation has been included below.

¹ BTEX = Benzene, Toluene, Ethylbenzene & Xylenes.

5.3.6 CONCEPTUAL MODEL & RISK ASSESSMENT.**5.3.6.1 Overview.**

In accordance with guidance current at the time of this report, there are three principal factors that are assessed whilst undertaking a qualitative risk assessment. These are described above in Section 3 in the context of 'Relevant Pollution Linkages' (RPL). At the time of this report, the site had been proposed for redevelopment to a continued residential end use therefore 'residential with home-grown produce' assessment criteria were used for the assessment of the laboratory testing results and the following risk assessment.

5.3.6.2. Conceptual Model.

Sources (Proven)	Pathway	Target	Risk
Soil: The intrusive investigation has proved that the site is underlain by Coal tar fuels/wastes and associated organic and inorganic determinants some of which exceed guidance values (where these are available) together with minor arsenic contamination. According to field records this contamination was encountered in boreholes in the southern part of the site as shown in Figure 3 towards the back of this report.	❖ Dermal contact, ingestion and inhalation	• Present users • End users • Construction workers • General public	• Med • High • High • Low-Med
	❖ Wind erosion and atmospheric dispersion	• Adjacent properties • General public	• Neg-Low • Low-Med
	❖ Leaching	• Adjacent properties • Shallow groundwater • Services/construction materials • Plant life • Surface water	• Low • Low • Low • Low • Low
Shallow groundwater: The site overlies an 'Unproductive' Aquifer, which was not considered to be a source of pollution. Groundwater was not encountered in any of the exploratory locations.	❖ Groundwater migration	• Adjacent properties • Deep groundwater • Services/construction materials • Plant life • Surface Water	• Low • Low • Low • Low • Neg-Low
	❖ Dermal contact, ingestion and inhalation	• Present users • End users • Construction workers • General public	• Med • High • High • Neg

Gas: It is anticipated that subfloor ventilation measures will be incorporated in the floor construction detail thus minimising further the already low potential for any ground gas ingress from the natural geology. It was also noted that there is a proposal to raise floor levels at least 1m above existing topographic levels. However, details on this latter point are still unconfirmed. Based on the presence of Coal tar Fuels being present at the site which analysis has shown contain volatile species which have the potential to overcome Site Users by vapour inhalation and ingress into buildings to impact End Users.	❖ Direct inhalation ❖ Soil migration ❖ Services migration	• End users • Construction workers • Buildings	• High • High • High
Negligible Risk Low Risk Medium Risk High Risk	Defined as the site should be considered suitable for present or future use and environmental setting. Contaminants unlikely to be present, which might have unacceptable impact on key targets. Defined as the site should be considered suitable for present or future use and environmental setting. Contaminants may be present but unlikely to have unacceptable impact on key targets. Defined as the site may not be suitable for present or future use and environmental setting. Contaminants are probably present and might have unacceptable impact on key targets. Defined as the site is probably or certainly not suitable for present or future use and environmental setting. Contaminants probably or certainly present and likely to have an unacceptable impact on key targets.		

5.3.6.3 Risk Assessment.

5.3.6.1. Targets.

Potential targets/receptors, in the context of the risk assessment, where a plausible pathway can be proven, are discussed under separate subheadings as follows:-

5.3.6.2. Human Health (Site Users² & Construction Workers).

Coal Tar 'wastes' (fuels) have been proven to be present at the site between approximate depths of 0.5 and 4.0m as shown in Figure 3 towards the back of this report.

Arsenic has been found to exceed the guidance value in one soil sample.

Volatile hydrocarbons as components within the coal tars have been found in measurable concentrations within the soil profile at the site.

In the context of the proposed end use for the site and the localised distribution, depth, measured concentration and contaminant type:-

A Medium-High risk has been identified.

² Current & End User

5.3.6.3 Construction Workers.

During the opening up and disturbance of ground at the referred locations, as part of demolition and construction works, construction staff, particularly groundworkers, are likely be exposed to soils impacted by the contaminants given in Section 7.2.2 of this report (above), (e.g., when manually handling soil and working in excavations):-

Based on the localised distribution, depth, measured concentration and contaminant type:-

A Medium-High risk has been identified.

5.3.6.4 Services and Construction Materials.

5.3.6.4.i Concrete.

Concentrations of determinants are considered to present an 'unacceptable' risk to this medium and are likely to compromise installation, setting/ curing times of e.g. concrete.

A Medium-High risk has been identified.

5.3.6.4.ii Potable Water Supplies.

UK Water Industry Research (UKWIR), provides guidance³ on material selection to prevent water supply lines failing prematurely. The chosen parameters are based on the potential for:

- (a) taste or odour impairment of potable waters by permeation of organic contaminants through polymer-based pipework;
- (b) the structural or physical deterioration of pipework materials;
- (c) the contamination of the interior surfaces pipework when undertaking maintenance;
- (d) health and safety of workers when undertaking repairs.

Some of these parameters follow other existing guidance, which have either been withdrawn or updated including the WRAS guidance of October 2002 (e.g., ICRCL and BRE Special Digest 1).

³ UK Water Industry Research. GUIDANCE FOR THE SELECTION OF WATER SUPPLY PIPES TO BE USED IN BROWNFIELD SITES. Report Ref. No. 10/WM/03/21. 2010.

The UKWIR report only cites organic determinants as contaminants of concern. The investigation has shown the presence of elevated organic contaminants in soils. Therefore:~

A High risk has been identified.

5.3.6.5. Landscaping & Planting.

No signs of stress or unusual staining in plant life was noted.

A Low risk to plantlife has been identified.

5.3.7 REMEDIATION RECOMMENDATIONS [TAKEN FROM REPORT REF 0460/2 OCTOBER 2017.].

5.3.7.1. Land Contamination - Soils.

Based upon the results of the chemical laboratory testing, which showed the presence of free-phase coal tar wastes (fuels) across approximately a third to a half of the site, and between approximately 0.5-4.0m depth within the soil profile, it is anticipated that 'management' (remediation) of soils in the affected localities or plots is warranted.

(Author Note: It is possible that the surrounding environs are similarly affected. However, further consideration of this aspect of the proven contamination was outside the agreed brief for the investigation and therefore is outside the scope of this report.)

Under the current planning regime a Remediation Method Statement (RMS), will be required which should provide details regarding the 'management' of the proven contamination and mitigation of the current 'unacceptable' risk to human health and the wider environment. This RMS will need to be approved by the LPA prior to any remedial going ahead. The RMS should:~

- Include a copy of the Conceptual Model & Risk Assessment contained in this phase 2 report to provide an introduction and summary of the geoenvironmental condition of the site.
- Discuss remedial options (e.g. in-situ/ex-situ/stabilisation or a combination of these) in detail and present the appropriate way to remediate the site and bring it into a condition where it can be considered 'suitable for use' by the Regulator.
- Possible inclusion of measures to protect public health e.g. noise/odour/nuisance/site cleanliness during the remediation works. This could include monitoring of fugitives e.g. dust and volatiles.

- Given the lateral and vertical extent of the proven contamination this will have to take broad account of proposed construction details and their consequences, including (but not restricted to)
 - Reprofilng of the site
 - Proposed site layout e.g. proposed hard and soft cover
 - Construction methods for the new dwellings
 - Effects of these on surrounding environs
- It is anticipated a specialist contractor will be required to effect the remediation with validation being carried out independently of the Contractor.
- It is possible that discussions between the Regulator (including Building Control), the Architect, the Environmental Consultant and the Client may be necessary in order to agree an appropriate strategy prior to proceeding at site. This will need to be confirmed within the RMS prior to any work proceeding at the site.
- Other issues for discussion/possible constraints on the development as a result of the proven contamination may come to light during the preparation of the RMS which will require discussion with the Regulator prior to completion of the RMS.
- Include information which allows validation of the remediation in terms of remedial target values for the raised determinants highlighted in this report.
- Provide requirements for validation purposes as a Verification Report (VR) will be required to demonstrate that the remediation has been carried out in accordance with the RMS

5.3.8 Validation

A VR will be required to demonstrate that the RMS has been complied with and details required to allow validation should be included in the RMS. This may not be fully elucidated until the RMS has been completed to the satisfaction of the LPA.

5.3.9 Regulator Response.

[Online Comment](#)

[Application](#)

[H18-0631-17](#)

Location *Land rear: Sutton Bridge Post Office 158 Bridge Road Sutton Bridge PE12 9SF*

Proposal *Details submitted relating to Material Schedule, landscaping and Geoenvironmental Desk Study (Conditions 3, 4 and 8 of H18-0907-16)*

Name *Sue Armour*

Address *Environmental Protection Officer South Holland District Council*

Date Submitted *02-05-18 For/Against Comments*

We have examined the report submitted by Goldfinch Environmental Ltd 'Proposed Residential Development Land Off Gas House Lane Sutton bridge Lincolnshire Geoenvironmental Ground Investigation report - Phase 2' Ref 0460/2 submitted regarding condition 8 of the above planning permission.

It is not possible to recommend discharge of the condition at this time.

The existing site investigation has identified that some form of remedial action must be agreed prior to the commencement of any development at this location.

Prior to the formulation of a remediation strategy at this location we consider that further characterisation of the type and extent of the existing on site contamination by an appropriate sampling method is required. This should be undertaken in accordance with a site specific detailed quantitative risk assessment (DQRA) to determine remediate targets for the site. This will then allow for consideration of the remedial options at this location.

We understand that there may be a need to consider which remedial options may be available prior to undertaking a DQRA, however it is unlikely that an agreement to proceed with construction can be reached without one in this instance.

Given the nature of the organic contamination identified at this location, we also recommend that consideration be given to the need for ground gas monitoring before proceeding further. Whilst reviewing the report above, a second report was submitted 'Goldfinch Environmental Ltd Proposed Residential Development Land Off Gas House Lane Sutton bridge Lincolnshire Risk Assessment / Remediation Method Statement Ref 0460/3'. Comments are made below. It is not possible to recommend discharge of the condition at this time.

The report outlines some of the remedial options that may be available at this location, but does not include the detail or conclusions required to form a remediation method statement. The information in this report should allow the developer to undertake an options appraisal which will allow them to direct their detailed quantitative risk assessment at this location.

The report hints at raising site levels using a retaining wall and an engineered cover system, whilst this may be acceptable from a long term human health standpoint, further consideration of the vapour inhalation pathway is required before proceeding further.

5.4 Goldfinch Environmental Ltd. GeoEnvironmental Risk Assessment / Remediation Method Statement – Phase 3. Proposed Residential

**Development Land Off Gas House Lane Bridge Road Sutton Bridge Lincs..
Report Ref 0460/3. Dated April 2018.**

5.4.1 Overview

At the time of the preparation of this document the proposed development comprised two semidetached properties are to be established on ring beam and pile foundations and the dpc with final floor level ('ffl') is to be approximately 1.0m above topographic levels at Gas House Lane.

Information supplied by the Architect (see Figure 5 towards the back of this [RMS] report) shows a proposed 650mm (maximum) sub-floor void within the floor construction detail, with external site levels also being raised above the current values as shown by the establishment of a retaining wall.

5.4.2 Summary Remediation Recommendations

5.4.2.1 Land Contamination - Soils

Based upon the results of the chemical laboratory testing, which showed the presence of free-phase coal tar wastes (fuels) across approximately a third to a half of the site, and between approximately 0.5-4.0m depth within the soil profile, it is anticipated that 'management' (remediation) of soils in the affected localities or plots is warranted.

Under the current planning regime a further Risk assessment / Remediation Method Statement (RMS), will be required which should provide details regarding the 'management' of the proven contamination and mitigation of the current 'unacceptable' risk to human health and the wider environment. This RMS will need to be approved by the LPA prior to any remedial going ahead. The RMS should:~

- Include a copy of the Conceptual Model & Risk Assessment contained in this phase 2 report to provide an introduction and summary of the geoenvironmental condition of the site.
- Discuss remedial options (e.g. in-situ/ex-situ/stabilisation or a combination of these) in detail and present the appropriate way to remediate the site and bring it into a condition where it can be considered 'suitable for use' by the Regulator.
- Possible inclusion of measures to protect public health e.g. noise / odour / nuisance / site cleanliness [i.e. 'housekeeping'] during the remediation works. This could include monitoring of fugitives e.g. dust and volatiles.
- Given the lateral and vertical extent of the proven contamination this will have to take broad account of proposed construction details and their consequences, including (but not restricted to)

- Reprofilng of the site
 - Proposed site layout e.g. proposed hard and soft cover
 - Construction methods for the new dwellings
 - Effects of these on surrounding environs
-
- It is anticipated a specialist contractor will be required to effect the remediation (either insitu or ex-situ or by soil removal, with validation being carried out independently of the Contractor by Goldfinch Environmental Ltd.
 - Where the choice of off-site disposal is considered it is possible that the material may be considered to be 'too hazardous' to be landfilled, and that 'stabilisation/solidification' methods may be more appropriate. The latter may lead to leaving the site in a condition favouring the proposed development method.
 - It is possible that discussions between the Regulator (including Building Control), the Architect, the Environmental Consultant and the Client may be necessary in order to agree an appropriate strategy prior to proceeding at site. This will need to be confirmed within the RMS prior to any work proceeding at the site.
 - Other issues for discussion/possible constraints on the development as a result of the proven contamination may come to light during the preparation of the RMS which will require discussion with the Regulator prior to completion of the RMS.
 - Include information which allows validation of the remediation in terms of remedial target values for the raised determinants highlighted in this report.
 - Cognisance or emplacement of current Waste legislation and guidance documents e.g. permits should also be taken into account. This may require liaison with the Environment Agency.
 - Provide requirements for validation purposes as a Verification Report (VR) will be required to demonstrate that the remediation has been carried out in accordance with the RMS

5.4.3 Validation

A VR will be required to demonstrate that the RMS has been complied with and details required to allow validation should be included in the RMS. This may not be fully elucidated until the RMS has been completed to the satisfaction of the LPA.

5.4.4 Regulator Response.

The following comments were received by this Office [GEL] following submission of the Ground Gas Assessment Report and are partly duplicated below.

From: Armour, Susan [<mailto:Susan.Armour@Breckland-Sholland.gov.uk>] **Sent:** 09 October 2019 14:35 **To:** Gedney, David **Subject:** H18-0631-17 Land rear: Sutton Bridge Post Office 158 Bridge Road, Sutton Bridge **Importance:** High

It is not possible to recommend discharge of condition 8 of H18-0907-16 at the current time.

My previous comments of May 2018:

- recommended that further characterisation of the type and extent of existing contamination was undertaken, leading to a site specific detailed quantitative risk assessment (DQRA). This has not been undertaken.*
- recommended that consideration be given to the ground gas regime. Limited consideration has been given.*
- stated that further consideration of the vapour inhalation pathway was required. Limited consideration has been given.*

Essentially if the applicant wishes to leave a significant (currently unknown) quantity of free product coal tar under the properties, then a high degree of confidence is required in both the site characterisation and the remedial proposals to ensure that a safe development can be achieved. The report does not demonstrate this.

5.5 Goldfinch Environmental Ltd. GeoEnvironmental Ground Gas Investigation Report – Phase 2. Proposed Residential Development Land Off Gas House Lane Bridge Road Sutton Bridge Lincs.. Report Ref 0578/2. Dated May 2019.

5.5.1 Overview

The purpose of the investigation was to characterise the ground gas regime at the site in the context of the potential risk to human health as required by the Regulator (SHDC).

Prior to commencement of the fieldwork described below, the scope for the investigation reported in this document was discussed and agreed with SHDC Environmental Health (the Regulator), as required by current practice.

Three number narrow diameter perforated standpipes were installed by percussive [drive-in] methods to depths of approximately 4.0-5.0m to collect ground vapour information.

While current best practice recommends initially that six number return visits to site are made to carry out monitoring for the presence of ground gases, and establish resting groundwater levels within the referred standpipes. In this instance it had been agreed with the Regulator that three visits would be carried out as a 'screening' exercise with the need for further visits to be determined on the basis of the results of these three sets of data.

A review of the collected data after three visits showed a consistency which suggested the monitoring could cease at this stage. The ground gas monitoring visits were carried out during 7 and 21 March, and 4 April 2019, respectively.

In accordance with recommended practice data collection included measurements taken during conditions of "falling atmospheric pressure" as well as at least one dataset from a barometric pressure of less than 1000mb.

As part of the ground gas assessment two absorbent sampling tubes were employed to allow collection of vapour samples for chemical laboratory analysis. The absorbent tubes were deployed between the 7 and the 21 March 2019. The 'on' and 'off' times were recorded to allow the laboratory to calculate analyte concentrations as part of the test procedure. To assist the reader the sampling [i.e. exposure] time associated with these ['Tenax'] tubes was approximately 337.75 hours.

The vapour samples were analysed for Total Petroleum Hydrocarbons (TPHs), BTEX, Volatile Organic Compounds (VOCs) and Tentatively Identified Compounds (TICs).

The ground gas assessment has shown that the site falls with Characteristic Situation 1 [CS1]. i.e. a 'very low' risk as described in guidance. However, this Author's previous experience has shown that the Regulator [in this instance South Holland District Council] request a minimum of Characteristic Situation 2 [CS2] ground gas protection measures in new developments. To comply with planning this requirement has been taken into account in the subsequent sections of this report.

5.5.2. REMEDIATION RECOMMENDATIONS [TAKEN FROM REPORT REF 0578/2 DATED MAY 2019].

5.5.2.1. Ground Gas

Based on the outcome of the ground gas monitoring program, 'remedial' measures for the protection of human health are required as discussed in Section 6 of this report and reproduced below:~

Based on the above (and according to CIRIA Report C665/BS8485:2015 and Regulator (SHDC) preferences) "*low level gas protection required*". These should comprise a membrane and ventilated subfloor void. The following measures should be considered for inclusion in the proposed development:

- Ventilation of confined spaces in the building and (where these are included), particularly confined spaces to which personnel may have access.
- Should a floor slab be included in the construction method this should include a low permeability gas control membrane which should comprise as a minimum a 2000 gauge LDPE [chemically-resistant] sheet overlapped and taped at the joints. The overlap should be at least 300mm.
- The membrane, which as a precaution should be hydrocarbon/chemically resistant will need to be linked into the DPC layers to ensure a continuous gas barrier is formed covering the whole building footprint. This should include any brick work cavities where these are present.
- It is recommended that consideration be given to increasing the frequency of air bricks above the standard figure by (say) approximately 15% to promote improved ventilation of the subfloor void underneath the building(s).
- Where possible, incoming services and ducting and pipes should be vented before entry into the buildings and above the level of the floor where appropriate. This is to minimise penetration of the gas membrane.
- Any entry points penetrating the membrane should be carefully constructed and the membrane sealed completely around the 'service'.

Specific remedial details, including floor construction details etc, should be included within a Remediation Method Statement which will need to be submitted to the LPA for their approval prior to anyworks being carried out.

It is understood that the proposed scheme will include raising the topographic levels at the site by as much as 1200mm. These details and foundation methods should be included in the referred RMS.

5.5.3. Regulator Response

Following submission of the referred RMS to the Regulator the following comments were received [our italics]:~

From: *Armour, Susan [mailto:Susan.Armour@Breckland-Sholland.gov.uk]* **Sent:** *09 October 2019 14:35* **To:** *Gedney, David* **Subject:** *H18-0631-17 Land rear: Sutton Bridge Post Office 158 Bridge Road, Sutton Bridge* **Importance:** *High*

It is not possible to recommend discharge of condition 8 of H18-0907-16 at the current time.

My previous comments of May 2018:

- *recommended that further characterisation of the type and extent of existing contamination was undertaken, leading to a site specific detailed quantitative risk assessment (DQRA). This has not been undertaken.*
- *recommended that consideration be given to the ground gas regime. Limited consideration has been given.*
- *stated that further consideration of the vapour inhalation pathway was required. Limited consideration has been given.*

Essentially if the applicant wishes to leave a significant (currently unknown) quantity of free product coal tar under the properties, then a high degree of confidence is required in both the site characterisation and the remedial proposals to ensure that a safe development can be achieved. The report does not demonstrate this.

In respect of the aforementioned report I make the following additional comments:

- 1 *The introduction states that the purpose of the report was to characterise the ground gas regime, however to ensure a safe development, further work will be required.*
- 2 *Specific details of the in respect of the sampling locations were not presented.*
- 3 *No reason for the choice of driven standpipe compared with a standard borehole was given, nor their suitability given the presence of cohesive soils. No details of the pipe diameter, perforated/ plain sections or bentonite seal were given.*
- 4 *I draw your attention to the following references which give guidance on the selection of sampling points C665 'Assessing risks posed by hazardous ground gases to buildings' and & BS8576:2013 'Guidance on investigations for ground gas – permanent gases and Volatile Organic Compounds (VOCs)'*
- 5 *Depth to groundwater was not recorded, despite the text indicating this was the case.*
- 6 *Only three ground gas monitoring visits were undertaken. This is considered to be insufficient to characterise the ground gas regime.*
- 7 *Depleted levels of oxygen were recorded, however monitoring with a PID (Photo ionisation detector) and/or point source gas sampling was not undertaken.*
- 8 *Sampling for vapours was undertaken from two of the three boreholes, however the sampling location under the proposed houses was excluded. The test results were presented but no observations were made regarding the concentrations detected. Phenol was not included, despite phenolic odours being identified by smell across the site.*

9 *No DQRA was presented with respect to human health.*

10 *The Ground vapour/direct inhalation/end user pathway is missing from the conceptual model.*

In addition, I have undertaken an informal generic / non-site specific consultation with Environmental Protection Officers nationally regarding this site. Whilst they know very little about the site itself, their suggestions for consideration were as follows:

11 *Has the impact of construction works (eg piling) been considered?*

12 *If flood risk is high over the lifetime of the building does the conceptual site model consider how the free phase product would behave during and after a flood event? For example, would the free phase product rise into and contaminate the 'clean cover' soil column or move into the void beneath the building creating new significant linkages?*

13 *Will water pipes be protected, and can the use of deep rooted fruit trees be prevented?*

14 *They noted that the Environment Agency usually take the lead where there is free product in order to protect controlled water resources.*

15 *No one gave any examples of free product being left in place for a new build, but stated it had been done for Part 2A (Environmental Protection Act 1990) sites. (NB I know of two sites where free product has been left in place on residential developments, one after a cost benefit analysis was undertaken.)*

On the basis of the above, I have not commented on the conclusions drawn in the report, as I feel there are too many uncertainties outstanding at this point in time.

I have also spoken directly to the Environment Agency. Keri Monger will look at the site and decide if they wish to comment. The March 2018 consultation has not been noted on their internal system.

6. SITE LOCATION AND DESCRIPTION [2025 TIER 1 REPORT].

6.1 Introduction

A site visit was carried out during 28 June 2025 the purpose being to:-

- I. Collect additional/relevant information about the site its environs and any site-specific potential contaminants, pathways and receptors.
- II. Record any aspects of the site not revealed by documentary searches. (e.g. the presence of above- or belowground hydrocarbon storage tanks.).
- III. Collect any information that will assist in the planning of any subsequent phases of field investigation where the Desk Study deems this is necessary.

Approximate Grid Reference ⁵47553, ³21418 refers.

The site comprised a sensibly level, subrectangular plot of land on the western side of Gas House Lane, Sutton Bridge, Spalding, Lincs..

At the time of the site walkover survey the site was capped with moderately dense to dense vegetation which included brambles and perennial and annual “weed growth” with rare small areas of exposed soils as can be seen in the images below.



Photograph 1: View of the Site from Gas House Lane.

Photograph 1 shows a view of the site from the east, Gas House Lane. The western site boundary is denoted by the remnant brick wall in the background of Photograph 1 above and left of Photograph 2 below.



Where small patches of soils were exposed there was no evidence of unusual staining.

In the western part of the site occasional fragments of corrugated cementised panels were noted. It is anticipated that these will be removed as the site is redeveloped. In other parts of the site inert made ground inclusions such as comminuted red brick and concrete were noted.

The density and cover of the vegetation prevented location of historic borehole and ground gas standpipe installations.

Following visual inspection of the site there were no notable features with regard to land contamination. In addition, although the site had been subject to previous 'development' there was no apparent evidence of:~

1. The presence of Made Ground [other than the inert sources referred above].
2. The presence or storage of potentially leachable materials/chemicals.
3. Demolition or dispersal of contaminated rubble or other materials.
4. Importation of potentially contaminated fill onto the site.

7. SITE HISTORY.

7.1 Historical Maps.

Where the attached maps are compiled from a composite of editions, the year of map upon which the majority of the site may be found is quoted below. These are reproduced at Appendix 1. Annotation, as it appears on the maps, is indicated by italics.

Land use in excess of 250m from the site is considered of potentially negligible to low risk to the application site and on that basis is generally excluded from the summary provided below (unless record review by this author suggests otherwise). However, should the reader require this additional detail, full disclosure records are included in Appendix 1 towards the back of this report.

(The reader should note at this point that occasionally on the older map editions the site boundaries can be slightly 'shifted' relative to more recent maps.).

1886-7 Edition {County Series - Scale 1:10 560}

The site was shown as a developed plot of land in Sutton Bridge. The site was annotated '*Gas Works*'.

Surrounding land was sparsely developed.

A Railway Line was shown approximately 250m distant from the site

There were no other notable features associated with the site or surrounding land use in the context of land quality.

1887 Edition {County Series - Scale 1:10 560}

The site was accommodated development as shown by the presence of a circular structure towards its approximate centre. Map annotation suggests this is associated with nearby development annotated '*Gas Works*'.

Land to the northwest and southeast of the site was developed, possibly to a residential end use.

Land to the north of the site was sparsely developed.

1888 Edition {County Series - Scale 1:2 500}

The development at the site could now be clearly seen on this map edition. A circular feature was established near the southern boundary of the site which had possibly been used for the storage of 'town gas' or other 'fluids'.

There were no further apparent changes to the surrounding environs in the context of land quality on this map edition.

1889 Edition {County Series - Scale 1:2 500}

There were no apparent further changes to the site or its immediate surroundings at this scale of mapping.

1900-03 Edition {County Series - Scale 1:10 560}

There were no further apparent changes to the site at this scale of mapping.

There were no other apparent change to the immediate environs of the site at this scale of mapping. However, this does not preclude minor development having taken place.

1904 Edition {County Series - Scale 1:2 500}

There were no apparent changes to the site.

Distant surrounding land had undergone development.

1929 Edition {County Series - Scale 1:10 560}

There were no apparent changes to the site.

There were further minor developments to the surrounding environs at this scale of mapping for example land to the north of the site had undergone development.

A 'Nursery' was established on land to the south west of the site.

'Allotment Gardens' were established on land to the west of the site.

1931 Edition {County Series - Scale 1:10 560}

There were no apparent changes to the site at this scale of mapping.

There were no apparent changes to the immediate environs of the site in the context of land quality at this scale of mapping.

1938 Edition {County Series - Scale 1:10 560}

There were no apparent changes to the site or its immediate environs at this scale of mapping.

1958 Edition {Provisional - Scale 1:10 560}

There were no apparent changes to the site or its immediate environs in the context of land quality although this does not preclude undocumented changes taking place.

1965 Edition {National Grid - Scale 1:2 500}

The site had undergone redevelopment. The gas works features were no longer shown and had possibly been removed. However, a remnant [or new~] structure was present at the northwestern boundary of the site.

Gas House Lane was established on the eastern side of, and now provided access to, the site.

The surrounding environs of the site had now become quite densely developed. A Police Station was established on the western side of the site. A Club and Sewage Works to the northeast and possible residential development to the south.

The railway formerly further to the south of the site had now been dismantled.

1972 Editions {National Grid - Scale 1:2 500}

There were apparent further changes to the site as the building in the northwest of the site appeared to have an increased footprint compared to that shown on the 1965 Edition.

The surrounding environs had possibly undergone further minor development.

1974 Edition {National Grid - Scale 1:10 000}

There were no apparent changes to the site or its immediate environs at this scale of mapping.

1984 Edition {National Grid - Scale 1:2 500}

There were no apparent changes to the site at this scale of mapping.

There were no apparent changes to surrounding land at this scale of mapping. However, this does not preclude minor development having taken place.

1987 Edition {National Grid - Scale 1:2 500}

There were no apparent changes to the site or its immediate environs at this scale of mapping.

1991 Editions {National Grid - Scale 1:2 500 & 1:10 000}

There were no apparent changes to the site.

This map edition may be a reissue of an earlier map edition

1992 Edition {National Grid - Scale 1:2 500}

There were no apparent changes to the site.

This map edition may be a reissue of an earlier map edition.

1993 Edition {National Grid - Scale 1:2 500}

There were no apparent changes to the site or its immediate environs at this scale of mapping.

1995 Edition {National Grid - Scale 1:2 500}

There were no apparent further changes to the site although the surrounding environs had undergone further minor development. Land to the south had possibly undergone redevelopment as the former Nursery was no longer shown.

2001 Edition {National Grid - Scale 1:10 000}

There were no apparent changes to the site.

There were no apparent changes to the immediate environs of the site at this scale of mapping.

2003 Edition {LandLine - Scale 1:1 250}

There were no apparent changes to the site.

There were no apparent changes to the immediate environs of the site at this scale of mapping.

2010 Edition {National Grid - Scale 1:10 000}

There were no further changes to the site.

There were no apparent changes to the surrounding environs with respect to land contamination.

2025 Edition {National Grid - Scale 1:10 000}

There were no apparent changes to the site or surrounding environs with respect to land contamination.

7.2 Public Registers.

A search of public register information has been made using an Internet-based system. A disclosure report is reproduced at Appendix 1. The following commentary is restricted to entries within a 250m search radius of the site. Appendix 1 should be referred to for details on entries beyond of this range.

7.2.1 Past Land Use

7.2.1.1 Historical Industrial Land Uses

There were thirty-one entries for the referred search radius for the site. Supplied information indicated these were located between approximately the site and 241m distant from the site and were given for the site as; '*Police Station*'; '*Unspecified Works*'; '*Unspecified Tank*' (x3); '*Gasometer*' (x2); '*Gasworks*' (x2); '*Unspecified Commercial/Industrial*'; and up to the referred search radius for the site were given as; '*Unspecified Tank*' (x6); '*Gasometer*'; '*Police Station*'; '*Unspecified Pit*' (x2); '*Nursery*' (x5); '*Railway Sidings*' (x6); and '*Garage*'.

7.2.1.2 Historical Tanks

There were eight records within this category for the search radius for the site. Supplied information indicated these were located between approximately the site and 190m

distant from the site and were given as '*Unspecified Tank / Tanks*' (x6); '*Gas Holder*' and '*Gas Works*'.

7.2.1.3 Historical Energy Features

There were eleven records within this category for the search radius for the site. Supplied information indicated these were located between approximately 20 and 241m distant from the site and were given as '*Gas Holder*'; '*Gas Works*' and '*Electricity Substation*' (x9).

7.2.1.4 Historical Garages

There were five records within this category for the search radius for the site. Supplied information indicated these were located between approximately 230 and 231m distant from the site and were given as '*Garage*' (x5).

7.2.2 Past Land Use – Ungrouped

7.2.2.1 Historical Industrial Land Uses

There were thirty-six entries for the referred search radius for the site. Supplied information indicated these were located between approximately the site and 241m distant from the site and were given for the site as; '*Police Station*'; '*Unspecified Works*'; '*Unspecified Tank*' (x3); '*Gasometer*' (x3); '*Gasworks*' (x3); '*Unspecified Commercial/Industrial*' (x2); and up to the referred search radius for the site were given as; '*Unspecified Tank*' (x5); '*Gasometer*'; '*Police Station*'; '*Nursery*' (x6); '*Unspecified Pit*' (x2); '*Railway Sidings*' (x7) and '*Garage*'.

7.2.2.2 Historical Tanks

There were ten entries for the referred search radius for the site. Supplied information indicated these were located between the site and 190m distant from the site and were given as '*Unspecified Tank / Tanks*' (x6); '*Gas Holder*'; '*Tanks*' (x2) and '*Gas Works*'.

7.2.2.3 Historical Energy Features

There were seventeen entries for the referred search radius for the site. Supplied information indicated these were located between approximately 20 and 241m distant from the site and were given as '*Gas Holder*'; '*Gas Works*' and '*Electricity Substation*' (x15).

7.2.2.4 Historical Garages

There were nine records within this category for the search radius for the site. Supplied information indicated these were located between approximately 230 and 231m distant from the site and were given as '*Garage*' (x9).

7.2.3.1 Waste & Landfill

There were no records for this potential source of contamination within the search radius for the site.

7.2.4 Current Industrial Land Use

7.2.4.1 Recent Industrial Land Uses

There were eight entries for the referred search radius for the site. Supplied information indicated these were located between approximately 54 and 249m distant from the site and were given as; '*Electrical Features*' (x6); '*Water Pumping Stations*' (x3) and '*General Construction Supplies*'.

7.2.5 Hydrogeology

7.2.5.1 Superficial Aquifer

Records were '*Identified*' within supplied search data and indicated the site was underlain by a '*Unproductive*' aquifer.

7.2.5.2 Bedrock Aquifer

Records were '*Identified*' within supplied search data and indicated the site was underlain by a '*Unproductive*' aquifer.

7.2.6 Geology

7.2.6.1 Superficial (1:50 000)

Records were '*Identified*' within supplied search data and indicated the site was underlain by Tidal Flats Deposits (Clay and Silt).

7.2.6.2 Bedrock (1:50 000)

Records were '*Identified*' within supplied search data and indicated the site was underlain by Mudstone.

7.2.7 Radon

Searches indicated that the site is in an area where less than 1% of properties are above the 'Action Level' therefore radon protection measures are not necessary in extensions and new dwellings.

8. PRELIMINARY QUALITATIVE RISK ASSESSMENT.

8.1 Introduction.

There are three factors that are taken into account whilst undertaking a qualitative risk assessment. These have been described in Section 3 of this document. At the time of this report, the site had been proposed for residential development.

8.2 Conceptual Model.

Source (s) (Potential)	Pathway	Target	Risk
Soil: A. Tier 1 Assessment 2025. The site had existed as a 'developed' plot of land since at least issue of the 1886-7 Edition when it was shown as part of a Gas Works. Phases of development were shown on the 1965 and 1972 Editions with no documented changes to the present day i.e. the time of the site walkover survey carried out by this Author during 28 June 2025. While there were no site-specific indicators of potential soil-borne contamination noted at the time of the walkover survey, Town Gas Manufacturing Works are a documented source of contamination broadly in the form of:~ A.1. Inorganic Compounds:~ Ammonia; Cyanide; Nitrate; Sulphate; Sulphide; Thiocyanate and Metals⁴. A.2. Organic Compounds:~ BTEX⁵; Phenolics & PAHs⁶. B. Historic Phase 2 Investigations B.1. Findings ~ Soils. B.1.1. Inorganics	❖ Dermal contact, ingestion and inhalation	• Present users • End users • Construction workers • General public	• Med • High • High • Low-Med

⁴ Metals: Those contained in current LQM-CIEH ['S4UL'] Guidance plus Aluminium; Antimony; Barium; Iron; Manganese and Silver.

⁵ BTEX: Benzene; Toluene; Ethylbenzene and Xylenes.

⁶ PAHs: Typically 16 Congeners as given in LQM-CIEH ['S4UL'] Guidance

Tier 1 Contamination Risk Assessment

One soil sample exceeded the guidance value for arsenic. Measurable concentrations of ammonium, and 'total', 'free' and 'complex' cyanides were found in a limited number of soil samples. [There are no current guidance values for human health risk assessment for these determinants.]. B.1.2. Organics Four PAH congeners Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[a]pyrene and Dibenz(a,h)Anthracene, were present in all six soil samples analysed. Chrysene was present in five soil samples analysed and Indeno(1,2,3-c,d)Pyrene was present in two soil samples above the recommended guidance levels. Coal Tars have been determined to be present following specific analysis for this material following site observations at the time of the fieldwork. The 'total' concentration was recorded as 3200mg kg⁻¹. BTEX species have been recorded at various concentrations above 'adopted' guidance values. Styrene was recorded in measurable concentrations as a component of the Coal Tar (fuels) together with other volatile hydrocarbons such as trimethylbenzene(s) and propylbenzene(s). Additional Comments. Visual and olfactory indicators of potential contamination immediately nearby off site were not noted.	❖ Wind erosion and atmospheric dispersion	• Adjacent properties • General public • Ecological Systems	• Low • Low-Med • Low
	❖ Leaching	• Adjacent properties • Shallow groundwater • Services/construction materials • Plant life • Surface water • Ecological Systems	• Low • Low • Med-High • Low • Low • Low
	❖ Groundwater migration	• Adjacent properties • Deep groundwater • Services/construction materials • Plant life • Ecological Systems	• Low • Low • Low • n/a • Low
Shallow groundwater: The site overlies '<i>Unproductive</i>' aquifers, which were not considered to be pollution sources or sensitive receptors.	❖ Dermal contact, ingestion and inhalation	• Present users • End users • Construction workers • General public	• Low • Low • Low • Neg-Low

Tier 1 Contamination Risk Assessment

Gas [Including 'Vapours']:		❖ Direct inhalation ❖ Soil migration ❖ Services migration	• End users • Construction workers in 'confined' spaces' • Buildings • Ecological Systems	• Low-Med • Low-Med • Low-Med • Low
Measurable (background) concentrations of ground gas would not (reasonably) be anticipated to be present as a result of the underlying natural geology.				
Phase 2 Investigation Outcome.				
The ground gas investigation revealed that for methane a GSV ⁷ of 0.0043 l hr ⁻¹ was derived, with a GSV of 0.0009 l hr ⁻¹ for Carbon Dioxide. One of three boreholes showed depleted oxygen values of 5.7 and 2.7% v/v. The Reader should note that these values recovered to approximately 20% after one minute of monitoring.				
It is anticipated that subfloor ventilation measures will be incorporated in the floor construction detail thus minimising further the already low potential for any ground gas ingress from the natural geology. It was also noted that there is a proposal to raise floor levels at least 1m above existing topographic levels. However, details on this latter point are still unconfirmed. The results of the fieldwork and their interpretation show that the ground gas regime operating at the site is classed as Characteristic Situation 1 (CS1) indicating 'low-level' protection measures are required .				
<i>Author Note: However, this Author's previous experience has shown that the Regulator [in this instance South Holland District Council] request a minimum of Characteristic Situation 2 [CS2] ground gas protection measures in new developments. To comply with planning this requirement has been taken into account in the subsequent sections of this report.</i>				
Based on the presence of Coal tar Fuels being present at the site which analysis has shown contain volatile species which have the potential to overcome Site Users by vapour inhalation and ingress into buildings to impact End Users.				
Negligible Risk Defined as the site should be considered suitable for present or future use and environmental setting. Contaminants unlikely to be present, which might have unacceptable impact on key targets.				
Low Risk Defined as the site should be considered suitable for present or future use and environmental setting. Contaminants may be present but unlikely to have unacceptable impact on key targets.				
Medium Risk Defined as the site may not be suitable for present or future use and environmental setting. Contaminants are probably present and might have unacceptable impact on key targets.				
High Risk Defined as the site is probably or certainly not suitable for present or future use and environmental setting. Contaminants probably or certainly present and likely to have an unacceptable impact on key targets.				
Notes: n/a = not applicable				

⁷ GSV = Gas Screening Value

The risk assessment, which also takes account of historic risk assessments, follows below:-

8.3 Targets.

Potential targets, in the context of the risk assessment (based on the relevant pollutant linkage), where a plausible pathway can be proven, are discussed as follows.

At the time of this report, the proposed scheme comprised residential development.

8.3.1 Human Health (Site Users & Construction Workers)

The site had a limited documented development history as described, which included its establishment. There is potential for the presence of limited thicknesses of inert Made Ground.

Historic Phase 2 investigations have shown the soils at the site have been impacted by both inorganic [arsenic & cyanides] and organic contaminants in the form of PAH congeners Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[a]pyrene, Dibenz(a,h)Anthracene, Chrysene, Indeno(1,2,3-c,d)Pyrene, Coal Tars, BTEX and Styrene together with other volatile hydrocarbons such as trimethylbenzene(s) and propylbenzene(s) which, where they exist, exceed human health risk assessment guidance values [i.e. LQM-CIEH 'S4UL' values].

Based upon the foregoing and the final paragraph of this report, regarding 'unanticipated contamination:-

A Medium-High risk has been identified until proven otherwise.

8.3.2 Services and Construction Materials

8.3.2.1 Concrete & Potable water supplies.

Adverse effects on services and construction materials may be anticipated where soils are impacted by localised raised/lowered pH values, PAH's, TPHs and metals contamination and where these are present in Made Ground materials.

The site has been impacted by measurable concentrations of organic contaminants which could pose an 'unacceptable' risk to services, services conduits and setting/curing times of cast concrete.

In this instance and the foregoing:-

A Medium-High risk has been identified.

8.4 Landscaping & Planting

The existing soils at the site may not provide a suitable growing medium for new planting expected in a residential development due to anthropogenic inclusions in the soils such as comminuted brick and concrete.

There was no evidence of unusual discolouration in the vegetation present at the site at the time of the walkover survey.

Based on the foregoing a 'Low-Medium' risk is presented to this receptor from the Made Ground present at the site.

The Reader should note that the current proposed scheme allows for raising of ground levels by 1200mm.

8.5 Groundwater (Controlled Waters)

The site is underlain by 'Unproductive' aquifers. However, there remains the potential for small quantities of perched groundwater in any superficial fills (or Made Ground), where these are present. However, searches indicated in this instance that the presence of significant thicknesses of Made Ground would not be reasonably anticipated given the documented history of the site.

Environmental searches show that the nearest groundwater abstraction point is in excess of 250m distant from the site. The receptor is at 'Low' risk from impact from the site. There are no surface water abstraction points / potable abstractions / Source Protection Zones [Unconfined / Confined] recorded within 2km of the site.

A Low risk to deeper groundwater has been identified.

8.6 Ground Gas & Vapours

Measurable concentrations of soil gases (predominantly carbon dioxide) would not be reasonably anticipated to be present as a function of any made ground present, however, where present, any granular overburden would mitigate the risk of ground gas buildup via natural ventilation of ground gas to atmosphere.

The ground gas investigation revealed that for methane a GSV⁸ of 0.0043 l hr⁻¹ was derived, with a GSV of 0.0009 l hr⁻¹ for Carbon Dioxide. One of three boreholes showed depleted oxygen values of 5.7 and 2.7% v/v. The Reader should note that these values recovered to approximately 20% after one minute of monitoring.

⁸ GSV = Gas Screening Value

It is anticipated that subfloor ventilation measures will be incorporated in the floor construction detail thus minimising further the already low potential for any ground gas ingress from the natural geology. It was also noted that there is a proposal to raise floor levels at least 1m above existing topographic levels. However, details on this latter point are still unconfirmed. The results of the fieldwork and their interpretation show that the ground gas regime operating at the site is classed as **Characteristic Situation 1 (CS1)** indicating **'low-level' protection measures are required**.

Author Note: However, this Author's previous experience has shown that the Regulator [in this instance South Holland District Council] request a minimum of Characteristic Situation 2 [CS2] ground gas protection measures in new developments. To comply with planning this requirement has been taken into account in the subsequent sections of this report.

Based on the presence of Coal Tar 'Fuels' being present at the site which analysis has shown to contain volatile [hydrocarbon-based] species which have the potential to overcome Site Users by vapour inhalation and ingress into buildings to impact End Users a Medium-High risk to human health has been identified from this source.

9. RECOMMENDATIONS FOLLOWING PRELIMINARY RISK ASSESSMENT.

9.1 Overview.

This section of the Tier 1 Assessment provides recommendations for consideration in progressing towards discharge of Condition 9 of the Application for the site.

Given the historic information available as described and discussed in Section 5 and Section 8 of this report Regulatory responses have been translated as a series of possible actions for subsequent works either desk-based or field-based.

The desk study information (including the outcome of the walkover survey), showed the site had a documented developmental history since its establishment and that in its early history it accommodated part of a Gas Works and latterly part of a Post Office and possibly Police Station.

The site walkover survey and the searches carried out as part of this Desk Study indicated that there were no readily identifiable sources of contamination other than the site's inclusion within the curtilage of a Town Gas Manufacturing site which operated between approximately 1864 - 1866. No date for cessation of operations appears in searches carried out by this Office except for the comment that “..a Gas Holder remained until the 1970s.”

Made Ground was noted to be present in the form of anthropogenic inclusions such as comminuted brick in existing soils.

Remediation of the coal tar wastes and arsenic shown to be present in soils at the site will be required in order to bring the site to a condition where it may be considered “safe for development” to a residential end use.

9.2 Possible Actions Arising From Council Comments.

This section of the 2025 Tier 1 Assessment collates the correspondence issued by SHDC Environmental Protection & Planning following submission of the documents listed in Section 5.1 of this report between June 2017 and May 2019.

The comments have been presented as received with possible responses translated as actions where possible which, subject to Regulatory approval would lead to application for discharge of the relevant Planning Condition:~

9.2.i **SHDC:**

*We have examined the report submitted by Goldfinch Environmental Ltd
'Proposed Residential Development Land Off Gas House Lane Sutton bridge*

Lincolnshire Geoenvironmental Ground Investigation report - Phase 2' Ref 0460/2 submitted regarding condition 8 of the above planning permission.

*It is not possible to recommend discharge of the condition at this time.
The existing site investigation has identified that some form of remedial action must be agreed prior to the commencement of any development at this location.*

9.2.i.a GEL Response:

No comment.

9.2.ii SHDC:

Prior to the formulation of a remediation strategy at this location we consider that further characterisation of the type and extent of the existing on site contamination by an appropriate sampling method is required. This should be undertaken in accordance with a site specific detailed quantitative risk assessment (DQRA) to determine remediate targets for the site. This will then allow for consideration of the remedial options at this location.

9.2.ii.a GEL Response:

Review existing chemical laboratory factual results with a view to determination of remedial targets for the site.

Literature search of guidance documents to collate values which may be used as remedial targets.

Propose remedial targets list for submission and approval by SHDC Planning.

Where remedial targets do not exist a site-specific DQRA could be carried out using a package approved by SHDC.

9.2.iii SHDC:

We understand that there may be a need to consider which remedial options may be available prior to undertaking a DQRA, however it is unlikely that an agreement to proceed with construction can be reached without one in this instance.

9.2.iii.a GEL Response:

No further comment.

9.2.iv **SHDC:**

Given the nature of the organic contamination identified at this location, we also recommend that consideration be given to the need for ground gas monitoring before proceeding further. Whilst reviewing the report above, a second report was submitted 'Goldfinch Environmental Ltd Proposed Residential Development Land Off Gas House Lane Sutton bridge Lincolnshire Risk Assessment / Remediation Method Statement Ref 0460/3'. Comments are made below. It is not possible to recommend discharge of the condition at this time.

9.2.iv.a **GEL Proposal:**

Preparation of strategy document for further ground gas assessment for approval by SHDC prior to going ahead. This may include the need for new boreholes whose design should also be submitted to SHDC for their approval.

9.2.v **SHDC:**

The report outlines some of the remedial options that may be available at this location, but does not include the detail or conclusions required to form a remediation method statement. The information in this report should allow the developer to undertake an options appraisal which will allow them to direct their detailed quantitative risk assessment at this location.

9.2.v.a **GEL Proposal:**

Undertake 'Options Appraisal' in tandem with DQRA referred above.

9.2.vi **SHDC:**

The report hints at raising site levels using a retaining wall and an engineered cover system, whilst this may be acceptable from a long term human health standpoint, further consideration of the vapour inhalation pathway is required before proceeding further.

9.2.vi.a **GEL Proposal:**

The report clearly states [not 'hints'] that topographic levels are to be raised as referred in the FRA.

Review and revisit the vapour inhalation pathway as stated above.

From: Armour, Susan [mailto:Susan.Armour@Breckland-Sholland.gov.uk]

*Sent: 09 October 2019 14:35 To: Gedney, David Subject: H18-0631-17
Land rear: Sutton Bridge Post Office 158 Bridge Road, Sutton
Bridge Importance: High*

*It is not possible to recommend discharge of condition 8 of H18-0907-16 at
the current time.*

My previous comments of May 2018:

9.2.vii SHDC:

*recommended that further characterisation of the type and extent of existing
contamination was undertaken, leading to a site specific detailed quantitative
risk assessment (DQRA). This has not been undertaken.*

9.2.vii.a GEL Proposal:

Undertake DQRA using SHDC approved package / model where
remedial targets are not available for a particular determinant.

9.2.viii SHDC:

*recommended that consideration be given to the ground gas regime. Limited
consideration has been given.*

9.2.viii.a GEL Proposal:

Review historic and recent ground gas data accordingly.

9.2.ix SHDC:

*stated that further consideration of the vapour inhalation pathway was
required.*

Limited consideration has been given.

9.2.ix.a GEL Proposal:

Review and revisit the vapour inhalation pathway as stated above.

9.2.x SHDC:

Essentially if the applicant wishes to leave a significant (currently unknown)

quantity of free product coal tar under the properties, then a high degree of confidence is required in both the site characterisation and the remedial proposals to ensure that a safe development can be achieved. The report does not demonstrate this.

9.2.x.a GEL Proposal:

Review this comment in the light of Options Appraisal and remedial strategy

9.2.xi SHDC:

In respect of the aforementioned report I make the following additional comments:

The introduction states that the purpose of the report was to characterise the ground gas regime, however to ensure a safe development, further work will be required.

9.2.xi.a GEL Proposal:

Collate ground gas information referred above and update conceptual model and risk assessment

9.2.xii SHDC:

2 Specific details of the in respect of the sampling locations were not presented.

9.2.xii.a GEL Proposal:

These were provided in the strategy document which was submitted to SHDC prior to carrying out the work and no comment was received on this aspect of the strategy. Given the small size of the site and lack of readily identifiable features 'targeted' locations were not available so a more 'rounded' approach had to be adopted.

9.2.xiii SHDC:

3 No reason for the choice of driven standpipe compared with a standard borehole was given, nor their suitability given the presence of cohesive soils. No details of the pipe diameter, perforated/ plain sections or bentonite seal were given.

9.2.xiii.a GEL Proposal:

No further comment.

9.2.xiv SHDC:

4 I draw your attention to the following references which give guidance on the selection of sampling points C665 'Assessing risks posed by hazardous ground gases to buildings' and & BS8576:2013 'Guidance on investigations for ground gas – permanent gases and Volatile Organic Compounds (VOCs)'

9.2.xiv.a GEL Proposal:

No further comment.

9.2.xv SHDC:

5 Depth to groundwater was not recorded, despite the text indicating this was the case.

9.2.xv.a GEL Proposal:

Groundwater was not encountered as a definitive 'strike' therefore it was not possible to address this point.

9.2.xvi SHDC:

6 Only three ground gas monitoring visits were undertaken. This is considered to be insufficient to characterise the ground gas regime.

9.2.xvi.a GEL Proposal:

This was pre-agreed with SHDC prior to carrying out the work.

9.2.xvii SHDC:

7 Depleted levels of oxygen were recorded, however monitoring with a PID (Photo ionisation detector) and/or point source gas sampling was not

undertaken.

9.2.xvii.a GEL Proposal:

Ground gas samples were obtained using Tenax exposure tubes and chemical laboratory analysis was carried out following recording of the exposure period.

9.2.xviii SHDC:

8 Sampling for vapours was undertaken from two of the three boreholes, however the sampling location under the proposed houses was excluded. The test results were presented but no observations were made regarding the concentrations detected. Phenol was not included, despite phenolic odours being identified by smell across the site.

9.2.xviii.a GEL Proposal:

Revisit the historic data and provide additional interpretation to include phenols.

9.2.xix SHDC:

9 No DQRA was presented with respect to human health.

9.2.xix.a GEL Proposal:

Consider data options for a DQRA as requested by SHDC.

9.2.xx SHDC:

10 The Ground vapour/direct inhalation/end user pathway is missing from the conceptual model.

9.2.xx.a GEL Proposal:

Revisit to include this pathway.

9.2.xxi SHDC:

In addition, I have undertaken an informal generic / non-site specific

consultation with Environmental Protection Officers nationally regarding this site. Whilst they know very little about the site itself, their suggestions for consideration were as follows:

11 Has the impact of construction works (eg piling) been considered?

9.2.xix.a GEL Proposal:

No definitive response has been provided regarding the need or not of a Piling Risk Assessment [PRA]. The Environment Agency were equally non-committal on this point.

No information regarding possible piling methods has been provided to Goldfinch Environmental Ltd.

9.2.xxii SHDC:

12 If flood risk is high over the lifetime of the building does the conceptual site model consider how the free phase product would behave during and after a flood event? For example, would the free phase product rise into and contaminate the 'clean cover' soil column or move into the void beneath the building creating new significant linkages?

9.2.xxii.a GEL Proposal:

Approach the Author of the FRA for further comment.

Goldfinch Environmental Ltd to consider this further following consultation with FRA Author.

9.2.xxiii SHDC:

13 Will water pipes be protected, and can the use of deep rooted fruit trees be prevented?

9.2.xxiii.a GEL Proposal:

Recommend use of protected water pipes.

For landscaping plant growth matters the advice of a suitably qualified horticulturalist / landscape architect / ecologist should be sought.

9.2.xxiv SHDC:

14 They noted that the Environment Agency usually take the lead where there is free product in order to protect controlled water resources.

9.2.xxiv.a GEL Proposal:

No comment necessary.

9.2.xxv SHDC:

15 No one gave any examples of free product being left in place for a new build, but stated it had been done for Part 2A (Environmental Protection Act 1990) sites. (NB I know of two sites where free product has been left in place on residential developments, one after a cost benefit analysis was undertaken.)

9.2.xxv.a GEL Proposal:

Consider seeking advise regarding the need for a cost-benefit analysis and how that might be carried out.

9.2.xxvi SHDC:

On the basis of the above, I have not commented on the conclusions drawn in the report, as I feel there are too many uncertainties outstanding at this point in time.

9.2.xxvi.a GEL Proposal:

No further comment

9.2.xxvii SHDC:

I have also spoken directly to the Environment Agency. Keri Monger will look at the site and decide if they wish to comment. The March 2018 consultation has not been noted on their internal system.

9.2.xxvii.a GEL Proposal:

No comment received from the Environment Agency.

9.3 Concluding Remarks to Section 9.

On that basis, and subject to the final paragraph in this report (in blue text), the need for collation and collection of further information as detailed above which would support an Options Appraisal and Remediation Method Statement is considered **warranted**, subject to the points above some [or all] of which the Regulator may require completion to their satisfaction before proceeding to formal RMS with inclusion from the above as necessary.

The RMS should also include details of verification requirements and verification information to be collected / collated throughout the remedial works together with requirements of post-remedial monitoring strategy if warranted. However, some of these specific details may only become apparent once a remedial strategy has been derived and in principle at least, approved by SHDC.

To proceed towards discharge of the planning condition, 'next steps' will need to be drawn from Regulatory comments [Sections 9.2.i to 9.2.xxvii of this report] to be documented in a further narrative to be submitted to the LPA for approval before any further works are carried out.

It is noted that some of the activities once approved and agreed by the LPA may take place concurrently and that some activities will be dependent on consultation with Third Parties i.e. specialist remediation contractor, FRA Author, Piling Contractor etc., [this list is not exhaustive.].

A literature search will need to be carried out to provide appropriate parameters for the Detailed Quantitative Risk Assessment [DQRA] to derive remedial targets with a suitable modelling package. As several packages are available for this purpose agreement on choice of package with the LPA is advised. It is recommended that the outcome of these searches together with the details of the specific modelling package are submitted to the LPA in writing for their approval prior to carrying out the modelling work to derive the site specific remedial targets [SSRTs].

The 'Options Appraisal' may need to be carried out in consultation with a specialist remediation contractor in order to prepare the Remediation Method Statement and out of this process the necessary information will become apparent for Verification purposes and documentation at each of these stages will need to be approved by the Regulator before proceeding to the next stage.

In summary the following broad points will need to be addressed:

- 1) Close out Regulator requirements for further site assessment [soils and vapours etc] as detailed through sections. 9.2.i - 9.2.xxvii above.

- 2) Literature search to compile remedial targets and where not available propose modelling software and input data for derivation of remedial targets for outstanding determinants for incorporation into the RMS.
- 3) Carry out Options Appraisal drawing on the outcome of 1) and 2) above where necessary.
- 4) Compilation of RMS to include Verification requirements.
- 5) Compilation of Verification Report.
- 6) Assess the need throughout points 1-4 the need for post works longer term monitoring program.

The opinions and recommendations in this report are subject to the agreement of the Regulators.

10. CONCLUSIONS.

This Tier 1 Assessment contamination report prepared by Goldfinch Environmental Limited was undertaken on the instruction of Lavish Estates Ltd (the Client), via the offices of Swann Edwards Architects Ltd, at a site off Gashouse Lane, Bridge Road, Sutton Bridge, Spalding, Lincs..

The site was proposed for residential development.

The historic intrusive investigation has proved that the site is underlain by Coal tar fuels/wastes and associated organic and inorganic determinants some of which exceed guidance values (where these are available) together with minor arsenic contamination and as Coal Tar Fuels have been shown to be present at the site the analysis of which has shown to contain volatile species which have the potential to overcome Site Users by vapour inhalation and ingress into buildings currently posing an 'unacceptable' risk to End Users.

The LPA require further assessment of the site to be carried out before consideration can be given to discharge of the relevant planning condition as given in Section 9 of this report. This is beyond the scope and brief for this document and should be progressed under separate cover following instruction from the Client of their Agent. Section 9.3 Points 1 – 6 provide a very broad summary to assist the Reader.

Desk Study searches have shown that the site rests on Clay and Silt (Tidal Flats Deposits) underlain by Mudstone.

An overall Medium-High risk is associated with the site subject to the final paragraph in this report.

Also, at all times especially once any necessary groundworks have commenced, the final paragraph below applies regarding 'unanticipated' contamination.

The reader should note that the opinions, recommendations and conclusions in this report are subject to the agreement of the Local Authority who are the final arbiters in these matters.

Site personnel, particularly groundworkers, should follow sound health and safety welfare practices that will further mitigate this level of risk.

Should unanticipated contamination be suspected, or revealed during any groundworks, then the area should be temporarily isolated and further advice sought by a suitably independent qualified person and a management strategy for these occurrences should be submitted to the Local Authority for their approval prior to proceeding, as required by Regulatory Offices.

FIGURES

Approximate Site Location



Figure 1

Ref: 1019/1

Site Location Plan

Goldfinch
Environmental
Ltd

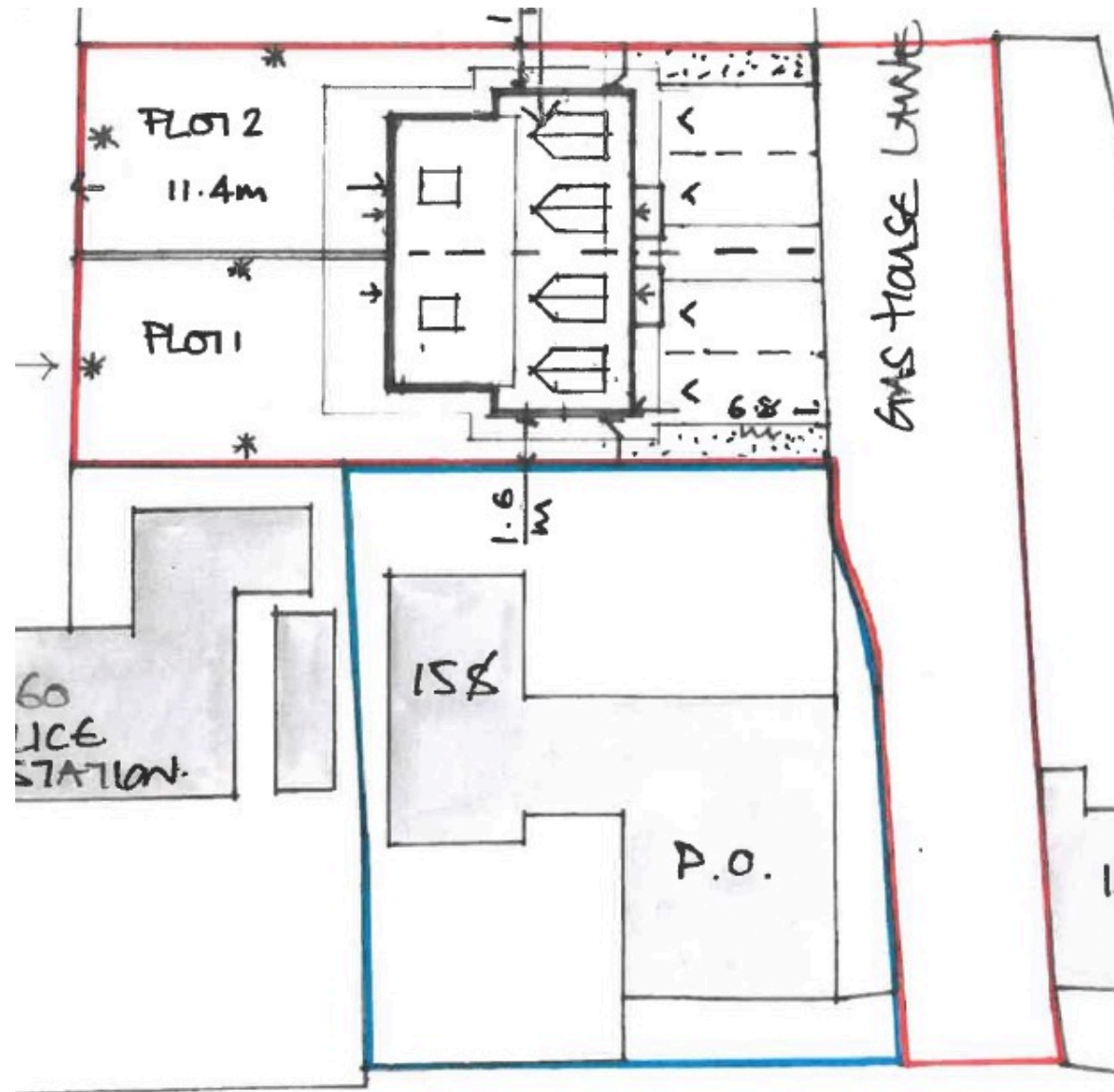


Figure 2

Proposed Layout Plan

Ref: 1019/1

Goldfinch
Environmental
Limited

APPENDIX 1

‘Groundsure’ Report

Site Details:

R/O 158, BRIDGE ROAD,
SUTTON BRIDGE, SPALDING,
LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: County Series

Map date: 1887

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A

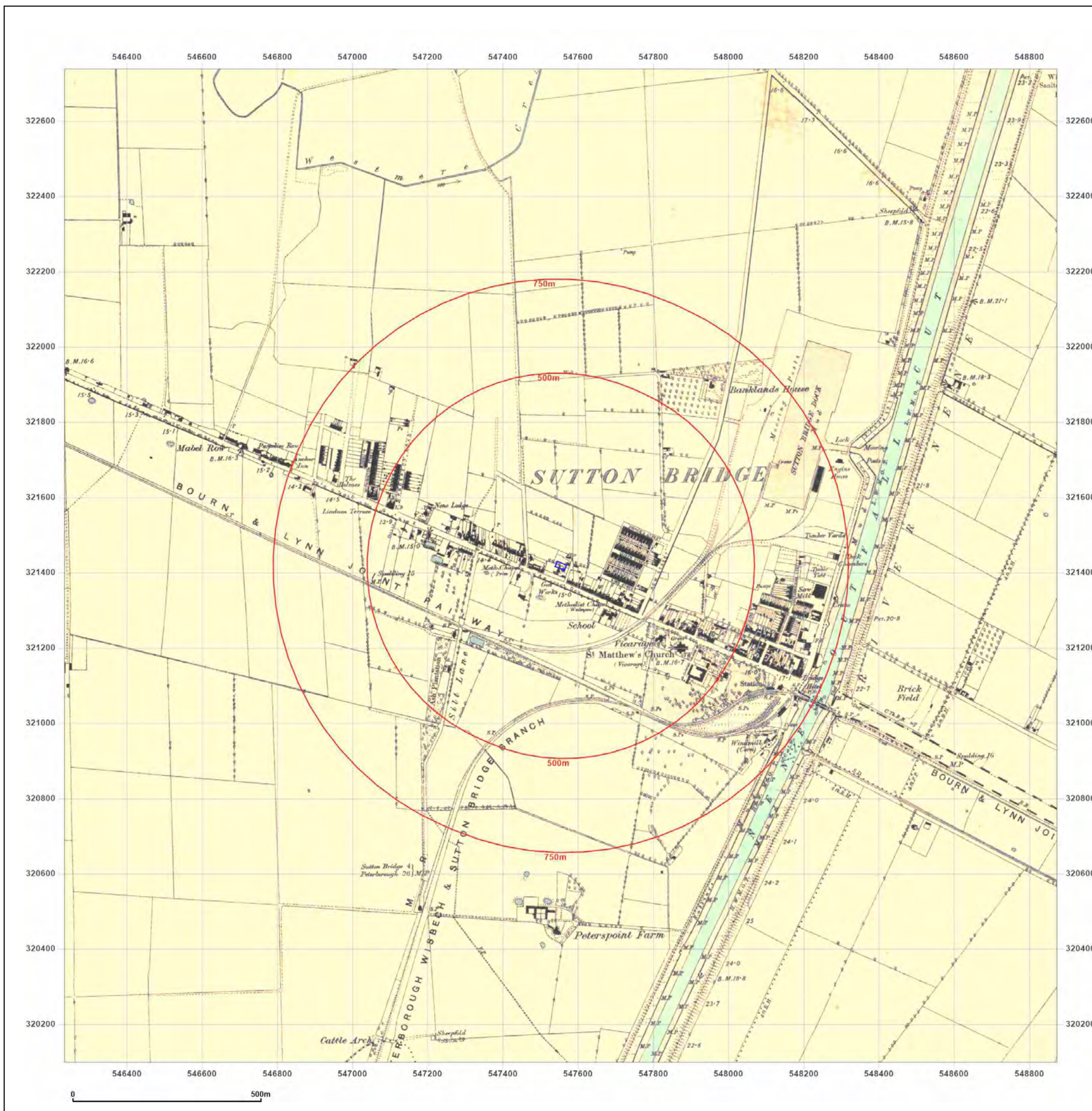


Produced by
Groundsure Insights
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Production date: 23 June 2025

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

R/O 158, BRIDGE ROAD,
SUTTON BRIDGE, SPALDING,
LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: County Series

Map date: 1888

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

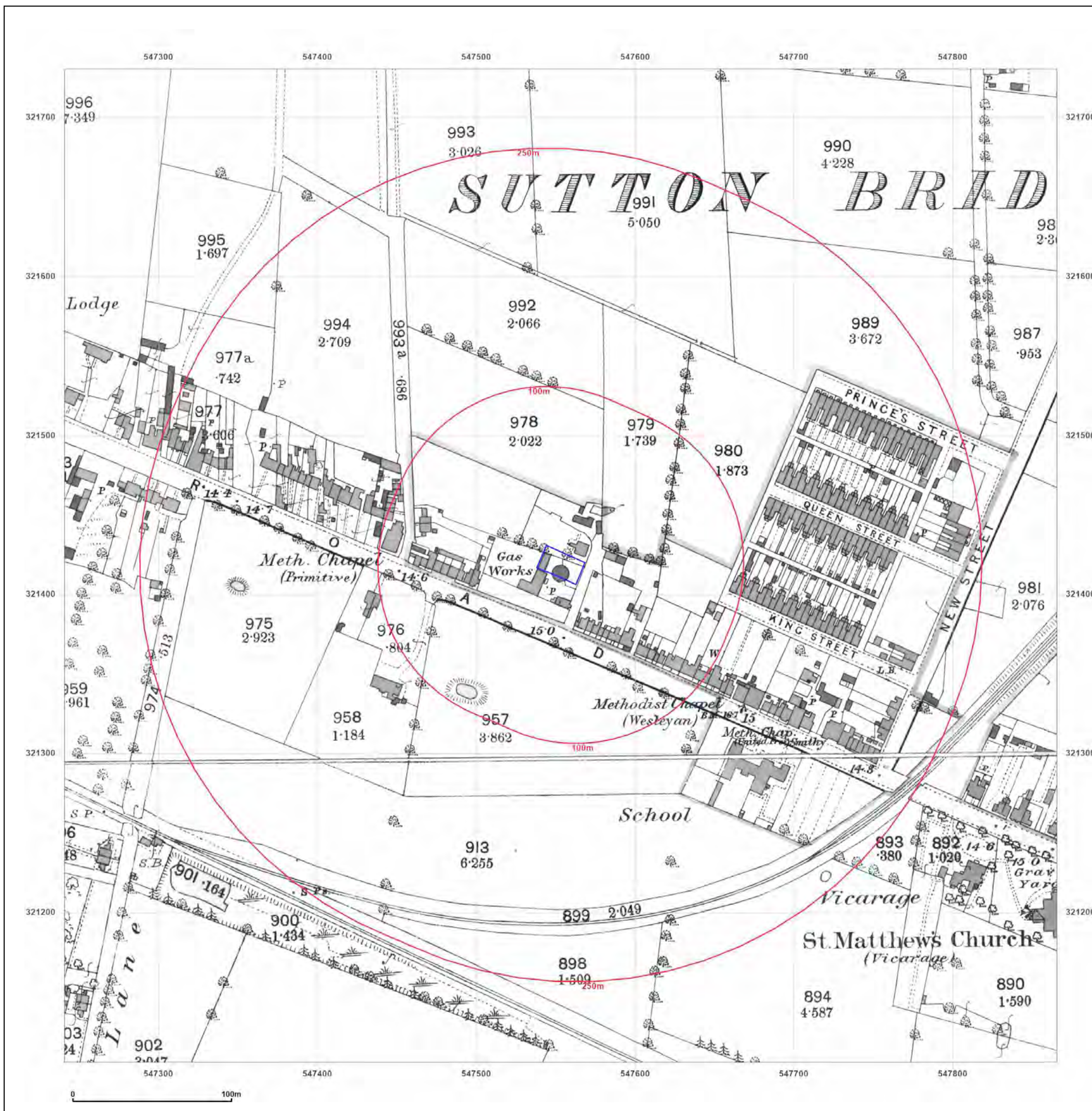


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SUTTON BRIDGE, SPALDING,
LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: County Series

Map date: 1889

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1889
Revised 1889
Edition N/A
Copyright N/A
Levelled N/A

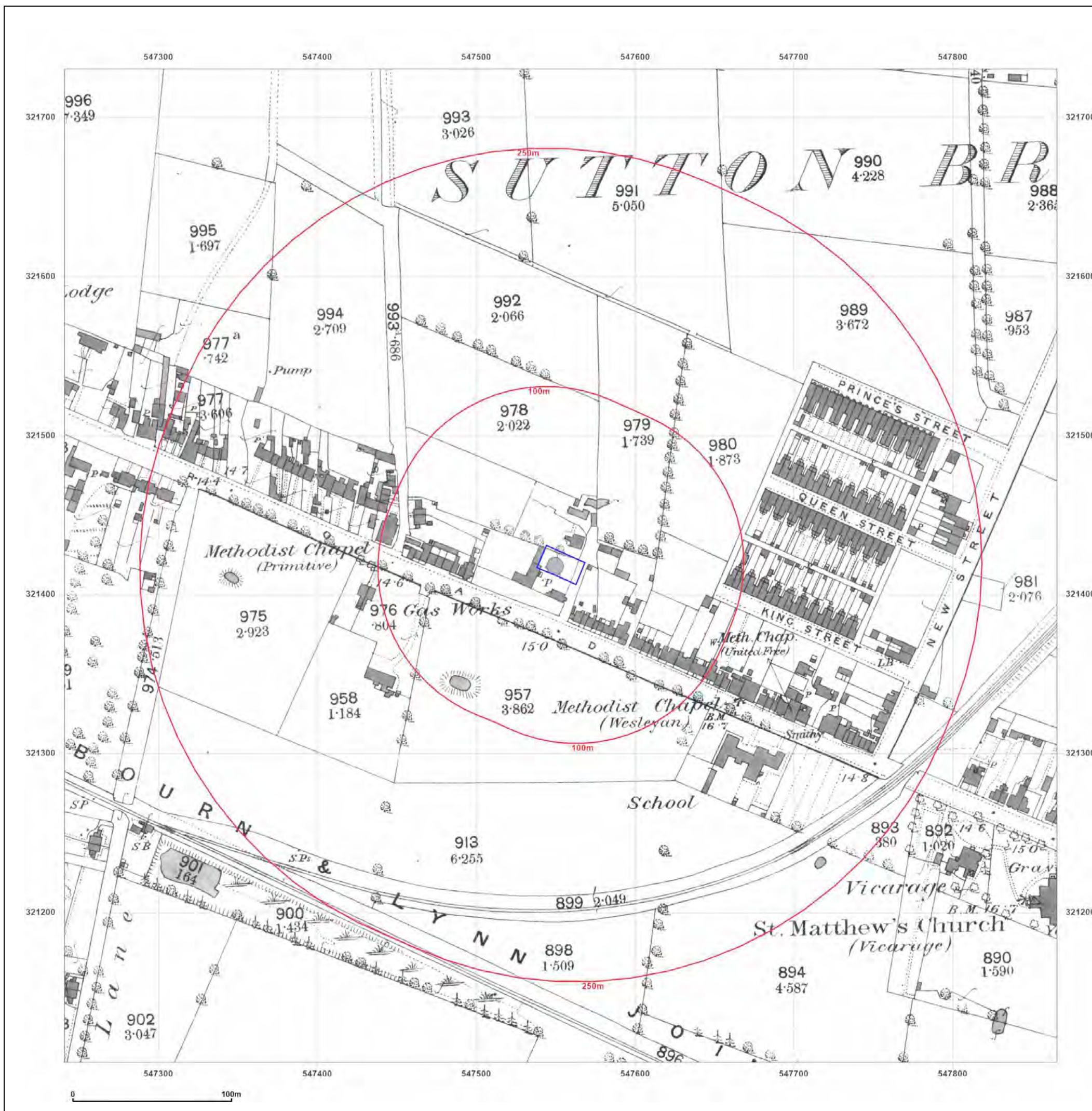


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Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

R/O 158, BRIDGE ROAD,
SUTTON BRIDGE, SPALDING,
LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: County Series

Map date: 1900-1903

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1886
Revised 1903
Edition N/A
Copyright N/A
Levelled N/A

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

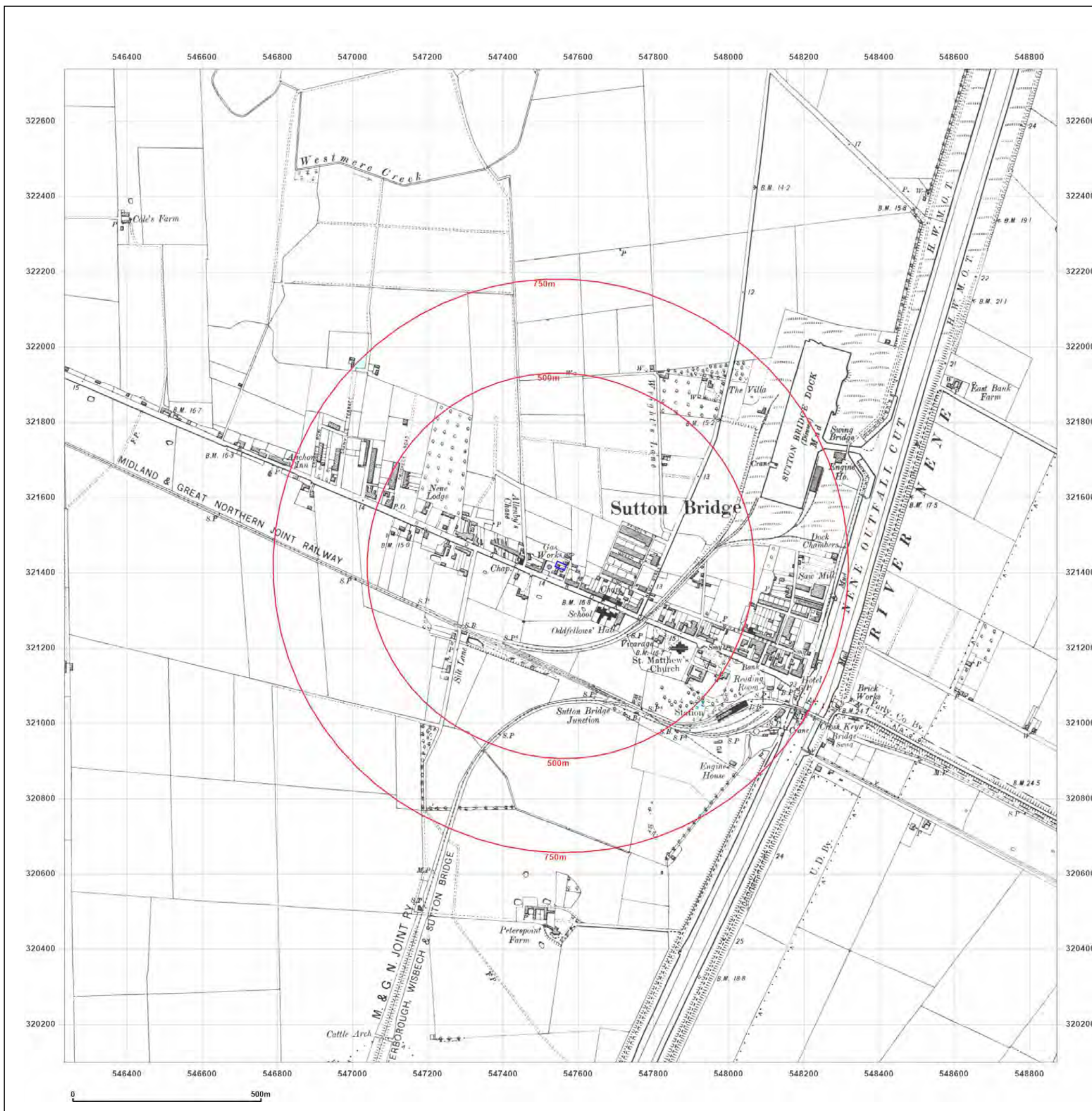


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Production date: 23 June 2025

Map legend available at:
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Site Details:

R/O 158, BRIDGE ROAD,
SUTTON BRIDGE, SPALDING,
LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: County Series

Map date: 1904

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1904
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1904
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

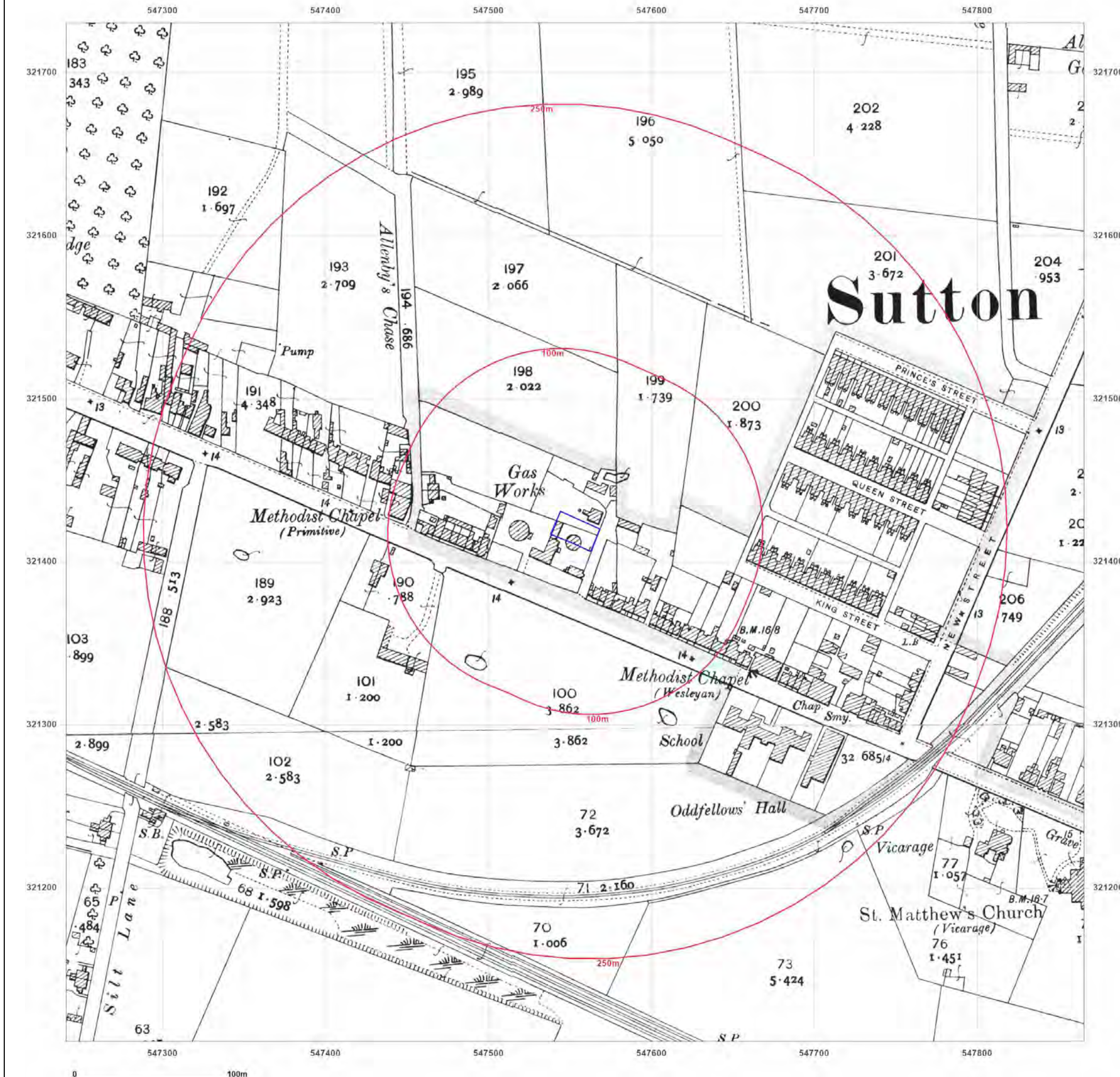


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Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: County Series

Map date: 1929

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1886
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

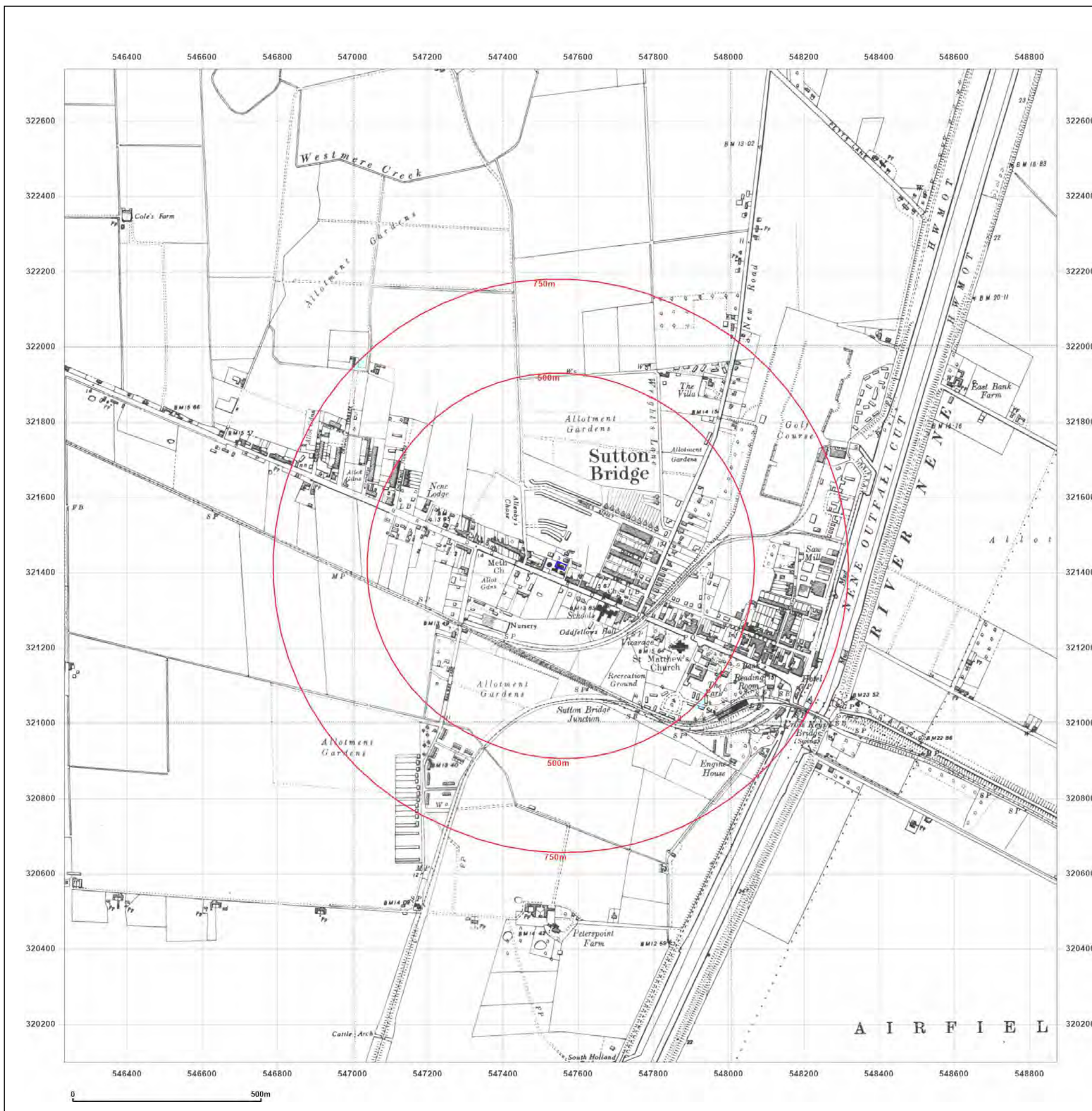


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Site Details:

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LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: County Series

Map date: 1931

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1886
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

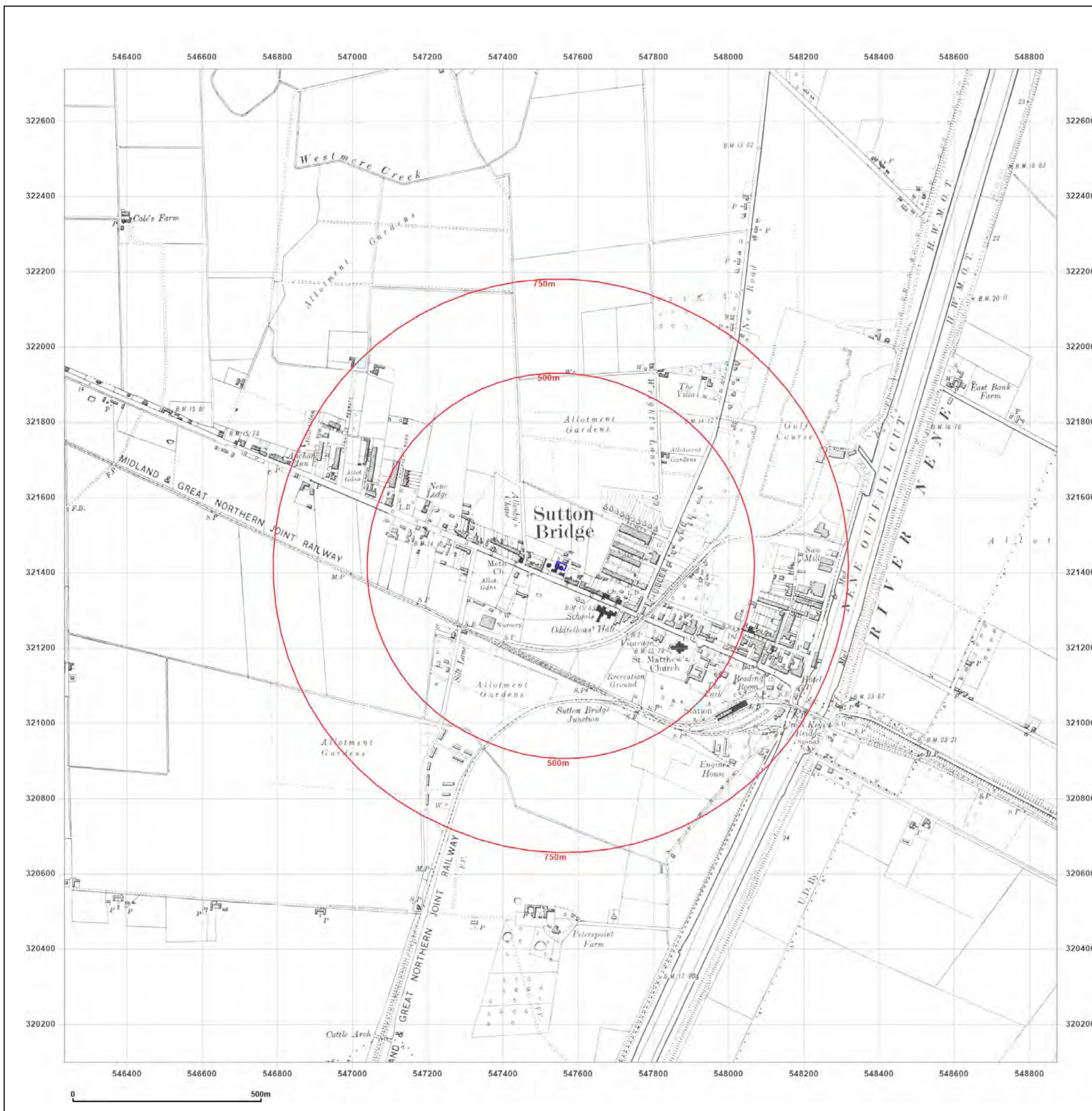


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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1886
Revised 1938
Edition 1938
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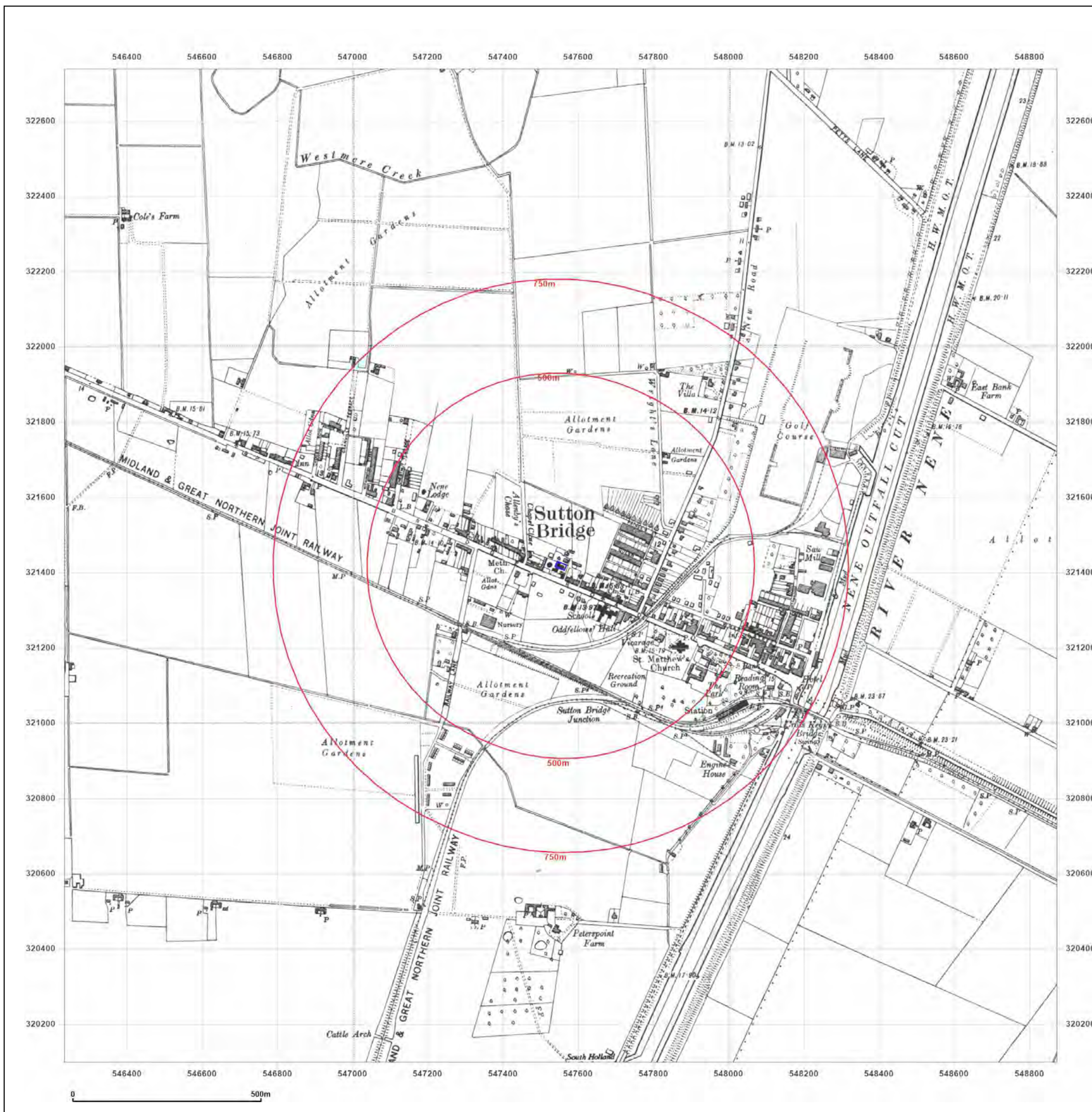


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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: Provisional

Map date: 1958

Scale: 1:10,560

Printed at: 1:10,560



Surveyed N/A
Revised 1958
Edition N/A
Copyright N/A
Levelled N/A

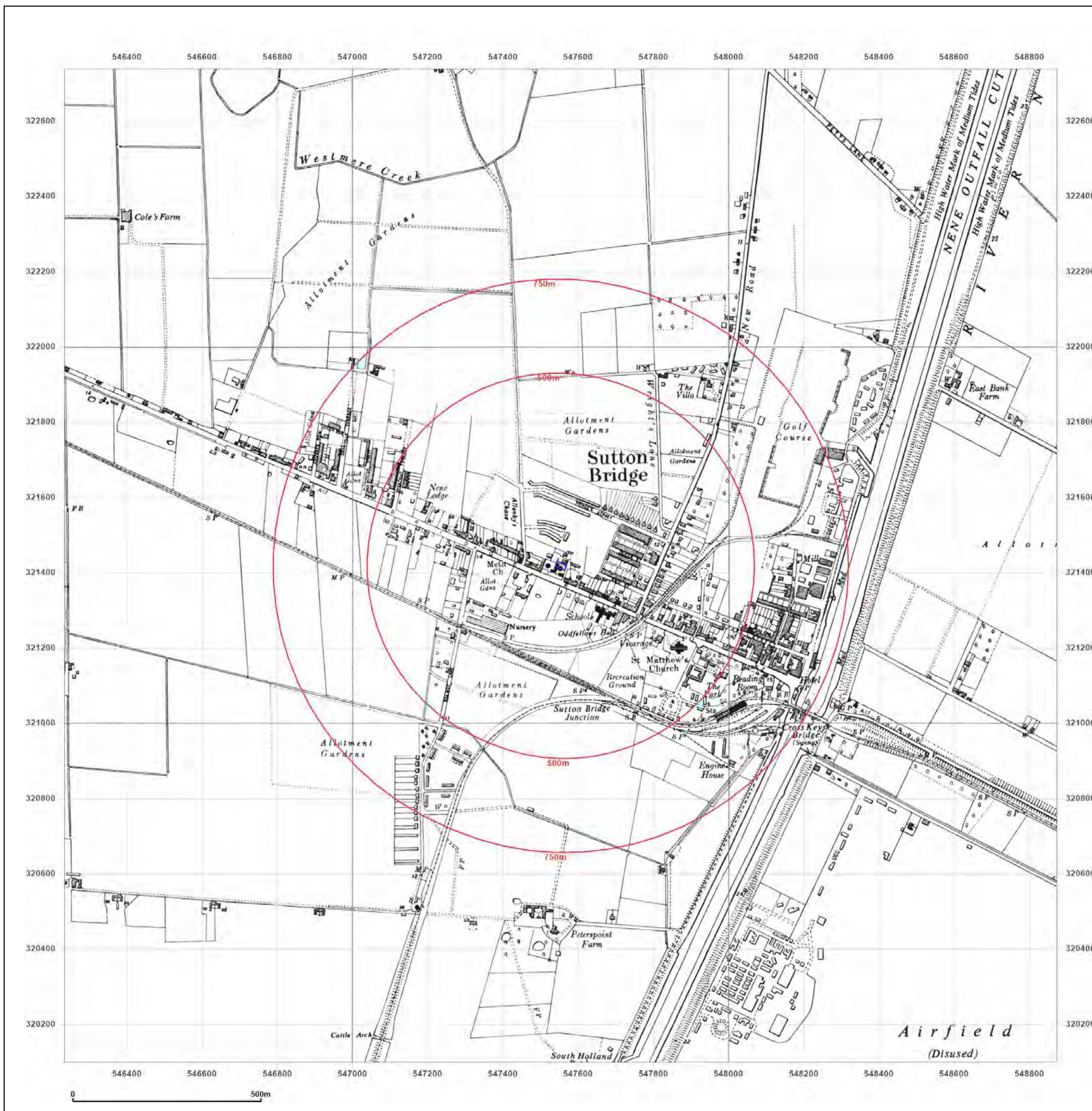


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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



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

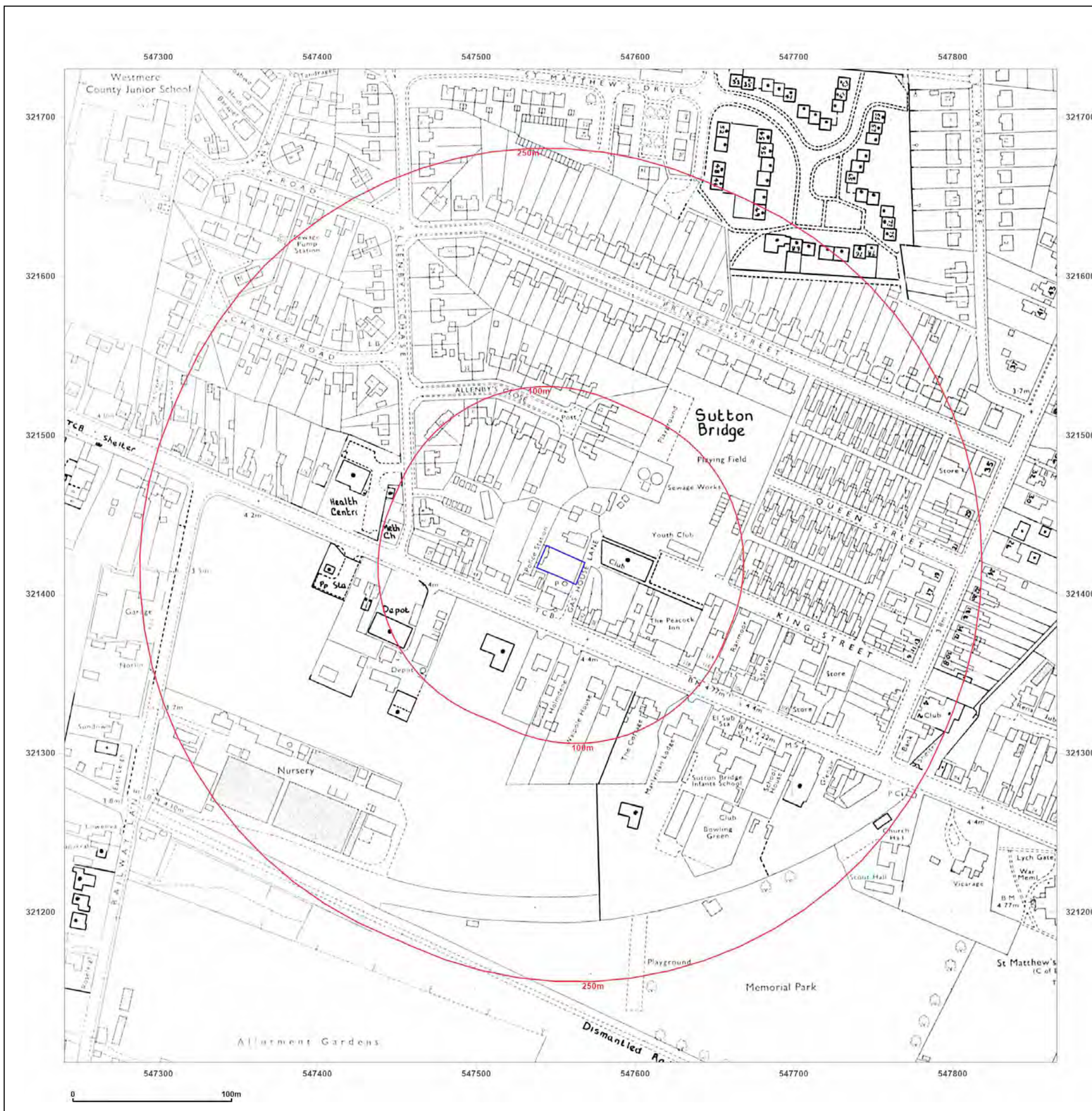


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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1972

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1971
Revised 1971
Edition N/A
Copyright 1972
Levelled 1965

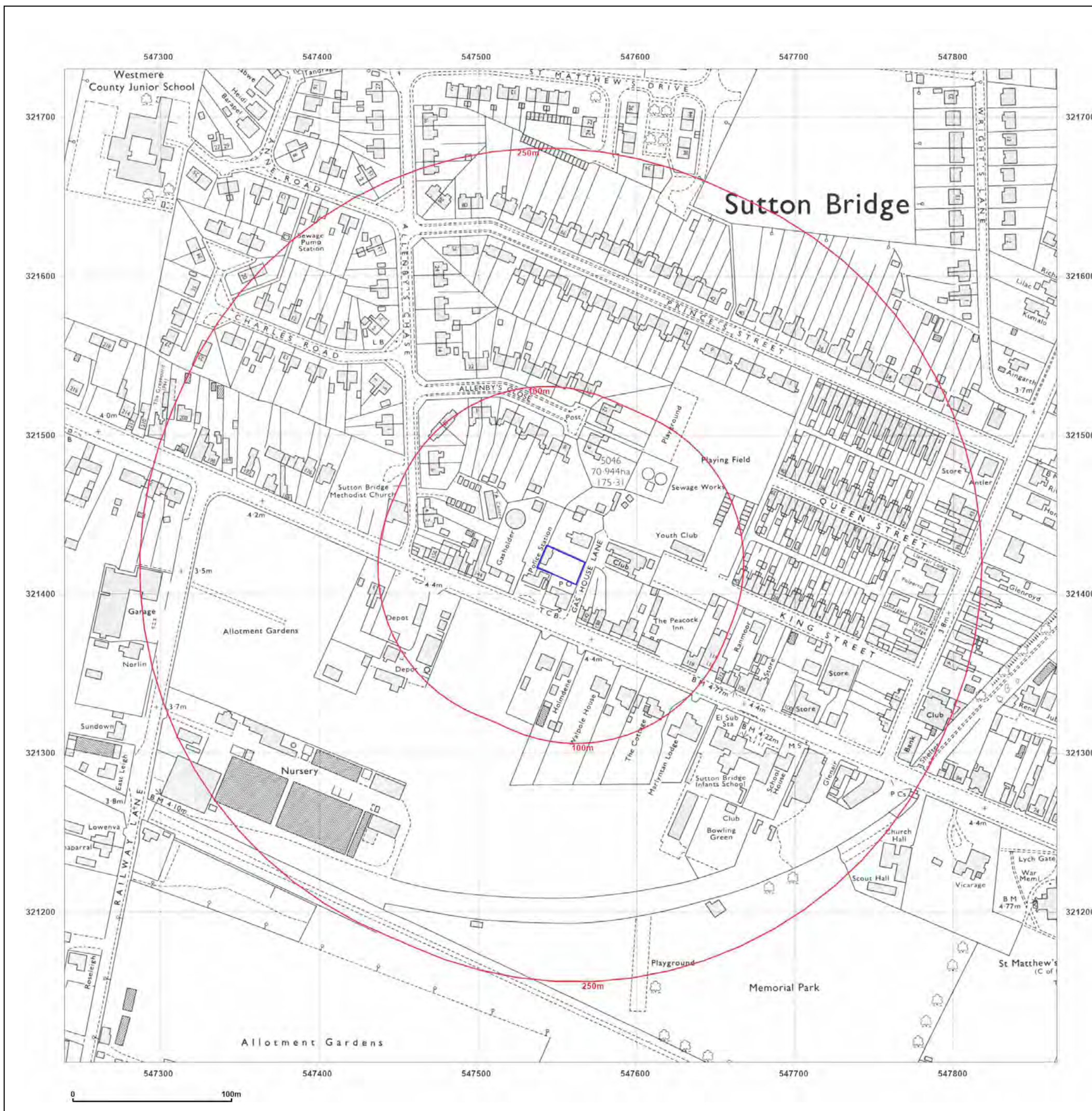


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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1972

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1974

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1971
Revised 1973
Edition N/A
Copyright 1974
Levelled N/A

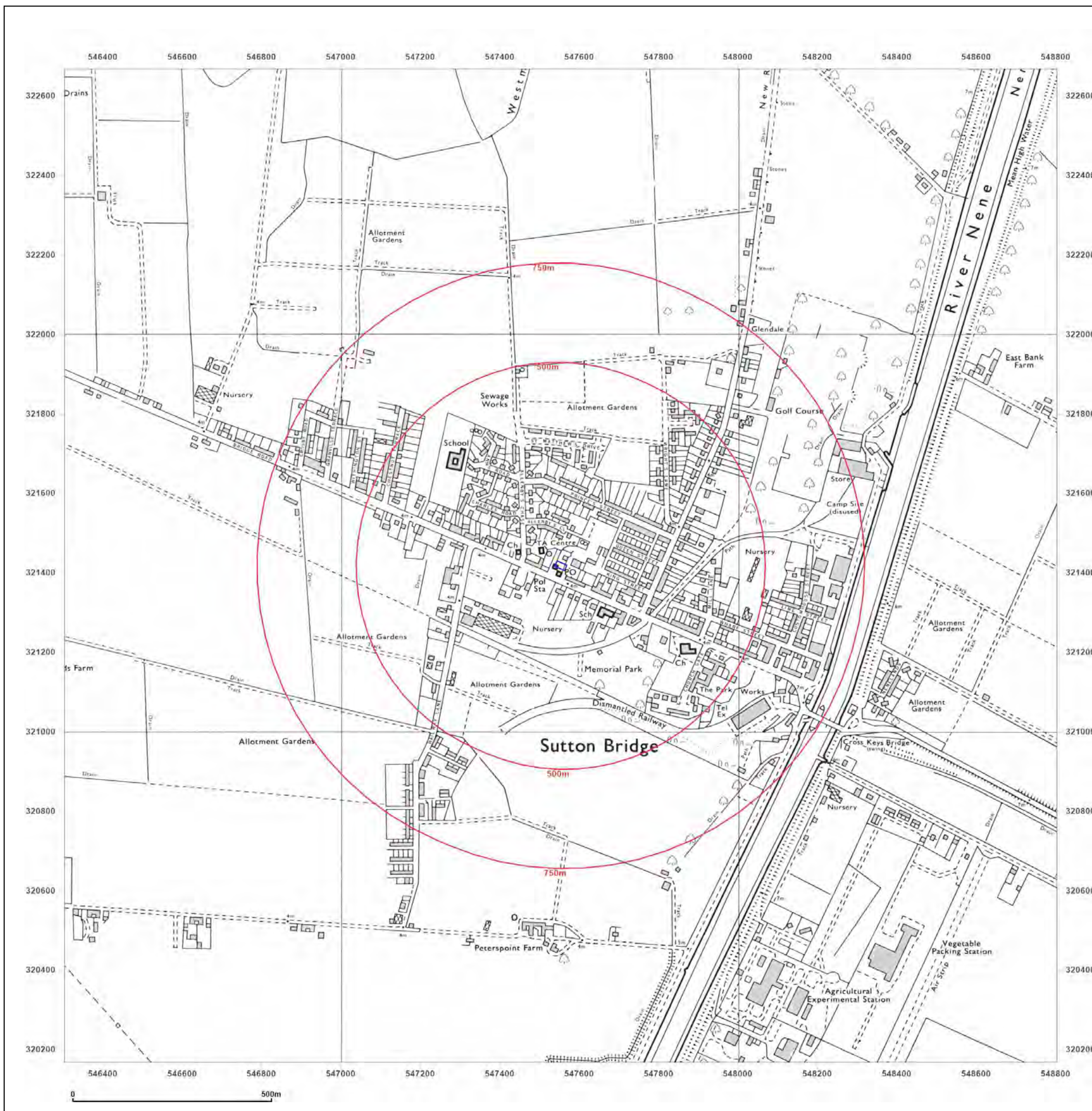


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LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1984

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1965
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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1987

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1965
Revised 1987
Edition N/A
Copyright 1987
Levelled 1965

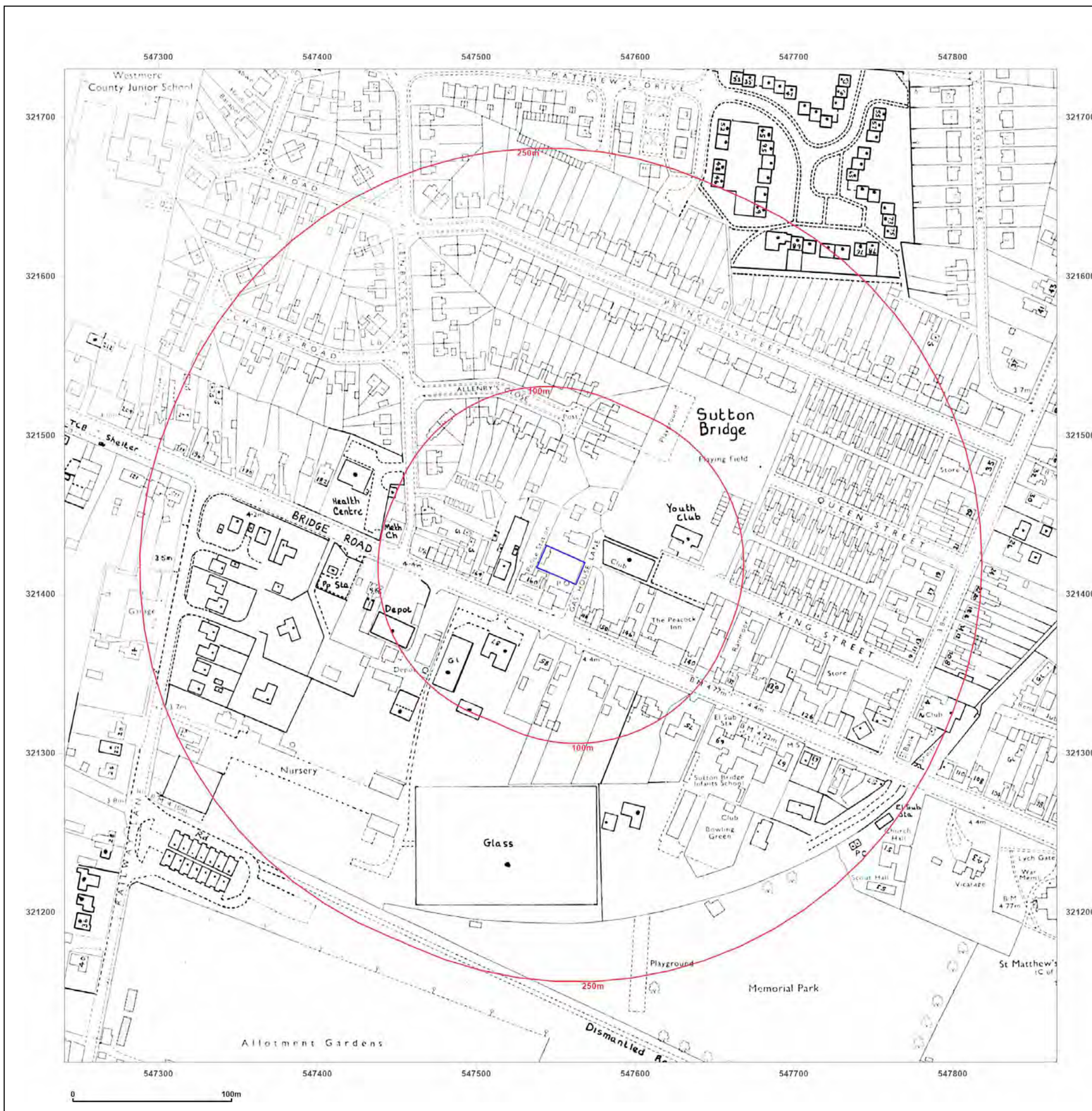


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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1991

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised 1990
Edition N/A
Copyright 1991
Levelled N/A

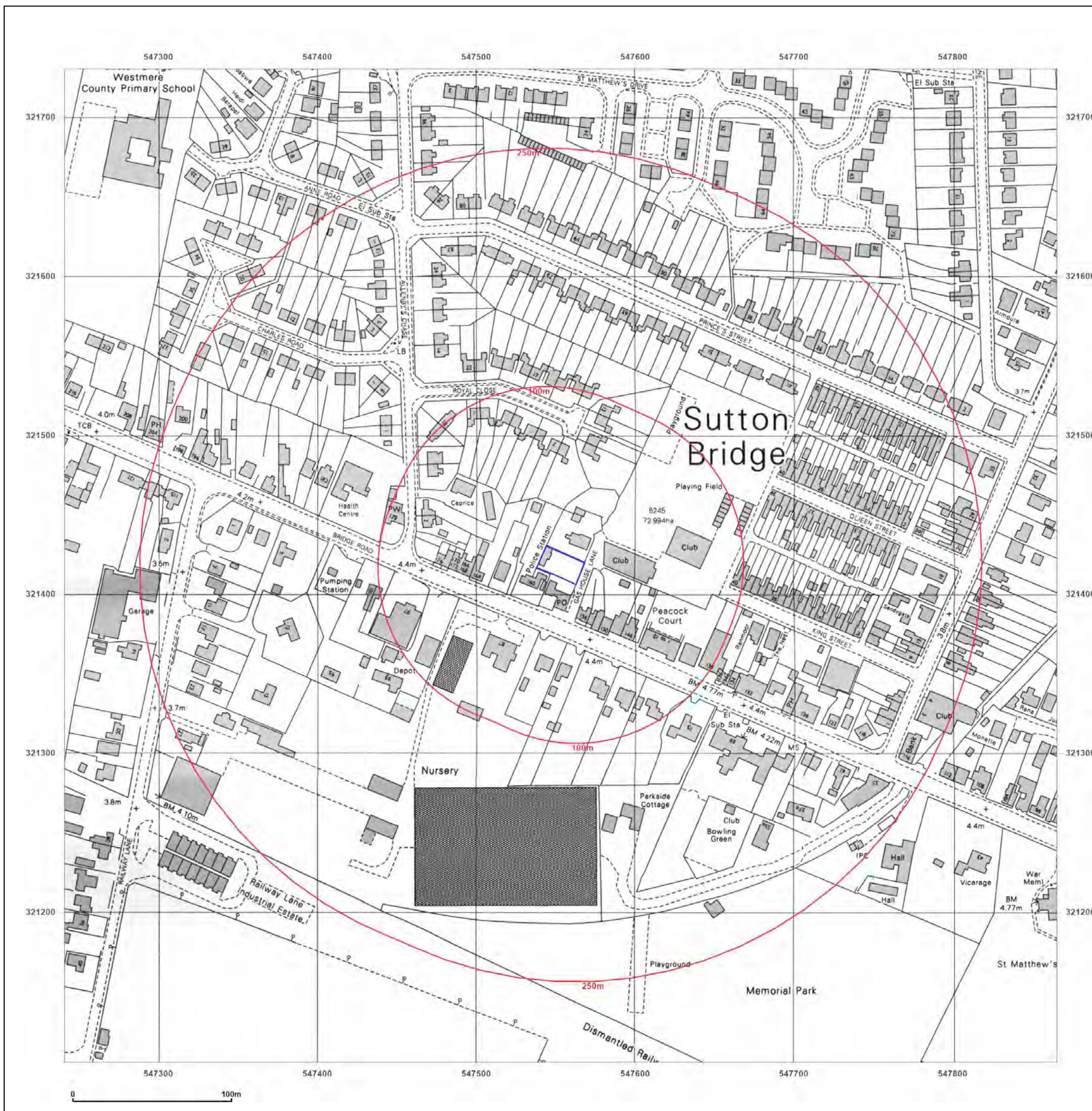


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Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1990
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Edition N/A
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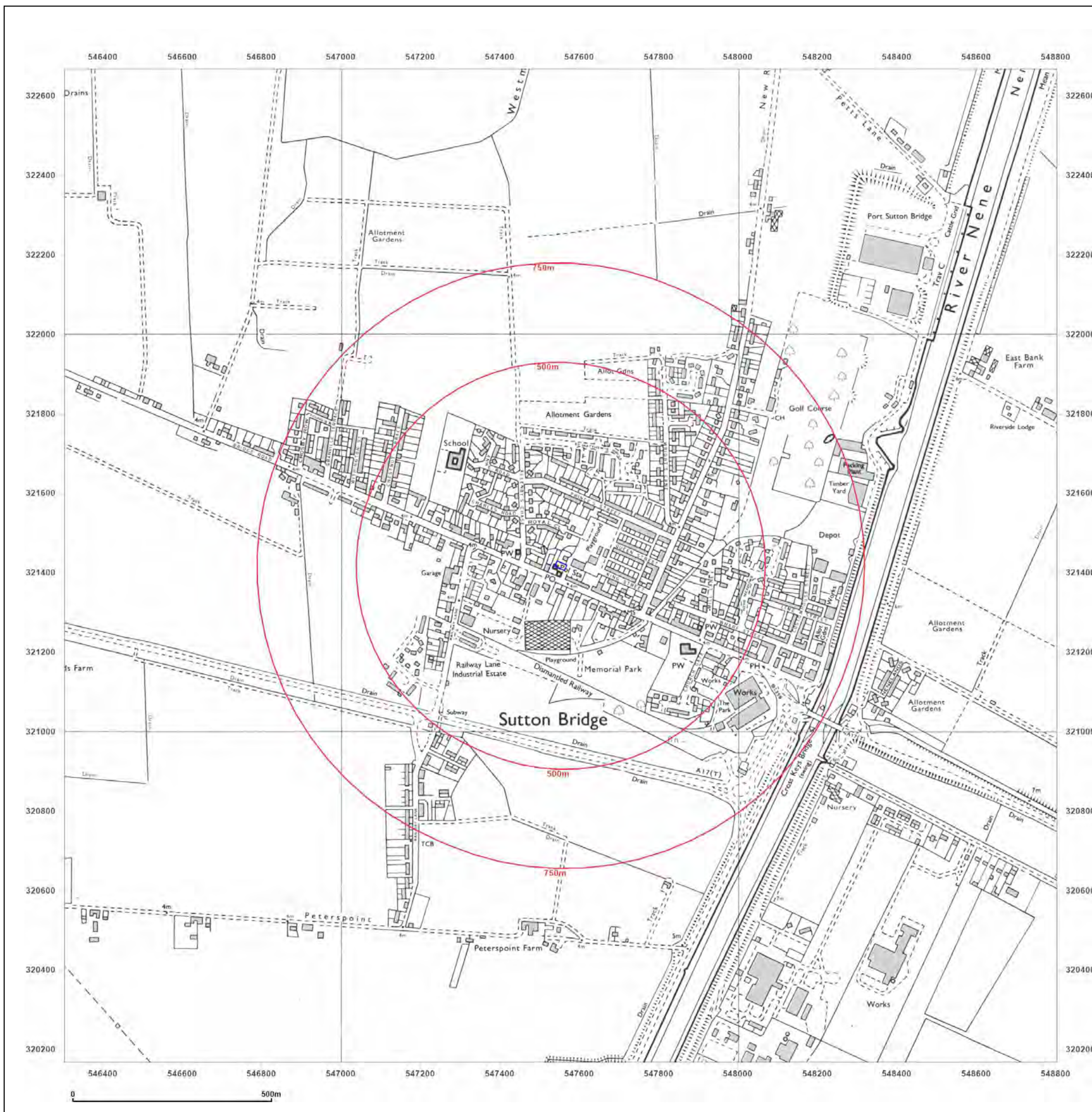


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Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1991

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1991
Revised 1991
Edition N/A
Copyright 1991
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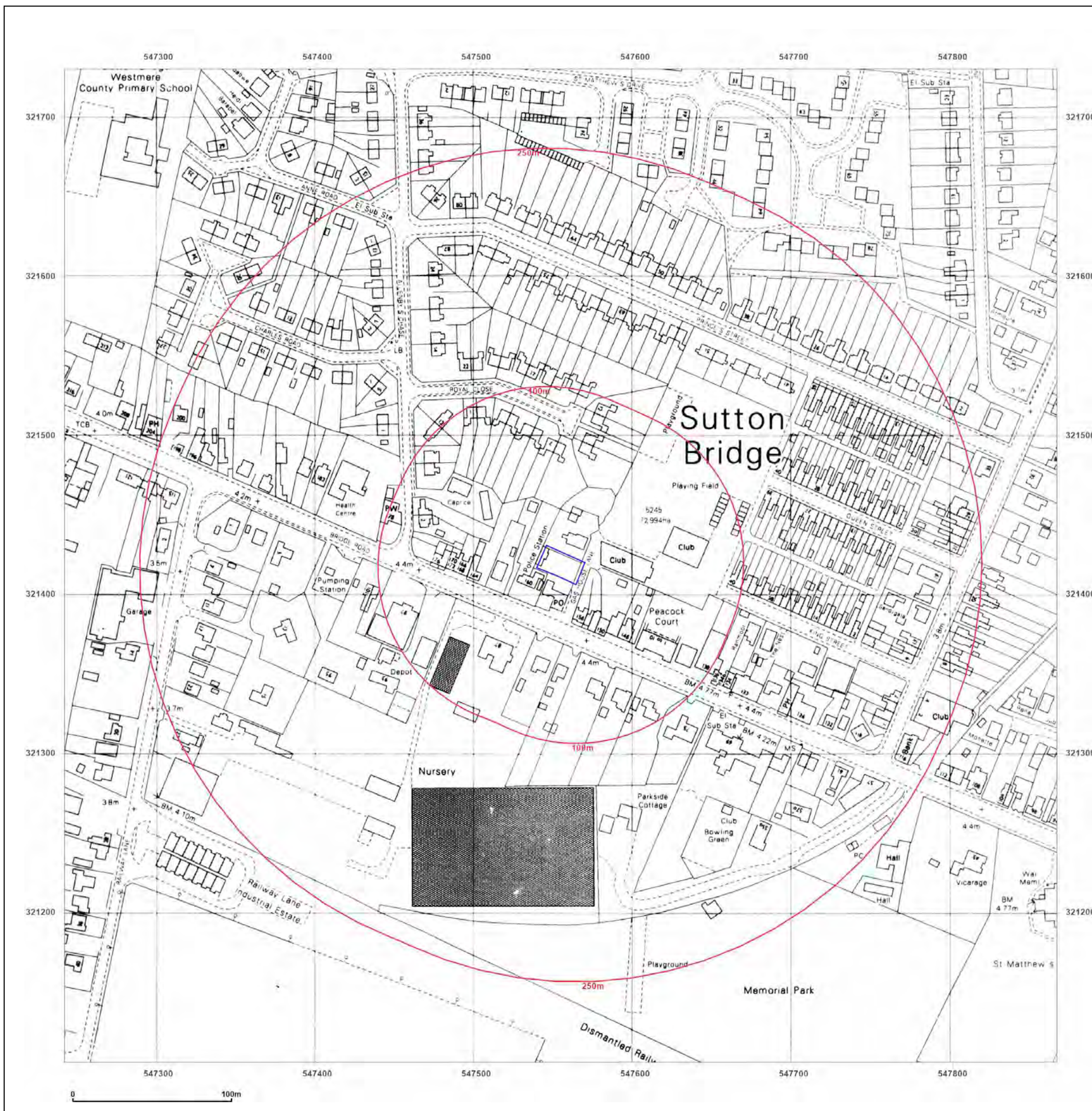


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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1992

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

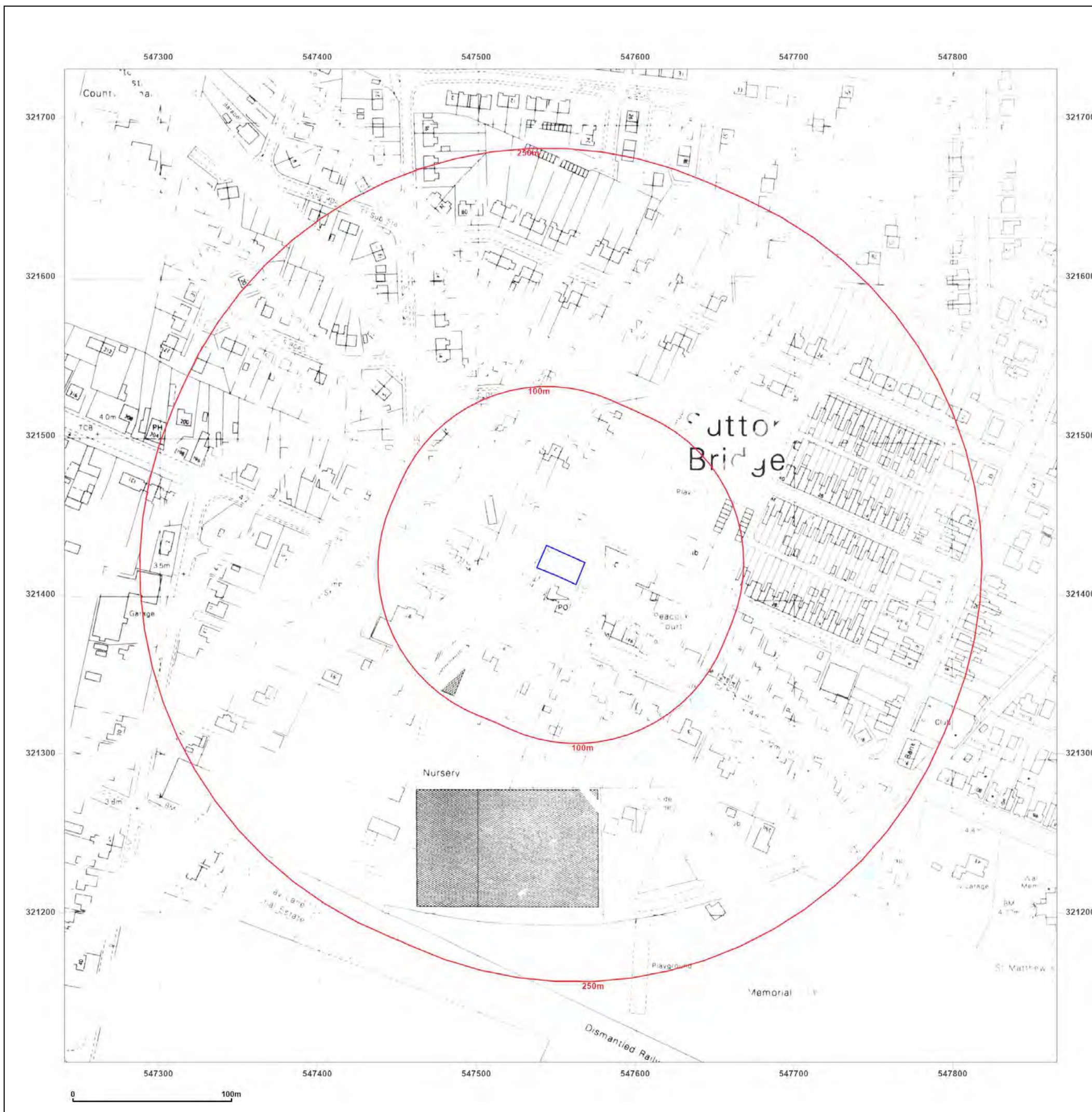


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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1993
Revised 1993
Edition N/A
Copyright 1993
Levelled N/A

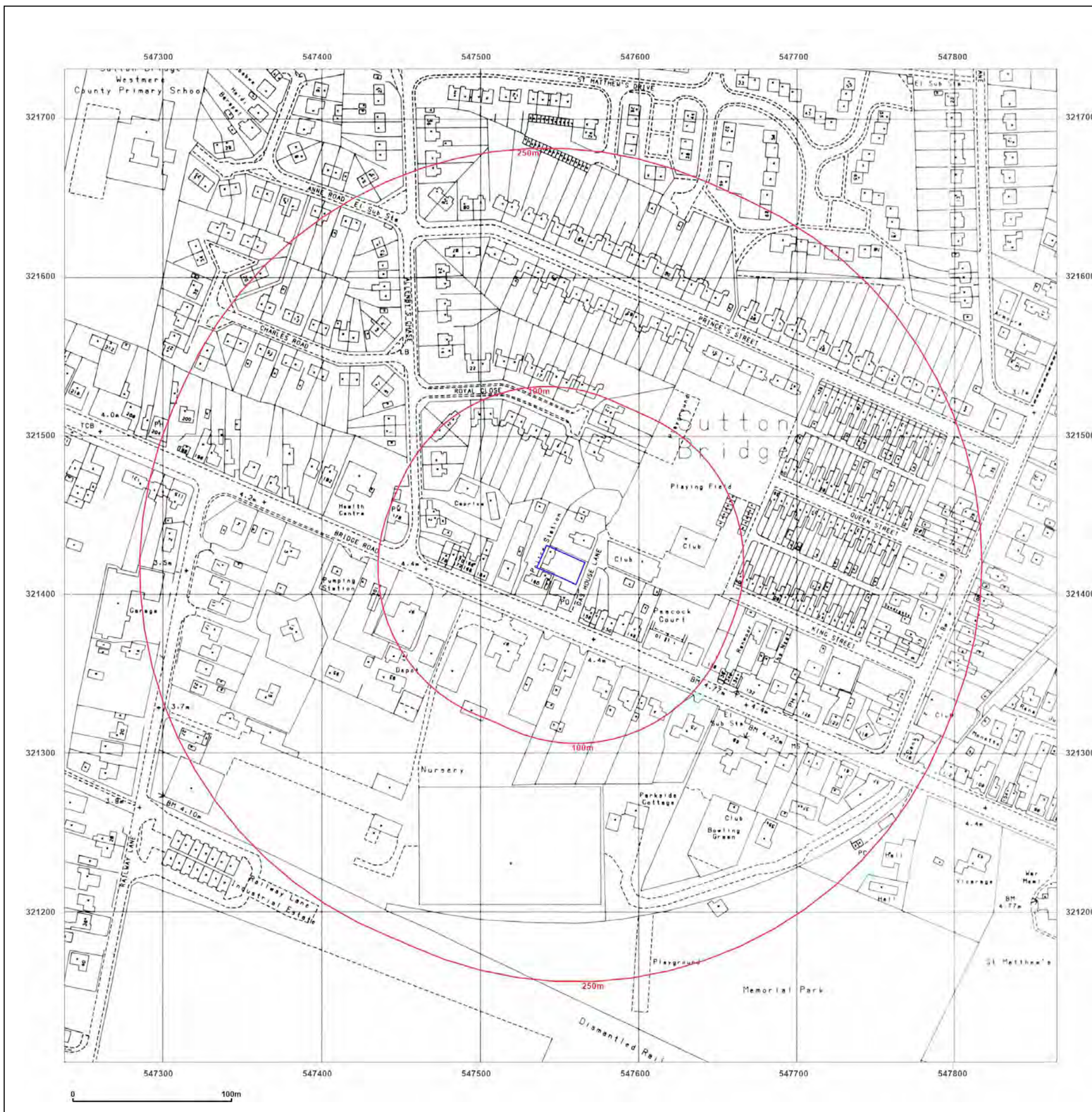


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LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 1995

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
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LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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LINCOLNSHIRE, PE12 9SF

Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



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Client Ref: 1019-ds
Report Ref: GS-A84-9WL-TBS-O8R
Grid Ref: 547553, 321418

Map Name: National Grid

Map date: 2025

Scale: 1:10,000

Printed at: 1:10,000

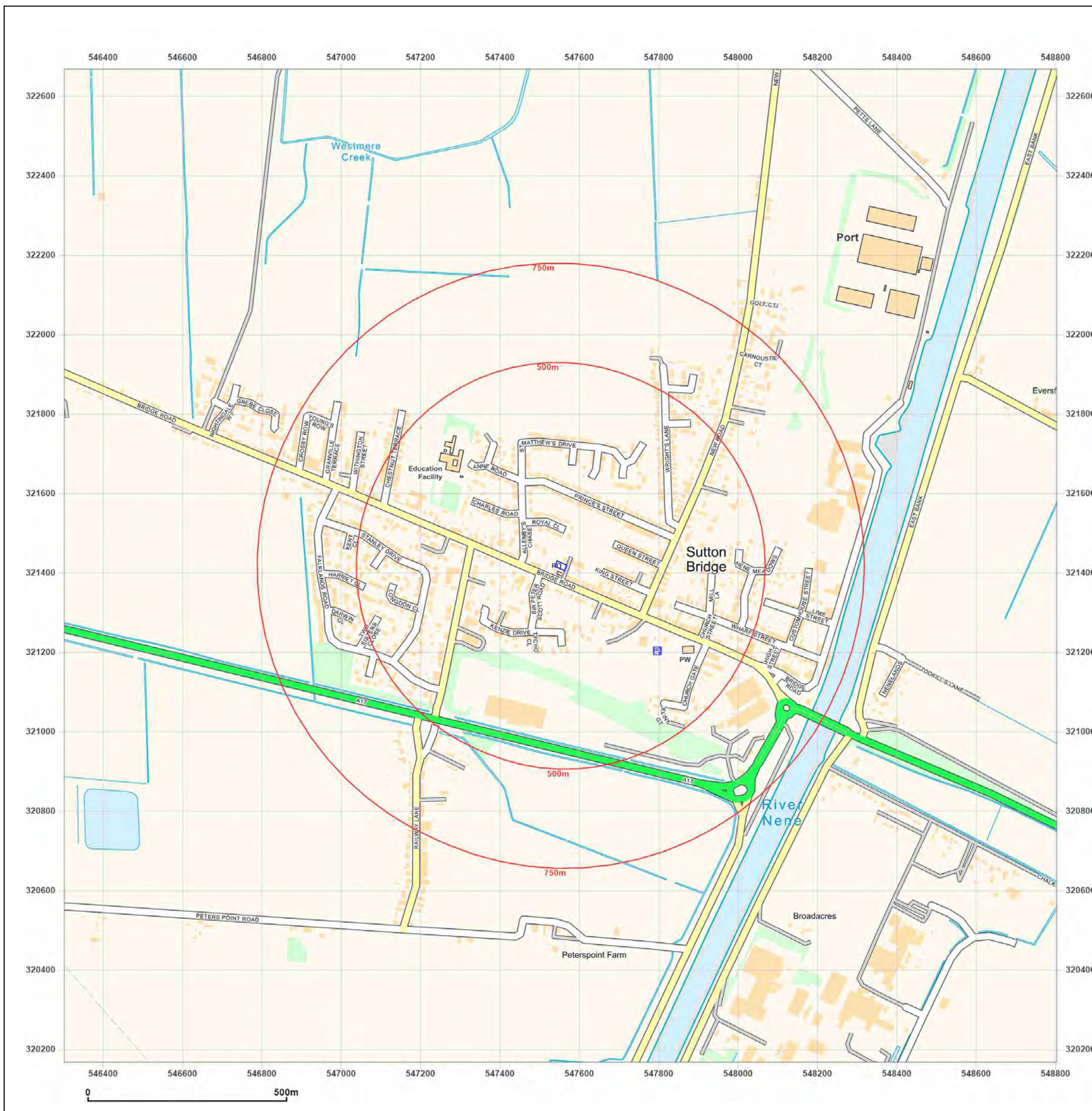


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Order Details

Date: 23/06/2025
Your ref: 1019-ds
Our Ref: GS-WNQ-GCJ-JS1-OBQ

Site Details

Location: 547553 321418
Area: 0.04 ha
Authority: [South Holland District Council](#) ↗



[Summary of findings](#)

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

[p. 9 >](#)

[OS MasterMap site plan](#)

[p.14 >](#) [Insight User Guide](#) ↗

Contact us with any questions at:

info@groundsure.com ↗

01273 257 755

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 >	10	5	16	18	-
17 >	1.2 >	Historical tanks >	1	1	6	3	-
18 >	1.3 >	Historical energy features >	0	1	10	4	-
19 >	1.4 >	Historical petrol stations >	0	0	0	1	-
19 >	1.5 >	Historical garages >	0	0	5	5	-
20	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
21 >	2.1 >	Historical industrial land uses >	13	5	18	20	-
24 >	2.2 >	Historical tanks >	1	1	8	8	-
25 >	2.3 >	Historical energy features >	0	1	16	13	-
26 >	2.4 >	Historical petrol stations >	0	0	0	1	-
26 >	2.5 >	Historical garages >	0	0	9	7	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
28	3.1	Active or recent landfill	0	0	0	0	-
28	3.2	Historical landfill (BGS records)	0	0	0	0	-
29	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
29	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
29	3.5	Historical waste sites	0	0	0	0	-
29	3.6	Licensed waste sites	0	0	0	0	-
29 >	3.7 >	Waste exemptions >	0	1	2	9	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
31 >	4.1 >	Recent industrial land uses >	0	0	8	-	-
32 >	4.2 >	Current or recent petrol stations >	0	0	1	0	-
32	4.3	Electricity cables	0	0	0	0	-
32	4.4	Gas pipelines	0	0	0	0	-
33	4.5	Sites determined as Contaminated Land	0	0	0	0	-



33	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
33	4.7	Regulated explosive sites	0	0	0	0	-
33	4.8	Hazardous substance storage/usage	0	0	0	0	-
33	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
34	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
34	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
34	4.12	Radioactive Substance Authorisations	0	0	0	0	-
34 >	4.13 >	<u>Licensed Discharges to controlled waters</u> >	0	0	0	1	-
35	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
35	4.15	Pollutant release to public sewer	0	0	0	0	-
35	4.16	List 1 Dangerous Substances	0	0	0	0	-
35	4.17	List 2 Dangerous Substances	0	0	0	0	-
35	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
36	4.19	Pollution inventory substances	0	0	0	0	-
36	4.20	Pollution inventory waste transfers	0	0	0	0	-
36	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
37 >	5.1 >	<u>Superficial aquifer</u> >	Identified (within 500m)				
38 >	5.2 >	<u>Bedrock aquifer</u> >	Identified (within 500m)				
39 >	5.3 >	<u>Groundwater vulnerability</u> >	Identified (within 50m)				
40	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
40	5.5	Groundwater vulnerability- local information	None (within 0m)				
41 >	5.6 >	<u>Groundwater abstractions</u> >	0	0	0	1	0
42	5.7	Surface water abstractions	0	0	0	0	0
42	5.8	Potable abstractions	0	0	0	0	0
42	5.9	Source Protection Zones	0	0	0	0	-
43	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
44	6.1	Water Network (OS MasterMap)	0	0	0	-	-



44	6.2	Surface water features	0	0	0	-	-
45 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
45	6.4	WFD Surface water bodies	0	0	0	-	-
45	6.5	WFD Groundwater bodies	0	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
46 >	7.1 >	Risk of flooding from rivers and the sea >	Low (within 50m)				
47 >	7.2 >	Historical Flood Events >	0	0	1	-	-
47	7.3	Flood Defences	0	0	0	-	-
47	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
48	7.5	Flood Storage Areas	0	0	0	-	-
49	7.6	Flood Zone 2	None (within 50m)				
50 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
51 >	8.1 >	Surface water flooding >	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding >					
53 >	9.1 >	Groundwater flooding >	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
54	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
54	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
54	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
54	10.4	Special Protection Areas (SPA)	0	0	0	0	0
55	10.5	National Nature Reserves (NNR)	0	0	0	0	0
55	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
55	10.7	Designated Ancient Woodland	0	0	0	0	0
55	10.8	Biosphere Reserves	0	0	0	0	0
56	10.9	Forest Parks	0	0	0	0	0
56	10.10	Marine Conservation Zones	0	0	0	0	0
56	10.11	Green Belt	0	0	0	0	0
56	10.12	Proposed Ramsar sites	0	0	0	0	0



56	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
57	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
57	10.15	Nitrate Sensitive Areas	0	0	0	0	0
57	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
58 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
59	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
60	11.1	World Heritage Sites	0	0	0	-	-
60	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
60	11.3	National Parks	0	0	0	-	-
60	11.4	Listed Buildings	0	0	0	-	-
61	11.5	Conservation Areas	0	0	0	-	-
61	11.6	Scheduled Ancient Monuments	0	0	0	-	-
61	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
62 >	12.1 >	Agricultural Land Classification >	Grade 1 (within 250m)				
63	12.2	Open Access Land	0	0	0	-	-
63	12.3	Tree Felling Licences	0	0	0	-	-
63	12.4	Environmental Stewardship Schemes	0	0	0	-	-
63	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
64 >	13.1 >	Priority Habitat Inventory >	0	0	2	-	-
65	13.2	Habitat Networks	0	0	0	-	-
65	13.3	Open Mosaic Habitat	0	0	0	-	-
65	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
66 >	14.1 >	10k Availability >	Identified (within 500m)				
67	14.2	Artificial and made ground (10k)	0	0	0	0	-
68	14.3	Superficial geology (10k)	0	0	0	0	-

68	14.4	Landslip (10k)	0	0	0	0	-
69	14.5	Bedrock geology (10k)	0	0	0	0	-
69	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	<u>Geology 1:50,000 scale</u> >	On site	0-50m	50-250m	250-500m	500-2000m
<u>70</u> >	<u>15.1</u> >	<u>50k Availability</u> >	Identified (within 500m)				
71	15.2	Artificial and made ground (50k)	0	0	0	0	-
71	15.3	Artificial ground permeability (50k)	0	0	-	-	-
<u>72</u> >	<u>15.4</u> >	<u>Superficial geology (50k)</u> >	1	0	0	0	-
<u>73</u> >	<u>15.5</u> >	<u>Superficial permeability (50k)</u> >	Identified (within 50m)				
73	15.6	Landslip (50k)	0	0	0	0	-
73	15.7	Landslip permeability (50k)	None (within 50m)				
<u>74</u> >	<u>15.8</u> >	<u>Bedrock geology (50k)</u> >	1	0	0	0	-
<u>75</u> >	<u>15.9</u> >	<u>Bedrock permeability (50k)</u> >	Identified (within 50m)				
75	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
76	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	<u>Natural ground subsidence</u> >					
<u>77</u> >	<u>17.1</u> >	<u>Shrink swell clays</u> >	Low (within 50m)				
<u>78</u> >	<u>17.2</u> >	<u>Running sands</u> >	Moderate (within 50m)				
<u>79</u> >	<u>17.3</u> >	<u>Compressible deposits</u> >	Moderate (within 50m)				
<u>80</u> >	<u>17.4</u> >	<u>Collapsible deposits</u> >	Negligible (within 50m)				
<u>81</u> >	<u>17.5</u> >	<u>Landslides</u> >	Very low (within 50m)				
<u>82</u> >	<u>17.6</u> >	<u>Ground dissolution of soluble rocks</u> >	Negligible (within 50m)				
Page	Section	<u>Mining and ground workings</u> >	On site	0-50m	50-250m	250-500m	500-2000m
84	18.1	BritPits	0	0	0	0	-
<u>85</u> >	<u>18.2</u> >	<u>Surface ground workings</u> >	0	0	2	-	-
85	18.3	Underground workings	0	0	0	0	0
85	18.4	Underground mining extents	0	0	0	0	-
85	18.5	Historical Mineral Planning Areas	0	0	0	0	-

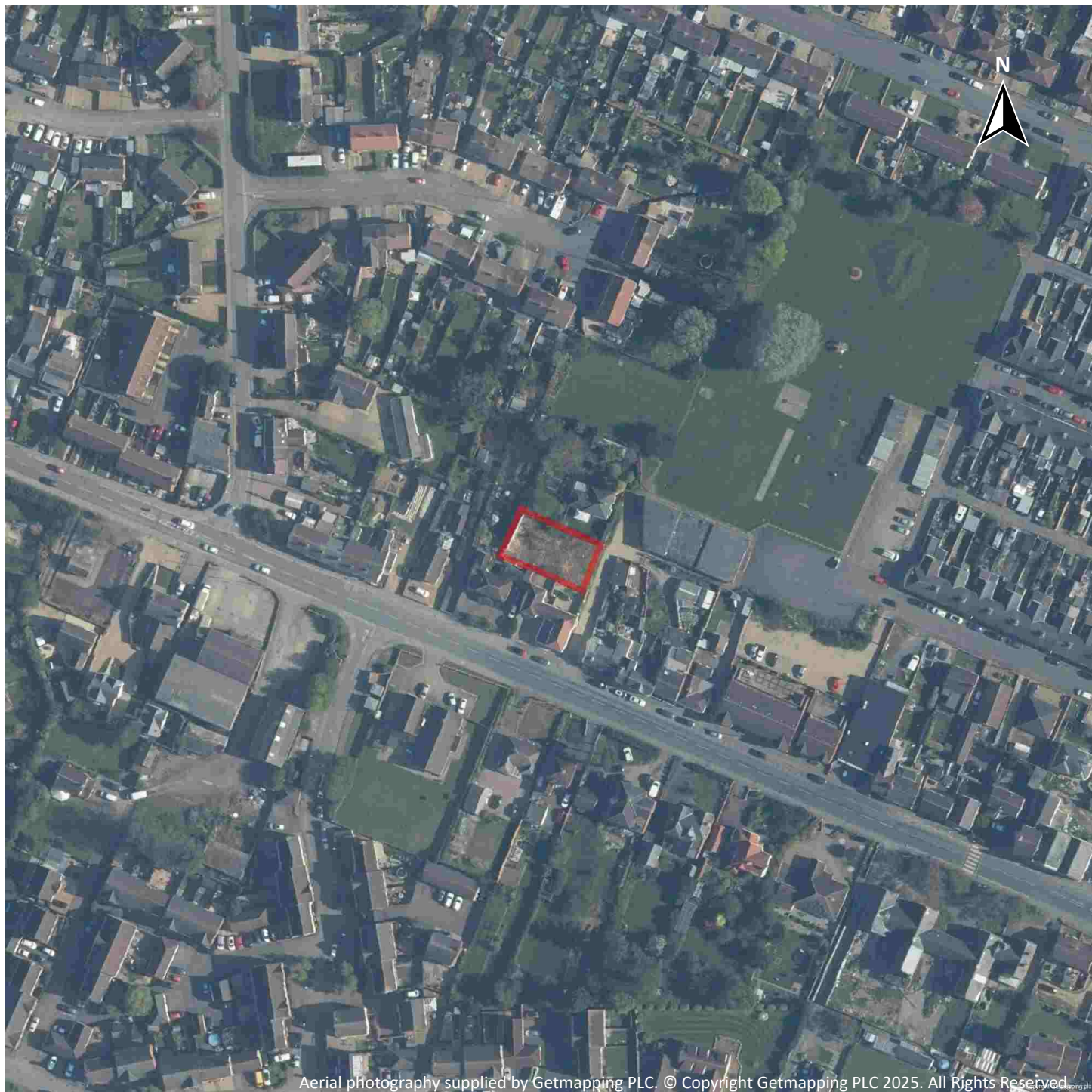


86	18.6	Non-coal mining	0	0	0	0	0
86	18.7	JPB mining areas	None (within 0m)				
86	18.8	The Coal Authority non-coal mining	0	0	0	0	-
86	18.9	Researched mining	0	0	0	0	-
87	18.10	Mining record office plans	0	0	0	0	-
87	18.11	BGS mine plans	0	0	0	0	-
87	18.12	Coal mining	None (within 0m)				
87	18.13	Brine areas	None (within 0m)				
87	18.14	Gypsum areas	None (within 0m)				
88	18.15	Tin mining	None (within 0m)				
88	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
89	19.1	Natural cavities	0	0	0	0	-
89	19.2	Mining cavities	0	0	0	0	0
89	19.3	Reported recent incidents	0	0	0	0	-
89	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
91 >	20.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
93 >	21.1 >	BGS Estimated Background Soil Chemistry >	1	1	-	-	-
93	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
93	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
94	22.1	Underground railways (London)	0	0	0	-	-
94	22.2	Underground railways (Non-London)	0	0	0	-	-
95	22.3	Railway tunnels	0	0	0	-	-
95 >	22.4 >	Historical railway and tunnel features >	0	0	8	-	-
95	22.5	Royal Mail tunnels	0	0	0	-	-
96 >	22.6 >	Historical railways >	0	0	1	-	-



96	22.7	Railways	0	0	0	-	-
96	22.8	Crossrail 2	0	0	0	0	-
96	22.9	HS2	0	0	0	0	-

Recent aerial photograph



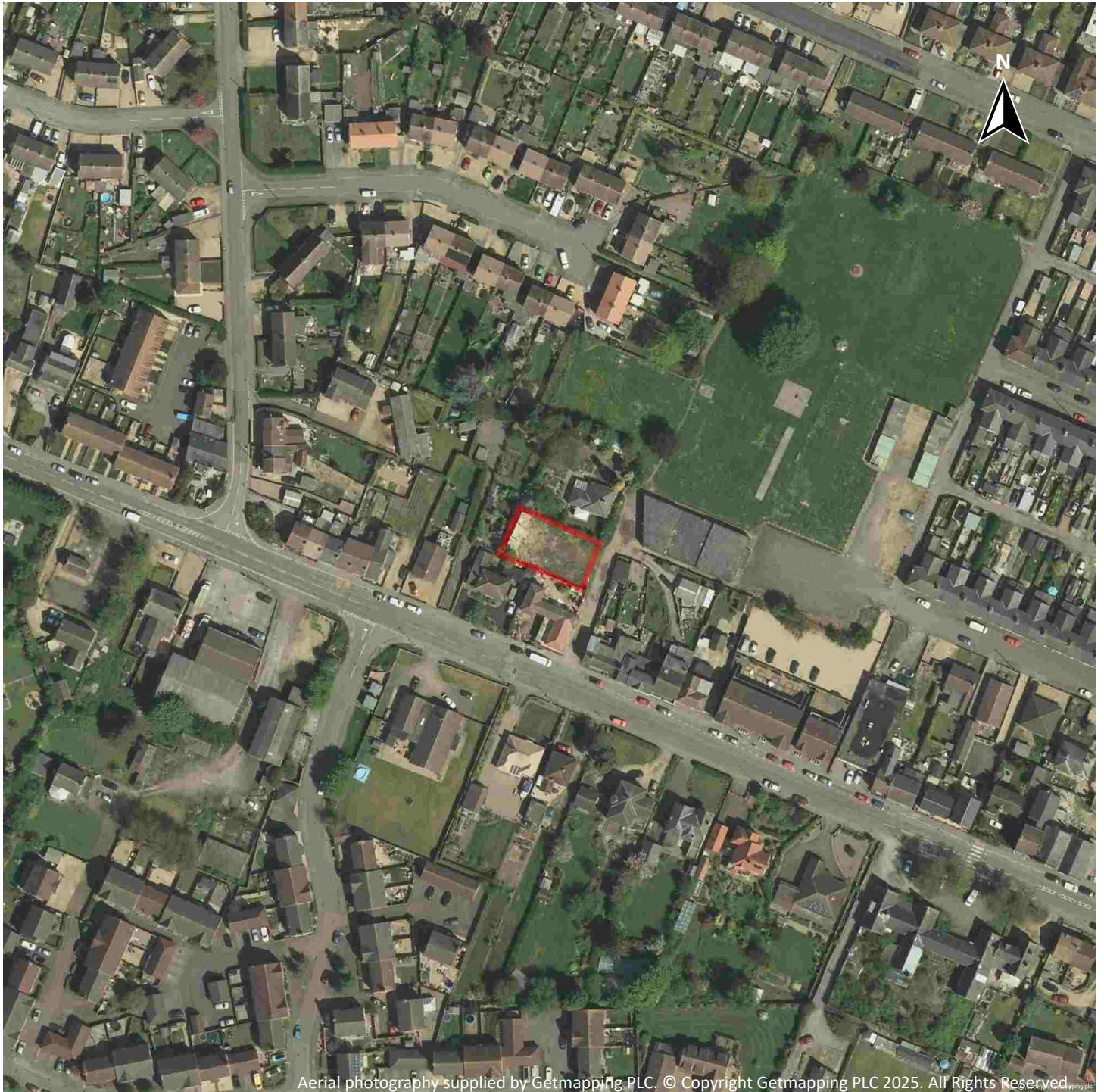
Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2025. All Rights Reserved

Capture Date: 02/05/2021

Site Area: 0.04ha



Recent site history - 2018 aerial photograph



Capture Date: 05/05/2018

Site Area: 0.04ha



Recent site history - 2013 aerial photograph



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Capture Date: 27/05/2013

Site Area: 0.04ha



Recent site history - 2007 aerial photograph



Capture Date: 10/08/2007

Site Area: 0.04ha



Recent site history - 1999 aerial photograph



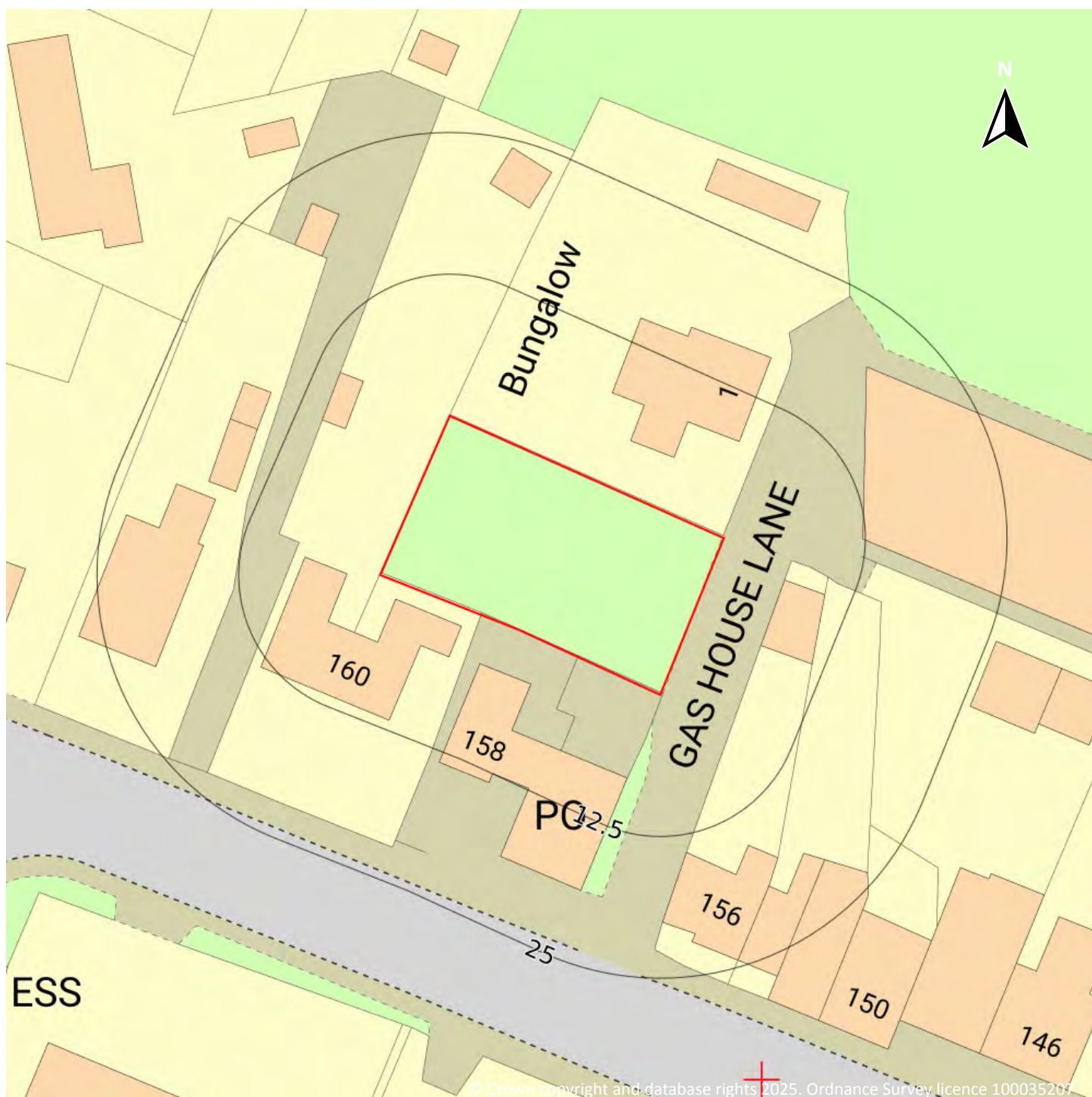
Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2025. All Rights Reserved.

Capture Date: 25/06/1999

Site Area: 0.04ha



OS MasterMap site plan



Site Area: 0.04ha



1 Past land use



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1.1 Historical industrial land uses

Records within 500m

49

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
A	On site	Unspecified Works	1958	2036681



ID	Location	Land use	Dates present	Group ID
A	On site	Police Station	1991	2041911
A	On site	Unspecified Tank	1929	2050183
A	On site	Gasometer	1887	2055929
A	On site	Unspecified Tank	1958	2057454
A	On site	Gas Works	1887 - 1903	2063529
A	On site	Gasometer	1887 - 1903	2064720
A	On site	Gas Works	1887	2065786
A	On site	Unspecified Commercial/Industrial	1929 - 1931	2067626
A	On site	Unspecified Tank	1931	2071210
A	9m W	Unspecified Tank	1929	2046159
A	9m W	Gasometer	1903	2042884
A	12m W	Unspecified Tank	1958	2049554
A	13m W	Unspecified Tank	1931	2046905
A	20m NW	Unspecified Tank	1974	2037294
B	63m NE	Unspecified Tanks	1974	2036441
C	75m SW	Police Station	1974	2041912
C	83m S	Unspecified Pit	1887	2040101
E	158m SW	Nursery	1974 - 1991	2048710
E	165m SW	Nursery	1938	2070493
E	165m SW	Nursery	1931	2051025
E	168m SW	Nursery	1958	2043739
1	179m W	Unspecified Pit	1887	2040099
E	193m SW	Nursery	1929	2069158
2	200m S	Railway Sidings	1887	2069776
3	201m S	Railway Sidings	1931 - 1938	2068228
4	202m S	Railway Sidings	1887	2066894
5	203m S	Railway Sidings	1903	2064030
6	221m S	Railway Sidings	1958	2050428



ID	Location	Land use	Dates present	Group ID
G	240m W	Garage	1991	2038480
7	241m SW	Railway Sidings	1929	2059664
9	256m SW	Cuttings	1931	2034764
10	263m SW	Unspecified Pit	1931	2040100
11	301m SW	Industrial Estate	1991	2035357
H	308m SE	Grave Yard	1887	2070591
I	322m S	Railway Sidings	1887	2058547
H	361m SE	Smithy	1903	2041052
12	363m S	Railway Sidings	1929	2071522
13	367m E	Dock	1887	2046845
K	373m NW	Unspecified Tanks	1974	2036440
14	375m S	Junction Station	1938	2037067
15	387m E	Nursery	1974	2038746
16	402m E	Railway Sidings	1929	2057573
H	412m SE	Unspecified Works	1991	2036680
17	436m SE	Railway Sidings	1929	2056147
L	467m N	Sewage Works	1974	2034207
I	472m SE	Telephone Exchange	1974	2038154
L	483m N	Unspecified Tank	1974	2037293
18	493m E	Timber Yards	1887	2046921

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

11

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
A	On site	Unspecified Tank	1889	354914
A	20m NW	Gas Holder	1972	354812
B	63m NE	Tanks	1965 - 1972	357248
C	70m W	Gas Works	1889	354843
C	93m SW	Unspecified Tank	1972	354898
E	188m SW	Unspecified Tank	1972	358850
E	190m SW	Unspecified Tank	1984 - 1987	356544
E	190m SW	Unspecified Tank	1965	356645
K	372m NW	Tanks	1965 - 1972	357415
K	387m NW	Unspecified Tank	1965 - 1972	357381
L	483m N	Unspecified Tank	1965 - 1987	358807

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	15
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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	20m NW	Gas Holder	1972	244319
C	70m W	Gas Works	1889	244356
D	133m SE	Electricity Substation	1984 - 1993	245064
D	133m SE	Electricity Substation	1965	245931
D	135m SE	Electricity Substation	1972	244946
D	135m SE	Electricity Substation	1991	245382
D	136m SE	Electricity Substation	1996	244545



ID	Location	Land use	Dates present	Group ID
F	221m NW	Electricity Substation	1996	245482
F	223m NW	Electricity Substation	1991	245503
F	224m NW	Electricity Substation	1991 - 1993	246824
8	241m SE	Electricity Substation	1987	244098
J	362m NE	Electricity Substation	1993 - 1996	246524
J	362m NE	Electricity Substation	1991	246520
H	398m SE	Electricity Substation	1965 - 1993	245211
H	400m SE	Electricity Substation	1996	246406

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

1

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'.

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

ID	Location	Land use	Dates present	Group ID
H	412m SE	Filling Station	1972	3881

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

10

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'.

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



ID	Location	Land use	Dates present	Group ID
G	230m W	Garage	1972	76044
G	230m W	Garage	1991	76358
G	230m W	Garage	1996	75972
G	231m W	Garage	1965	76286
G	231m W	Garage	1984 - 1993	76843
H	406m SE	Garage	1965	75891
H	406m SE	Garage	1984 - 1987	76555
H	464m SE	Garage	1965	76505
H	473m SE	Garage	1972	76095
H	479m SE	Garage	1964 - 1972	75991

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m	0
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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
- Historical petrol stations
- Historical garages

2.1 Historical industrial land uses

Records within 500m

56

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 21](#) >

ID	Location	Land Use	Date	Group ID
A	On site	Gas Works	1887	2065786
A	On site	Gasometer	1887	2055929
A	On site	Unspecified Tank	1929	2050183



ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Commercial/Industrial	1929	2067626
A	On site	Unspecified Commercial/Industrial	1931	2067626
A	On site	Unspecified Tank	1931	2071210
A	On site	Gas Works	1903	2063529
A	On site	Gasometer	1903	2064720
A	On site	Gas Works	1887	2063529
A	On site	Gasometer	1887	2064720
A	On site	Police Station	1991	2041911
A	On site	Unspecified Works	1958	2036681
A	On site	Unspecified Tank	1958	2057454
A	9m W	Unspecified Tank	1929	2046159
A	9m W	Gasometer	1903	2042884
A	12m W	Unspecified Tank	1958	2049554
A	13m W	Unspecified Tank	1931	2046905
A	20m NW	Unspecified Tank	1974	2037294
B	63m NE	Unspecified Tanks	1974	2036441
C	75m SW	Police Station	1974	2041912
C	83m S	Unspecified Pit	1887	2040101
E	158m SW	Nursery	1991	2048710
E	158m SW	Nursery	1974	2048710
E	165m SW	Nursery	1938	2070493
E	165m SW	Nursery	1931	2051025
E	168m SW	Nursery	1958	2043739
1	179m W	Unspecified Pit	1887	2040099
E	193m SW	Nursery	1929	2069158
2	200m S	Railway Sidings	1887	2069776
F	201m S	Railway Sidings	1938	2068228
F	202m S	Railway Sidings	1931	2068228



ID	Location	Land Use	Date	Group ID
3	202m S	Railway Sidings	1887	2066894
4	203m S	Railway Sidings	1903	2064030
5	221m S	Railway Sidings	1958	2050428
H	240m W	Garage	1991	2038480
6	241m SW	Railway Sidings	1929	2059664
8	256m SW	Cuttings	1931	2034764
9	263m SW	Unspecified Pit	1931	2040100
10	301m SW	Industrial Estate	1991	2035357
I	308m SE	Grave Yard	1887	2070591
I	310m SE	Grave Yard	1887	2070591
J	322m S	Railway Sidings	1887	2058547
I	361m SE	Smithy	1903	2041052
11	363m S	Railway Sidings	1929	2071522
12	367m E	Dock	1887	2046845
L	373m NW	Unspecified Tanks	1974	2036440
13	375m S	Junction Station	1938	2037067
14	387m E	Nursery	1974	2038746
15	402m E	Railway Sidings	1929	2057573
I	412m SE	Unspecified Works	1991	2036680
16	436m SE	Railway Sidings	1929	2056147
M	467m N	Sewage Works	1974	2034207
17	467m SE	Railway Sidings	1887	2058547
J	472m SE	Telephone Exchange	1974	2038154
M	483m N	Unspecified Tank	1974	2037293
18	493m E	Timber Yards	1887	2046921

This data is sourced from Ordnance Survey / Groundsure.



2.2 Historical tanks

Records within 500m

18

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 21 >](#)

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Tank	1889	354914
A	20m NW	Gas Holder	1972	354812
B	63m NE	Tanks	1965	357248
B	64m NE	Tanks	1972	357248
C	70m W	Gas Works	1889	354843
C	93m SW	Unspecified Tank	1972	354898
E	188m SW	Unspecified Tank	1972	358850
E	190m SW	Unspecified Tank	1965	356645
E	190m SW	Unspecified Tank	1984	356544
E	190m SW	Unspecified Tank	1987	356544
L	372m NW	Tanks	1972	357415
L	373m NW	Tanks	1965	357415
L	387m NW	Unspecified Tank	1972	357381
L	387m NW	Unspecified Tank	1965	357381
M	483m N	Unspecified Tank	1965	358807
M	483m N	Unspecified Tank	1984	358807
M	483m N	Unspecified Tank	1987	358807
M	484m N	Unspecified Tank	1972	358807

This data is sourced from Ordnance Survey / Groundsure.



2.3 Historical energy features

Records within 500m

30

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 21](#) >

ID	Location	Land Use	Date	Group ID
A	20m NW	Gas Holder	1972	244319
C	70m W	Gas Works	1889	244356
D	133m SE	Electricity Substation	1965	245931
D	133m SE	Electricity Substation	1984	245064
D	133m SE	Electricity Substation	1987	245064
D	133m SE	Electricity Substation	1991	245064
D	133m SE	Electricity Substation	1992	245064
D	133m SE	Electricity Substation	1993	245064
D	135m SE	Electricity Substation	1972	244946
D	135m SE	Electricity Substation	1991	245382
D	136m SE	Electricity Substation	1996	244545
G	221m NW	Electricity Substation	1996	245482
G	223m NW	Electricity Substation	1991	245503
G	224m NW	Electricity Substation	1991	246824
G	224m NW	Electricity Substation	1992	246824
G	224m NW	Electricity Substation	1993	246824
7	241m SE	Electricity Substation	1987	244098
K	362m NE	Electricity Substation	1996	246524
K	362m NE	Electricity Substation	1991	246520
K	362m NE	Electricity Substation	1993	246524
K	363m NE	Electricity Substation	1991	246520
I	398m SE	Electricity Substation	1965	245211
I	398m SE	Electricity Substation	1984	245211



ID	Location	Land Use	Date	Group ID
I	398m SE	Electricity Substation	1987	245211
I	398m SE	Electricity Substation	1991	245211
I	398m SE	Electricity Substation	1992	245211
I	398m SE	Electricity Substation	1993	245211
I	399m SE	Electricity Substation	1972	245211
I	399m SE	Electricity Substation	1991	245211
I	400m SE	Electricity Substation	1996	246406

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

1

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'.

Features are displayed on the Past land use - un-grouped map on [page 21 >](#)

ID	Location	Land Use	Date	Group ID
I	412m SE	Filling Station	1972	3881

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

16

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'.

Features are displayed on the Past land use - un-grouped map on [page 21 >](#)

ID	Location	Land Use	Date	Group ID
H	230m W	Garage	1972	76044
H	230m W	Garage	1991	76358
H	230m W	Garage	1996	75972



ID	Location	Land Use	Date	Group ID
H	231m W	Garage	1965	76286
H	231m W	Garage	1984	76843
H	231m W	Garage	1987	76843
H	231m W	Garage	1991	76843
H	231m W	Garage	1992	76843
H	231m W	Garage	1993	76843
I	406m SE	Garage	1965	75891
I	406m SE	Garage	1984	76555
I	406m SE	Garage	1987	76555
I	464m SE	Garage	1965	76505
I	473m SE	Garage	1972	76095
I	479m SE	Garage	1972	75991
I	479m SE	Garage	1964	75991

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**12**

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 28 >](#)

ID	Location	Site	Reference	Category	Sub-Category	Description
1	15m SW	184, Bridge Road, Sutton Bridge, Spalding, Pe12 9sf	WEX426694	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	156m W	184, Bridge Road, Sutton Bridge, Spalding, Pe12 9sf	WEX163479	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	156m W	184, Bridge Road, Sutton Bridge, Spalding, Pe12 9sf	WEX298235	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	255m SW	Sutton Bridge Medical Centre, Railway Lane North, Sutton Bridge, Spalding, Pe12 9lp	WEX252894	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	255m SW	Sutton Bridge Medical Centre, Railway Lane North, Sutton Bridge, Spalding, Pe12 9lp	WEX380523	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	277m SW	Sutton Bridge Medical Centre Railway Lane North Spalding Lincolnshire Pe12 9lp	EPR/EF0002ZE /A001	Treating waste exemption	Non-agricultural waste only	Sorting and de-naturing of controlled drugs for disposal
2	363m NW	Sutton Bridge Westmere Community Primary School Anne Road Sutton Bridge Pe12 9tb	EPR/NH0375P Z/A001	Treating waste exemption	Non-agricultural waste only	Crushing waste fluorescent tubes
C	377m S	Nene Transport (Lincs) Ltd, Greenworld Park, Sutton Bridge, Pe12 9rn	WEX422450	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	377m S	Nene Transport (Lincs) Ltd, Greenworld Park, Sutton Bridge, Pe129rn	WEX374751	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	377m S	Greenworld Park, Sutton Bridge, Spalding, Pe12 9rn	WEX272138	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	377m S	Greenworld Park, Sutton Bridge, Spalding, Pe12 9rn	WEX399976	Storing waste exemption	Not on a farm	Storage of waste in a secure place
3	384m SW	-	WEX318805	Storing waste exemption	Not on a farm	Storage of waste in a secure place

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
- △ Current or recent petrol stations
- ◆ Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m

8

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 31](#) >

ID	Location	Company	Address	Activity	Category
A	54m SW	Electricity Sub Station	Lincolnshire, PE12	Electrical Features	Infrastructure and Facilities
A	57m SW	Electricity Sub Station	Lincolnshire, PE12	Electrical Features	Infrastructure and Facilities
1	109m SW	Pumping Station	Lincolnshire, PE12	Water Pumping Stations	Industrial Features



ID	Location	Company	Address	Activity	Category
2	109m NE	Electricity Sub Station	Lincolnshire, PE12	Electrical Features	Infrastructure and Facilities
3	126m W	Pumping Station	Lincolnshire, PE12	Water Pumping Stations	Industrial Features
B	221m SE	Bridge Hardware	57, Bridge Road, Sutton Bridge, Spalding, Lincolnshire, PE12 9SD	General Construction Supplies	Industrial Products
4	225m NW	Electricity Sub Station	Lincolnshire, PE12	Electrical Features	Infrastructure and Facilities
B	249m SE	Pumping Station	Lincolnshire, PE12	Water Pumping Stations	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m

1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on [page 31 >](#)

ID	Location	Company	Address	LPG	Status
5	234m W	GULF	Railway Lane North, Sutton Bridge, Spalding, Lincolnshire, PE12 9XD	No	Open

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

0

High pressure underground gas transmission pipelines.

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

0

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.

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

1

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

Features are displayed on the Current industrial land use map on [page 31](#) >

ID	Location	Address	Details	
6	384m NW	PREMISESATZIMBABWE,AN NERD,SUTTONBRIDGE,SPAL DING,LINCS,PE129TB	Effluent Type: UNSPECIFIED Permit Number: PRNLF01841 Permit Version: 1 Receiving Water: land	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 26/09/1989 Effective Date: 26/09/1989 Revocation Date: 15/07/1997

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.

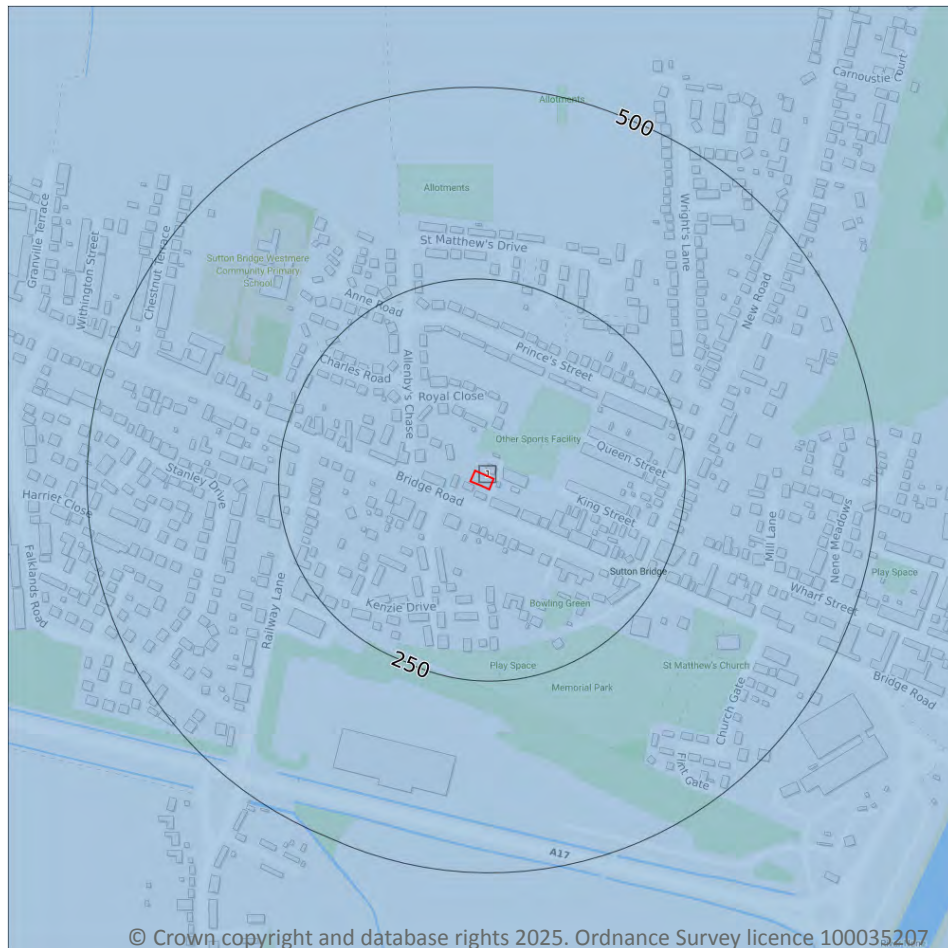
4.21 Pollution inventory radioactive waste

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

1

Aquifer status of groundwater held within superficial geology.

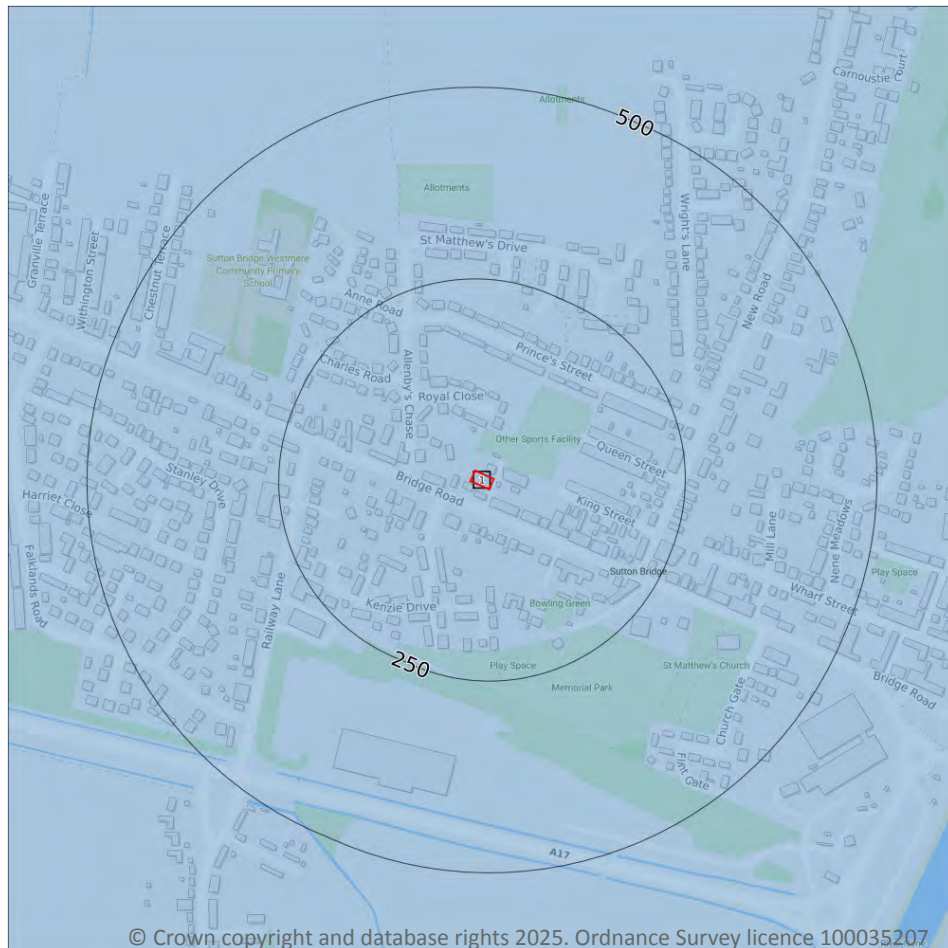
Features are displayed on the Hydrogeology map on [page 37 >](#)

ID	Location	Designation	Description
1	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

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

1

Aquifer status of groundwater held within bedrock geology.

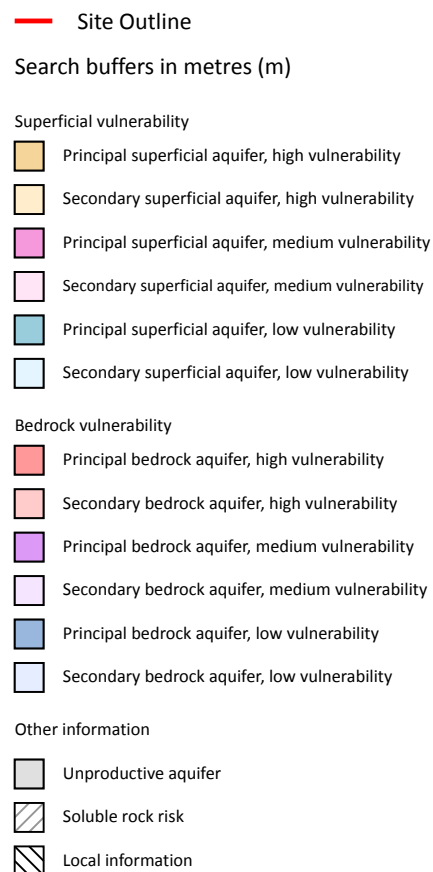
Features are displayed on the Bedrock aquifer map on [page 38](#) >

ID	Location	Designation	Description
1	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

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 39](#) >



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Unproductive aquifer (may have productive aquifer beneath) Combined classification: Unproductive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Unproductive Aquifer type: Unproductive 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	0
------------------------	----------

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

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

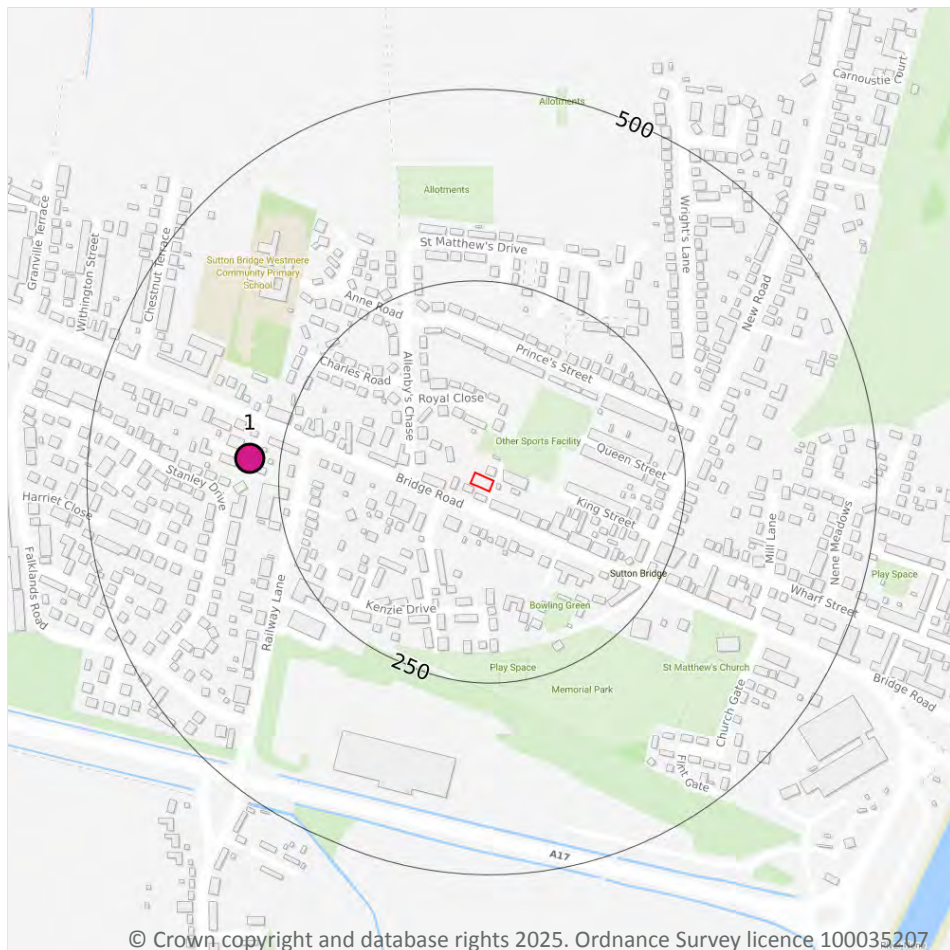
5.5 Groundwater vulnerability- local information

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

1

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 41](#) >



ID	Location	Details	
1	290m W	Status: Historical Licence No: 5/32/11/*G/0031 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: WELL AT BRIDGE ROAD Data Type: Point Name: HAYES Easting: 547250 Northing: 321450	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/02/1966 Version End Date: -

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

5.7 Surface water abstractions

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

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	0
-----------------------------	----------

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.

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

5.9 Source Protection Zones

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

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

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 44](#) >

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	Coastal Catchment	Not part of a river WB catchment	110	Lower Nene	Nene

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

0

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.

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



7 River and coastal flooding



- Site Outline
- Search buffers in metres (m)
- River and coastal flooding:
- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m

1

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).

Features are displayed on the River and coastal flooding map on [page 46](#) >

Distance	Flood risk category
On site	Low
0 - 50m	Low

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

7.2 Historical Flood Events

Records within 250m	1
----------------------------	----------

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.

Features are displayed on the River and coastal flooding map on [page 46 >](#)

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
2	231m E	Lna_1978_January_Tidal River Nene	1978-01-11 1978-01-11	Other	Channel capacity exceeded (no raised defences)	Tidal

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

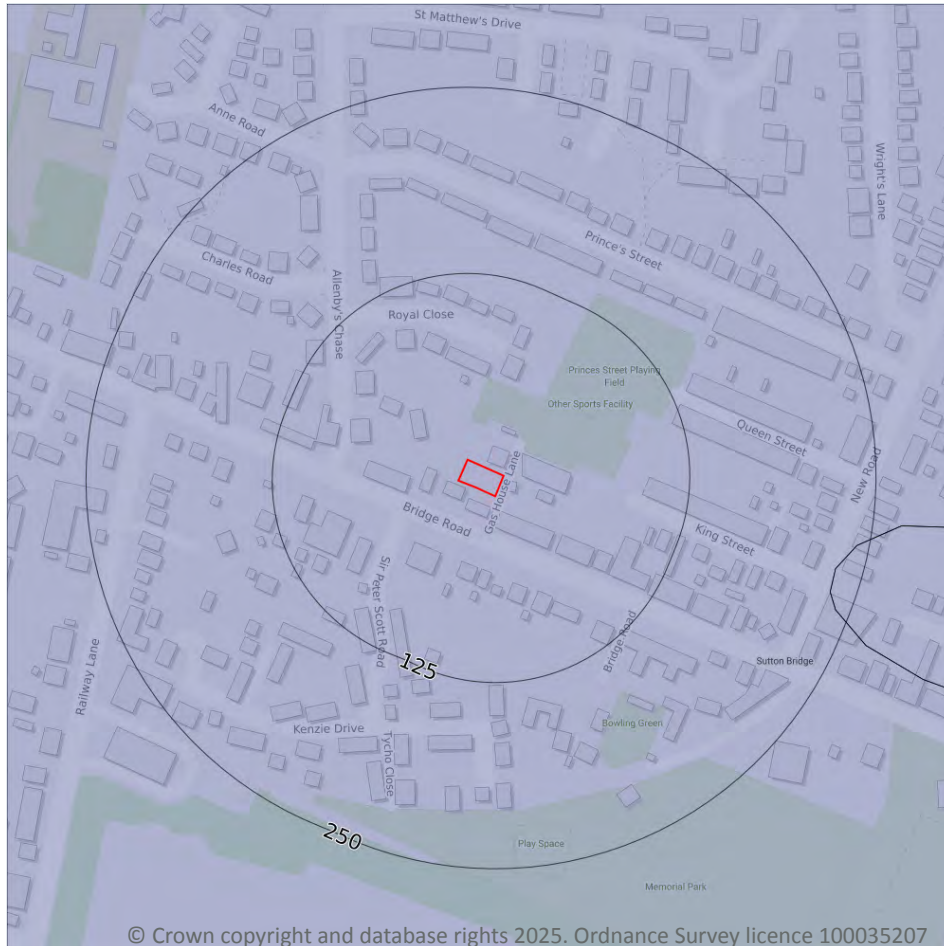
0

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



- Site Outline
- Search buffers in metres (m)
- Flood zone 2
- Flood zone 3

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

1

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.

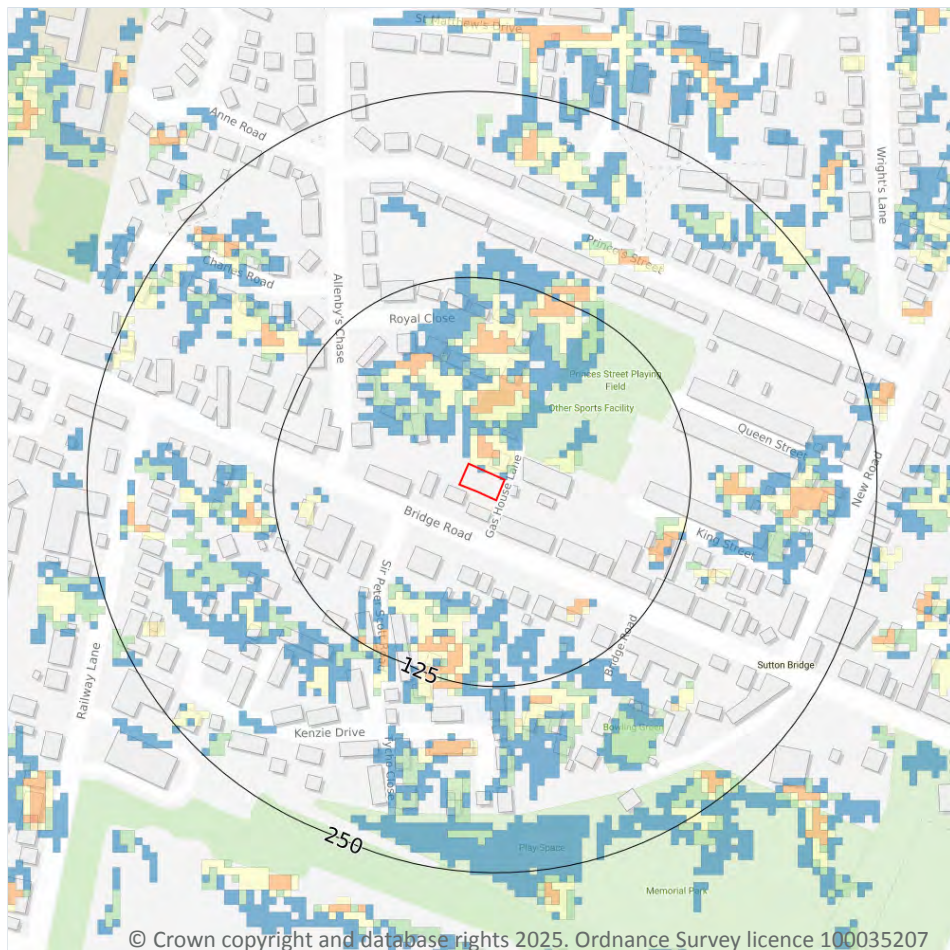
Features are displayed on the River and coastal flooding map on [page 46](#) >

Location	Type
On site	Zone 3 - (Fluvial /Tidal Models)

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



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

1 in 100 year, 0.1m - 0.3m

Highest risk within 50m

1 in 30 year, 0.1m - 0.3m

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.

Features are displayed on the Surface water flooding map on [page 51](#) >

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.

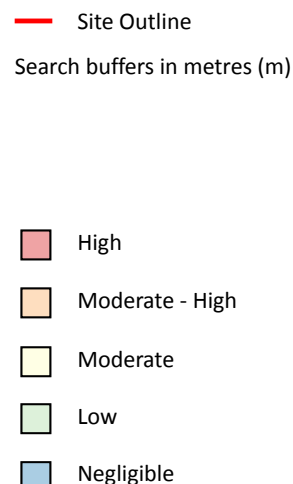
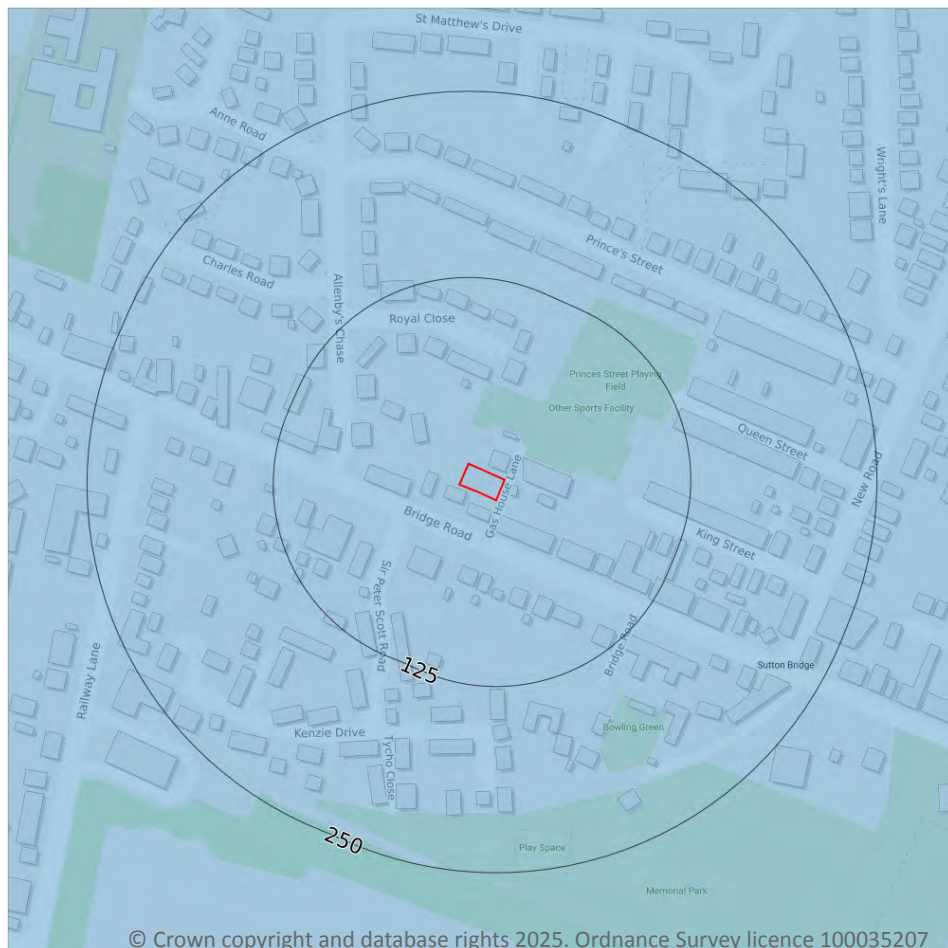
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Negligible

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



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 53](#) >

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations

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

0

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.

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

0

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

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

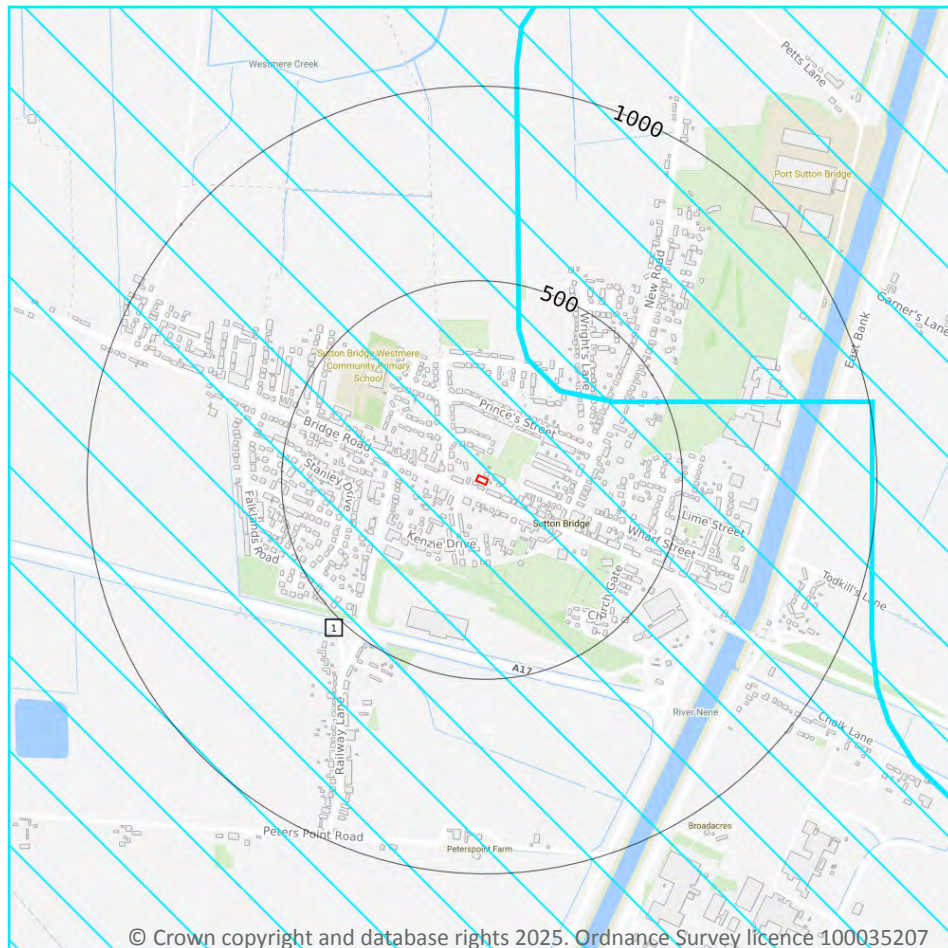
0

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.

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 58 >](#)

ID	Location	Type of developments requiring consultation
1	On site	https://irz.geodata.org.uk/IRZ/step2.html?irzcode=0300000000050&notes=&location=537394,328095%20(IRZ%20polygon%20centre)

This data is sourced from Natural England.



10.18 SSSI Units

Records within 2000m

0

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

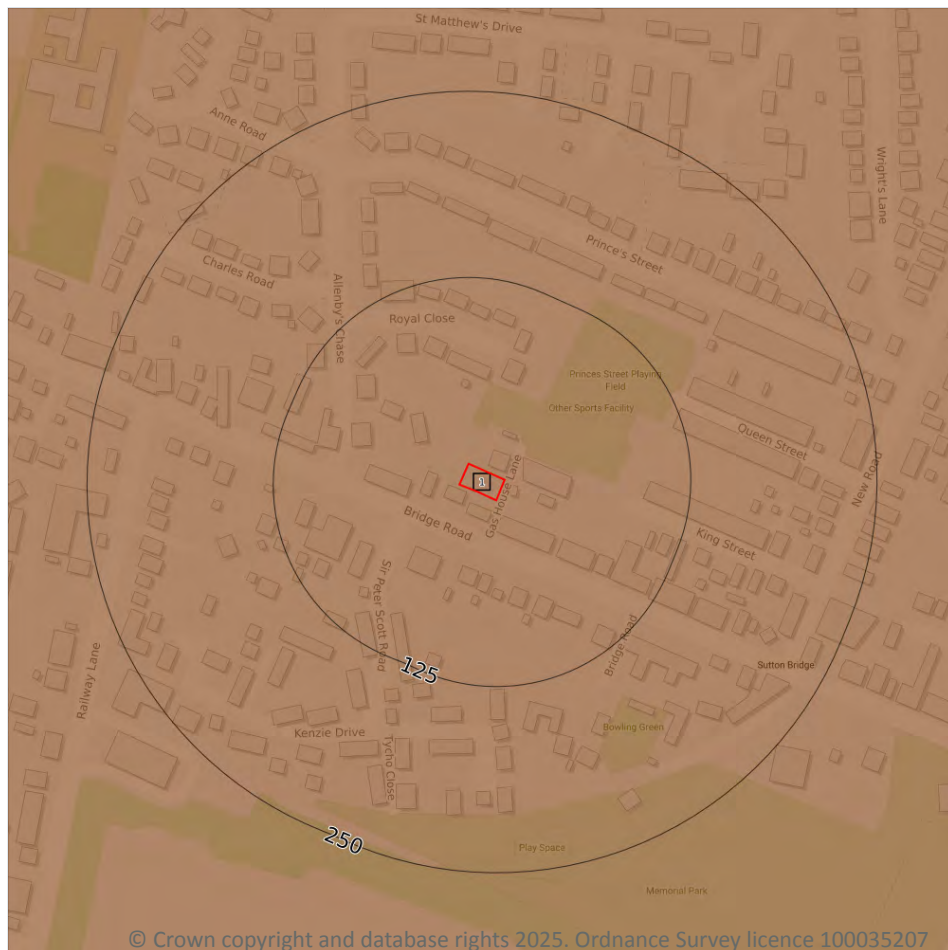
0

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 62](#) >

ID	Location	Classification	Description
1	On site	Grade 1	Excellent quality agricultural land. Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

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

0

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.

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

2

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 64](#) >

ID	Location	Main Habitat	Other habitats
1	236m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	237m SW	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

1

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 66](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov

This data is sourced from the British Geological Survey.



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

14.2 Artificial and made ground (10k)

Records within 500m

0

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.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m

0

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.

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

14.5 Bedrock geology (10k)

Records within 500m

0

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.

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

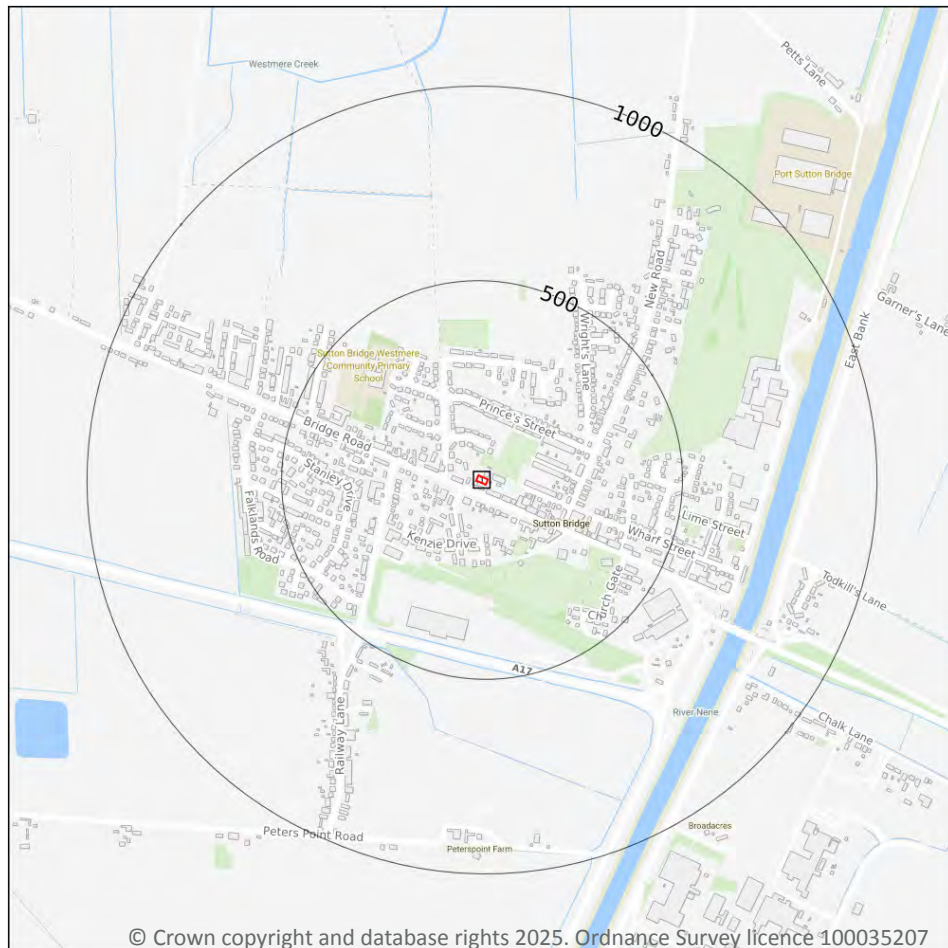
0

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 70](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW145_kings_lynn_v4

This data is sourced from the British Geological Survey.



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

15.2 Artificial and made ground (50k)

Records within 500m

0

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.

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 72 >](#)

ID	Location	LEX Code	Description	Rock description
1	On site	TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT

This data is sourced from the British Geological Survey.



15.5 Superficial 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 any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	Low	Very Low

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

1

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 74](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	AMC-MDST	AMPTHILL CLAY FORMATION - MUDSTONE	OXFORDIAN

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	Low	Very Low

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

16.1 BGS Boreholes

Records within 250m

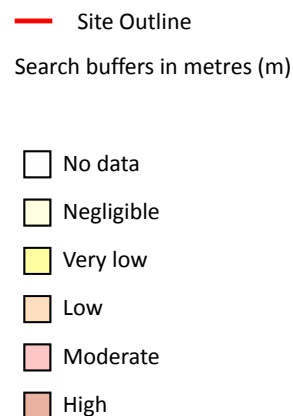
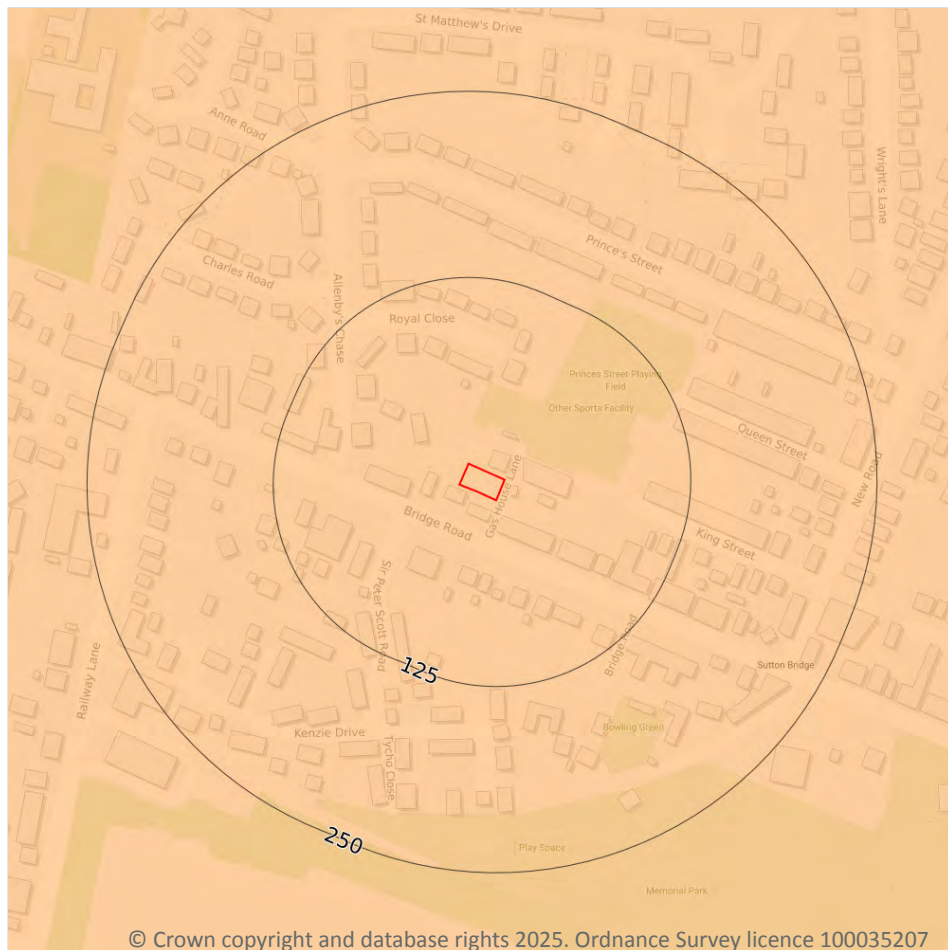
0

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.

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).

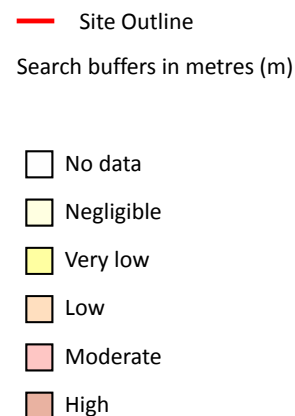
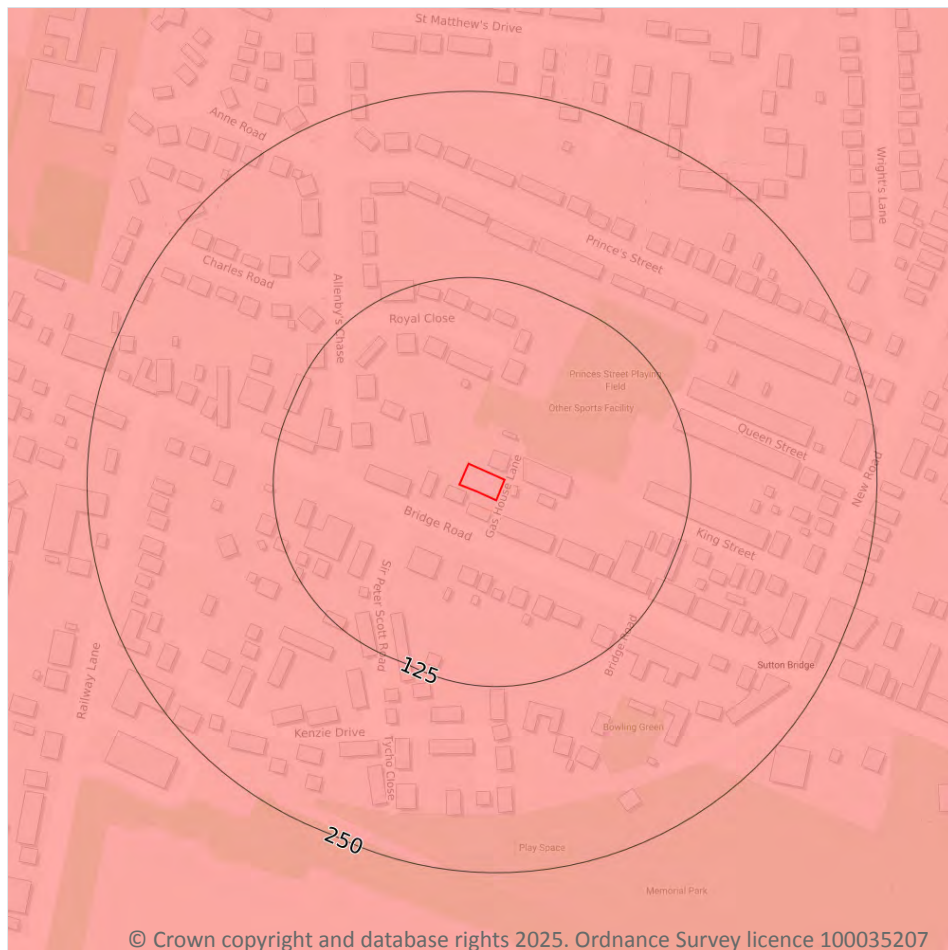
Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 77 >](#)

Location	Hazard rating	Details
On site	Low	Ground conditions predominantly medium plasticity.

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.

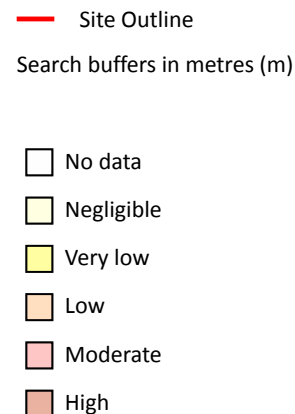
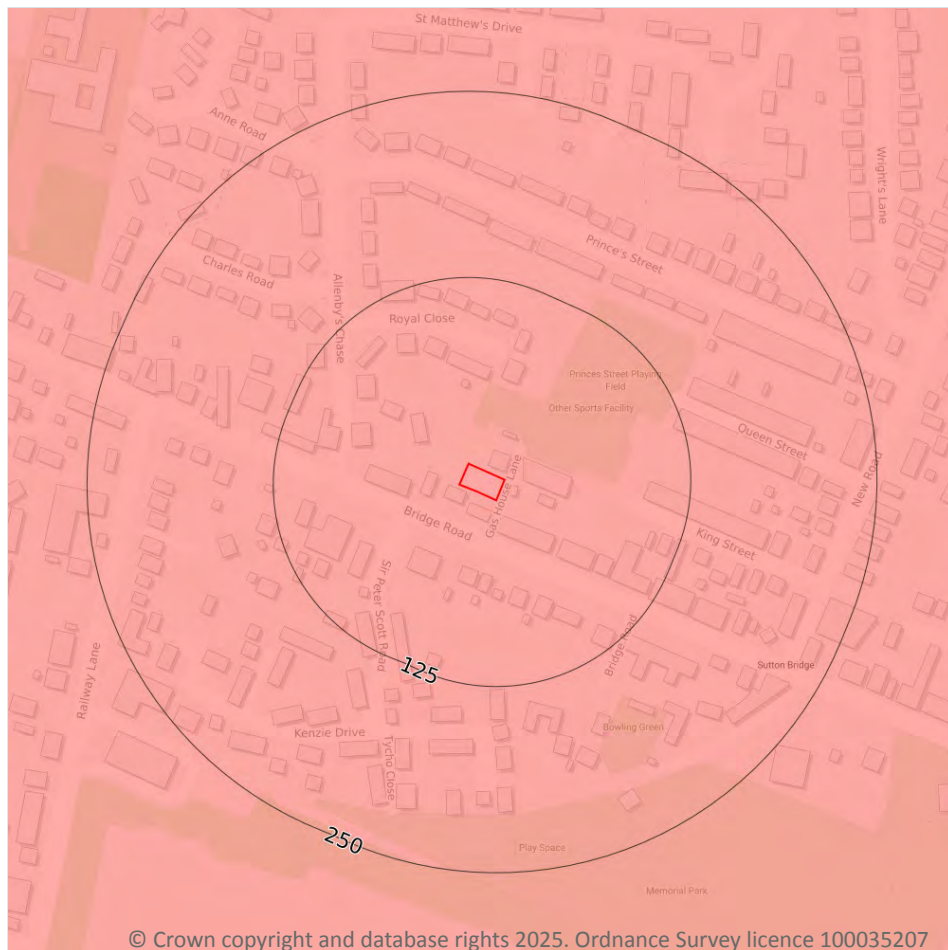
Features are displayed on the Natural ground subsidence - Running sands map on [page 78 >](#)

Location	Hazard rating	Details
On site	Moderate	Running sand conditions are probably present. Constraints may apply to land uses involving excavation or the addition or removal of water.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



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.

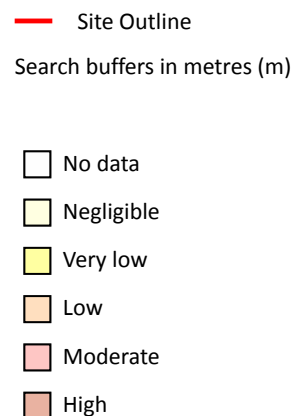
Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 79 >](#)

Location	Hazard rating	Details
On site	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



17.4 Collapsible deposits

Records within 50m

1

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.

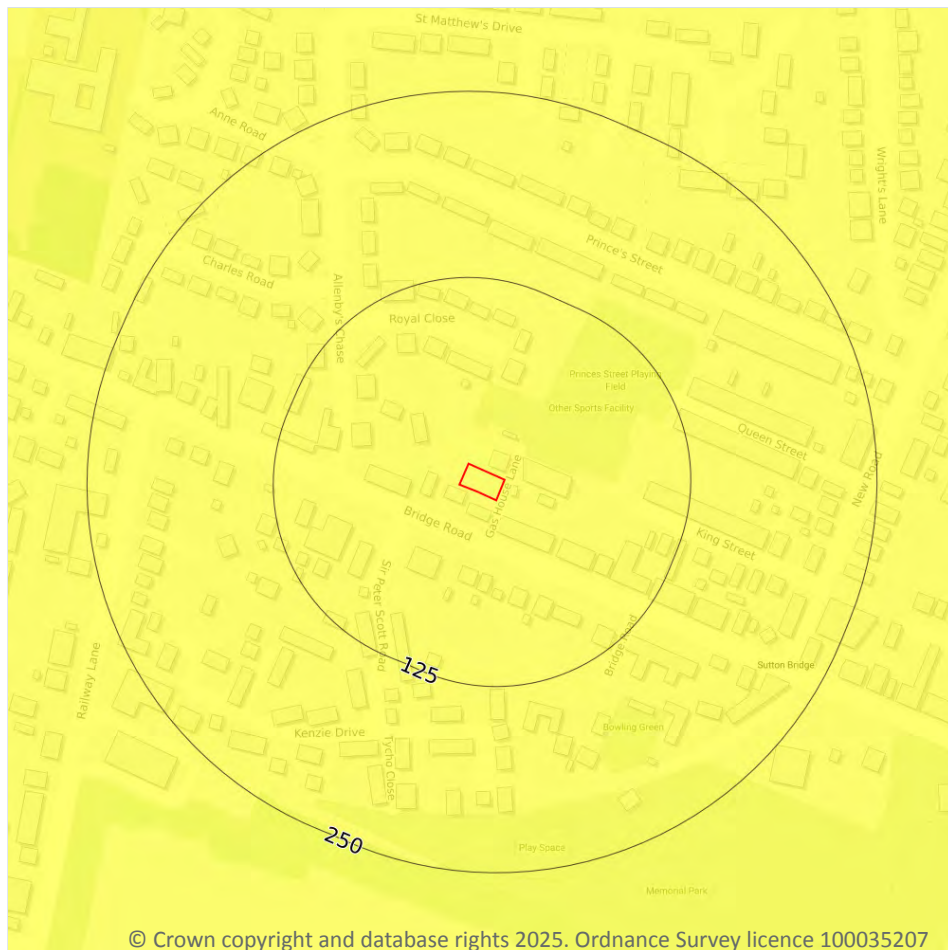
Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 80](#) >

Location	Hazard rating	Details
On site	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



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

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 81](#) >

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely 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



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

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 82](#)

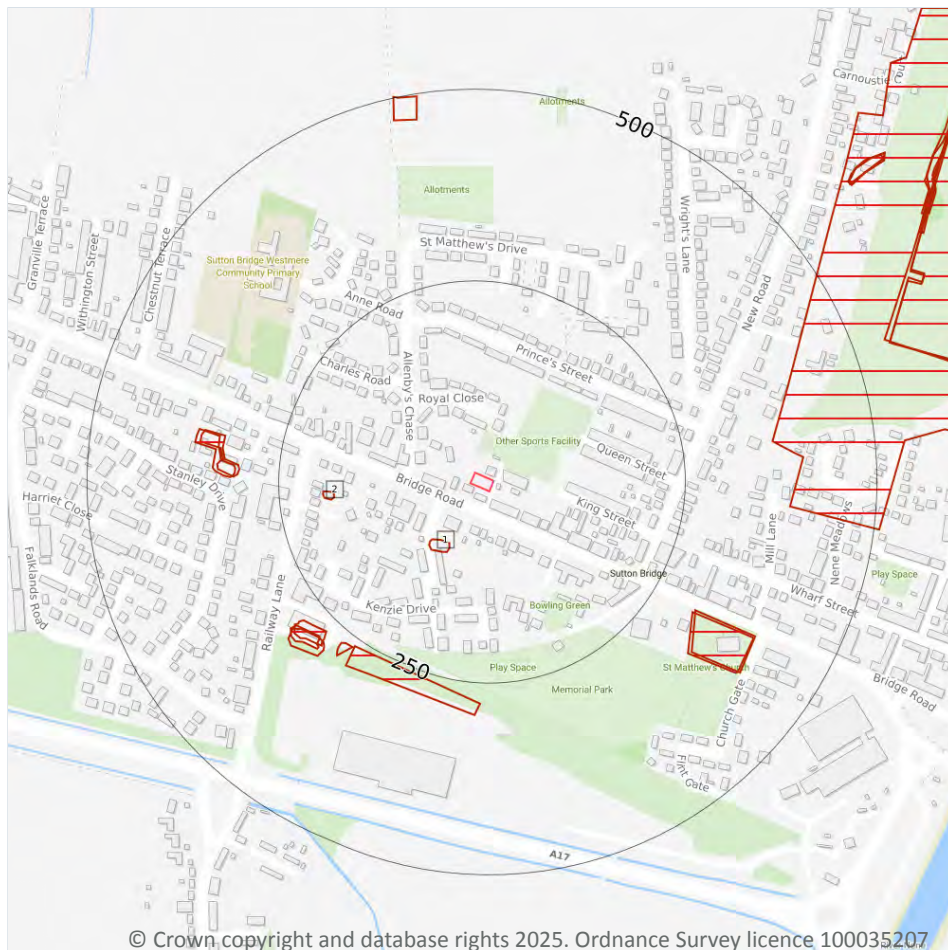
Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



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

0

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.

This data is sourced from the British Geological Survey.



18.2 Surface ground workings

Records within 250m

2

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 84 >](#)

ID	Location	Land Use	Year of mapping	Mapping scale
1	83m S	Unspecified Pit	1887	1:10560
2	179m W	Unspecified Pit	1887	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

0

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).

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site

0

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

0

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.

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
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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

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

0

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.

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.

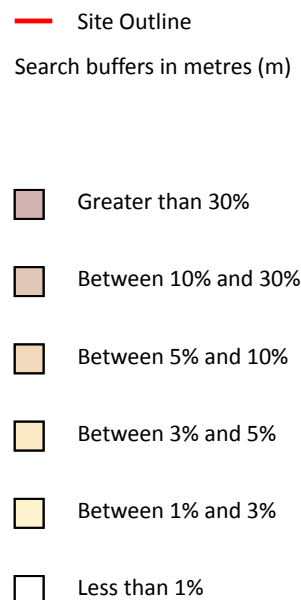
Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.



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 91](#) >

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	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

2

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	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
38m W	15 - 25 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

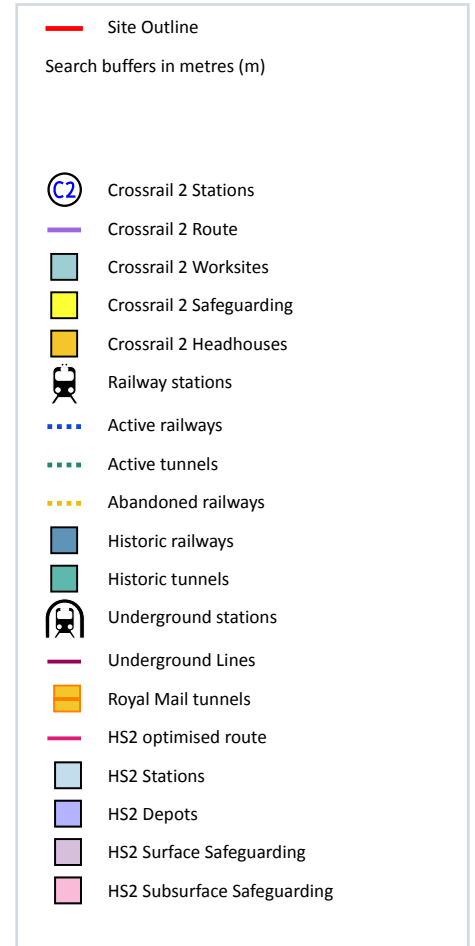
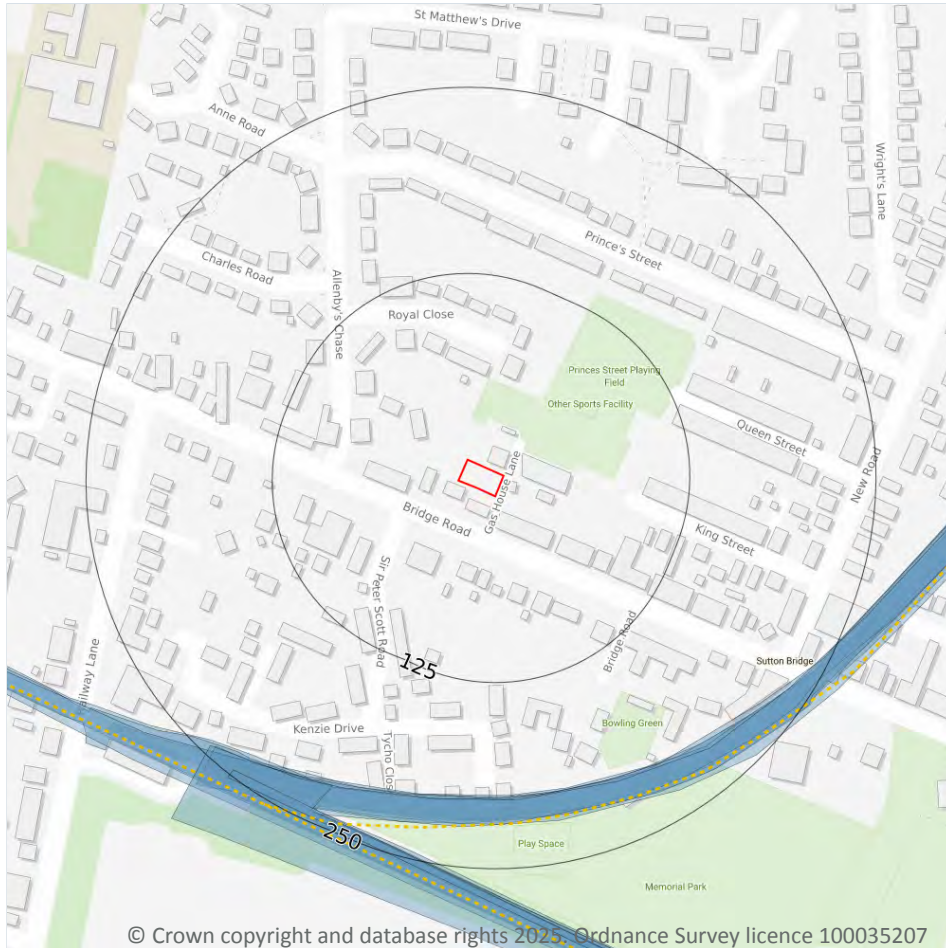
0

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

8

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.

Features are displayed on the Railway infrastructure and projects map on [page 94 >](#)

Location	Land Use	Year of mapping	Mapping scale
200m S	Railway Sidings	1887	10560
201m S	Railway Sidings	1938	10560
202m S	Railway Sidings	1931	10560
202m S	Railway Sidings	1887	10560
203m S	Railway Sidings	1903	10560
221m S	Railway Sidings	1958	10560
241m SW	Railway Sidings	1929	10560
243m SW	Railway Sidings	1904	2500

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**1**

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

Features are displayed on the Railway infrastructure and projects map on [page 94 >](#)

Location	Description
219m S	Razed

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> ↗.

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

