Elemental GI Ltd

REPORT: PHASE 1 GEO-ENVIRONMENTAL ASSESSMENT FOR SITE OFF BARRIER BANK, COWBIT, SPALDING

CLIENT: EAST ANGLIAN CIVILS LTD

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PHASE I GEO-ENVIRONMENTAL ASSESSMENT: SITE OFF BARRIER BANK, COWBIT, SPALDING

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SEMI-TECHNICAL SUMMARY

The reader is referred to the terms and conditions which accompany this report, and which are presented at the end of this document.

This semi-technical summary provides a brief overview of the main conditions which have been noted on site. These features / factors (alongside others) are explained fully in the following report and the following should therefore not be referred to in isolation. **No reliance should be placed on this summary until the whole report has been read in full.**

Ground Conditions	A ground investigation will be needed to confirm the ground conditions, but at this stage it is understood that the site may be underlain by clay and silt soils which may be unsuitable for traditional foundations at the site for low-rise residential housing, subject to intrusive investigation. Alternative foundations may therefore be needed if significant soft / loose soils and / or deep made ground is present at the site.
Contamination	Possible fuel tanks have been used in the western area of the site. The structures / barns in the eastern area of the site may have housed livestock. Other structures on the site have been shown to be used for storage of various materials. The 'U' shaped structure in the centre of the site is shown to be used to burn materials. Asbestos sheeting and debris are seen around the site as well as mounds containing rubble cement and mixed soils. We'd therefore expect localised contamination in these parts of the site. Any forthcoming ground investigations should include the sampling and analysis of the site to confirm the quality of soils, and this area should be targeted with additional sampling / testing.
Other Issues	-
Recommendations	▪ Completion of a Phase II Ground investigation to assess the potential issues outlined above, and to confirm the ground conditions across the site overall.

1.0 INTRODUCTION

1.1 Report Status

Elemental GI Ltd were appointed by East Anglian Civils Ltd (hereafter referred to as 'the Client') to undertake a Phase I Geo-Environmental Assessment for the site off Barrier Bank, Cowbit, Spalding (hereafter referred to as 'the site').

This report has been prepared on the understanding that the site is to undergo redevelopment to support residential housing. We have been supplied with a copy of the proposed layout Ref: 3581-19-OID-October 2019, and extracts of this plan are presented in the Proposed Site Layout Plan (Drawing 001) in Appendix I.

This report has been prepared in accordance with our notes concerning the terms and conditions of these works and of our engagement, which are presented at the end of this report.

Should the development proposals alter, then the recommendations in this report may be subject to change. Whilst it may be utilised by others for reference purposes at the Client's discretion, it has not been prepared for any other purposes (e.g. waste classification etc.) and therefore additional works may be required by third parties dependent upon their own requirements / works.

1.2 Previous Reports

Elemental GI Ltd have been supplied with copies of the following documents by the Client which relate to the subject site:

- Ellingham Consulting Ltd – Flood Risk Assessment for Residential Development at Barrier Bank, Cowbit – ECL0497 – May 2021

The above referenced documents have not been reproduced herein, and they should be referred to in full alongside this report.

1.2.1 Summary of Previous Reports

The flood risk assessment does not appear to be relevant to the geo-environmental information discussed within this report.

However they do note that the site is likely to be underlain by superficial deposits of clay and silt and subsequently by bedrock of the Oxford Clay Formation mudstone.

2.0 SITE SETTING

2.1 Location

The address and location of the subject site are shown in Table 2.0 below:

Table 2.0: Site Location and Dimensions

Site Address	Site off Barrier Bank, Cowbit, Spalding, PE12 6AL
National Grid Ref.	526062, 317893
Area (Approx.)	0.26 ha
Access	Site can be accessed through a gate off Barrier Bank.



2.2 Description

The following general observations have been made concerning the site and surrounding areas:

2.2.1 Site:

- The site forms an irregular shaped parcel of land mainly covered by gravel and tarmac in the western area of the site and by grass in the eastern area of the site;

- The site currently supports a workshop and several derelict and dilapidated structures with various mounds around site containing building rubble and mixed soils;
- The workshop is present in the western area of the site and currently contains machinery, work benches, DIY materials and a small-scale storage of fuels, paints and cleaning fluids;
- There are 4 No. dilapidated structures on site. This comprises a disused shed in the northern area of the site, an open-sided barn in the north-eastern area of the site, a dilapidated barn (possible former livestock barn) in the eastern area of the site, and a disused barn in the western area of the site;
- Various materials were observed to be stored in some of the barns, mainly comprising wooden crates, pallets, machinery, gym equipment and electrical equipment;
- The small-scale storage of fluids in small drums was noted within some of these barns;
- A number of mounds and trial pits were found across the site. The mounds were shown to contain building rubble, cement and mixed soils. Trial pits have been undertaken and show disturbed made ground at surface;
- A 'U' shaped structure is found centrally on site built from breeze blocks. It is shown to house previous bonfires with piled wood in its centre. Building rubble from demolished buildings is found in a mound south of this structure;
- A disused kennel is found in the north-western area of the site. Alongside the kennel, concrete bases with wooden pallets and stacked breeze blocks with pipe are found. These indicate suspected tank bases which appear to be unbunded;
- Asbestos sheeting was noted across the site. This could be seen outside and around the workshop. Asbestos debris was also present in the barn in the eastern area of the site;
- A manhole cover was found in the central area of the site with a suspected sewer / drain running south-east;
- Mature trees are found around the shed in the north-eastern area of the site and alongside the eastern and southern boundaries; and
- The tarmac driveway at the site entrance is shown to slope at a downward gradient from the road onto a gravel area.

2.2.2 Surrounding Area:

- The site is set within a mixed residential / agricultural area;
- Land to the north of the site supports Cowbit Village Hall, St Mary's Church and a residential area;
- Land to the east of the site supports open ground and a residential area;
- Land to the south of the site supports a residential area with Cowbit Park located south-west of the site;
- Land to the west of the site supports Barrier Bank and farmland; and
- Land in the wider area surrounding the site supports a number of small businesses set within a residential area and a new river (drain) running parallel west of Barrier Bank. This is surrounded by farmland and open fields.

3.0 ENVIRONMENTAL DATABASE AND GEOLOGICAL SETTING

3.1 Geology, Hydrogeology and Mining

Table 3.1 presents the geological information reviewed for the site, which has been obtained from publicly available records and / or site-specific environmental database reports.

Table 3.1: Geological and Hydrogeological Information

Hydrogeology & Hydrology	The drift deposits recorded beneath the site are classified as a 'Unproductive'. The bedrock geology recorded beneath the site is classified as a 'Unproductive'. No entries relating to abstractions are recorded within a 250m radius of the site. No entries relating to potable abstractions are recorded within a 2000m radius of the site. The site is not recorded to be within a source protection zone for total catchment. 19 No. entries relating to water networks are recorded within a 250m radius of site relating to small watercourses from 1m north-east of the site and the New River from 115m south-west of the site. 9 No. entries relating to surface water features are recorded within a 250m radius of site relating to relating to small watercourses. Records relating to the site's flood risk are presented within the Environmental Database Report which is in Appendix IV. This report should not be used for flood risk assessment purposes.
Underlying Ground / Geology	No records of artificial ground are recorded beneath the site on available 1:10,000 and 1:50,000 scale geological mapping. Drift deposits are recorded beneath the site on 1:50,000 scale mapping comprising Tidal Flat Deposits (clay and silt). This is generally recorded to comprise *"…of unconsolidated sediment, mainly mud and/or sand. They may form the top surface of a deltaic deposit. Normally a consolidated soft silty clay, with layers of sand, gravel and peat. Characteristically low relief".* The solid geology beneath the site on 1:50,000 scale mapping is recorded as Oxford Clay Formation, mudstone. This is generally recorded to comprise *"Silicate-mudstone, grey, generally smooth to slightly silty, with sporadic beds of argillaceous limestone nodules. Over most of the outcrop (except the Cleveland Basin, where only the upper part is present) it comprises a tripartite succession: lower part (Peterborough Member) silicate-mudstone, mainly brownish-grey, fissile, organic-rich ("bituminous"), with subordinate beds of pale to medium grey, blocky mudstone; middle part (Stewartby Member) silicate-mudstone, mainly pale to medium grey, smooth to slightly silty, blocky, with subordinate beds of silty shell-debris-rich mudstone; upper part (Weymouth Member) mudstone, mainly pale grey, calcareous, smooth, blocky".* No entries relating to geological faults are recorded within a 250m radius of the site on 1:50,000 scale mapping.

Natural Ground Stability Hazards	The site has been classified as having a negligible / 'no' hazard rating for collapsible deposit and ground dissolution of soluble rock hazards. The site has been classified as having a very low hazard rating for landslide hazards. The site has been classified as having a low hazard rating for shrink swell clay hazards. The site has been classified as having a moderate hazard rating for running sand and compressible deposit hazards.
Mining, Ground Workings and Natural Cavities	No natural cavity entries are recorded within a 250m radius of the site. No 'BritPit' entries are recorded within a 250m radius of the site. No surface ground workings entries are recorded within a 250m radius of site. No coal mining or non-coal mining extraction or brine extraction areas are recorded within 250m of the site.
Background Chemistry	Background chemistry for the site does not highlight any significantly elevated natural contaminants.

* This table has been prepared using information from the site-specific environmental report which is included in Appendix IV. Please refer to this for full information on the above.

3.2 Environmental Database Information

An environmental database report has been procured for the site. Elemental GI Ltd have reviewed this report and have summarised the entries below which are considered likely to warrant further consideration as potential sources within the site-specific CSM (conceptual site model). In general all entries within a 250m radius of the site's boundary have been considered and assessed as part of this review.

We will have omitted entries in the table below where they are not considered to be feasible sources due to varying factors, which often includes their age, size and distance from site.

Table 3.2: Environmental Data

Category	Entries and Notes*
Historical Land Uses	7 No. entries are identified within a 250m radius of the site. This includes nurseries from 138m north of the site, a smithy 241m north-west of the site, an unspecified tank 52m north-east of the site and an electricity substation 133m north-west.
Waste and Landfill	No records of waste entries identified within a 250m radius of the site.
Current Industrial Land Uses	6 No. entries are identified within a 250m radius of the site. This includes a CCTV business 115m south-east of the site, pumping stations 117m north-east, 161m north-west and 248m south-east of the site, an electricity substation 154m north-west of the site and a sewage pumping station 245m south-east of the site. 6 No. discharge consents are identified within a 250m radius of the site. These all relate to sewage discharges from a pumping station 135m north of the site.
Sensitive Land Uses	A nitrate vulnerable zone is identified 18m north-west of the site. The site is recorded to be set within a SSSI impact risk zone.

* This table has been prepared using information from the site-specific environmental report which is included in Appendix IV. Please refer to this for full information on the above.

3.3 Radon and Ground Gas

The site is in an area where less than 1% of homes are estimated to be at or above the Action Level. Therefore, radon protective measures are not required, subject to regulatory approval.

At this stage the following potential sources of ground gas have been identified:

- Made ground which may be present beneath and around previous structures and current structures;
- Peat layers that may be present within the superficial deposits underlying the site and nearby; and
- Organic materials which may have accumulated beneath and around the nearby watercourse.

4.0 SITE HISTORY

Historical maps dating back to 1887 have been obtained for the site, and are presented in Appendix V. The main features on site and in surrounding land areas have been reviewed and are summarised in in Tables 4.1a and 4.1b below.

Table 4.1a: Summary of Site History On-Site

OS Map Date Range(s)	Principal Features On-Site
1888 - 1904	• The site supports parts of 3 No. fields /gardens. • Small structures (possible barns, coops or similar structures) are present. • A small tree-lined watercourse is shown running along the line of the eastern boundary.
1904 - 1976	• Trees no longer shown along the eastern boundary of the site. • A further structure is shown along the western boundary of the site.
1976 - 2003	• Site now shown to support a single area. • 2 No. structures (open barns) now shown along the eastern boundary of the site. • 2 No. structures (greenhouses) now shown along the north-western boundary of the site with a small structure attached. • A 'U' shaped structure is shown in the central area of the site. • 2 No. structures now shown along the southern boundary. • Further development along the western boundary is shown with the site now showing 4 No. structures within this area.
2003 - Present	• The 2 No. structures along the north-western boundary are no longer shown.

Table 4.1b: Summary of Site History Off-Site

OS Map Date Range(s)	Principal Features Surrounding the Site
1887 - 1950	• The site is shown to be within the small village of Cowbit with St. Mary's Church, a school, a roman road (Stone Gate) and the Black Lion public house shown north of the site. • Farmland and small watercourses are shown surrounding the village of Cowbit. • The Geat Northern and Great Eastern Railway is shown east of the site. • A Methodist Chapel is shown south of the site. • Barrier Bank is shown west of the site beyond which the River Drove is located with a possible furze located between. • Pumps are shown north-west of the site.
1950 - 1969	• Further residential development in Cowbit is shown east of the site.
1969 - 1976	• A Nursey is shown north and east of the site. • An electricity substation and a garage are shown north-west of the site. • Watercourses now shown as drains.
1976 - 1988	• A sewage works is shown north-east of the site. • Further residential development is shown ease and south of the site. • Black Lion public house no longer shown.
1988 - 2001	• Hall now shown north of the site. • Railway now shown as dismantled from 1989.
2001 - Present	• Nursery no longer shown north of the site. • Further residential development shown south-east of the site.

Elemental GI Ltd have summarised the main features of the site and surrounding land within the table above, including features which may need to be considered with regards to future development. However, reference should be made to the historic maps presented within Appendix V for full information. It must be noted that this historic mapping is unlikely to present an exhaustive record of the site's development history, and considerable periods of time may have elapsed between successive Ordnance Survey map editions. It is therefore possible that some features / activities may have gone unrecorded.

5.0 PHASE I GROUND MODEL

5.1 Expected Ground Conditions

The site is recorded to be underlain by Tidal Flat Deposits (clay and silt) and Oxford Clay Formation, mudstone. These are both recorded to be 'Unproductive' aquifers. We would therefore expect the site to be underlain by made ground, associated with the previous and current structures, and by natural soils comprising clay and silt and subsequently residual soils of the underlying mudstone. Groundwater may be expected during site works (subject to seasonal variations).

Elemental GI Ltd have reviewed nearby BGS borehole logs, including Ref: TF21NE28, Ref: TF21NE29 and Ref: TF21NE2. These records confirm the expected ground profile (as suggested above) and show nearby areas to be underlain by clayey silts / silty clays with traces of siltstone. Traces of organics are noted in made ground and natural soils. Traces of peat were noted from 4.80m depth.

Mining / Stability

The site has been classified as having a negligible / 'no' hazard rating for collapsible deposit and ground dissolution of soluble rock hazards.

The site has been classified as having a very low hazard rating for landslide hazards.

The site has been classified as having a low hazard rating for shrink swell clay hazards.

The site has been classified as having a moderate hazard rating for running sand and compressible deposit hazards.

No coal or other mining issues have been identified at this stage in accordance with the enclosed Environmental Data Report.

5.2 Ground Gas Conceptual Site Model (CSM)

The site is in an area where less than 1% of homes are estimated to be at or above the Action Level. Therefore, radon protective measures are not required, subject to regulatory approval.

With regards to potential ground gas risks, the following potential *sources* have been identified for additional consideration:

- Made ground which may be present beneath and around previous structures and current structures;
- Peat layers that may be present within the superficial deposits underlying the site and nearby; and

- Organic materials which may have accumulated beneath and around the nearby watercourse.

Following a review of the site's geological setting, the following potential *pathways* have been identified for additional consideration:

- Granular made ground, which may permit the free lateral migration of ground gas in the local area; and
- Services may be present beneath and around the site which may form a preferential pathway for ground gas migration.

With regards to the proposed end-use at the site (as described in Section 1.0), residential end-users and the structures within which they will live have been considered as the main potential receptors at the site.

From the above it has been provisionally concluded that feasible sources, pathways and receptors may exist at / around the site. This provisional pollutant linkage has been considered alongside the following potential mitigating factors:

- The presence of underlying cohesive soils may inhibit the migration of ground gas; and
- Shallow disturbed made ground was visible and this was not observed to contain any wood, organic materials or other putrescible degradable materials.

At this stage it is considered that feasible risks from ground gas should be investigated through the completion of monitoring as part of future ground investigation works.

5.3 Human Health CSM

The site shows to support a few number of structures from 1887 on part of 3 No. fields / gardens. This was shown to become a single defined area with more structures developed from the 1970's supporting its current layout, with the exception of 2 No. greenhouses which were demolished from 2003.

Possible fuel tanks have been used in the western area of the site. The structures / barns in the eastern area of the site are shown to have housed livestock. Other structures on the site have been shown to be used for storage of various materials. The 'U' shaped structure in the centre of the site is shown to be used to burn materials.

In accordance with our standard risk assessment methodology (presented at the end of this report), the following sources, pathways and receptors have been identified at the subject site at this stage:

Table 5.1: Preliminary Human Health CSM

Potential Onsite Sources	Pathways	Receptors	Risk Rating[#]
Historic Livestock Barns	• Migration in Soils • Groundwater • Direct Contact • Plant Uptake	• End Users • Groundwater	MODERATE
Made Ground	• Migration in Soils • Groundwater • Direct Contact • Plant Uptake	• End Users • Groundwater	MODERATE
Asbestos Sheeting and Debris	• Migration in Soils • Groundwater • Direct Contact • Plant Uptake	• End Users	MODERATE
Western Barn (Storage)	• Migration in Soils • Groundwater • Vapour Migration • Direct Contact • Plant Uptake	• End Users • Groundwater	LOW / MODERATE
Eastern Barns (Storage)	• Migration in Soils • Groundwater • Vapour Migration • Direct Contact • Plant Uptake	• End Users • Groundwater	LOW / MODERATE
Mounds	• Migration in Soils • Groundwater • Direct Contact • Plant Uptake	• End Users • Groundwater	MODERATE
'U' Shaped Structure	• Migration in Soils • Groundwater • Direct Contact • Plant Uptake	• End Users • Groundwater	MODERATE
Suspected Tank Storage Area	• Migration in Soils • Groundwater • Vapour Migration • Direct Contact • Plant Uptake	• End Users • Groundwater	LOW / MODERATE
Potential Offsite Sources			
Barrier Bank	• Migration in Soils • Groundwater	• End Users • Groundwater	VERY LOW

[#] Risk ratings are described in Table A1 within the 'Standard Risk Assessment – Considerations and Methodology' section at the end of this report.

5.3.1 Potential Pollutant Linkages:

For a potential pollutant linkage to be present, feasible potential sources, pathways and receptors must be present or possible. With reference to the proposed end use, feasible potential pollutant linkages have been identified at the site as outlined in table 5.1 above.

Investigation works are therefore considered necessary to confirm if these are ongoing (or possible in future) so that appropriate remedial recommendations may be established.

5.3.2 Controlled Waters CSM:

The site is situated on superficial deposits and on bedrock which are classified as an 'Unproductive Aquifer'. The site is not recorded to be within a Source Protection Zone. There are no entries relating to abstractions within a 500m radius of the site. Abstractions for potable water are not recorded locally. There are 9 No. surface water features within a 250m radius of the site relating to small watercourses.

The site appears to be situated within an area of low sensitivity in relation to controlled waters. It is therefore recommended that the findings of any future site investigation works should be considered on this basis, and a revised assessment of the site's controlled waters CSM should be undertaken thereafter.

5.3.3 Model Status and Uncertainty:

The potential significant linkages discussed in this section are based on available data reviewed to date.

6.0 RECOMMENDATIONS

A review of the available site information (as discussed herein) has been undertaken to inform the following conclusions and recommendations. However, this report should be submitted to the appropriate regulators (and other stakeholders, as necessary) by the Client prior to the start of any irrecoverable works associated with the site.

6.1 Foundations

Foundation recommendations cannot be made prior to investigation works. However, we are advised by the Client's Structural Engineers that this area may be underlain by soft / loose soils and therefore alternative foundations may be needed where such soft / loose soils and / or deep made ground is present at the site.

The underlying natural soils should be inspected and analysed to confirm foundation requirements including (but not limited to) their volume change potential and sulphate classification.

6.2 Drainage

At this stage it is considered likely that the site will be underlain by made ground, associated with the previous and current structures, and by natural soils comprising clay and silt and subsequently residual soils of the underlying mudstone. Testing of on-site natural soils is not considered to be worthwhile at this stage.

6.3 Mining

Potential mining issues have not been identified at this stage.

6.4 Contamination

Potential contamination issues have been identified at / around the site which require further investigation. These relate to the historic livestock barns, made ground associated with the previous and current structures, the asbestos sheeting and debris, the storage of chemical materials in the barns, the mounds which are shown to contain building rubble, mixed soils and other waste materials, the 'U' shaped structure which is used to burn materials and the suspected tank storage area.

6.5 Ground Gas and Radon

Potential ground gas sources have been identified at / around the site which require further investigation. These relate to made ground which may be present beneath and around previous structures and current structures, peat layers that may be present within the superficial deposits underlying the site and nearby and Organic materials which may have accumulated beneath and around the nearby watercourse.

Please see section 5.2 for information relating to radon risks at the site.

6.6 Further Works

At this stage the following further works will be necessary, subject to comments from the Regulatory Authorities:

- Completion of a full Phase II geo-environmental intrusive site investigation to determine specific recommendations for future work (subject to advice from specialist design engineers etc.).

Terms and Conditions

We have obtained and reviewed information relating to the site, but this may not be complete, and liability cannot be accepted for information not available to Elemental GI Ltd at the time of writing this report. This report has been written in consideration of construction / development proposals (or similar) as described in Section 1.0 of this report. If any of these proposals change (e.g. layout), then this report may be subject to change.

This report has been prepared for the sole use and reliance of the Client. No other third party may rely upon or reproduce the content of this report without our prior written approval. If any unauthorised third party comes into possession of this report, they rely upon it entirely at their own risk and the authors do not owe them any warranty, duty of care or skill.

Our report, including the conclusions and recommendations, are considered reasonable based on the findings of the Phase I assessment. However, these cannot be guaranteed to gain regulatory approval and therefore the Client should submit it to them (as necessary) for their comments and approval prior to undertaking any irrecoverable works associated with the subject site.

The findings and recommendations made in this report are based on published information (as presented in the accompanying appendices). Elemental GI Ltd cannot accept responsibility for the reliability and authenticity of published information or reports prepared by third parties. There may be conditions prevailing on site which have not been revealed by this assessment and which have not been taken into account by this report. Responsibility cannot be accepted for any conditions not revealed by this investigation and assessment. It should be noted that groundwater levels etc. may vary due to seasonal and other effects. Whilst it may be utilised by others for reference purposes at the Client's discretion, it has not been prepared for any other purposes (e.g. waste classification, drainage excavations etc.) and therefore additional works may be required by third parties dependent upon their own requirements / works. Any works which are proposed at greater depths than reported herein may require confirmatory investigation works as necessary.

The conclusions and recommendations presented herein are considered reasonable based on the assessments of the site undertaken by Elemental GI Ltd. However, these cannot be guaranteed to gain regulatory approval and therefore copies of this report should be sent to the appropriate regulatory authorities and / or other organisations (as appropriate) by the Client for their comments and approval prior to undertaking any irrecoverable works associated with the site.

The possibility of significant variation in ground conditions existing between / beneath test locations / depths cannot be discounted and must be considered within the design proposals for the subject site. All soakaway designs should be approved by the relevant statutory authority prior to implementation and must adhere to the standard design and ground setting requirements, upon which your appointed drainage design engineers should advise you.

Where comments / recommendations have been made relating to specific depths it cannot be guaranteed that ground conditions shall be similar at surrounding / underlying depths, which should be taken into consideration as necessary by other.

With respect to the document to which this sheet is appended, the warranty provided with our works / reports etc. shall only apply once all invoices that we have sent in relation to the same site / project discussed herein (i.e. the site discussed within this document) have been paid by the Client

Standard Risk Assessment – Considerations and Methodology

Elemental GI Ltd have based our standard risk assessment methodology upon current legislation and prevailing best practice and available guidance. This includes the following:

- DEFRA / EA document 'Contaminated Land Report 11 (CLR11) Model Procedures for the Management of Land Contamination' (2004) [*withdrawn but used for general reference purposes*];
- NHBC / EA / CIEH document 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (2008);
- DEFRA 'Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance (2012); and
- Environment Agency 'Collection: Land Contamination Technical Guidance (2014) held at:
  - https://www.gov.uk/government/collections/land-contamination-technical-guidance

Construction of Conceptual Site Model

Elemental GI Ltd have based our standard risk assessment methodology upon current legislation and prevailing best practice and available guidance. This includes the assessment of potentially contaminated land in terms of 'significant pollutants' and 'pollutant linkages', using SOURCE-PATHWAY-RECEPTOR' scenarios for the site. For a pollutant linkage to exist all three of these elements must be present. These have been clearly defined in the guidance as follows:

- …..potential source as 'a contaminant which is in, or under the land and which has the potential to cause significant harm or to cause pollution of controlled waters'.
- …..potential pathway as 'one or more routes or means by, or through, which a receptor is being exposed to, or affected by a contaminant, or could be so exposed or affected'.
- …..potential receptor as 'a living organism, a group of living organisms, an ecological system or a piece of property which is being or could be, harmed by a contaminant or controlled waters which are being, or could be, polluted by a contaminant'.

Within this report, pathways including the following have been considered:

- Ingestion of soil;
- Ingestion of site-grown vegetables;
- Ingestion of site-reared livestock / fish;
- Dermal contact with soils;
- Inhalation of vapours;
- Inhalation of soil-derived dust.

The receptors which we have considered are described in Section 1.0 of this report.

Risk Assessment Methodology

Our risk assessment methodology is based upon a phased approach, which takes the following steps:

1. Hazard Identification and Assessment:
    a. Establishing potential contaminant sources through the derivation of initial conceptual site model (CSM); and
    b. Analysing the potential for unacceptable risks (what pathways and receptors could be present, what pollutant linkages could result and what could the effects be).

2. Risk Estimation and Evaluation:
    a. Prediction of the magnitude and probability of the possible consequences;
    b. Investigation of the potential risks;
    c. Completion of Generic Quantitative Risk Assessment (GQRA); and
    d. Evaluation of risks / confirmation of pollutant linkages (leading onto step '3' if identified).

3. Remediation Design / Implementation / Verification:
    a. Completion of Detailed Quantitative Risk Assessment (DQRA) if necessary;
    b. Collation of remedial strategy;
    c. Implementation of remedial strategy / validation; and
    d. Final reporting.

Risk terminology and classification is defined through standard wording and descriptions, as contained in the documents referenced above. This includes the balance, comparison and assessment of risk as a dynamic categorisation / classification of probability vs. possible consequence(s), as shown in the table A1 below:

Table A1: Risk Categorisation

Probability (Likelihood)		Consequence			
		Severe	Medium	Mild	Minor
	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Not likely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Risk levels are described as follows:

Table A2: Risk Level Descriptions

Term	Description
Very High Risk	A high probability exists that severe / significant harm could arise to someone or something from the hazard which has been identified. Remedial action is required.
High Risk	Harm is likely to arise to someone or something from the hazard which has been identified. Remedial action is usually required.
Moderate Risk	Harm could potentially arise to someone or something from the hazard which has been identified without remedial action, although it is considered to be relatively unlikely that such harm would be severe.
Low Risk	Harm could theoretically arise to someone or something from the hazard which has been identified without remedial action, although it is considered that any effects would be mild.
Very Low Risk	Harm is not likely to arise to someone or something from the hazard which has been identified.

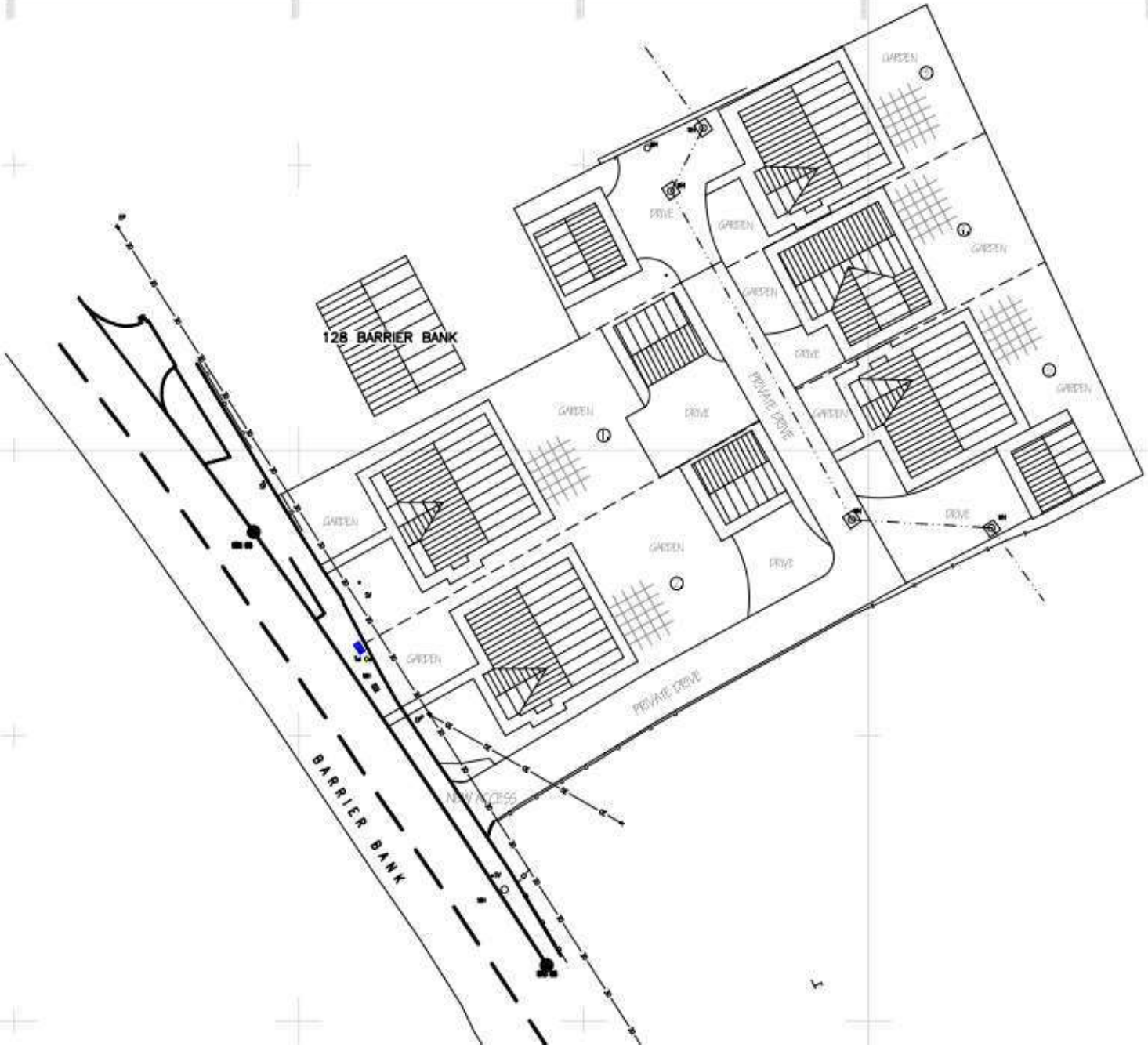
The NHBC / EA / CIEH document 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (2008) defines the following (reproduced verbatim):

"**Severity** (consequence) can be defined as the adverse effects (or harm) arising from a defined hazard, which impairs the quality of human health or the environment in the short or longer term. For example a consequence defined as "Severe" could be defined as "Highly elevated concentrations likely to result in 'significant harm' to human health as defined by the EPA 1990, Part 2A, if exposure occurs". The type and form of the contaminant needs to be known in order to understand the effect on humans and therefore severity of potential harm. For instance different forms of cyanide behave differently. Complex cyanide ("blue billy") is relatively "non toxic" whereas free cyanide is "highly toxic" (Environment Agency 2002b).

Probability can be defined as the chance of a particular event occurring in a given period of time. For example, a "High Likelihood" could be defined as "where an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution"."

APPENDIX I

Proposed Site Layout Plan



CLIENT: East Anglian Civils Ltd — Commercial & Domestic Building & Groundworks	TITLE: Proposed Site Layout Plan	DATE: June 2022	SCALE@SIZE: NOT TO SCALE
		DRAWING No: E22131_001	DESIGN/DRAWN: JR

Elemental GI Ltd

APPENDIX II

Site Features Plan



CLIENT: East Anglian Civils Ltd — Commercial & Domestic Building & Groundworks	TITLE: Site Features Plan	DATE: June 2022	SCALE@SIZE: NOT TO SCALE
		DRAWING No: E22131_002	DESIGN/DRAWN: JR

Elemental GI Ltd

APPENDIX III

General Photographic Record



Photo 1 – View of Site from South-Eastern Corner



Photo 2 – View of Site from South-Eastern Corner



Photo 3 – View of Site from South-Eastern Corner



Photo 4 – View of Entrance Road

CLIENT:	TITLE:	DATE:	SCALE@SIZE:	
East Anglian Civils Ltd Commercial & Domestic Building & Groundworks	General Site Photographs	June 2022	NOT TO SCALE	Elemental GI Ltd
		DRAWING No: E22131_003	DESIGN/DRAWN: JR	



Photo 5 – Barn on Eastern Boundary



Photo 6 – Barn on Eastern Boundary



Photo 7 – Suspected ACMs in Barn on Eastern Boundary



Photo 8 – Barn on Southern Boundary

CLIENT:	TITLE:	DATE:	SCALE@SIZE:	
East Anglian Civils Ltd Commercial & Domestic Building & Groundworks	General Site Photographs	June 2022	NOT TO SCALE	Elemental GI Ltd
		DRAWING No: E22131_003	DESIGN/DRAWN: JR	



Photo 9 – Barn on Western Boundary



Photo 10 – Yard Area with Suspected ACM Sheeting



Photo 11 – Workshop



Photo 12 – Suspected Former AST Base

CLIENT:	TITLE:	DATE:	SCALE@SIZE:	
East Anglian Civils Ltd Commercial & Domestic Building & Groundworks	General Site Photographs	June 2022	NOT TO SCALE	Elemental GI Ltd
		DRAWING No: E22131_003	DESIGN/DRAWN: JR	

APPENDIX IV

Environmental Data Report

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

SITE OFF BARRIER BANK, COWBIT

Order Details

Date: 26/05/2022

Your ref: E22131_Barrier_Bank

Our Ref: GS-8780643

Site Details

Location: 526062 317893

Area: 0.26 ha

Authority: South Holland District Council



Summary of findings p. 2

OS MasterMap site plan p.13

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	0	0	5	26	-
16	1.2	Historical tanks	0	0	1	1	-
16	1.3	Historical energy features	0	0	1	1	-
17	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	1	-
17	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
18	2.1	Historical industrial land uses	0	0	5	30	-
20	2.2	Historical tanks	0	0	2	1	-
20	2.3	Historical energy features	0	0	1	1	-
21	2.4	Historical petrol stations	0	0	0	0	-
21	2.5	Historical garages	0	0	0	1	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
22	3.1	Active or recent landfill	0	0	0	0	-
22	3.2	Historical landfill (BGS records)	0	0	0	0	-
23	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
23	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
23	3.5	Historical waste sites	0	0	0	0	-
23	3.6	Licensed waste sites	0	0	0	0	-
23	3.7	Waste exemptions	0	0	0	4	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
25	4.1	Recent industrial land uses	0	0	6	-	-
26	4.2	Current or recent petrol stations	0	0	0	1	-
26	4.3	Electricity cables	0	0	0	0	-
26	4.4	Gas pipelines	0	0	0	0	-
27	4.5	Sites determined as Contaminated Land	0	0	0	0	-

27	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
27	4.7	Regulated explosive sites	0	0	0	0	-
27	4.8	Hazardous substance storage/usage	0	0	0	0	-
27	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
28	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
28	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	0	1	-
28	4.12	Radioactive Substance Authorisations	0	0	0	0	-
28	**4.13**	**Licensed Discharges to controlled waters**	0	0	6	6	-
30	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
31	4.15	Pollutant release to public sewer	0	0	0	0	-
31	4.16	List 1 Dangerous Substances	0	0	0	0	-
31	4.17	List 2 Dangerous Substances	0	0	0	0	-
31	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
31	4.19	Pollution inventory substances	0	0	0	0	-
32	4.20	Pollution inventory waste transfers	0	0	0	0	-
32	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
33	**5.1**	**Superficial aquifer**	Identified (within 500m)				
34	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
35	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
36	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
36	5.5	Groundwater vulnerability- local information	None (within 0m)				
37	5.6	Groundwater abstractions	0	0	0	0	0
38	**5.7**	**Surface water abstractions**	0	0	0	0	12
40	5.8	Potable abstractions	0	0	0	0	0
41	5.9	Source Protection Zones	0	0	0	0	-
41	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
42	**6.1**	**Water Network (OS MasterMap)**	0	6	13	-	-

44	6.2	Surface water features	0	4	5	-	-
44	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	High (within 50m)				
47	7.2	Historical Flood Events	0	1	0	-	-
47	7.3	Flood Defences	0	1	0	-	-
48	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
48	7.5	Flood Storage Areas	0	1	0	-	-
49	7.6	Flood Zone 2	Identified (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, 0.3m - 1.0m (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	1	0	0	5
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	-	-
61	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
61	11.3	National Parks	0	0	0	-	-
61	**11.4**	**Listed Buildings**	0	0	1	-	-
62	11.5	Conservation Areas	0	0	0	-	-
62	11.6	Scheduled Ancient Monuments	0	0	0	-	-
62	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
63	**12.1**	**Agricultural Land Classification**	Grade 2 (within 250m)				
64	12.2	Open Access Land	0	0	0	-	-
64	12.3	Tree Felling Licences	0	0	0	-	-
64	12.4	Environmental Stewardship Schemes	0	0	0	-	-
65	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
66	**13.1**	**Priority Habitat Inventory**	0	0	3	-	-
67	13.2	Habitat Networks	0	0	0	-	-
67	13.3	Open Mosaic Habitat	0	0	0	-	-
67	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
68	**14.1**	**10k Availability**	Identified (within 500m)				
69	14.2	Artificial and made ground (10k)	0	0	0	0	-
70	**14.3**	**Superficial geology (10k)**	1	0	0	0	-

71	14.4	Landslip (10k)	0	0	0	0	-
72	**14.5**	**Bedrock geology (10k)**	1	0	0	0	-
73	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
74	**15.1**	**50k Availability**	Identified (within 500m)				
75	15.2	Artificial and made ground (50k)	0	0	0	0	-
75	15.3	Artificial ground permeability (50k)	0	0	-	-	-
76	**15.4**	**Superficial geology (50k)**	1	0	1	0	-
77	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
77	15.6	Landslip (50k)	0	0	0	0	-
77	15.7	Landslip permeability (50k)	None (within 50m)				
78	**15.8**	**Bedrock geology (50k)**	1	0	0	0	-
79	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
79	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
80	**16.1**	**BGS Boreholes**	0	0	4	-	-
Page	Section	Natural ground subsidence					
82	**17.1**	**Shrink swell clays**	Low (within 50m)				
83	**17.2**	**Running sands**	Moderate (within 50m)				
84	**17.3**	**Compressible deposits**	Moderate (within 50m)				
85	**17.4**	**Collapsible deposits**	Negligible (within 50m)				
86	**17.5**	**Landslides**	Very low (within 50m)				
87	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
88	18.1	Natural cavities	0	0	0	0	-
89	18.2	BritPits	0	0	0	0	-
89	18.3	Surface ground workings	0	0	0	-	-
89	**18.4**	**Underground workings**	0	0	0	0	4
89	18.5	Historical Mineral Planning Areas	0	0	0	0	-

90	18.6	Non-coal mining	0	0	0	0	0
90	18.7	Mining cavities	0	0	0	0	0
90	18.8	JPB mining areas	None (within 0m)				
90	18.9	Coal mining	None (within 0m)				
90	18.10	Brine areas	None (within 0m)				
91	18.11	Gypsum areas	None (within 0m)				
91	18.12	Tin mining	None (within 0m)				
91	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
92	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
93	**20.1**	**BGS Estimated Background Soil Chemistry**	1	2	-	-	-
93	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
93	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
94	21.1	Underground railways (London)	0	0	0	-	-
94	21.2	Underground railways (Non-London)	0	0	0	-	-
94	21.3	Railway tunnels	0	0	0	-	-
94	21.4	Historical railway and tunnel features	0	0	0	-	-
94	21.5	Royal Mail tunnels	0	0	0	-	-
95	21.6	Historical railways	0	0	0	-	-
95	21.7	Railways	0	0	0	-	-
95	21.8	Crossrail 1	0	0	0	0	-
95	21.9	Crossrail 2	0	0	0	0	-
95	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 29/05/2021

Site Area: 0.26ha

Recent site history - 2018 aerial photograph



Capture Date: 20/04/2018

Site Area: 0.26ha

Recent site history - 2013 aerial photograph



Capture Date: 27/05/2013

Site Area: 0.26ha

Recent site history - 2007 aerial photograph



Capture Date: 19/04/2007

Site Area: 0.26ha

Recent site history - 1999 aerial photograph

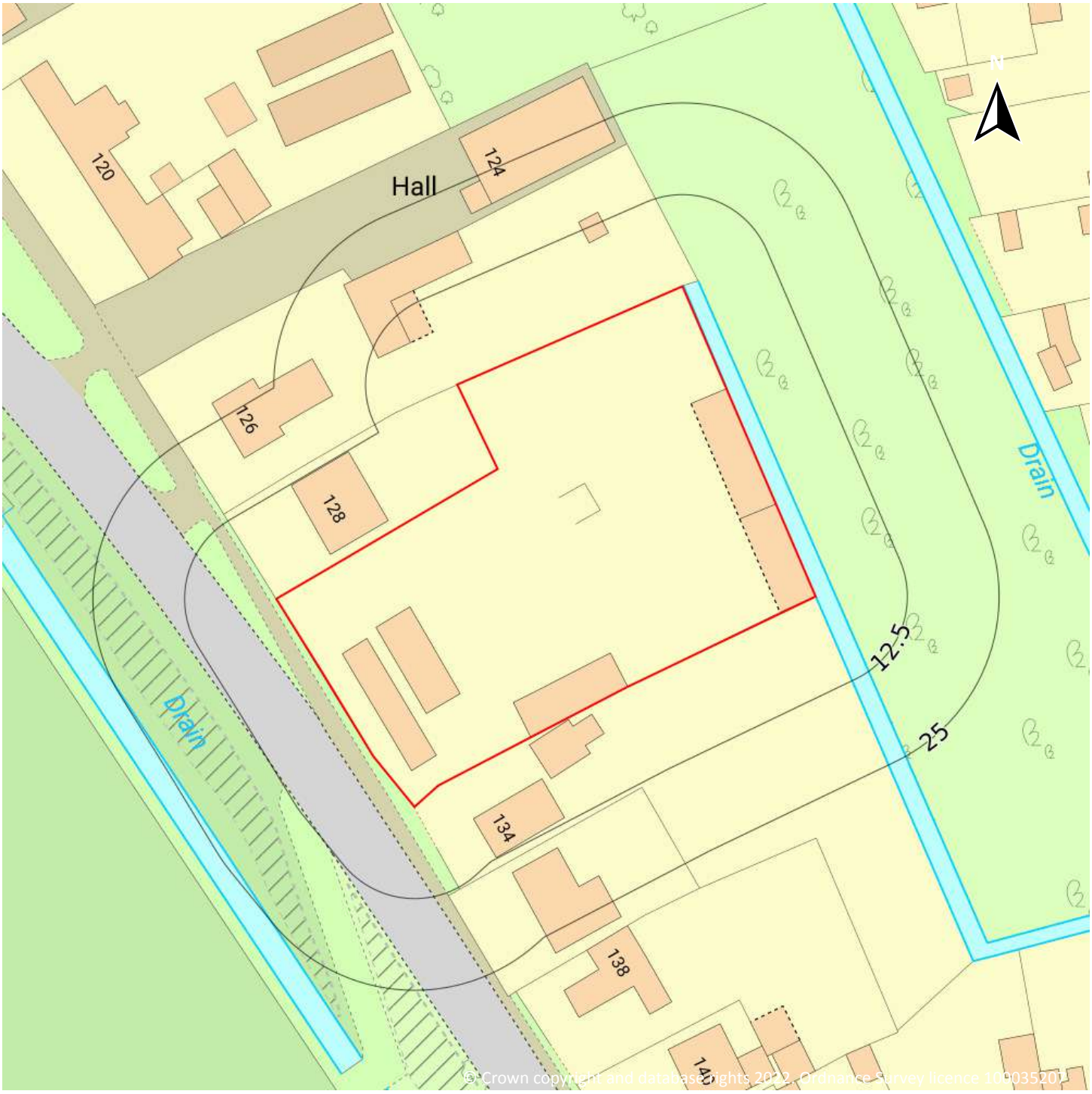


Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

Capture Date: 18/06/1999

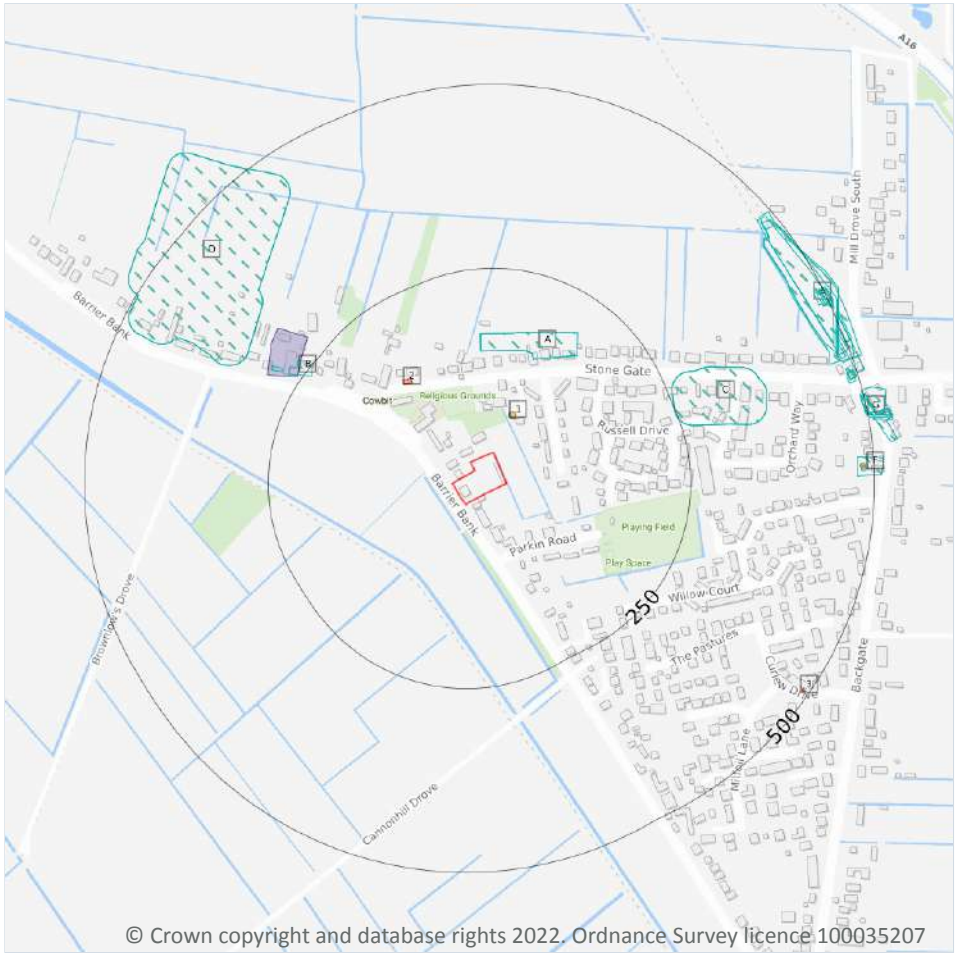
Site Area: 0.26ha

OS MasterMap site plan



Site Area: 0.26ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	31

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 14**

ID	Location	Land use	Dates present	Group ID
A	138m N	Nursery	1989	2019207

ID	Location	Land use	Dates present	Group ID
A	138m N	Nursery	1977	2026890
B	241m NW	Smithy	1951	2010692
C	249m NE	Nursery	1989	2012498
C	249m NE	Nursery	1977	2022068
B	276m NW	Smithy	1906	2010690
D	329m NW	Nursery	1989	2013055
D	329m NW	Nursery	1977	2014478
E	459m NE	Railway Sidings	1951	2028099
E	462m NE	Railway Sidings	1951	2029616
E	470m NE	Railway Sidings	1903 - 1906	2034356
E	470m NE	Railway Sidings	1887	2023076
F	477m E	Corn Windmill	1887	2006851
E	481m E	Railway Sidings	1938	2012328
E	482m E	Railway Sidings	1950	2039320
F	482m E	Unspecified Tank	1938	2004269
E	485m E	Railway Building	1950 - 1951	2039433
E	486m E	Railway Building	1938	2016103
E	486m NE	Railway Building	1887	2021875
E	486m E	Railway Building	1887	2033362
E	490m NE	Railway Building	1951	2031009
E	491m NE	Railway Sidings	1887	2031399
E	493m NE	Railway Building	1951	2027857
E	494m NE	Railway Building	1906	2031682
G	495m E	Railway Station	1951	2028169
G	495m E	Railway Station	1903	2025881
G	496m E	Railway Station	1887	2012539
G	496m E	Railway Station	1938	2014919
G	496m E	Railway Station	1950	2026008

ID	Location	Land use	Dates present	Group ID
E	498m NE	Railway Sidings	1903	2014195
E	498m NE	Railway Sidings	1903	2031766

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**2**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, 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 14**

ID	Location	Land use	Dates present	Group ID
1	52m NE	Unspecified Tank	1974 - 1992	339886
F	481m E	Unspecified Tank	1992	337795

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**2**

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 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 14**

ID	Location	Land use	Dates present	Group ID
2	133m NW	Electricity Substation	1988	220777
3	489m SE	Gas Governor	1992	221452

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	1

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 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 14**

ID	Location	Land use	Dates present	Group ID
B	256m NW	Garage	1988	67885

This data is sourced from Ordnance Survey / Groundsure.

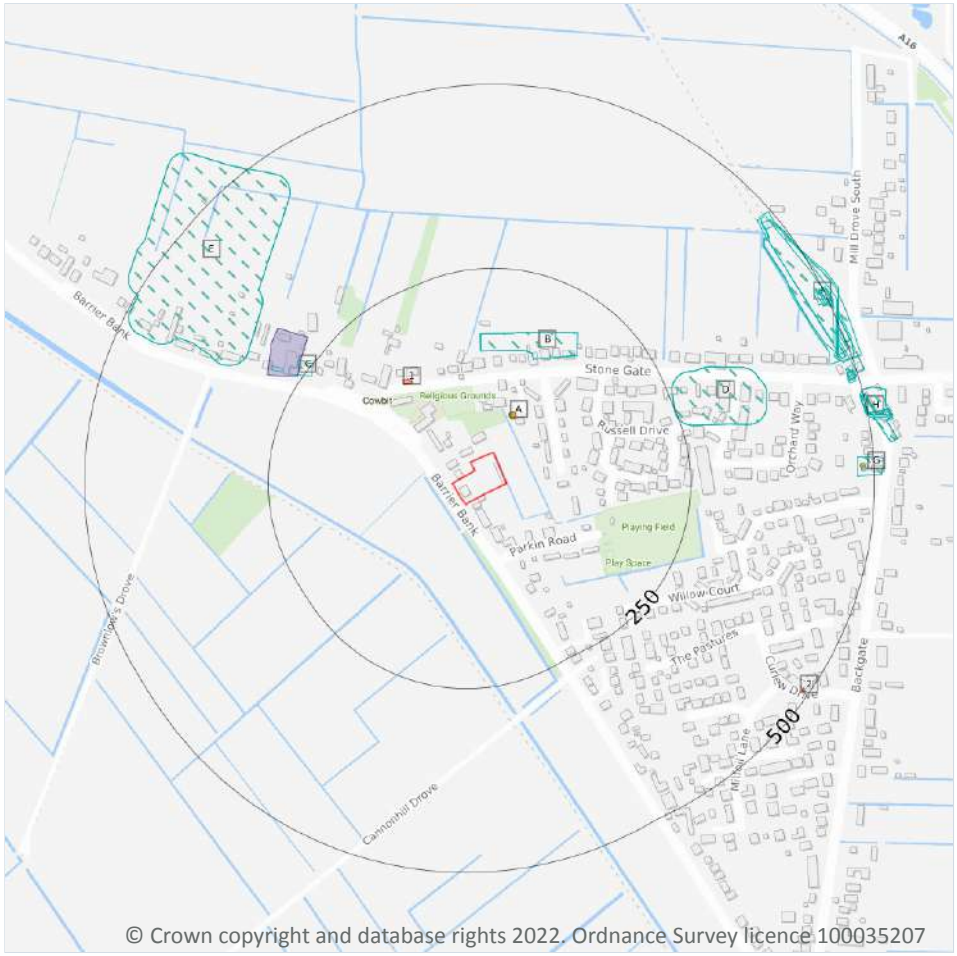
1.6 Historical military land

Records within 500m	0

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

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

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	35

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 18**

ID	Location	Land Use	Date	Group ID
B	138m N	Nursery	1989	2019207
B	138m N	Nursery	1977	2026890
C	241m NW	Smithy	1951	2010692

ID	Location	Land Use	Date	Group ID
D	249m NE	Nursery	1989	2012498
D	249m NE	Nursery	1977	2022068
C	276m NW	Smithy	1906	2010690
E	329m NW	Nursery	1989	2013055
E	329m NW	Nursery	1977	2014478
F	459m NE	Railway Sidings	1951	2028099
F	462m NE	Railway Sidings	1951	2029616
F	470m NE	Railway Sidings	1906	2034356
F	470m NE	Railway Sidings	1887	2023076
G	477m E	Corn Windmill	1887	2006851
F	481m E	Railway Sidings	1938	2012328
F	482m E	Railway Sidings	1950	2039320
G	482m E	Unspecified Tank	1938	2004269
F	484m E	Railway Sidings	1903	2034356
F	484m E	Railway Sidings	1903	2034356
F	485m E	Railway Building	1951	2039433
F	486m E	Railway Building	1938	2016103
F	486m E	Railway Building	1950	2039433
F	486m NE	Railway Building	1887	2021875
F	486m E	Railway Building	1887	2033362
F	490m NE	Railway Building	1951	2031009
F	491m NE	Railway Sidings	1887	2031399
F	493m NE	Railway Building	1951	2027857
F	494m NE	Railway Building	1906	2031682
H	495m E	Railway Station	1951	2028169
H	495m E	Railway Station	1903	2025881
H	495m E	Railway Station	1903	2025881
H	496m E	Railway Station	1938	2014919

ID	Location	Land Use	Date	Group ID
H	496m E	Railway Station	1887	2012539
H	496m E	Railway Station	1950	2026008
F	498m NE	Railway Sidings	1903	2014195
F	498m NE	Railway Sidings	1903	2031766

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**3**

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 18**

ID	Location	Land Use	Date	Group ID
A	52m NE	Unspecified Tank	1992	339886
A	53m NE	Unspecified Tank	1974	339886
G	481m E	Unspecified Tank	1992	337795

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**2**

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 18**

ID	Location	Land Use	Date	Group ID
1	133m NW	Electricity Substation	1988	220777
2	489m SE	Gas Governor	1992	221452

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	1

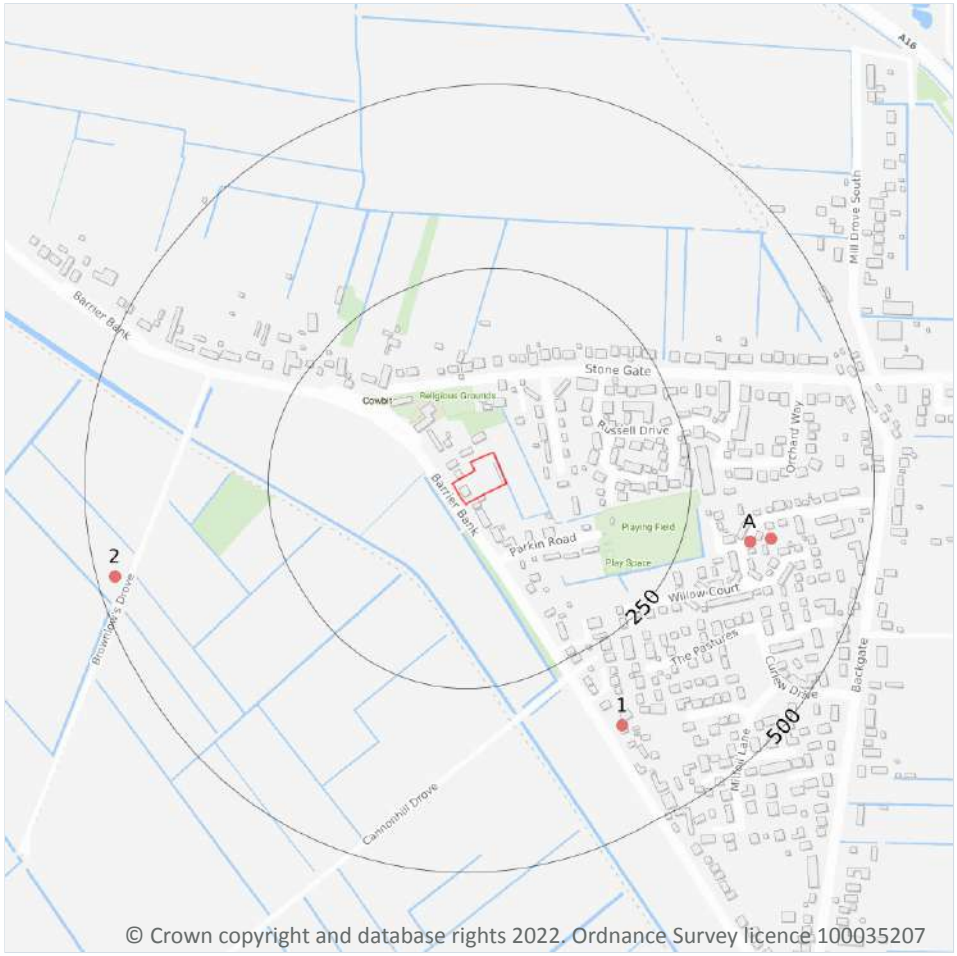
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
C	256m NW	Garage	1988	67885

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



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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	4

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

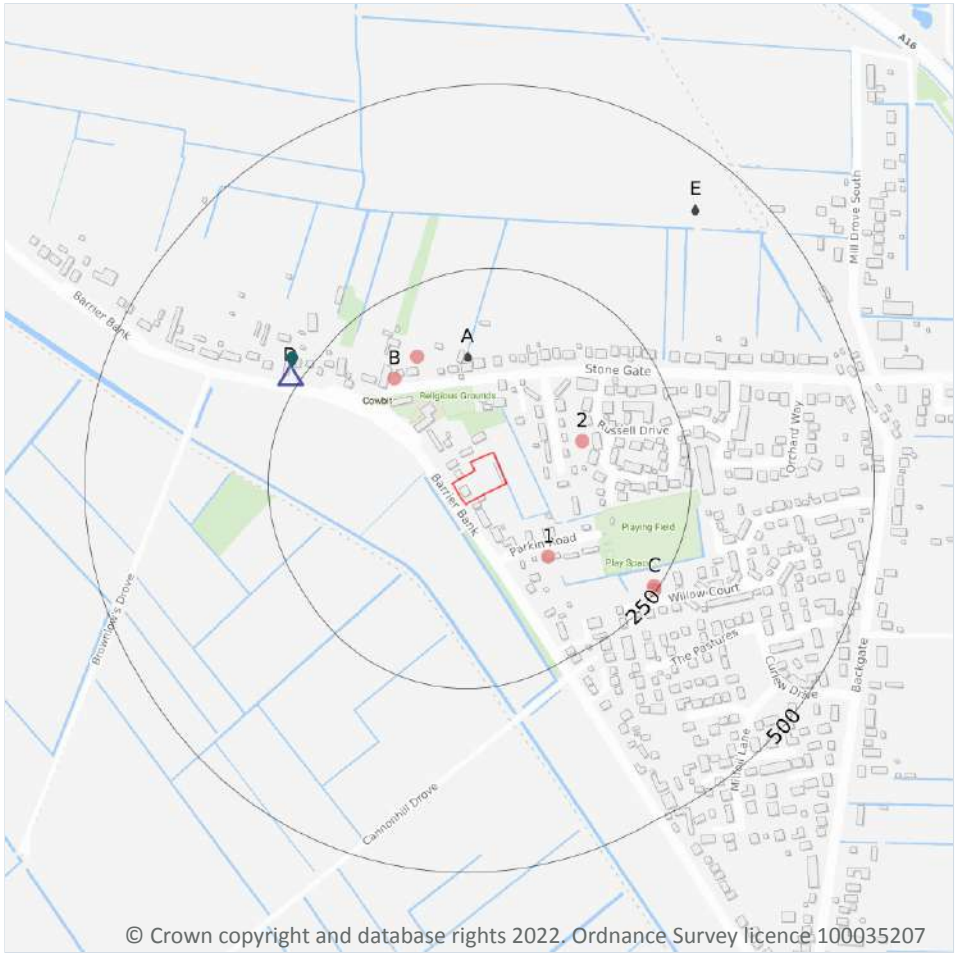
Features are displayed on the Waste and landfill map on **page 22**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	339m E	-	WEX135968	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
1	365m SE	Cowbit St Mary's Primary School PE12 6AL	EPR/LF0605XN/A001	Treating waste exemption	Non-Agricultural Waste Only	Crushing waste fluorescent tubes
A	367m E	-	WEX115808	Using waste exemption	On a farm	Use of waste in construction
2	477m W	Land TF25591777	EPR/GE5748ZS/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of sludge

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

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

Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m	**6**

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 25**

ID	Location	Company	Address	Activity	Category
1	115m SE	CCTV Homeprotect	5, Parkin Road, Cowbit, Spalding, Lincolnshire, PE12 6AN	Electronic Equipment	Industrial Products
2	117m NE	Pumping Station	Lincolnshire, PE12	Water Pumping Stations	Industrial Features

ID	Location	Company	Address	Activity	Category
B	154m NW	Electricity Sub Station	Lincolnshire, PE12	Electrical Features	Infrastructure and Facilities
B	161m NW	Pumping Station	Lincolnshire, PE12	Water Pumping Stations	Industrial Features
C	245m SE	Sewage Pumping Station	Lincolnshire, PE12	Waste Storage, Processing and Disposal	Infrastructure and Facilities
C	248m 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 25**

ID	Location	Company	Address	LPG	Status
D	265m NW	GULF	102, Barrier Bank, Cowbit, Spalding, Lincolnshire, PE12 6AQ	Not Applicable	Obsolete

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	1

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

Features are displayed on the Current industrial land use map on **page 25**

ID	Location	Address	Details	
D	275m NW	Thorpes Garage, Barrier Bank, Cowbit, Spalding, PE12 6AQ	Process: Waste Oil Burner 0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	12

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 25**

ID	Location	Address	Details	
A	135m N	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 1 Receiving Water: Moulton Mere Drn River Nene N	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 22/03/1988 Effective Date: 22/03/1988 Revocation Date: 17/09/1989
A	135m N	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 2 Receiving Water: Moulton Mere Drn River Nene N	Status: REVISED BY NOTICE, AT DIRECTION OF SEC. OF STATE - 37(2) Issue date: 18/09/1989 Effective Date: 18/09/1989 Revocation Date: 31/12/2009
A	135m N	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 3 Receiving Water: Moulton Mere Drn River Nene N	Status: REVISED BY NOTICE, AT DIRECTION OF SEC. OF STATE - 37(2) Issue date: 24/09/2009 Effective Date: 01/01/2010 Revocation Date: 30/03/2010
A	135m N	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 4 Receiving Water: Moulton Mere Drn River Nene N	Status: REVISED BY NOTICE, AT DIRECTION OF SEC. OF STATE - 37(2) Issue date: 31/03/2010 Effective Date: 31/03/2010 Revocation Date: 31/12/2010
A	135m N	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 5 Receiving Water: Moulton Mere Drn River Nene N	Status: REVISED BY NOTICE, AT DIRECTION OF SEC. OF STATE - 37(2) Issue date: 31/03/2010 Effective Date: 01/01/2011 Revocation Date: 21/09/2015
A	135m N	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 6 Receiving Water: Moulton Mere Drn River Nene N	Status: VARIED UNDER EPR 2010 Issue date: 22/09/2015 Effective Date: 22/09/2015 Revocation Date: -
E	429m NE	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 1 Receiving Water: Moulton Mere Drn River Nene N	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 22/03/1988 Effective Date: 22/03/1988 Revocation Date: 17/09/1989

ID	Location	Address	Details	
E	429m NE	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 2 Receiving Water: Moulton Mere Drn River Nene N	Status: REVISED BY NOTICE, AT DIRECTION OF SEC. OF STATE - 37(2) Issue date: 18/09/1989 Effective Date: 18/09/1989 Revocation Date: 31/12/2009
E	429m NE	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 3 Receiving Water: Moulton Mere Drn River Nene N	Status: REVISED BY NOTICE, AT DIRECTION OF SEC. OF STATE - 37(2) Issue date: 24/09/2009 Effective Date: 01/01/2010 Revocation Date: 30/03/2010
E	429m NE	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 4 Receiving Water: Moulton Mere Drn River Nene N	Status: REVISED BY NOTICE, AT DIRECTION OF SEC. OF STATE - 37(2) Issue date: 31/03/2010 Effective Date: 31/03/2010 Revocation Date: 31/12/2010
E	429m NE	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 5 Receiving Water: Moulton Mere Drn River Nene N	Status: REVISED BY NOTICE, AT DIRECTION OF SEC. OF STATE - 37(2) Issue date: 31/03/2010 Effective Date: 01/01/2011 Revocation Date: 21/09/2015
E	429m NE	COWBIT STW, COWBIT, SPALDING, BROADGATE, BGATE WESTON, PE12 0XW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AW5NF807 Permit Version: 6 Receiving Water: Moulton Mere Drn River Nene N	Status: VARIED UNDER EPR 2010 Issue date: 22/09/2015 Effective Date: 22/09/2015 Revocation Date: -

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.

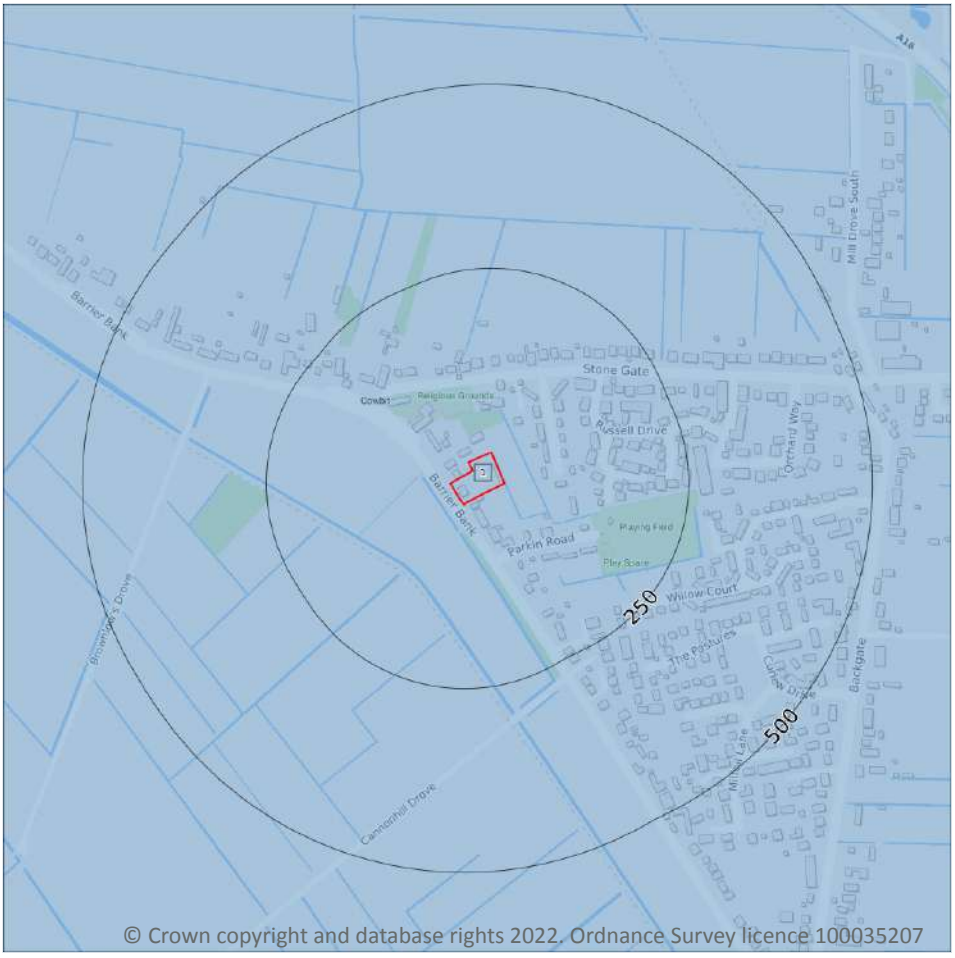
4.21 Pollution inventory radioactive waste

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

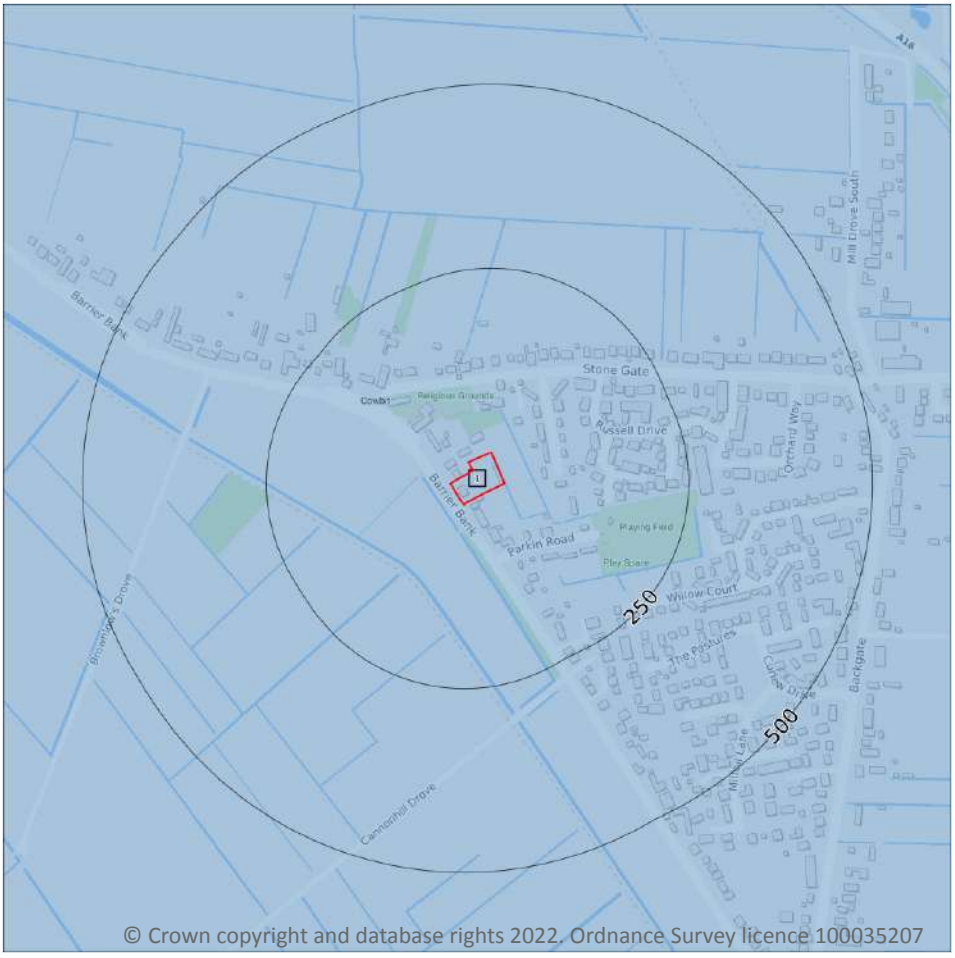
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 33**

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



5.2 Bedrock aquifer

Records within 500m	1

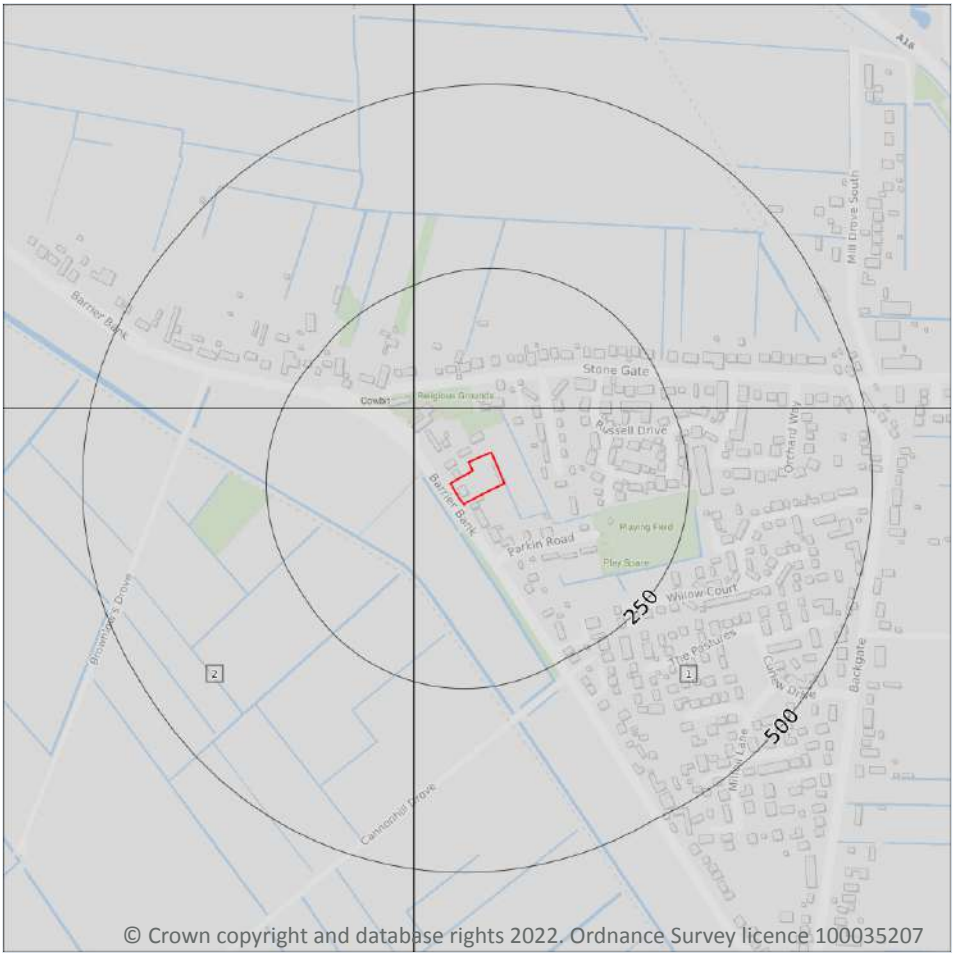
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 34**

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



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	2

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

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

Features are displayed on the Groundwater vulnerability map on **page 35**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: 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**
2	49m W	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.

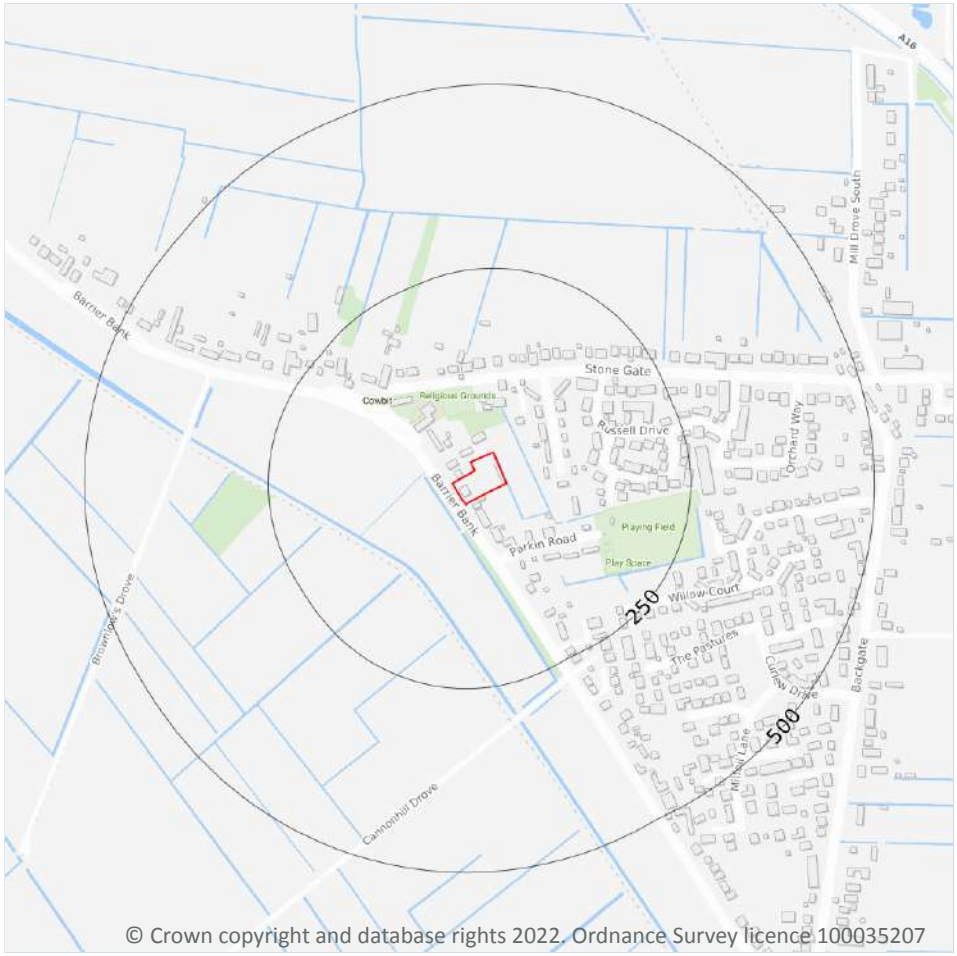
5.5 Groundwater vulnerability- local information

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
- 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	0

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.

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

5.7 Surface water abstractions

Records within 2000m	12

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 37**

ID	Location	Details	
-	910m SW	Status: Historical Licence No: 5/31/14/*S/0185 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: THE NEW RIVER AT COWBIT Data Type: Line Name: BOOR Easting: 524170 Northing: 319130	Annual Volume (m^3): 10000 Max Daily Volume (m^3): 2000 Original Application No: - Original Start Date: 01/06/1986 Expiry Date: - Issue No: 101 Version Start Date: 23/02/2005 Version End Date: -
-	912m SW	Status: Active Licence No: 5/31/14/*S/0185 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: THE NEW RIVER AT COWBIT Data Type: Line Name: J and L D Boor Easting: 524184 Northing: 319104	Annual Volume (m^3): 10,000 Max Daily Volume (m^3): 2,000 Original Application No: NPS/WR/034552 Original Start Date: 01/06/1986 Expiry Date: - Issue No: 103 Version Start Date: 08/12/2020 Version End Date: -
-	1114m SE	Status: Historical Licence No: 5/31/14/*S/0263 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: WHEATMERE DRAIN Data Type: Line Name: J W E BANKS LTD Easting: 527000 Northing: 317210	Annual Volume (m^3): 4546 Max Daily Volume (m^3): 545.5 Original Application No: - Original Start Date: 28/02/2005 Expiry Date: 31/08/2013 Issue No: 1 Version Start Date: 28/02/2005 Version End Date: -
-	1168m SW	Status: Active Licence No: 5/31/14/*S/0185 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: THE SOKE DYKE AT COWBIT Data Type: Line Name: J and L D Boor Easting: 525346 Northing: 316951	Annual Volume (m^3): 10,000 Max Daily Volume (m^3): 2,000 Original Application No: NPS/WR/034552 Original Start Date: 01/06/1986 Expiry Date: - Issue No: 103 Version Start Date: 08/12/2020 Version End Date: -

ID	Location	Details	
-	1172m SW	Status: Historical Licence No: 5/31/14/*S/0185 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: THE SOKE DYKE AT COWBIT Data Type: Line Name: BOOR Easting: 525340 Northing: 316950	Annual Volume (m^3): 10000 Max Daily Volume (m^3): 2000 Original Application No: - Original Start Date: 01/06/1986 Expiry Date: - Issue No: 101 Version Start Date: 23/02/2005 Version End Date: -
-	1192m SW	Status: Historical Licence No: 5/31/14/*S/0185 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER WELLAND AT COWBIT Data Type: Line Name: BOOR Easting: 525320 Northing: 316940	Annual Volume (m^3): 10000 Max Daily Volume (m^3): 2000 Original Application No: - Original Start Date: 01/06/1986 Expiry Date: - Issue No: 101 Version Start Date: 23/02/2005 Version End Date: -
-	1206m SW	Status: Active Licence No: 5/31/14/*S/0185 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER WELLAND AT COWBIT Data Type: Line Name: J and L D Boor Easting: 525305 Northing: 316934	Annual Volume (m^3): 10,000 Max Daily Volume (m^3): 2,000 Original Application No: NPS/WR/034552 Original Start Date: 01/06/1986 Expiry Date: - Issue No: 103 Version Start Date: 08/12/2020 Version End Date: -
-	1412m SW	Status: Active Licence No: 5/31/14/*S/0254 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER WELLAND - CROWLAND Data Type: Line Name: F G TANSLEY & SON Easting: 521510 Northing: 309786	Annual Volume (m^3): 50,000 Max Daily Volume (m^3): 4,000 Original Application No: NPS/WR/032045 Original Start Date: 01/07/2001 Expiry Date: - Issue No: 2 Version Start Date: 12/01/2021 Version End Date: -
-	1412m SW	Status: Active Licence No: 5/31/14/*S/0254 Details: Trickle Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: RIVER WELLAND - CROWLAND Data Type: Line Name: F G TANSLEY & SON Easting: 521510 Northing: 309786	Annual Volume (m^3): 50,000 Max Daily Volume (m^3): 4,000 Original Application No: NPS/WR/032045 Original Start Date: 01/07/2001 Expiry Date: - Issue No: 2 Version Start Date: 12/01/2021 Version End Date: -

ID	Location	Details	
-	1679m E	Status: Historical Licence No: 5/32/11/*S/0052C Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: MOULTON MERE DRAIN Data Type: Line Name: A H CLARK FARMS LTD Easting: 527700 Northing: 316000	Annual Volume (m^3): 4000 Max Daily Volume (m^3): 818.3 Original Application No: - Original Start Date: 01/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 02/04/1966 Version End Date: -
-	1793m S	Status: Active Licence No: 5/31/14/*S/0254 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: NEW RIVER DRAIN - CROWLAND Data Type: Line Name: F G TANSLEY & SON Easting: 523258 Northing: 310008	Annual Volume (m^3): 50,000 Max Daily Volume (m^3): 4,000 Original Application No: NPS/WR/032045 Original Start Date: 01/07/2001 Expiry Date: - Issue No: 2 Version Start Date: 12/01/2021 Version End Date: -
-	1793m S	Status: Active Licence No: 5/31/14/*S/0254 Details: Trickle Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: NEW RIVER DRAIN - CROWLAND Data Type: Line Name: F G TANSLEY & SON Easting: 523258 Northing: 310008	Annual Volume (m^3): 50,000 Max Daily Volume (m^3): 4,000 Original Application No: NPS/WR/032045 Original Start Date: 01/07/2001 Expiry Date: - Issue No: 2 Version Start Date: 12/01/2021 Version End Date: -

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.

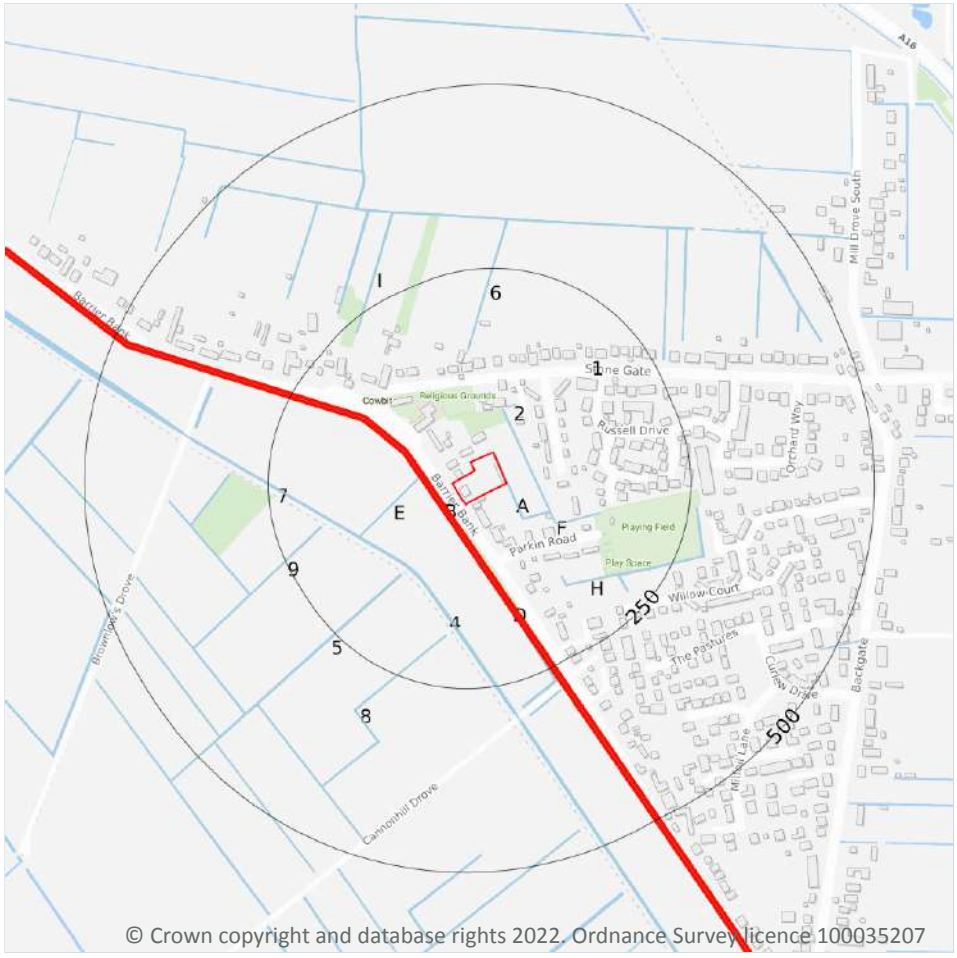
5.10 Source Protection Zones (confined aquifer)

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



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	19

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

Features are displayed on the Hydrology map on **page 42**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	1m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
B	25m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	36m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	37m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	39m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	40m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
2	64m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	70m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	96m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	115m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	New River
5	129m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
6	143m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	146m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	New River
H	146m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
8	178m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
9	187m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	197m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	197m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
I	234m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**9**

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.

Features are displayed on the Hydrology map on **page 42**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**1**

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

Features are displayed on the Hydrology map on **page 42**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River**	**South Holland Main Drain**	**GB205032050405**	**Nene Lower**	**Nene**

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

6.4 WFD Surface water bodies

Records identified	1

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.

Features are displayed on the Hydrology map on **page 42**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2106m S	River	South Holland Main Drain	GB205032050405	Moderate	Fail	Good	2019

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

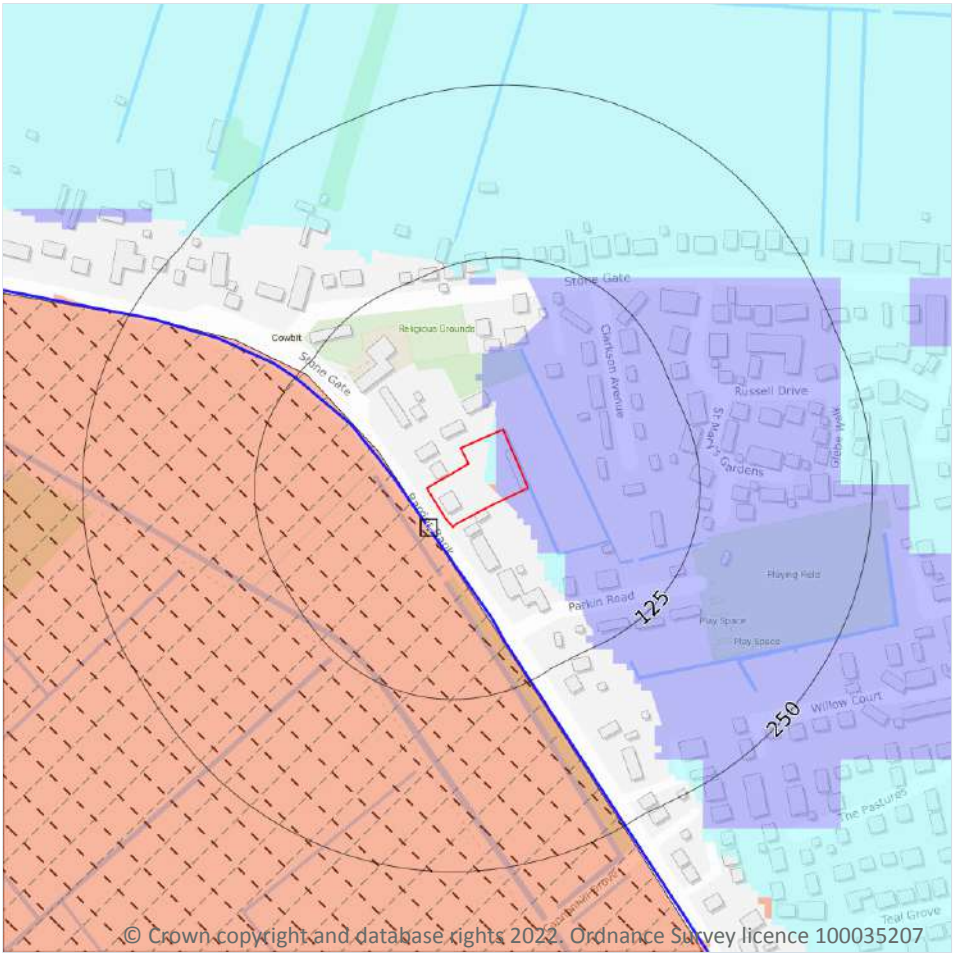
6.5 WFD Groundwater bodies

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	5

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	**High**
0 - 50m	High

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
B	14m SW	March 1947 On The River Welland Near Cowbit	1947-03-16 1947-03-18	Main river	Other	Fluvial

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

7.3 Flood Defences

Records within 250m	**1**

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.

Features are displayed on the River and coastal flooding map on **page 46**

ID	Location	Update
2	14m SW	17/03/2022

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	1

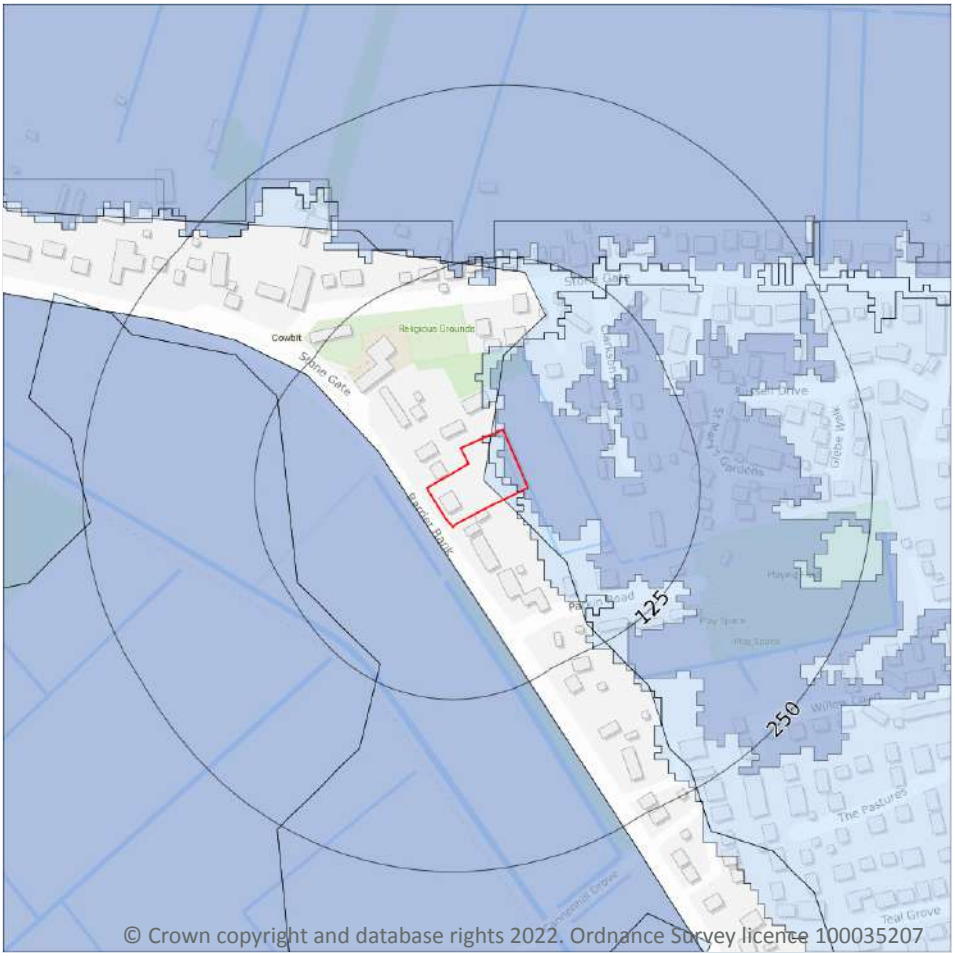
Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

Features are displayed on the River and coastal flooding map on **page 46**

ID	Location	Update
B	14m SW	Flood Storage Area

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	1

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.

Features are displayed on the River and coastal flooding map on **page 46**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

7.7 Flood Zone 3

Records within 50m	1

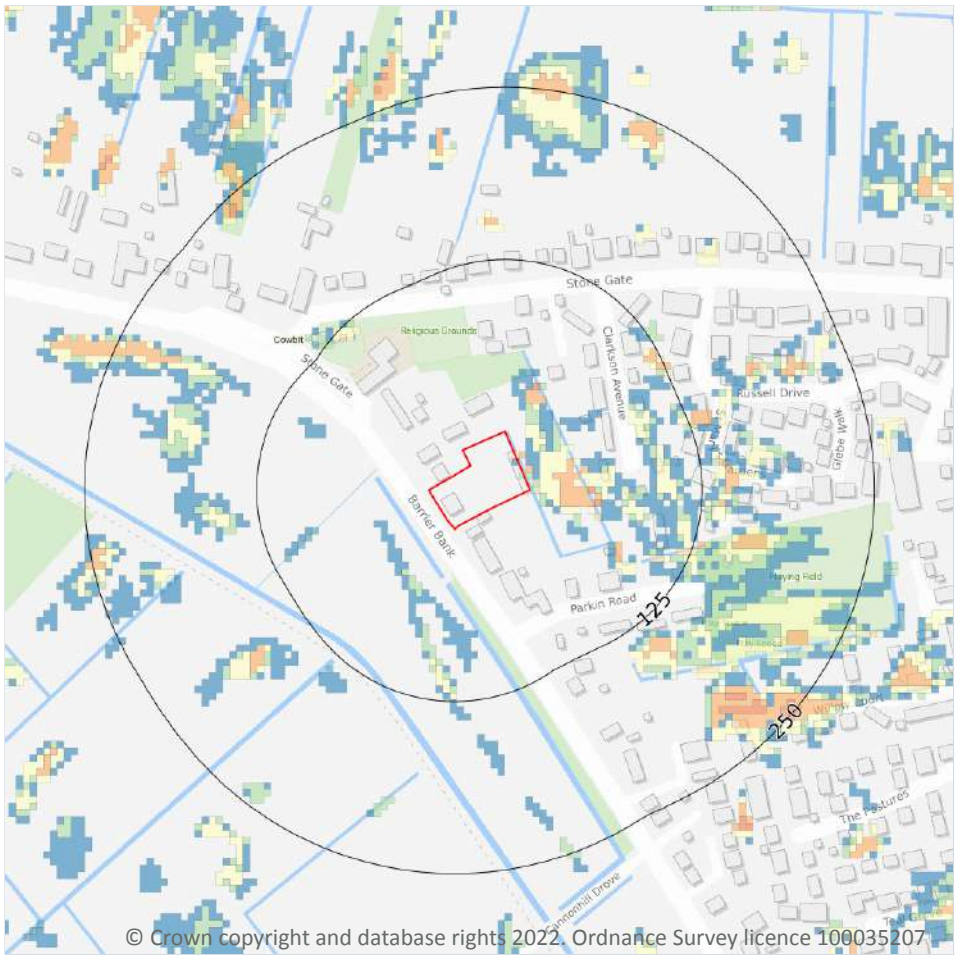
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 46**

Location	Type
On site	**Zone 3 - (Fluvial 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, 0.3m - 1.0m**

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**

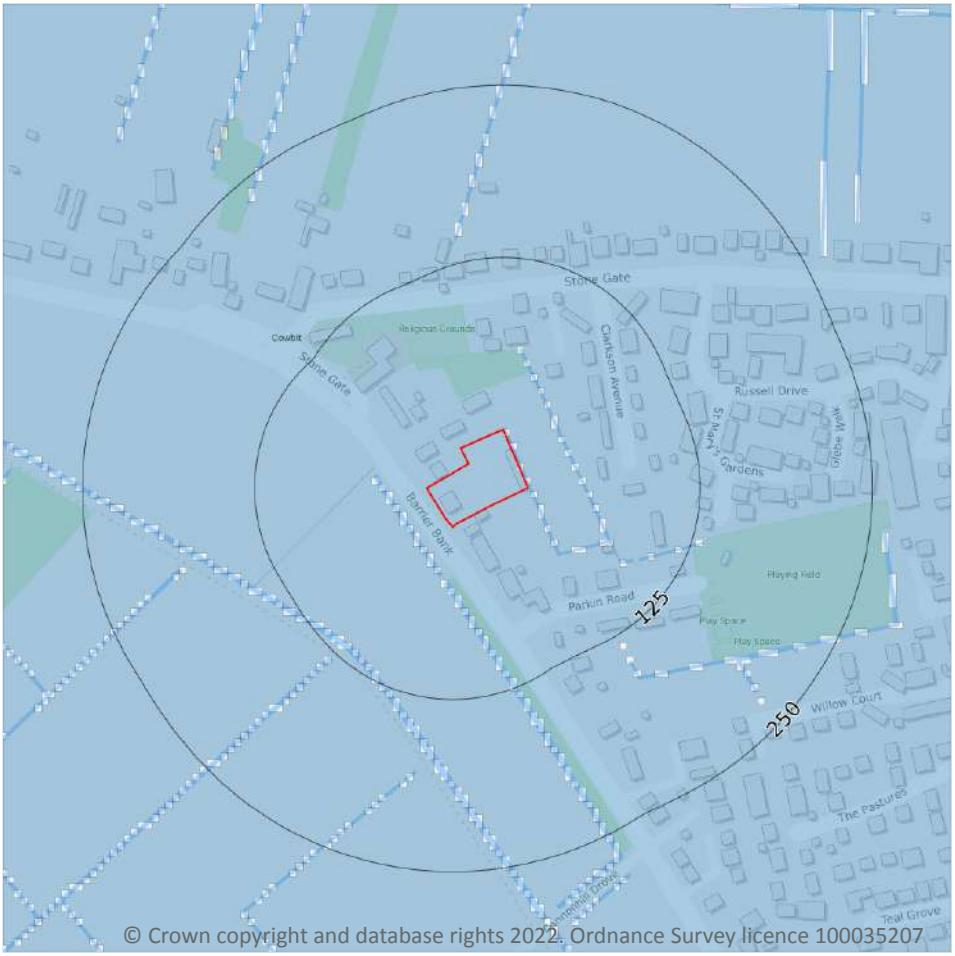
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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 Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

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

Features are displayed on the Groundwater flooding map on **page 53**

This data is sourced from Ambiental 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

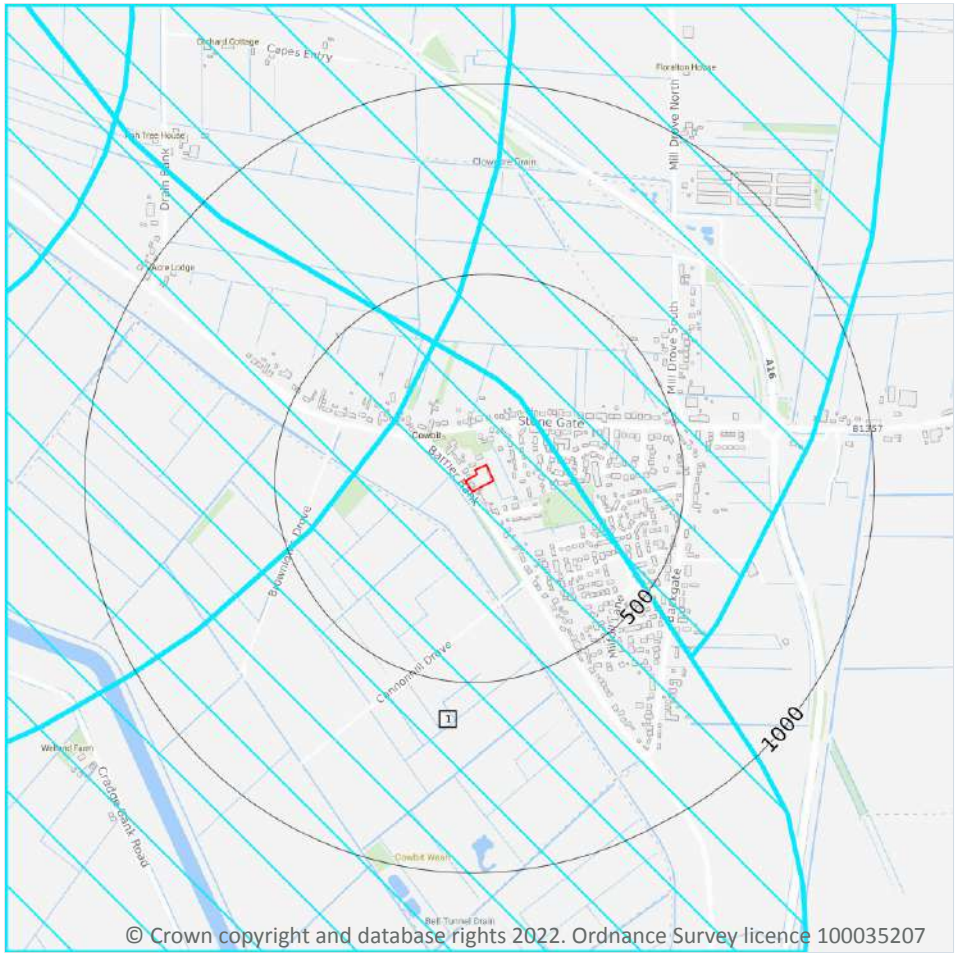
Records within 2000m	6

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

Location	Name	Type	NVZ ID	Status
18m NW	River Welland NVZ	Surface Water	832	Existing
1095m SW	Vernatt's Drain NVZ	Surface Water	379	Existing
1887m S	River Welland NVZ	Surface Water	832	Existing
1919m SW	Vernatt's Drain NVZ	Surface Water	379	Existing
1958m W	Vernatt's Drain NVZ	Surface Water	379	Existing
1979m NW	River Welland NVZ	Surface Water	832	Existing

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 58**

ID	Location	Type of developments requiring consultation
1	On site	**All applications - All planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures. Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha. Residential - Residential development of 10 units or more. Rural residential - Any residential developments outside of existing settlements/urban areas with a total net gain in residential units. Waste - Landfill. incl: inert landfill, non-hazardous landfill, hazardous landfill.**

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



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

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	1

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.

Features are displayed on the Visual and cultural designations map on **page 60**

ID	Location	Name	Grade	Reference Number	Listed date
1	127m NW	Church of St Mary, Cowbit, South Holland, Lincolnshire, PE12	I	1064482	07/02/1967

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.

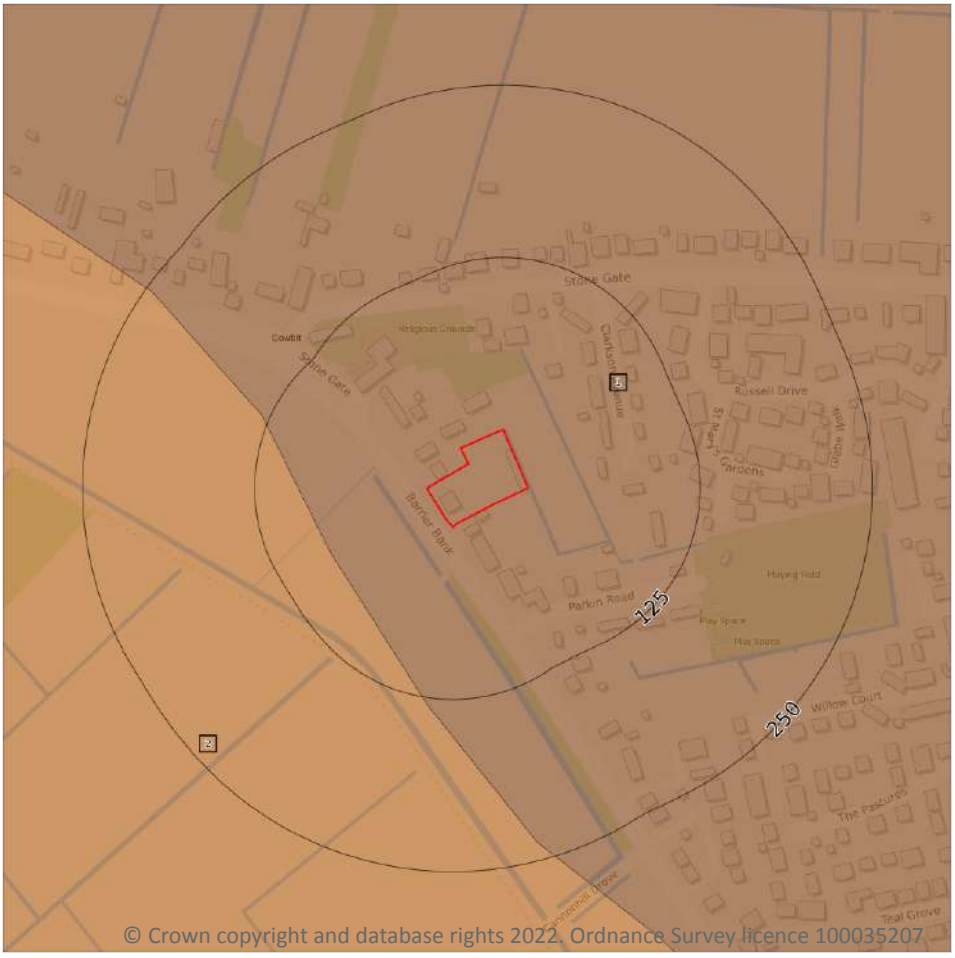
11.7 Registered Parks and Gardens

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	2

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 63**

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.**

ID	Location	Classification	Description
2	83m SW	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

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.

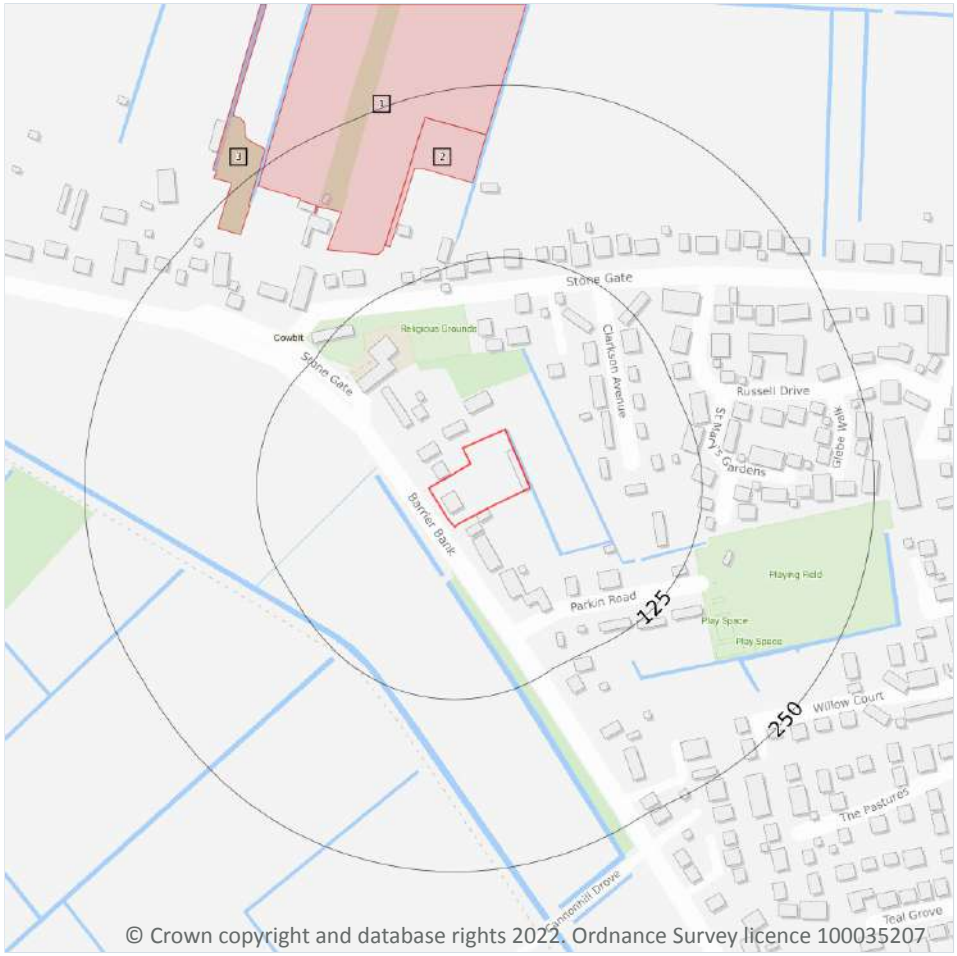
12.5 Countryside Stewardship Schemes

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	3

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 66**

ID	Location	Main Habitat	Other habitats
1	153m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
2	155m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
3	224m NW	Coastal and floodplain grazing marsh	Main habitat: CFPGM (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.

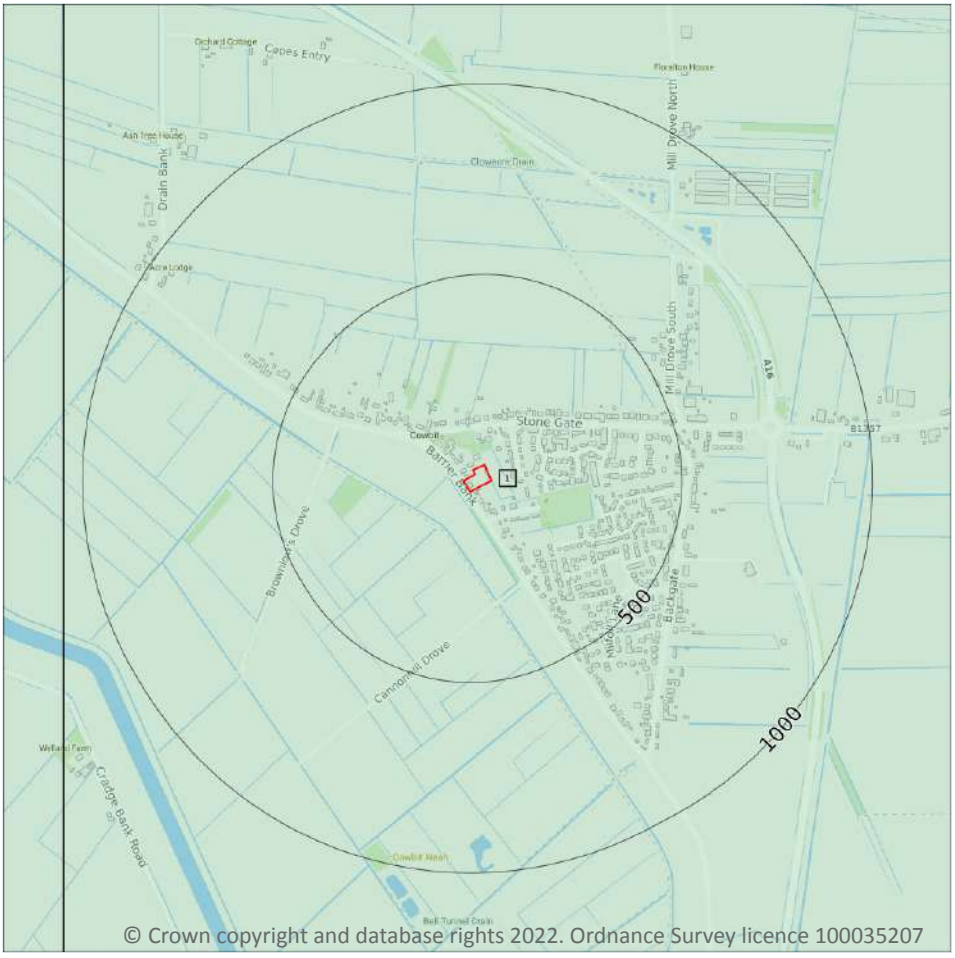
13.4 Limestone Pavement Orders

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 68**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**No coverage**	**TF21NE**

This data is sourced from the British Geological Survey.

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

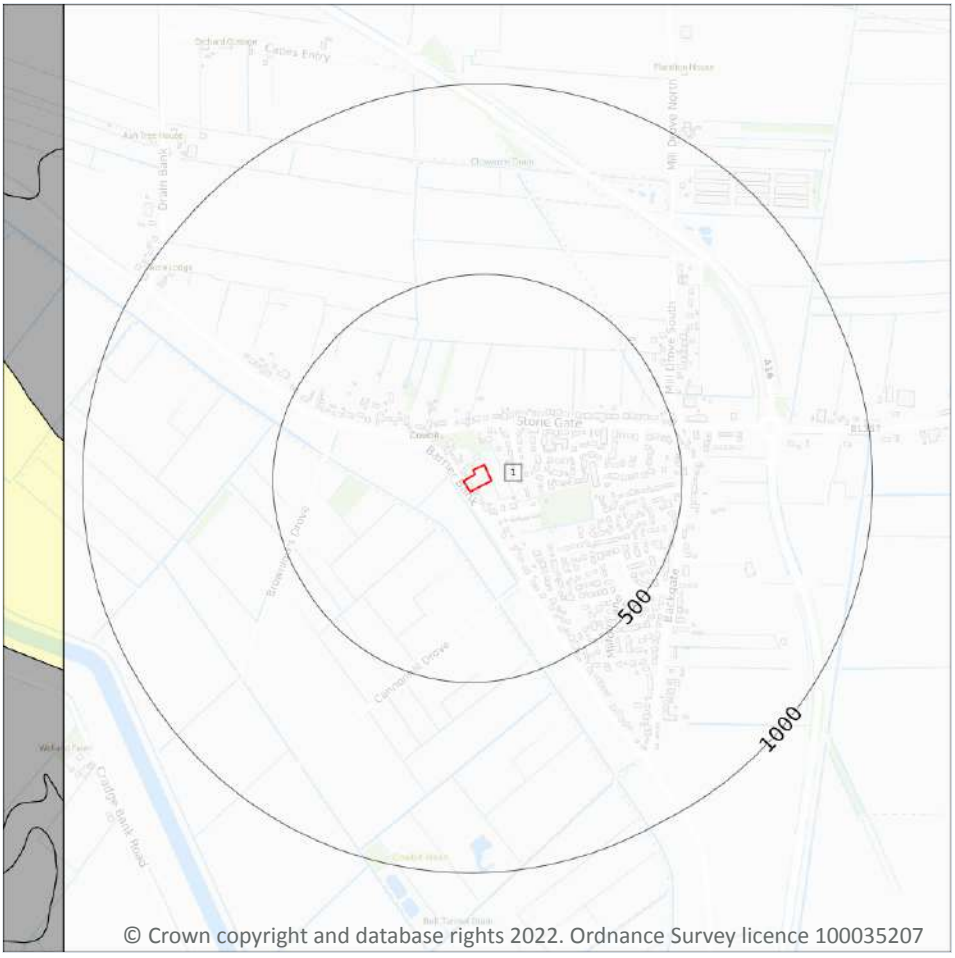
14.2 Artificial and made ground (10k)

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



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **1**

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 70**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**SUPNM-UKNOWN**	**Superficial Theme Not Mapped [for Digital Map Use Only] - Unknown/unclassified Entry**	**Unknown/unclassified Entry**

This data is sourced from the British Geological Survey.

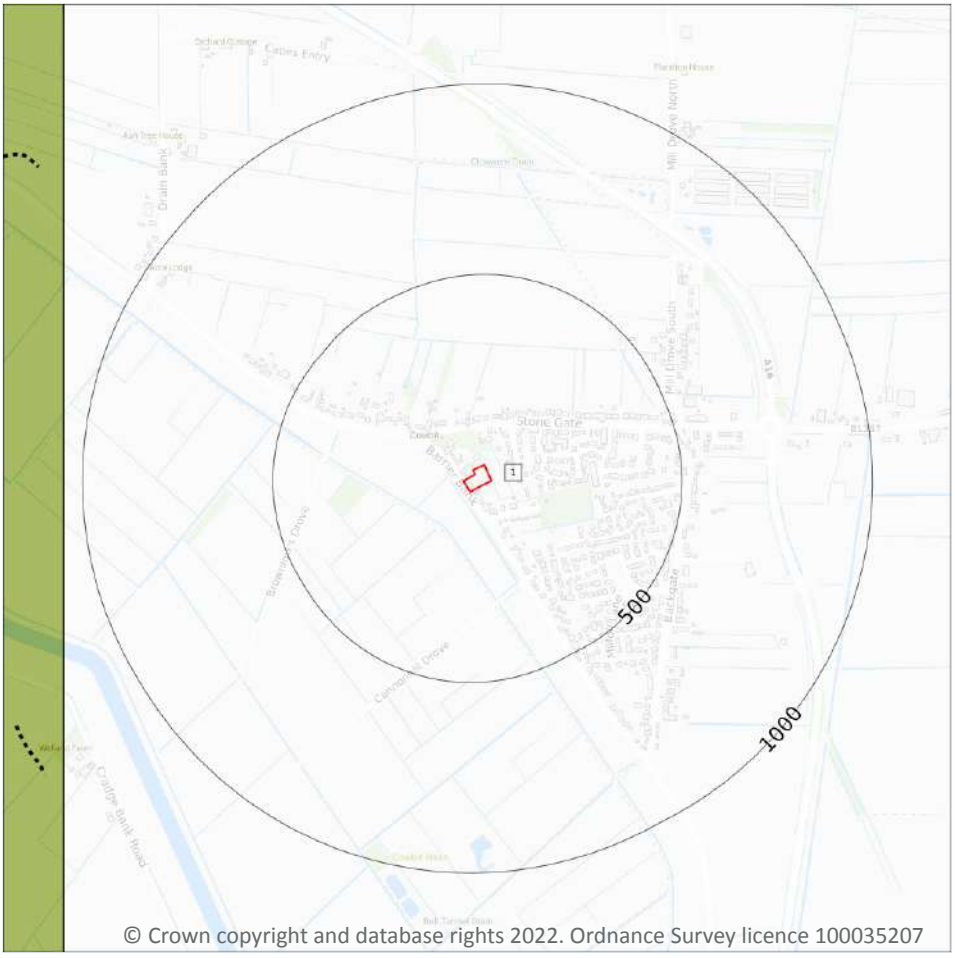
14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m	1

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 72**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BEDNM-UKNOWN**	**Bedrock Theme Not Mapped [for Digital Map Use Only] - Unknown/unclassified Entry**	**No Details**

This data is sourced from the British Geological Survey.

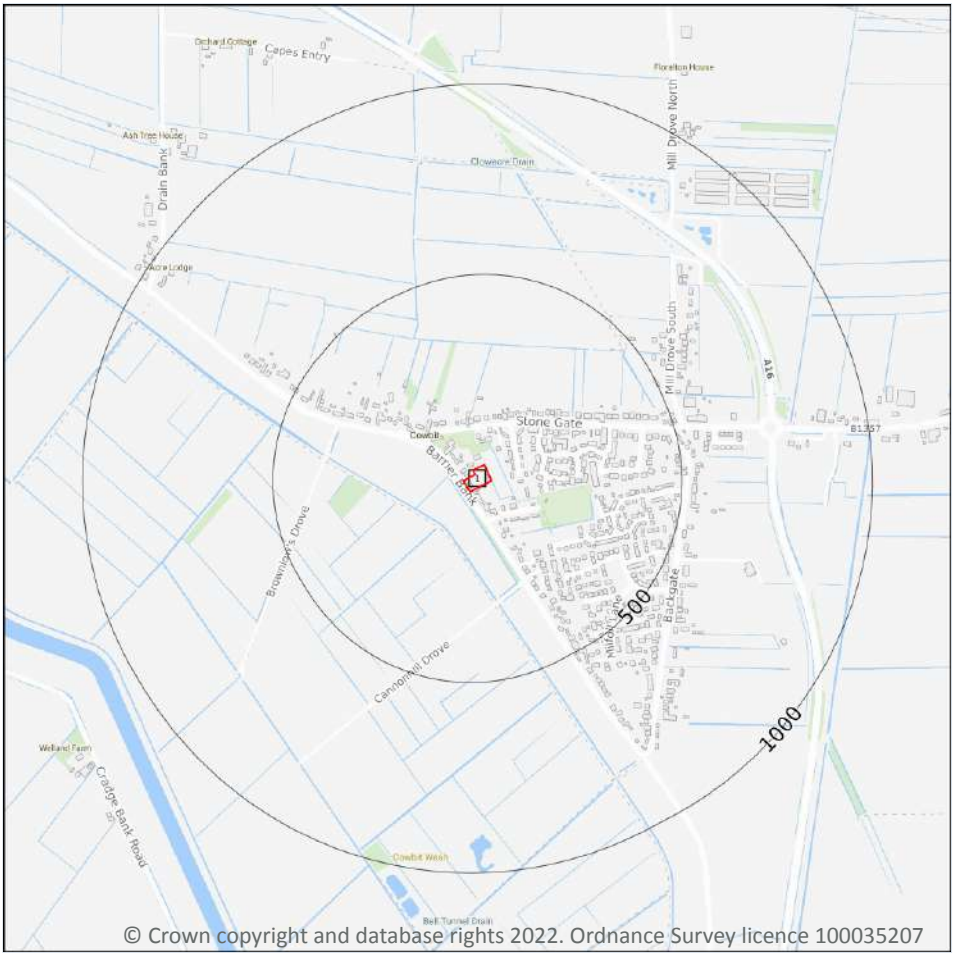
14.6 Bedrock faults and other linear features (10k)

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 74**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**EW144_spalding_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.

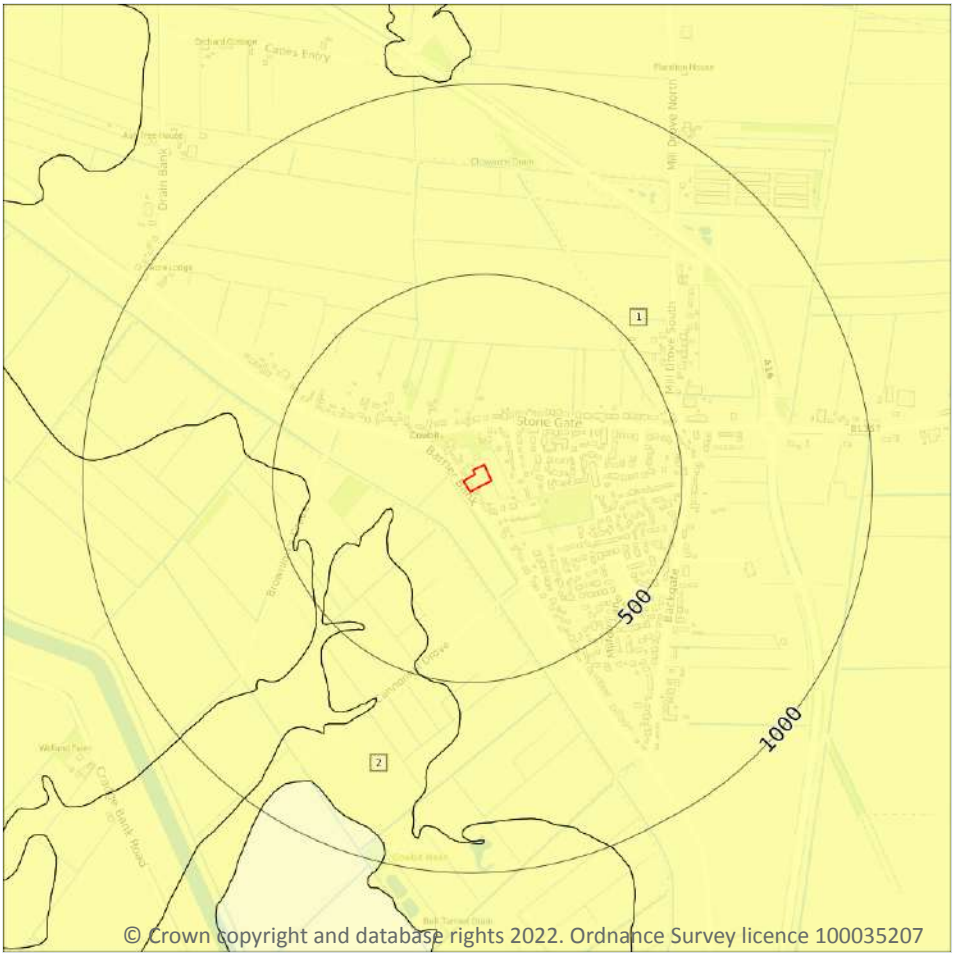
15.3 Artificial ground permeability (50k)

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 **2**

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 76**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TFD-XCZ**	**TIDAL FLAT DEPOSITS**	**CLAY AND SILT**
2	202m SW	TFD1-XCZ	TIDAL FLAT DEPOSITS, 1	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 78**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**OXC-MDST**	**OXFORD CLAY FORMATION - MUDSTONE**	**CALLOVIAN**

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.

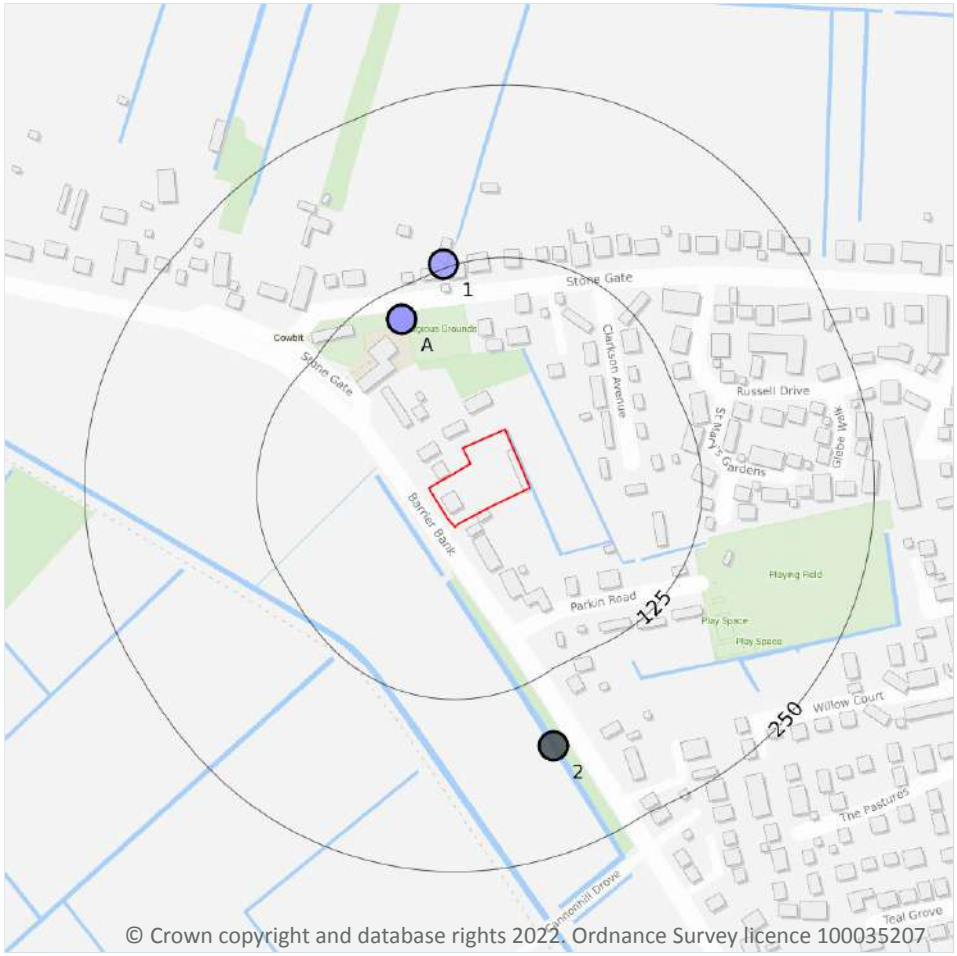
15.10 Bedrock faults and other linear features (50k)

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



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	4

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

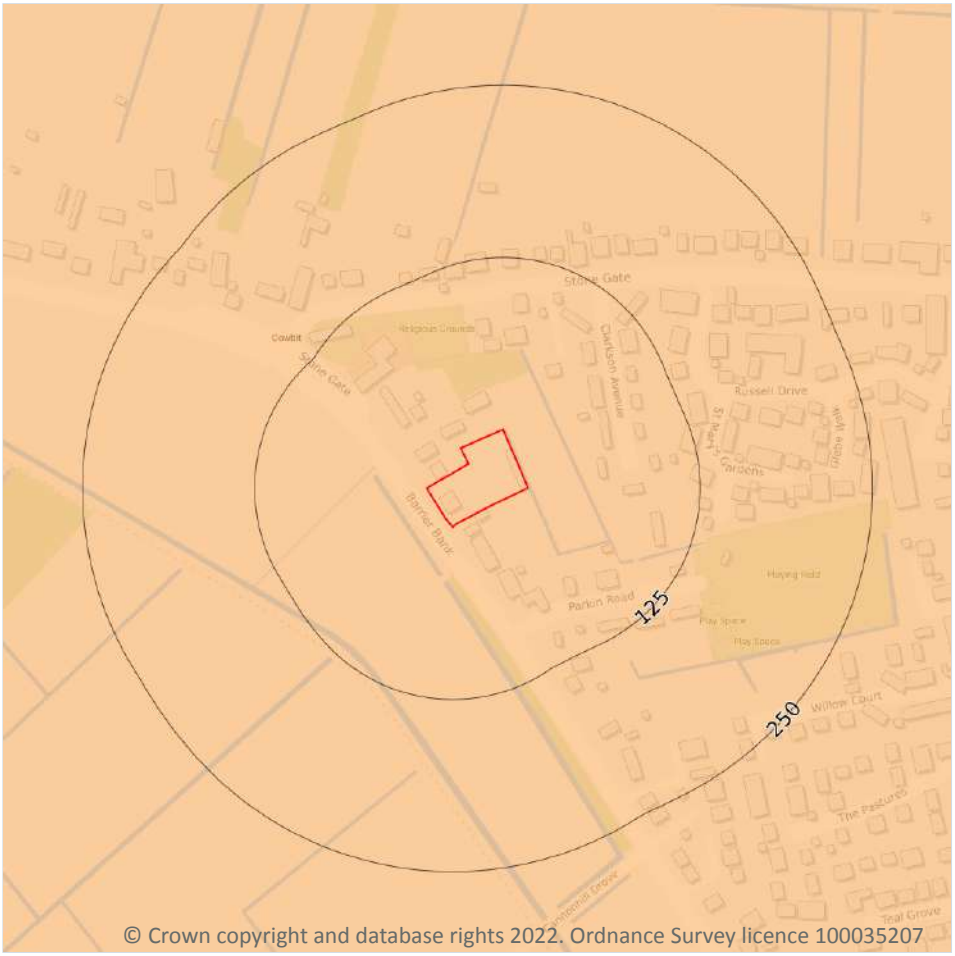
Features are displayed on the Boreholes map on **page 80**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	104m NW	526030 318020	COWBIT C E SCHOOL 1	2.0	N	473391
A	104m NW	526030 318020	COWBIT C E SCHOOL 2	2.0	N	473392
1	129m N	526060 318060	C2 COWBIT	7.0	N	473363

ID	Location	Grid reference	Name	Length	Confidential	Web link
2	174m SE	526140 317710	A1073 COWBIT 4	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



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Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

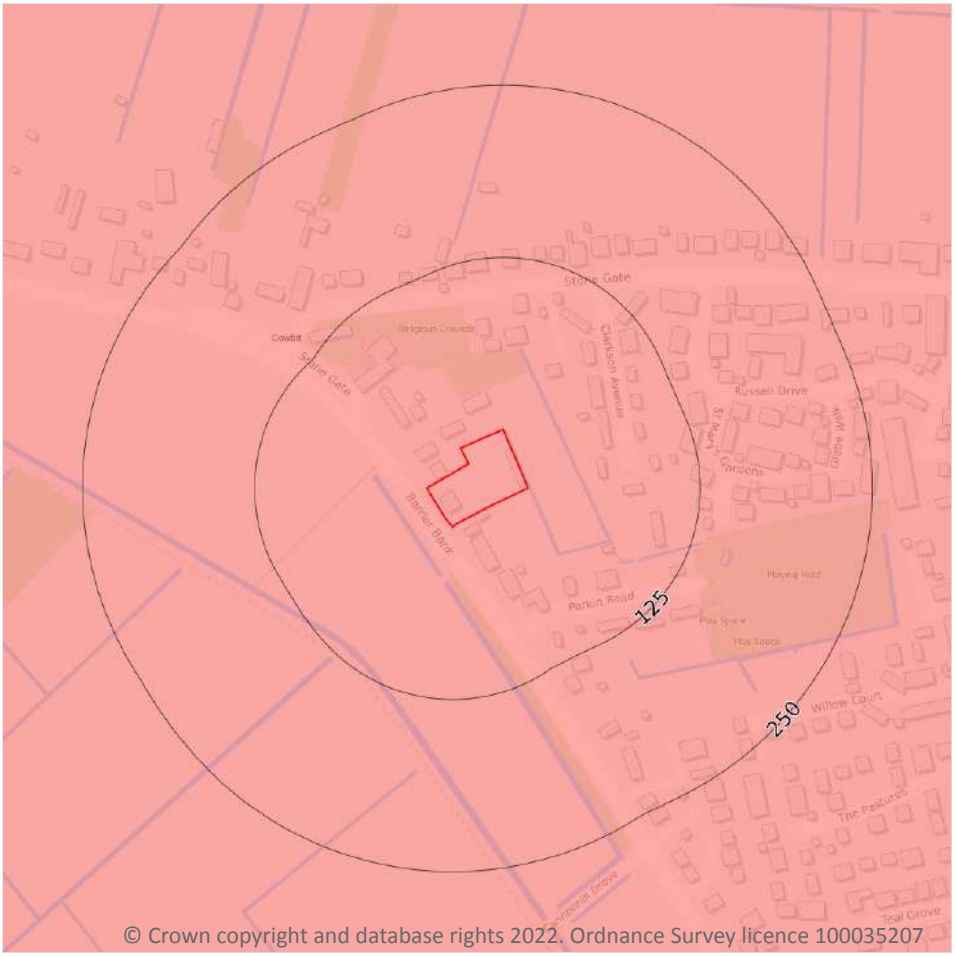
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 82**

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



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

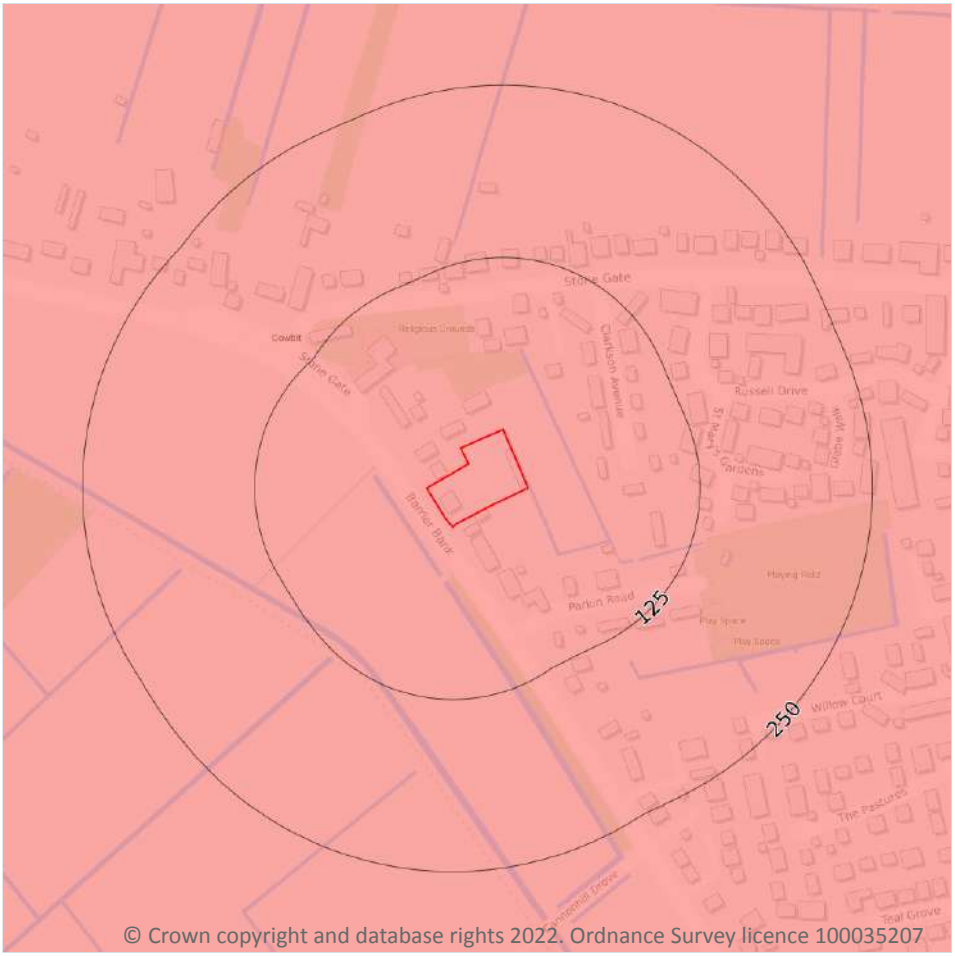
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 83**

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



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

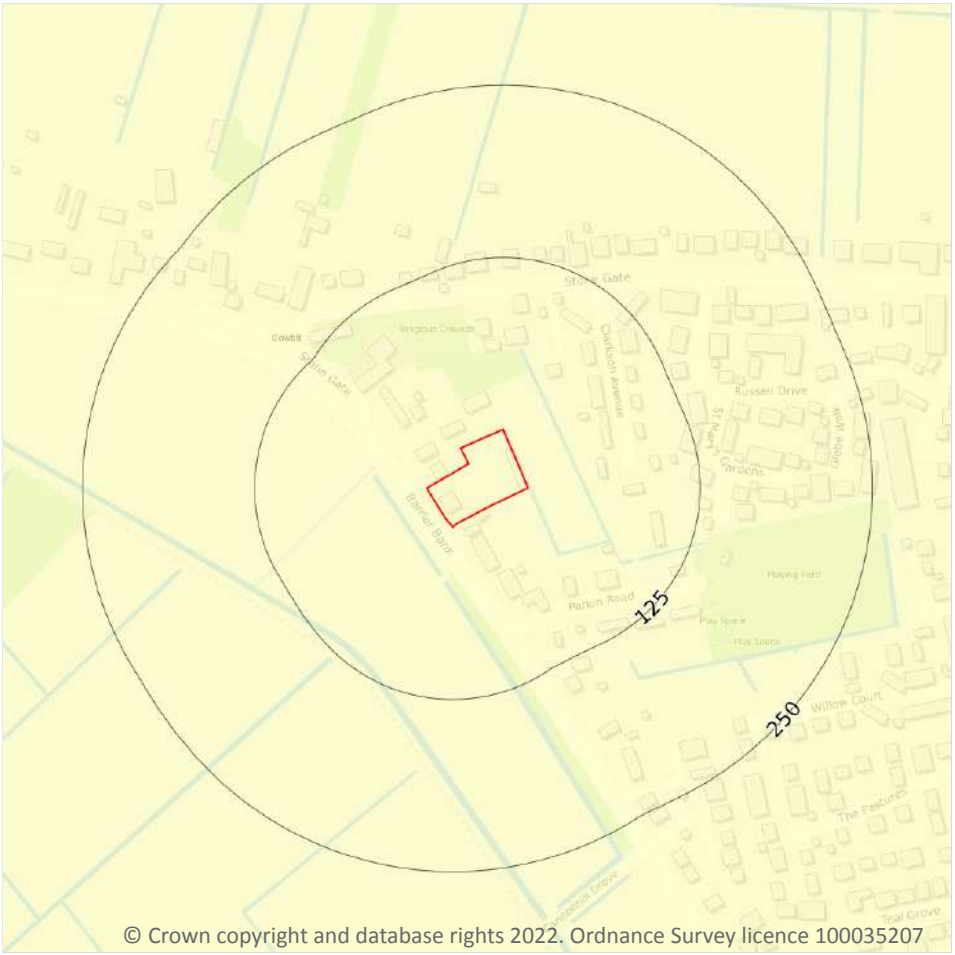
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 84**

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



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Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

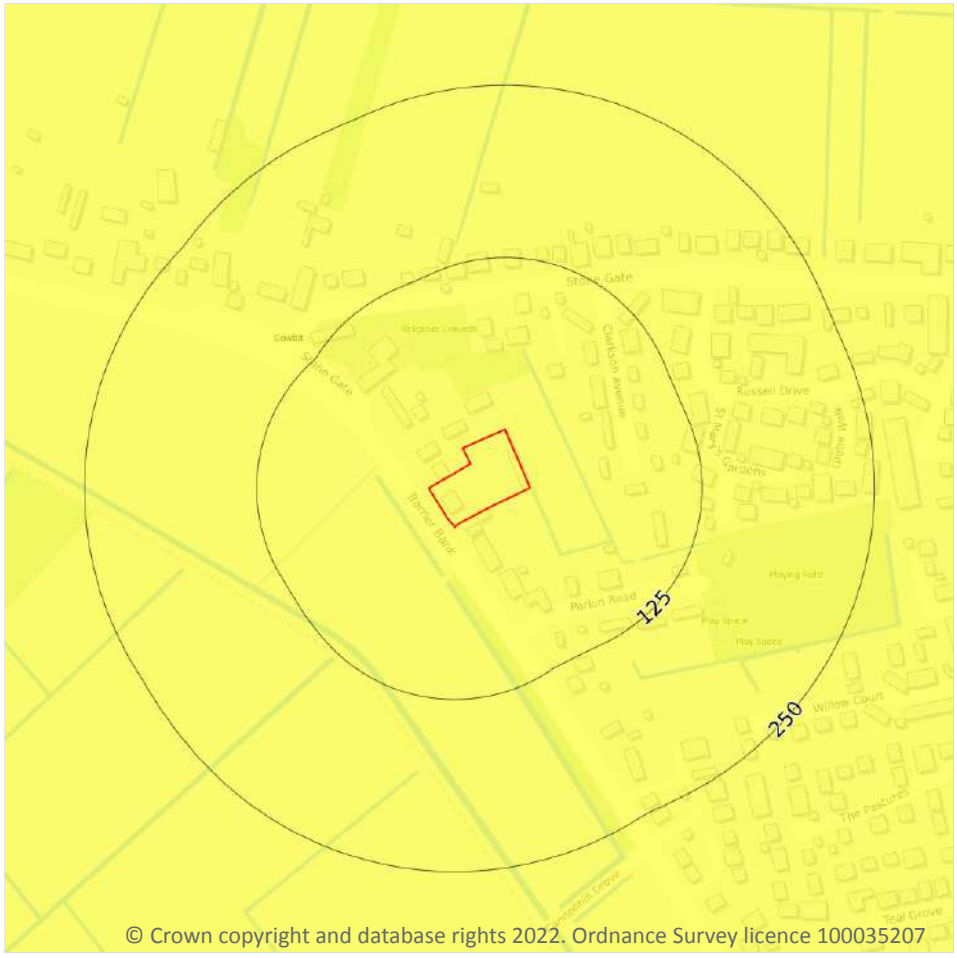
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 85**

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

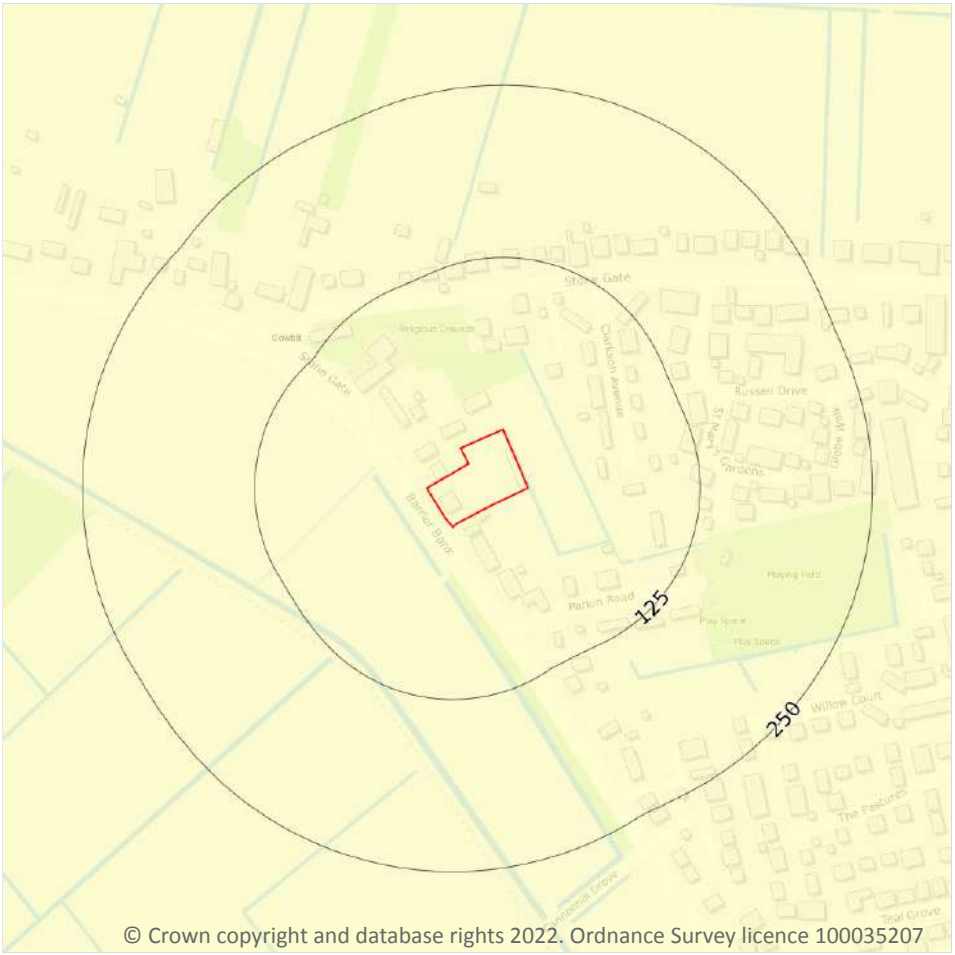
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 86**

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



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17.6 Ground dissolution of soluble rocks

Records within 50m	1

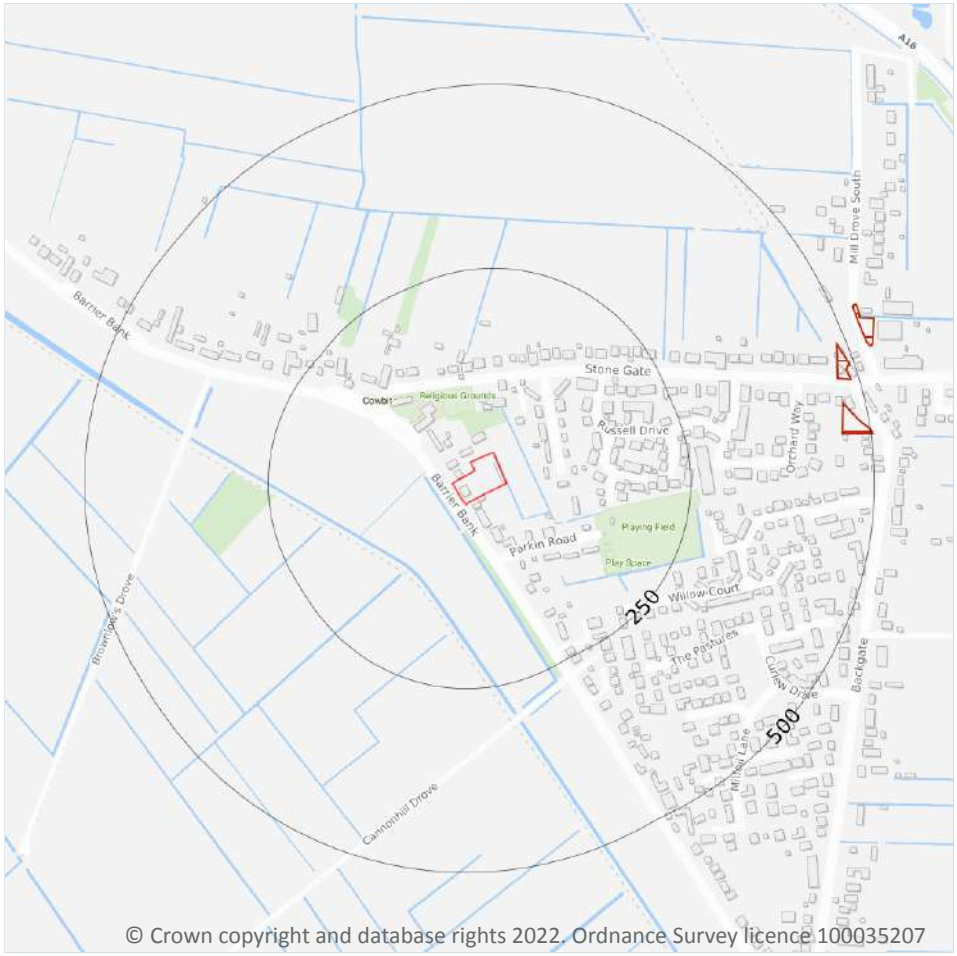
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 87**

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, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

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 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.

18.2 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.

18.3 Surface ground workings

Records within 250m	0

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.

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	4

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 88**

ID	Location	Land Use	Year of mapping	Mapping scale
-	816m SE	Tunnel	1989	1:10000
-	816m SE	Tunnel	1977	1:10000
-	836m SE	Tunnel	1951	1:10560
-	838m SE	Tunnel	1951	1:10560

This is data is sourced from Ordnance Survey/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 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.

18.8 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.

18.9 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.

18.10 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.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

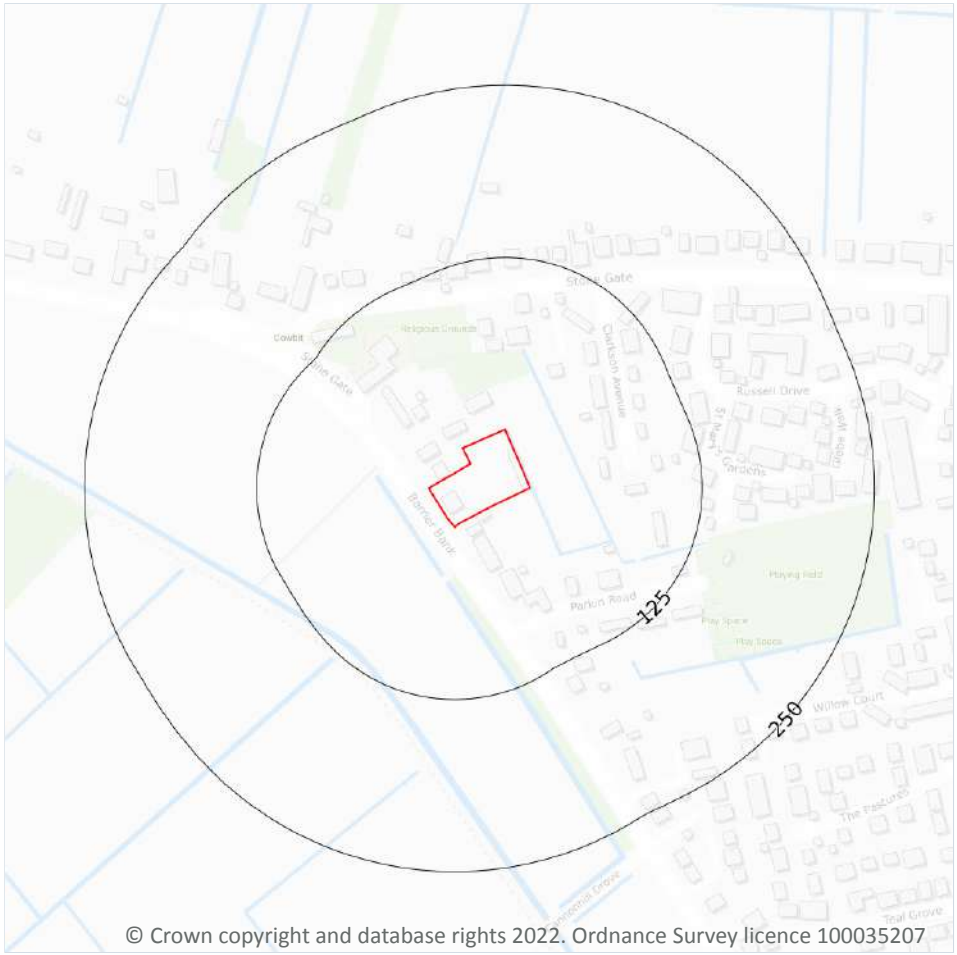
18.13 Clay mining

Records on site	0

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 Radon



Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 92**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None****

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	3

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 km^2. 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 km^2; 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**
50m SW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
50m 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.

20.2 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 km^2).

This data is sourced from the British Geological Survey.

20.3 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 km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 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.

21.2 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.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

21.5 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.

21.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

21.7 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.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 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.

21.10 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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APPENDIX V

Historical Mapping



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Site Details:

SITE OFF BARRIER BANK,
COWBIT

Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: County Series

Map date: **1887**

Scale: 1:10,560

Printed at: 1:10,560

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

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

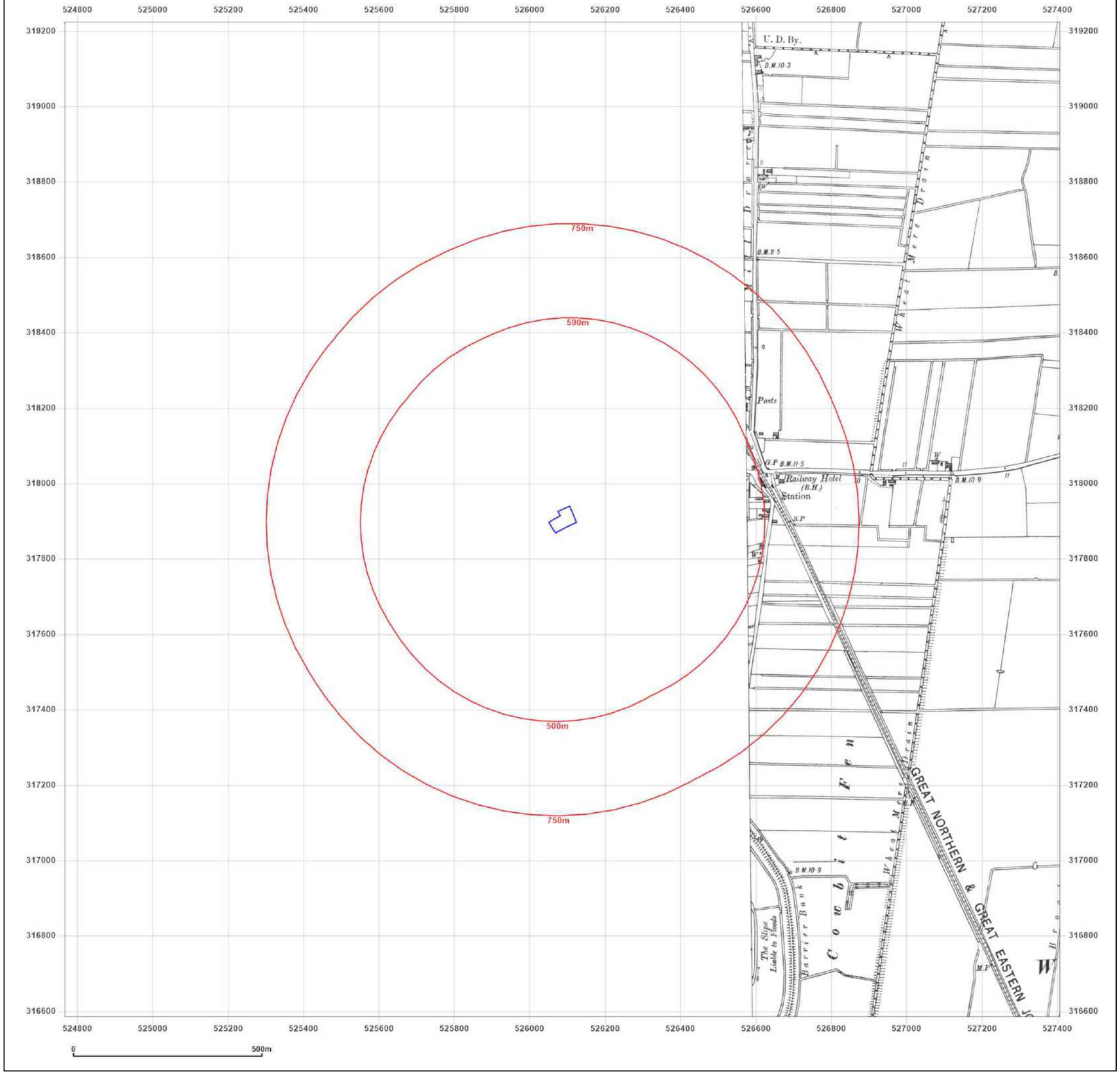
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Grid Ref: 526086, 317904

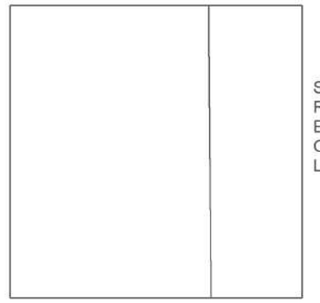
Map Name: County Series

Map date: **1903**

Scale: 1:10,560

Printed at: 1:10,560

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

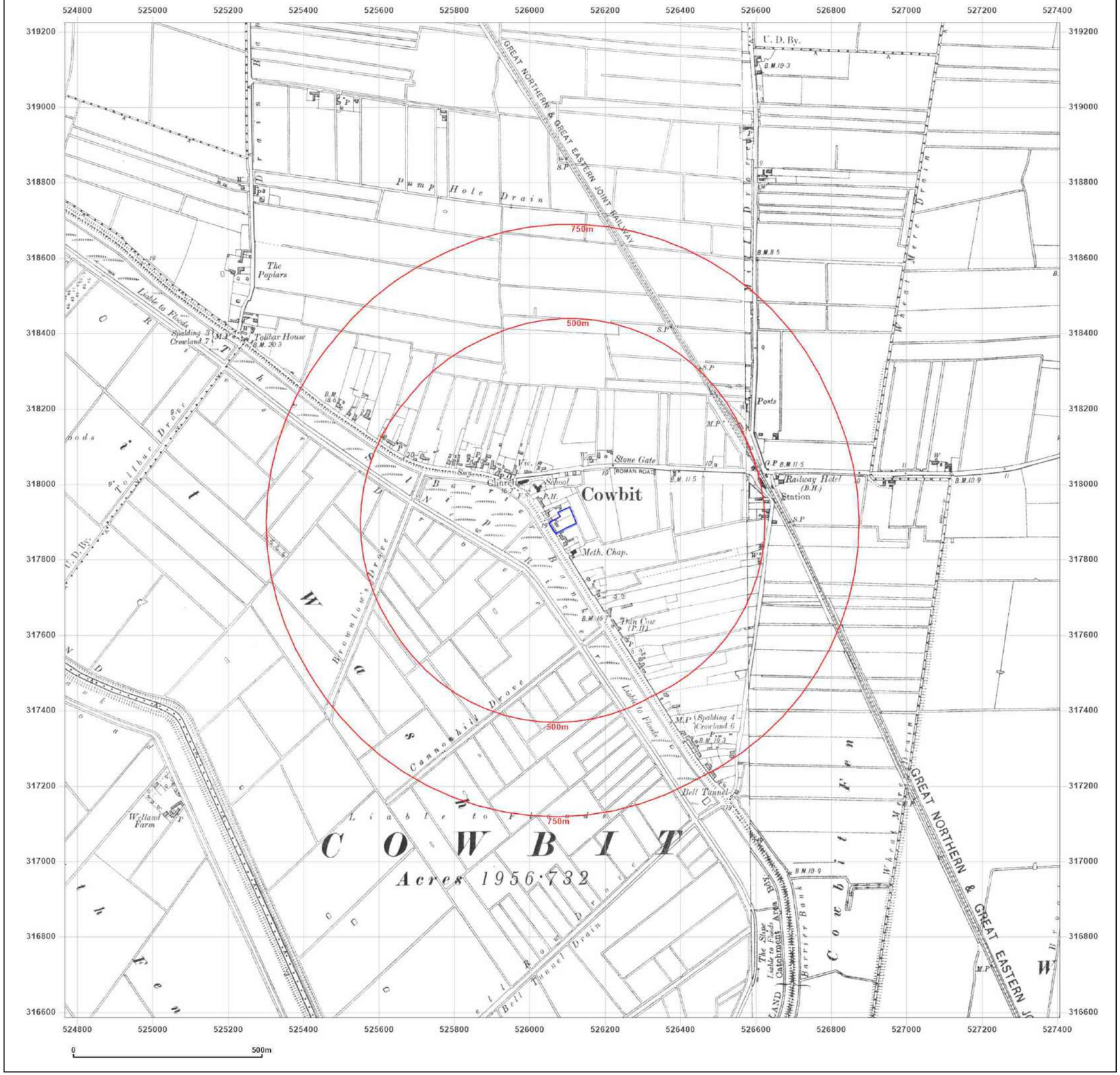
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Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: County Series

Map date: **1903-1906**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1886
Revised 1906
Edition 1906
Copyright N/A
Levelled N/A

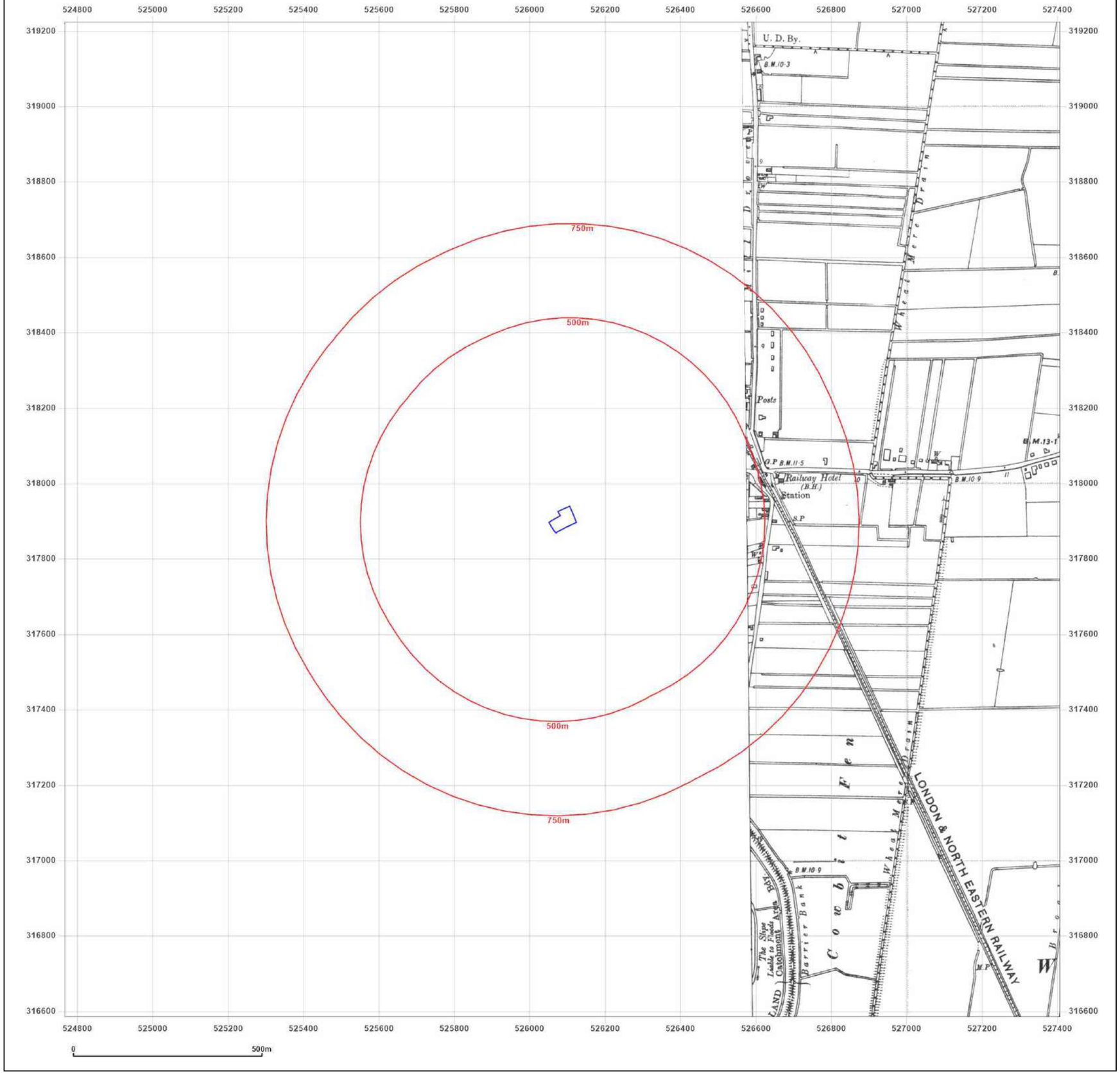
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Revised 1903
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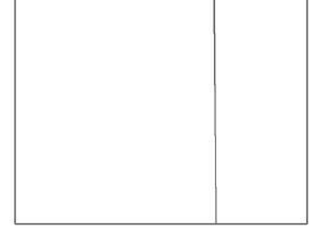
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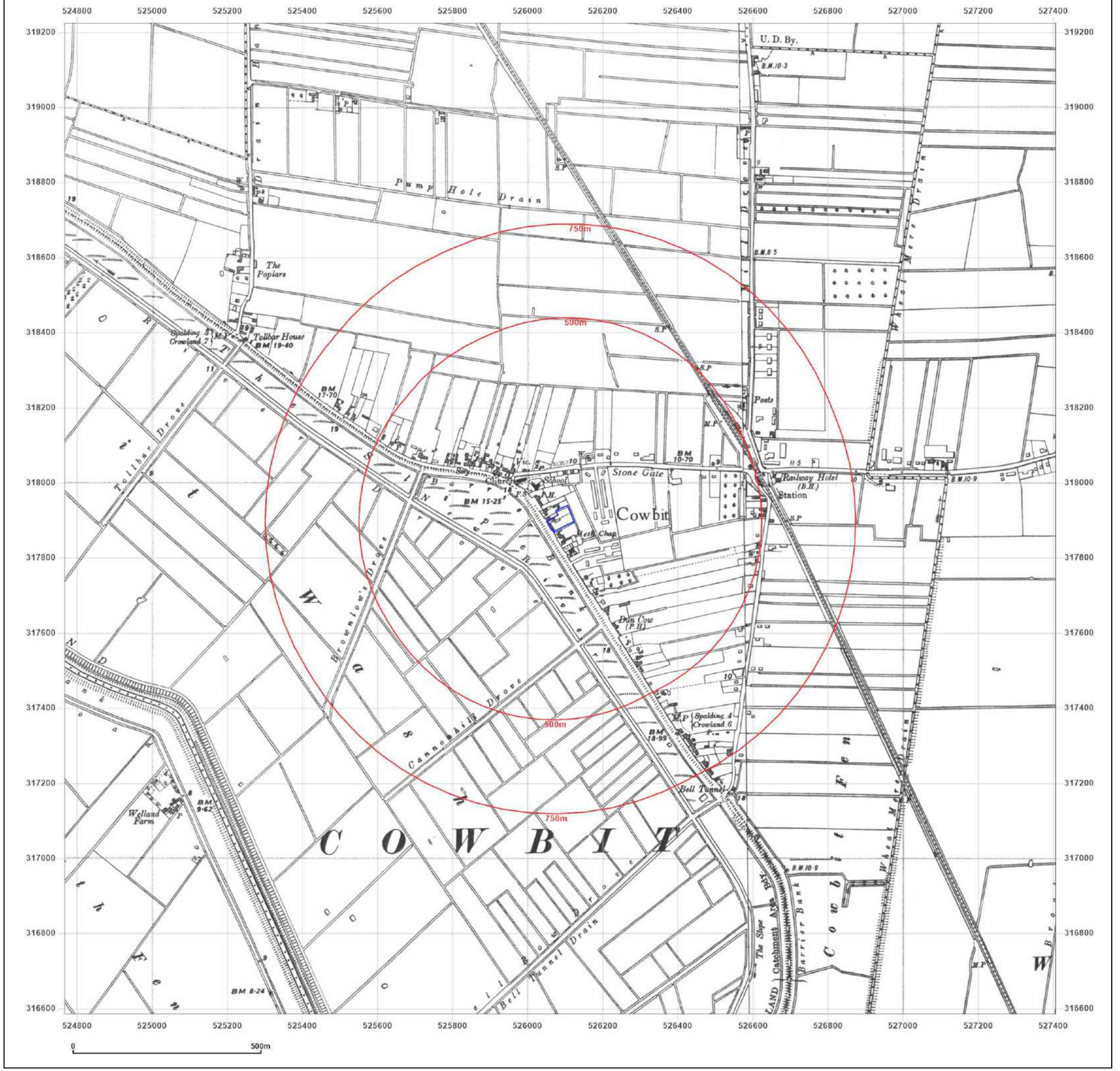
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Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: County Series

Map date: **1950-1951**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1886
Revised 1951
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1950
Edition 1950
Copyright N/A
Levelled N/A

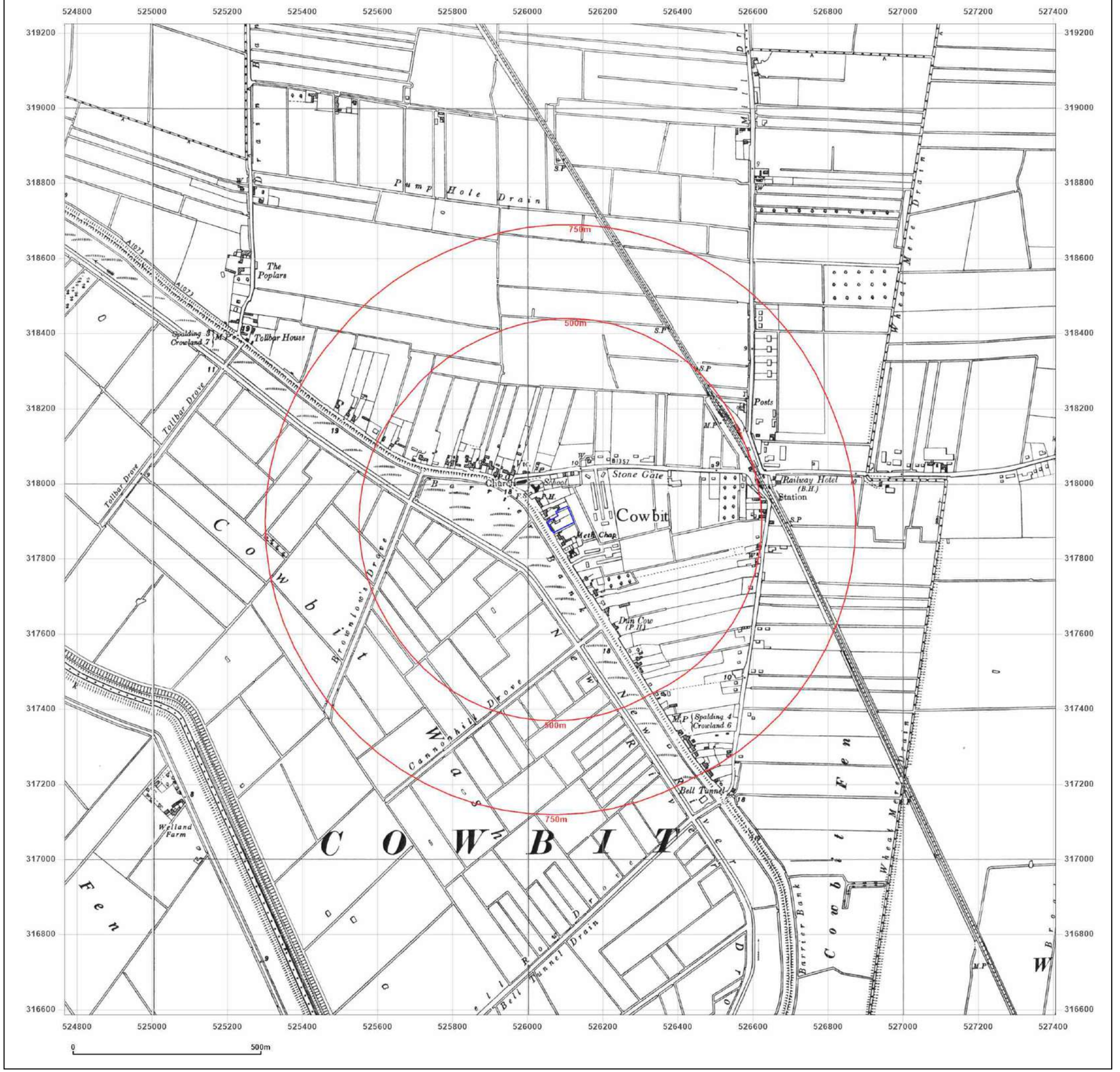
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Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: Provisional

Map date: **1958-1959**

Scale: 1:10,560

Printed at: 1:10,560

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

Surveyed N/A
Revised 1958
Edition N/A
Copyright 1959
Levelled N/A

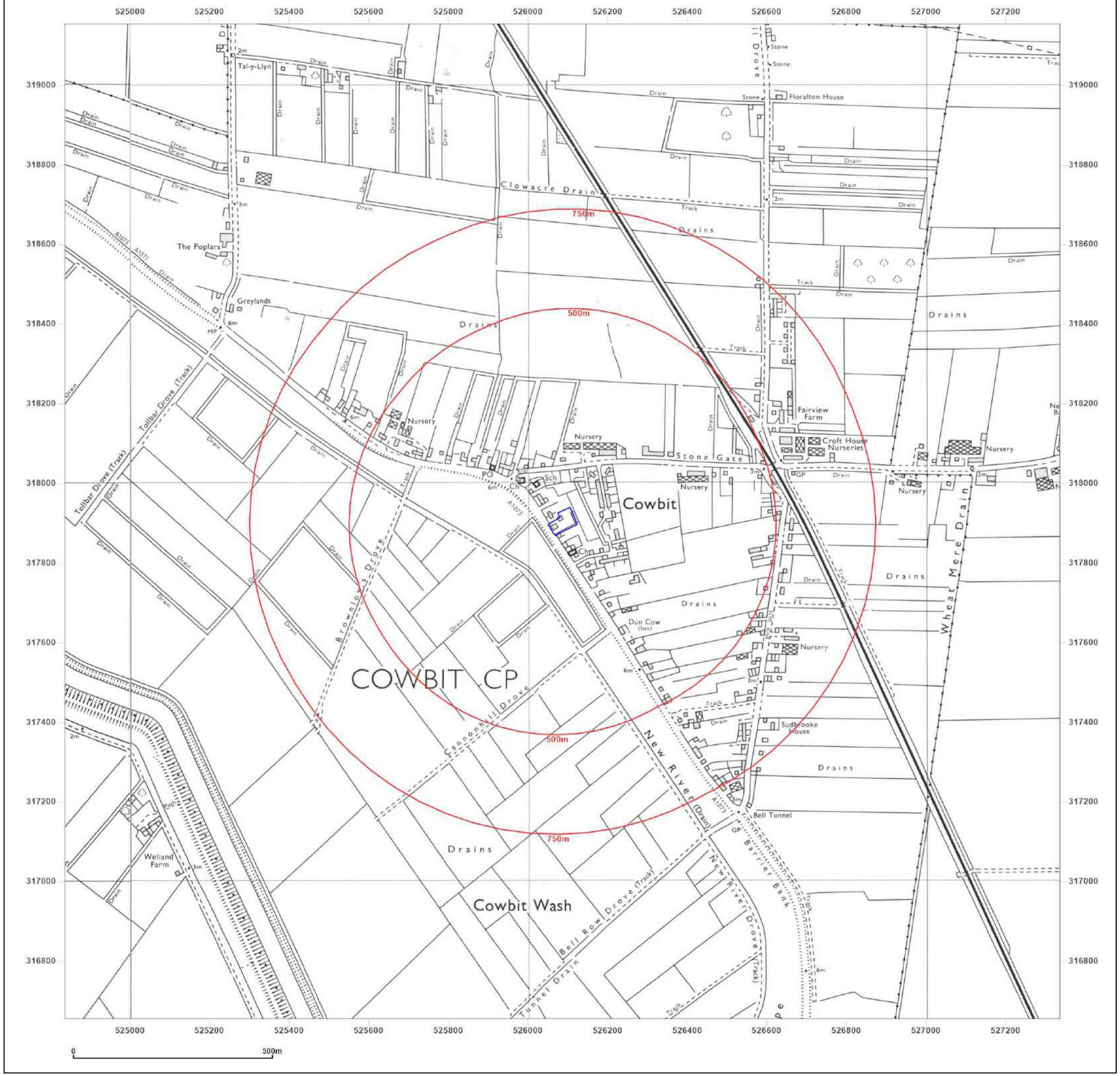
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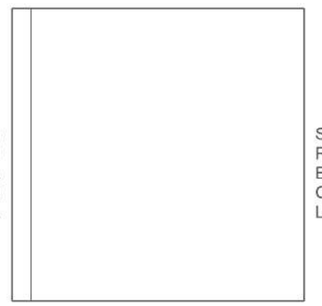
Map Name: National Grid

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Scale: 1:10,000

Printed at: 1:10,000

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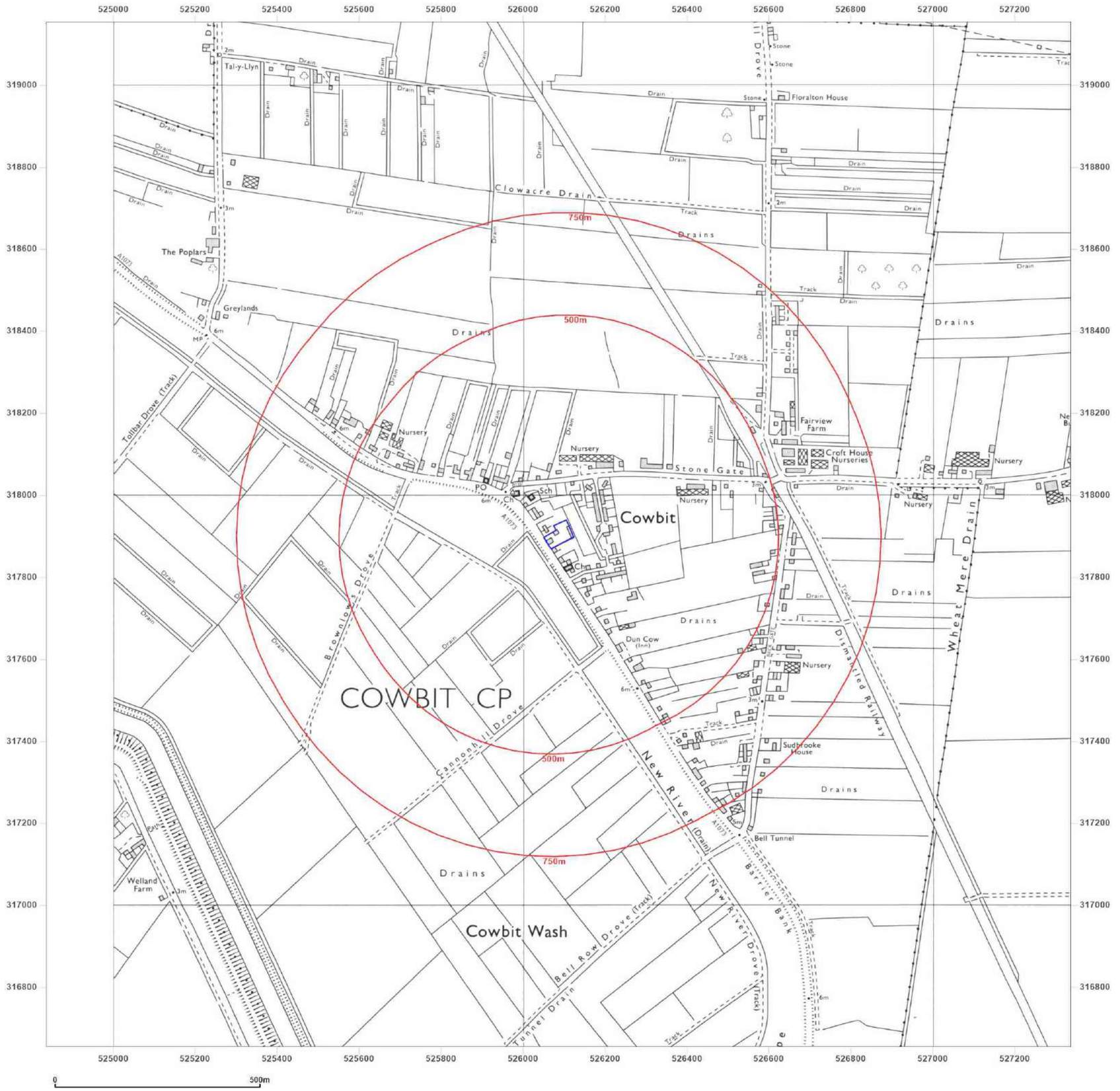
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Grid Ref: 526086, 317904

Map Name: National Grid

Map date: **1989**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1975
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

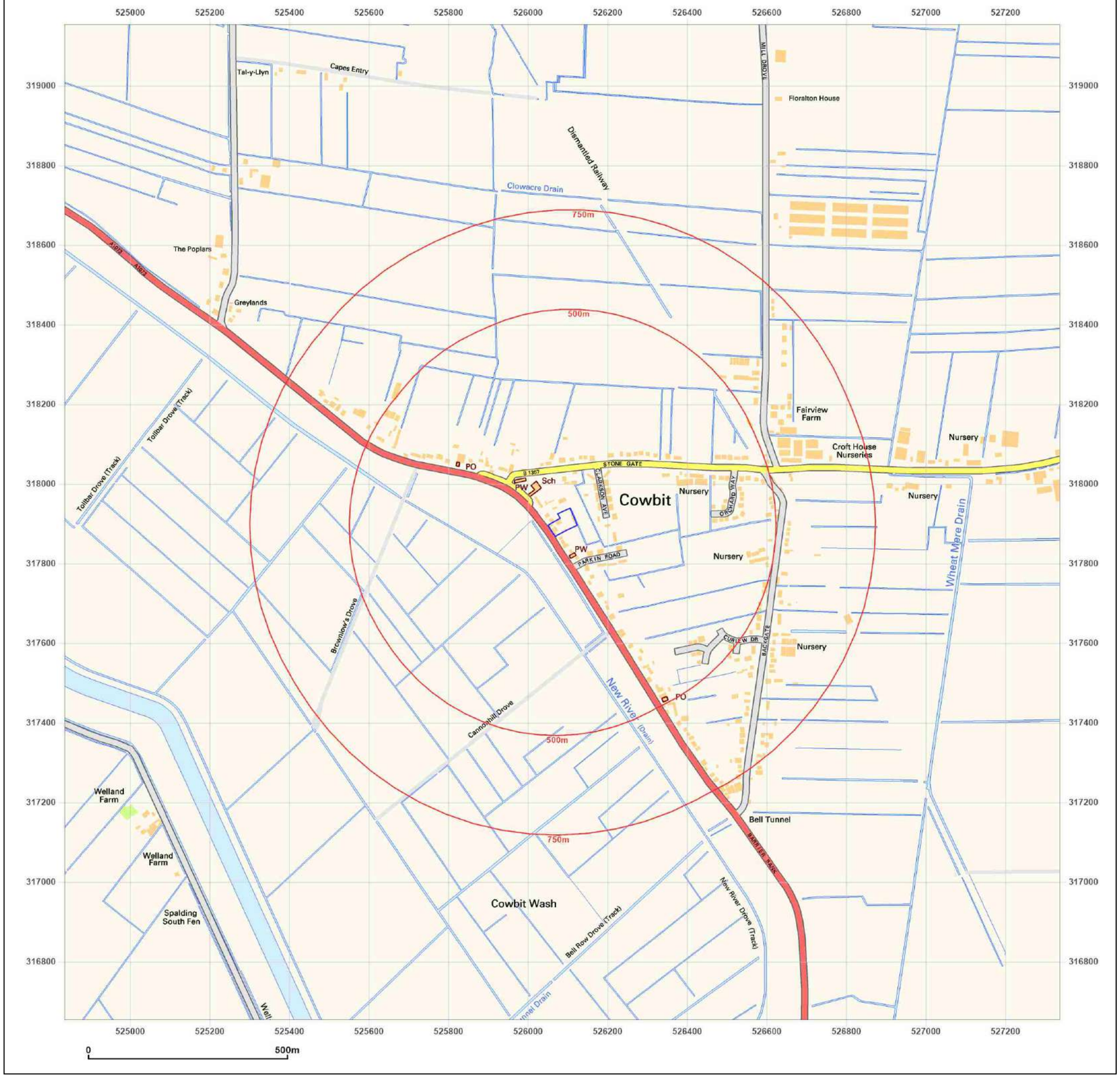
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Grid Ref: 526086, 317904

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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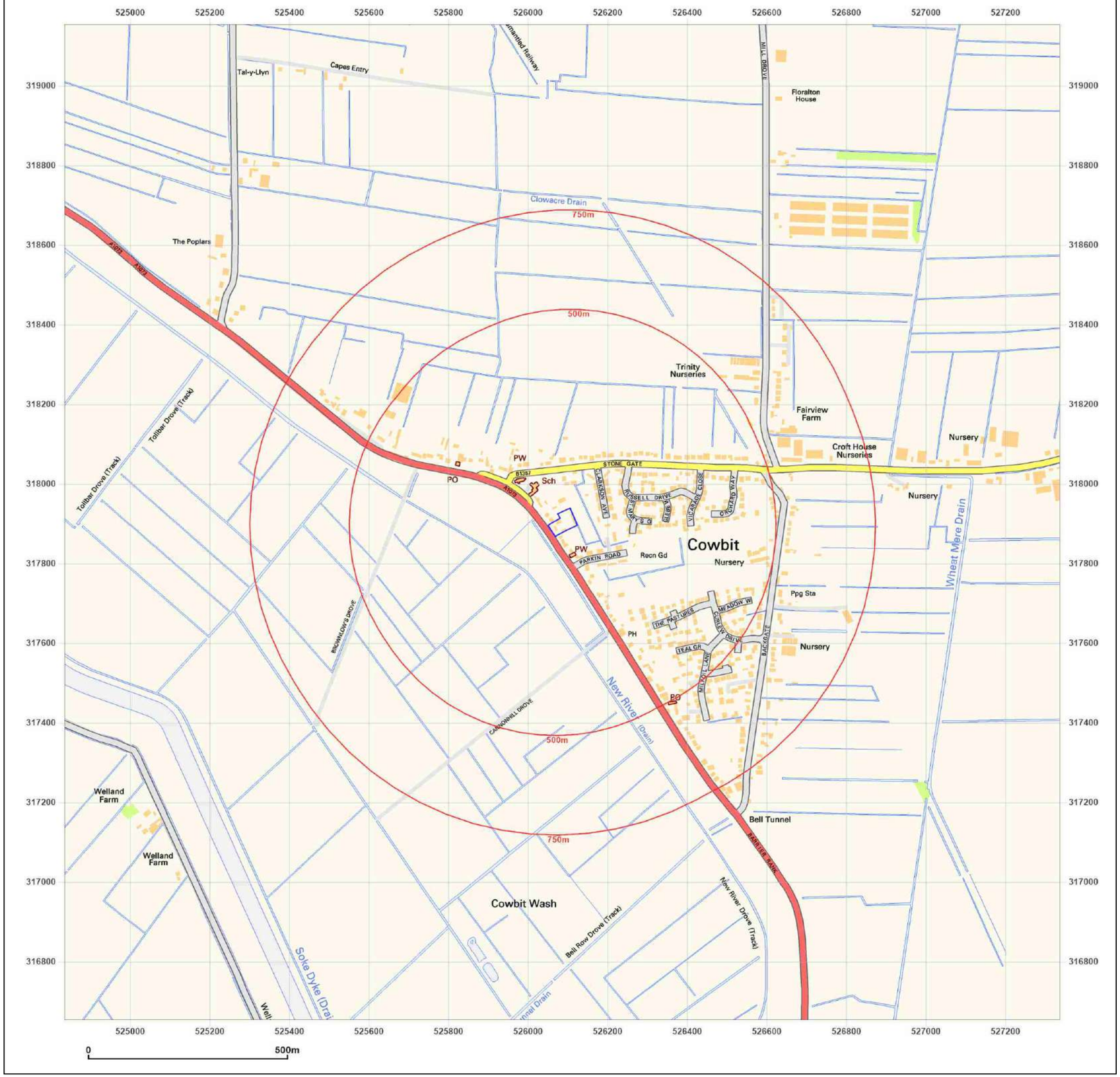
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Grid Ref: 526086, 317904

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: National Grid

Map date: **2022**

Scale: 1:10,000

Printed at: 1:10,000

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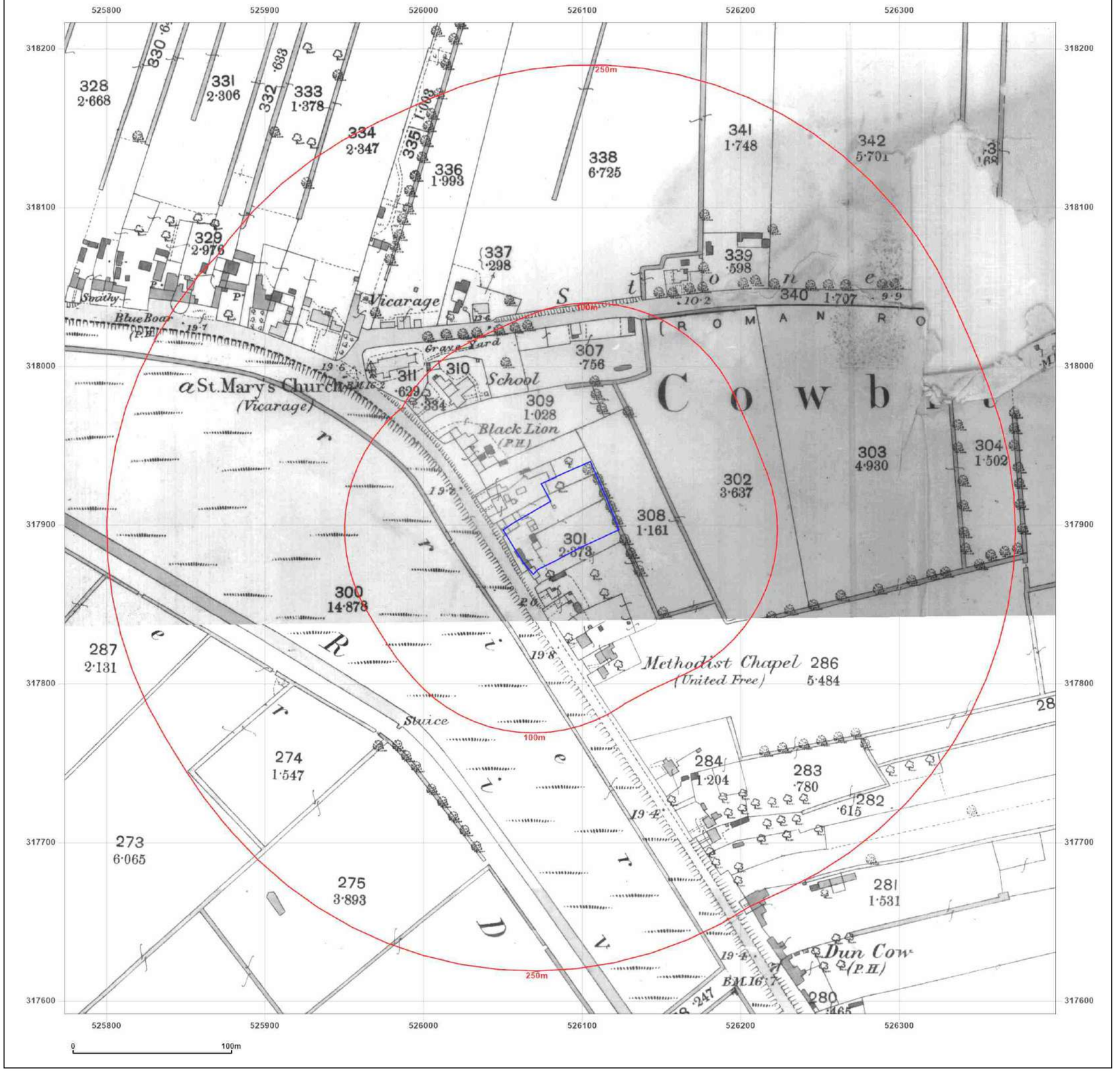
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Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
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Map Name: County Series

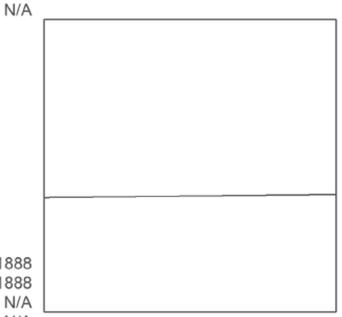
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Scale: 1:2,500

Printed at: 1:2,500

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



Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
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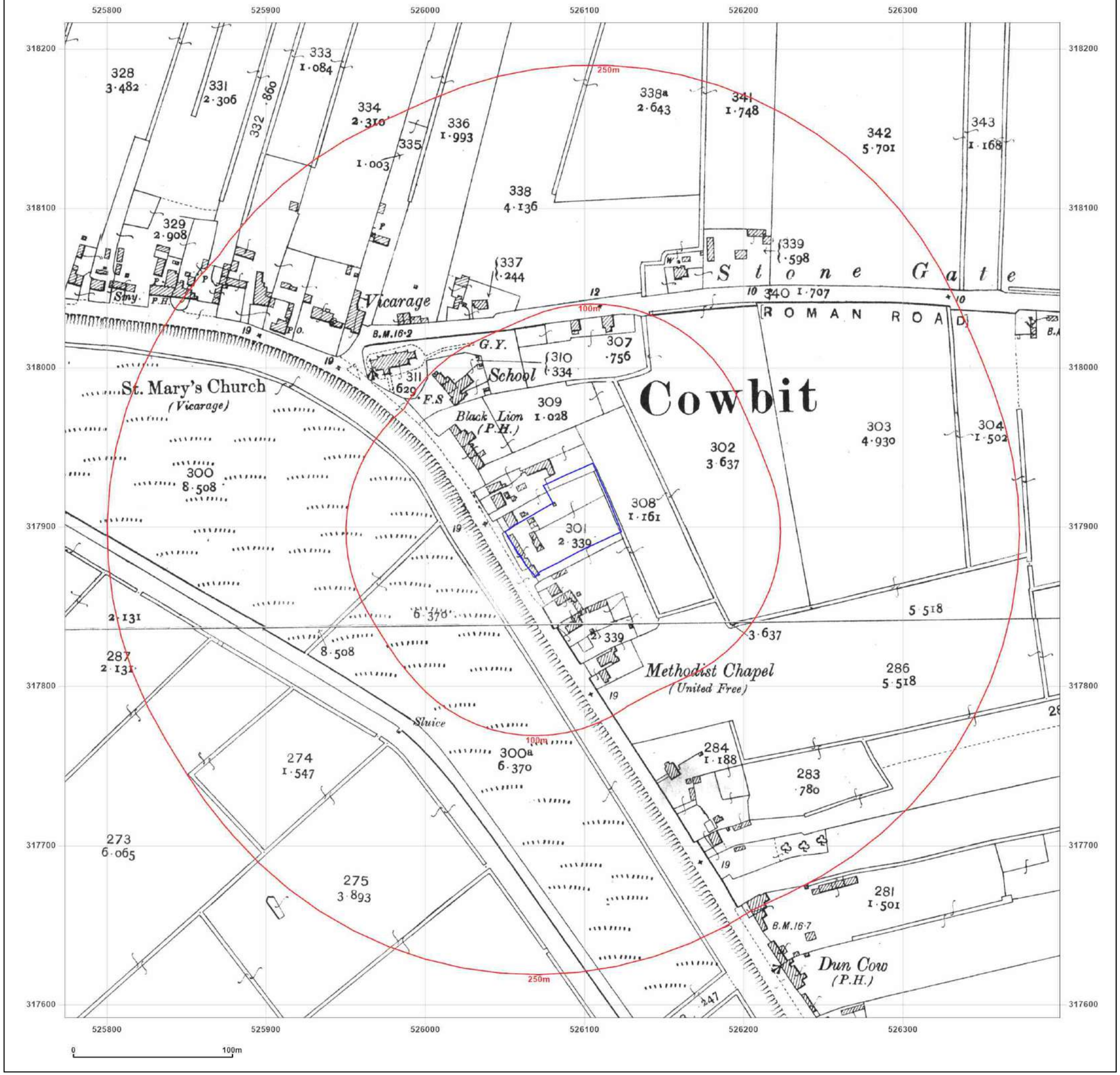
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Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
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Map Name: County Series

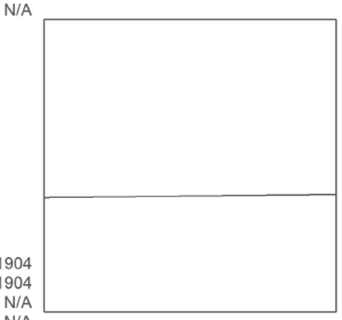
Map date: **1904**

Scale: 1:2,500

Printed at: 1:2,500

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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

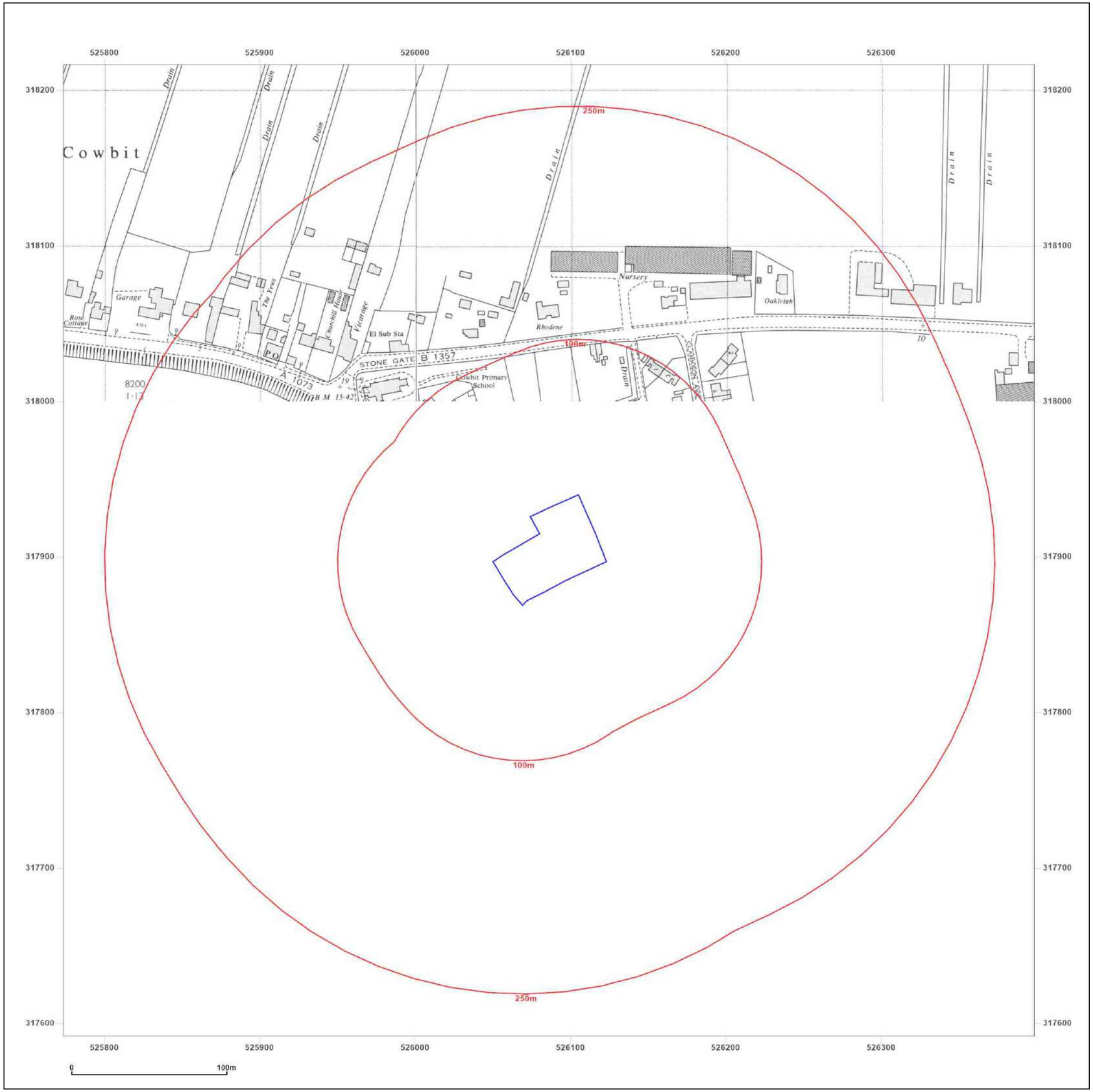
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Grid Ref: 526086, 317904

Map Name: National Grid

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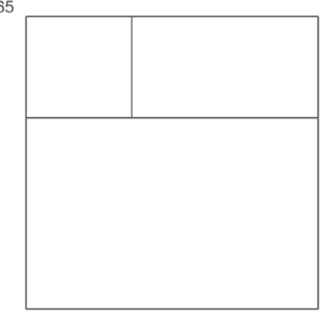
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Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
Levelled 1965

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
Levelled 1965



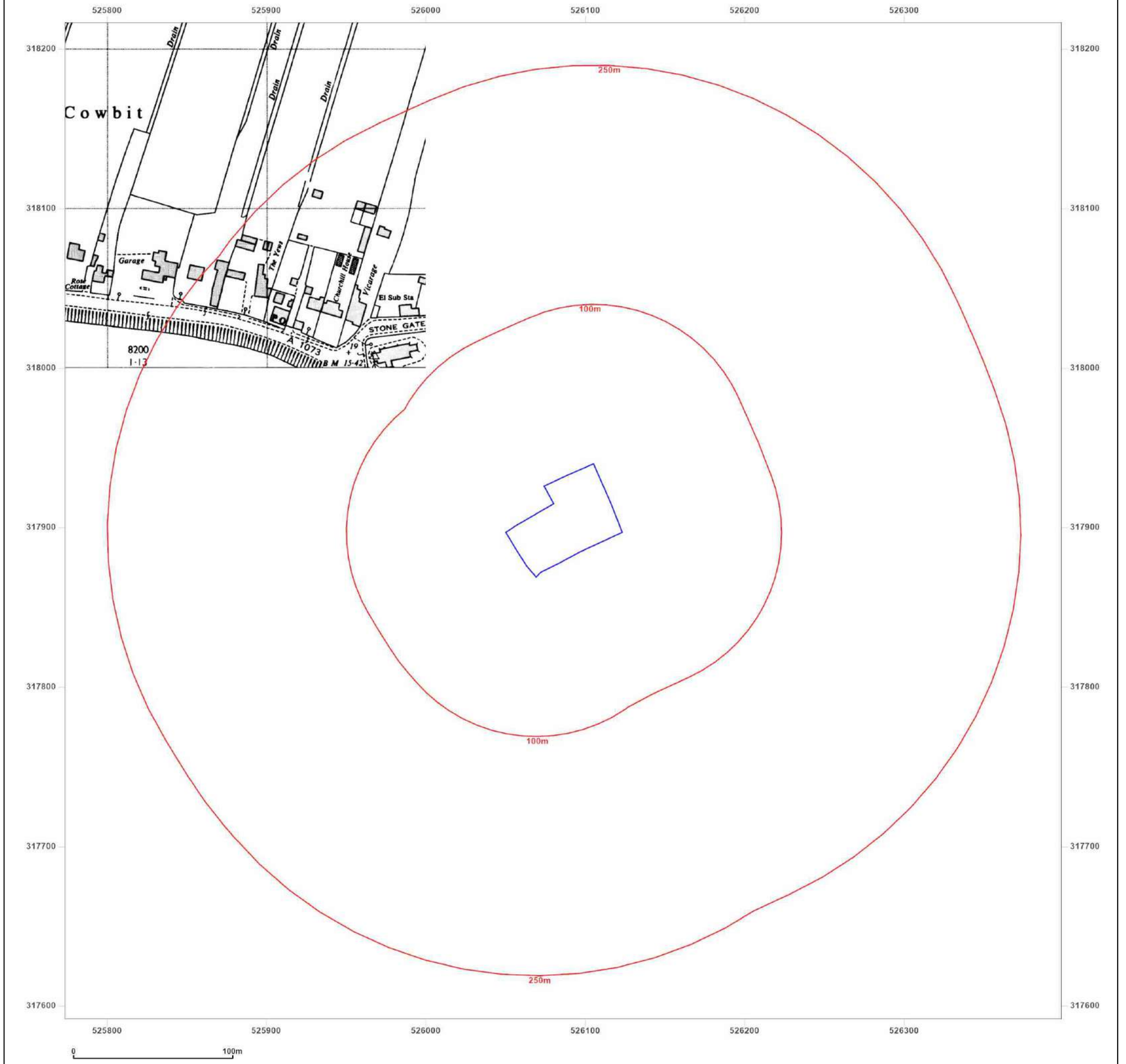
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Site Details:

SITE OFF BARRIER BANK,
COWBIT

Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: National Grid

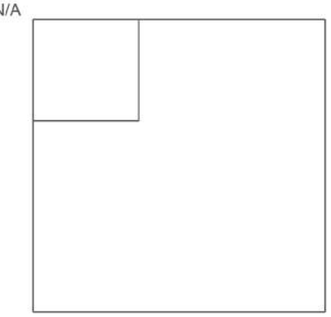
Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

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



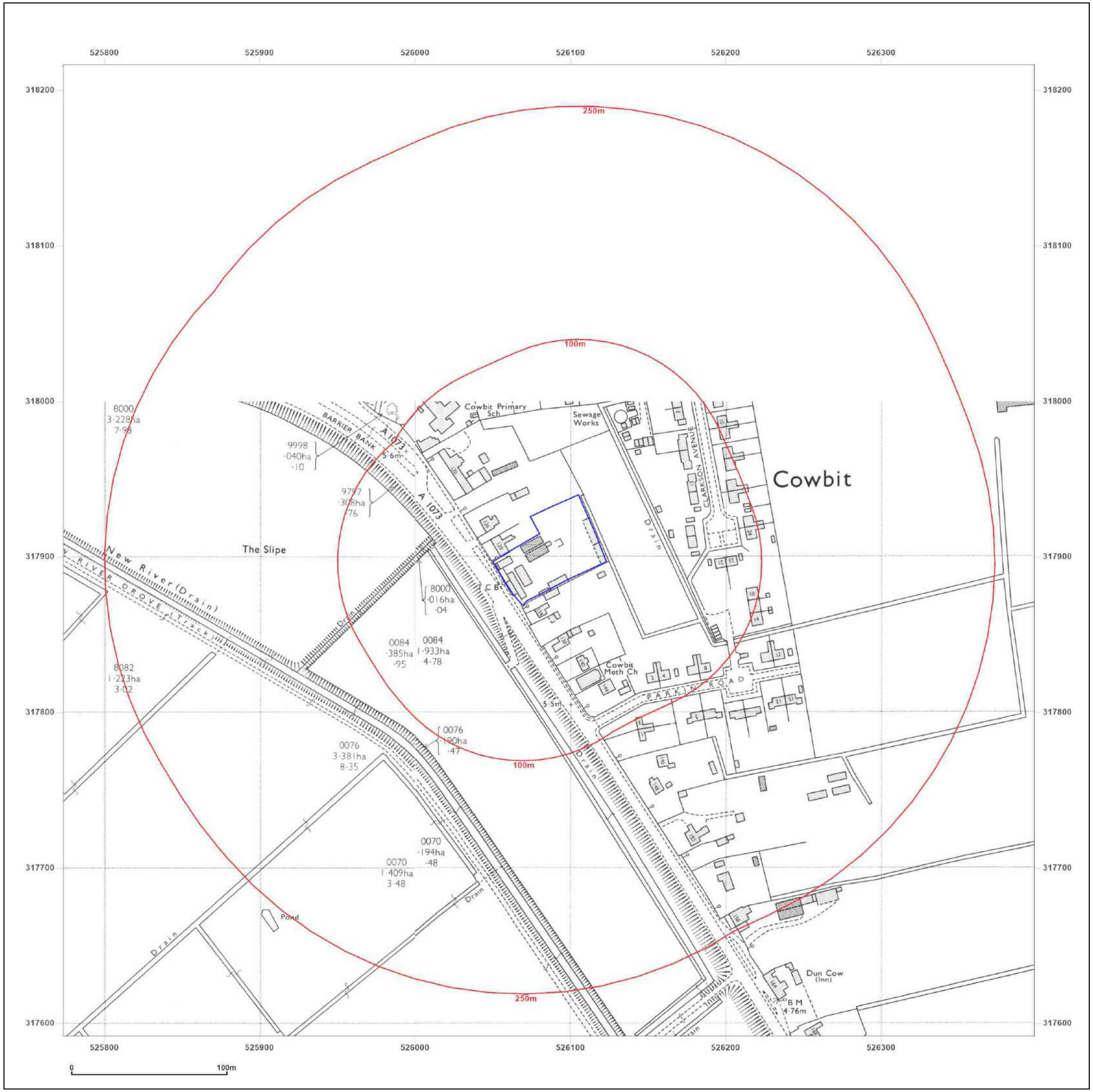
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Site Details:

SITE OFF BARRIER BANK,
COWBIT

Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

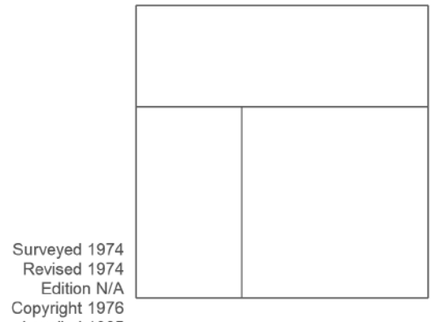
Map Name: National Grid

Map date: **1976**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1974
Revised 1974
Edition N/A
Copyright 1976
Levelled 1965

Surveyed 1974
Revised 1974
Edition N/A
Copyright 1976
Levelled 1965

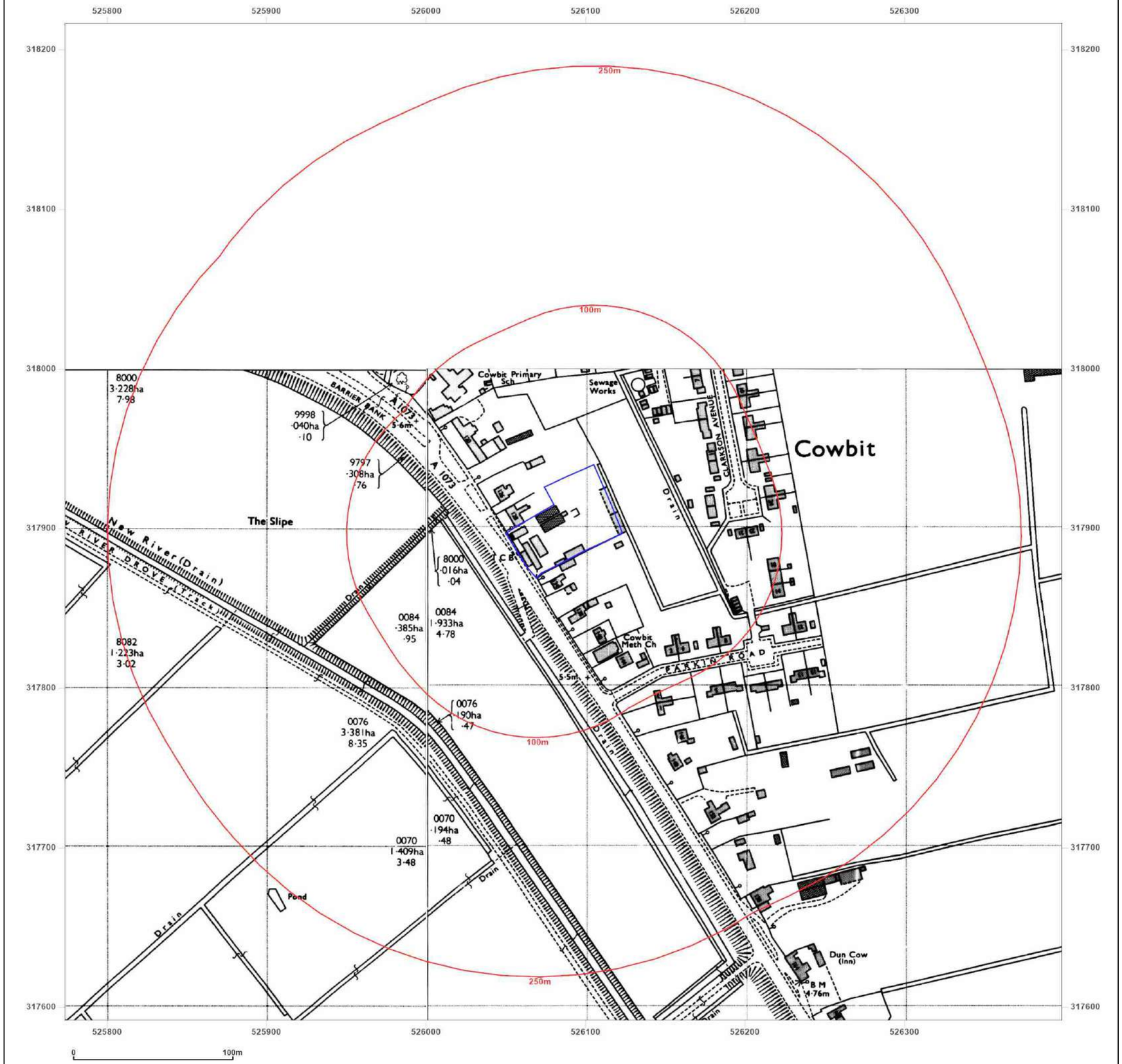
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Site Details:

SITE OFF BARRIER BANK,
COWBIT

Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: National Grid

Map date: **1976**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed N/A
Revised N/A
Edition N/A
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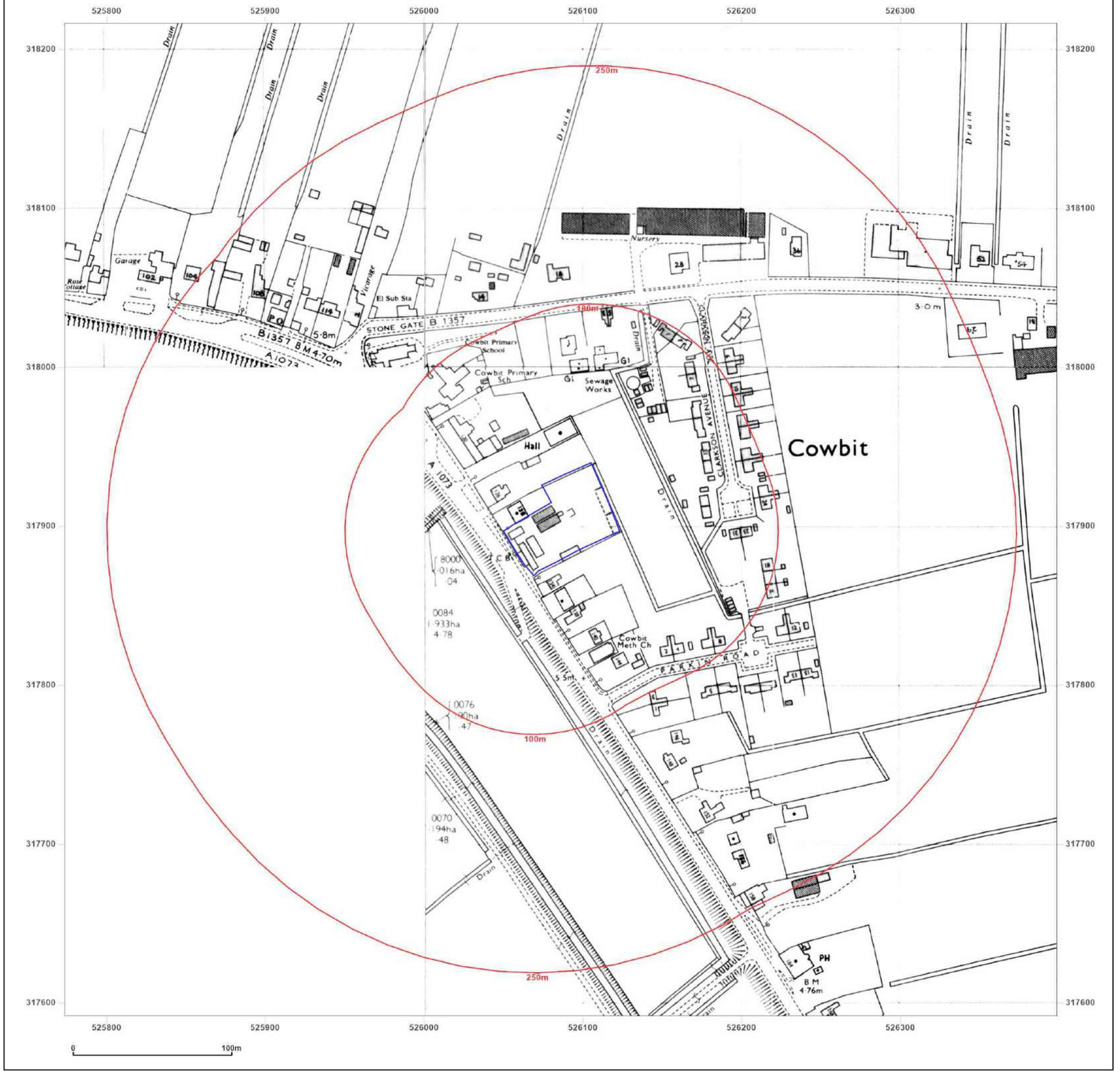
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Site Details:

SITE OFF BARRIER BANK,
COWBIT

Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: National Grid

Map date: **1988-1992**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1992
Revised 1992
Edition N/A
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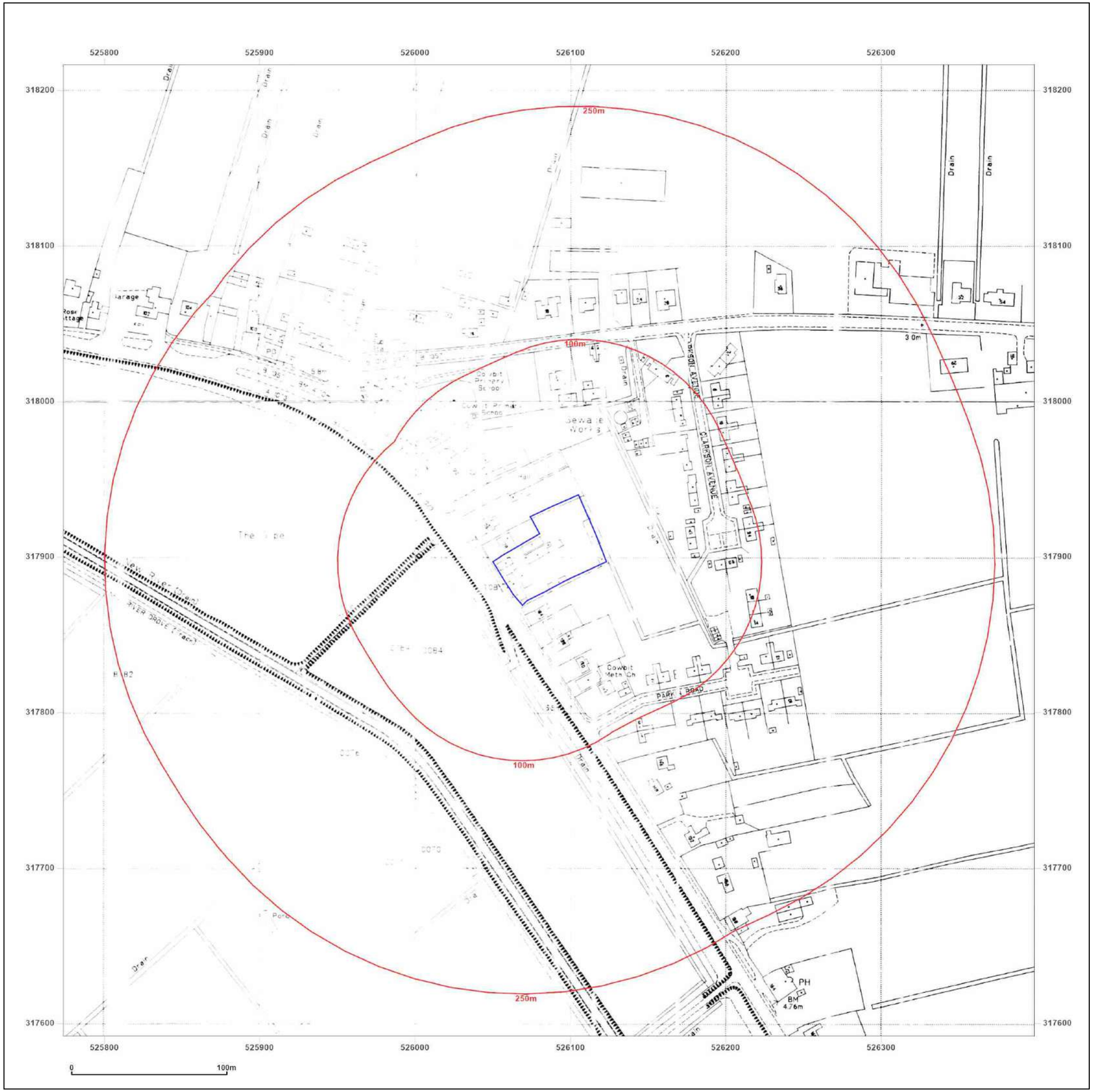
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Site Details:

SITE OFF BARRIER BANK,
COWBIT

Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: National Grid
Map date: **1995**
Scale: 1:2,500
Printed at: 1:2,500

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Revised N/A
Edition N/A
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Edition N/A
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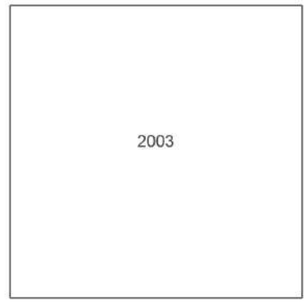
Site Details:

SITE OFF BARRIER BANK,
COWBIT

Client Ref: E22131_Barrier_Bank
Report Ref: GS-8780642
Grid Ref: 526086, 317904

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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