

ENVIRONMENTAL DESK STUDY
AND
PRELIMINARY
RISK ASSESSMENT

Oak Tree Farm
Crawlboys Lane
Ludgershall
SP11 9PL



September 2019

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1 Introduction and objectives

1.1 Introduction

Apple Environmental Limited has been appointed to provide a Phase I environmental desk study report in support of proposal for the demolition of a poultry shed and agricultural store to allow for the erection of five dwellings with access and parking, along with a new agricultural store (Planning Ref. 19/05595/FUL).

1.2 Aim

The principal aim of a Phase I environmental report is to gather the information needed in order to be in a position to assess the presence and/or significance of any land contamination on this site. The resultant information then enables a preliminary risk assessment to be carried out to conclusions in which an acceptable degree of confidence can be placed. These conclusions form the basis of the conceptual site model (CSM), which therefore highlight any potential pollutant linkages at the site based on current and historical use of the land and its immediate surroundings, and if appropriate, proposes further investigation. Any such further investigation will focus on areas currently and previously used for purposes that may give rise to contamination and will take account of land use in the proposed future development, one of the principal goals being the reduction of any uncertainty in the CSM (BSI 10175:2011+A2:2017).

1.3 Objectives

The broad objectives of this report are to obtain information in order to:

- provide information from which likely contaminant-pathway-receptor relationships can be identified;
- evaluate the environmental setting of the site and to identify sensitive receptors;
- assess the likelihood of finding contamination on site, its nature and extent; and
- determine the need or requirements for further investigation, by means of generic or detailed risk assessment.

2 Site history

2.1 Introduction

The site is located in Ludgershall, to the northeast of Salisbury.

2.2 Historical maps

Historical mapping and other archive material has been consulted to ascertain the past use of the site.

1879

The site is currently unoccupied and lies within an open field.

Crawlboys Lane runs in a northwest to southeast direction along the eastern border of the site. The remaining area surrounding the site out to 250m exists as open land with some areas of forest indicated.

1880 - 1942

No significant changes visible within 250m of the site.

1957

A small structure has been constructed 85m to the west of the site, whilst several other small structures have been constructed between 50m and 200m to the south of the site. These appear to be outbuildings of some description.

1972

Two large structures are now present upon the site, labelled as poultry houses, extending the entire length of the site. It appears that these have been partially cut into the land at the rear, as there is an area of earthworks now shown here. This is now labelled as Marlins Farm.

Some other structures, believed to be associated with the poultry sheds are also present between 5m and 15m to the north and northeast of these buildings, one of which is labelled a tank.

Structures have also been constructed to the fairly immediate south of the site, one of which is labelled as The Oak; and presumably a dwelling. The other structures appear to be associated with this dwelling, although exist as elongated outbuildings of some description.

To the south of The Oak there is another building which is unnamed, but which also appears to be a dwelling; to the south of which there are two more dwellings labelled as Marlands and The Bungalow.

1973

No significant changes visible within 250m of the site.

1974

Significant residential development has occurred to the south and southwest of the site.

1978

Residential development continues to the southwest of the site.

1982 - 2001

No significant changes visible within 250m of the site.

2003

A small structure is now located upon the site to the east of the northern-most poultry house.

2019

A small structure is now present on the southwestern section of the site.

2.3 Historical and archaeological records

The town and civil parish of Ludgershall lies at the eastern edge of Salisbury Plain and borders Hampshire. There is first evidence of settlement in the late Bronze Age or early Iron Age at Windmill Down on the western edge of the parish.

Ludgershall Castle was built in the late 11th Century; following which the village grew and became a medieval borough. By 1103, Henry I was in residence in the castle; whereupon it remained in royal ownership until neglect had rendered the building a ruin by the mid 16th Century.

Since the 12th Century there has been a church at Ludgershall, which was granted to Amesbury Priory in 1228 and subsequently united with Biddesden in 1446. At this time Ludgershall was a parliamentary borough which elected two members of parliament to the House of Commons from 1295 until 1832. The borough then lost its representation in Parliament with the passing of the Reform Act, which led to much of the wealth in the town moving away.

In 1882 however, the railway was introduced to the town which brought with it a new skilled work force and opportunities for employment. Ludgershall became a strategic point on the railway line during both World Wars, due to the movement of troops into and out of the camps based on Salisbury Plain.

By the 20th Century, Ludgershall had become well established as a small town supported by the growth of commerce and residential development, as well as through servicing the needs of the nearby army camps. By 1907, banks had opened followed by a bottling works, depots and a number of commercial retail stores.

2.4 Identified historical commercial/industrial sites

Through reference to historical data, there have been no potentially contaminative features located within 250m of the site.

There has been one recorded historical tank within 200m of the site, the nature of which is unspecified, located 22m to the west (dated 1972), and no records of any historical energy features within 200m.

There are also no recorded historical petrol and fuel sites having operated within 200m of the subject site, nor are there any records of historical garages which were once in operation within this same distance. More recent activities within the area have been discussed below in Section 3.2.

3 Current setting

3.1 General

The subject site currently exists as an alpaca farm, operating upon the site of a former poultry farm. The latter consisted of two large poultry sheds which extended the length of the site; one of which remains on-site today, whilst the other was destroyed by fire in 2016. The site is accessed from Crawlboys Lane via an entrance situated at the northern end of the site.

This northern section comprises a tarmacadam surfaced entrance way which extends into a concrete parking area. Adjacent to the parking area is the remaining poultry shed, in front of which there are two grain silos, an oil tank and an IBC containing liquid for vehicle disinfection. These are each positioned upon concrete plinths. There was no ground staining evident.

The remaining poultry shed is constructed from timber with steel panelled roofing, lined internally with hardboard. The flooring within the shed is of concrete construction, and is generally in a good state of repair. The shed is now used for the storage of vehicles, plant, tools, other machinery, and oil.

Adjacent to the western section of the poultry shed there is a stretch of tarmacadam that extends the length of the shed. To the eastern side of the shed there is a soft-landscaped paddock area used for alpaca grazing. This also extends the length of the site, but slopes gradually towards the adjacent road to the east. A small structure used for alpaca stabling is adjoined to the southern end of the poultry shed, and extends into the paddock area. The stable has a timber frame with steel roofing and concrete flooring.

Adjacent to the southern end of the existing poultry barn there is a concrete courtyard which is not expected to have seen any specific use, other than the parking of agricultural vehicles. It is in a reasonable state of repair, with grated drainage present. The concrete cover of the courtyard merges with the concrete base that remains from the demolished shed. The base is in poor condition and removal of the concrete has begun at the southern end, exposing the ground beneath, where hardcore and made-ground was visible. To the south of the demolished shed footprint there are two more grain silos.

A small open-fronted barn is located in the southwestern corner of the site, constructed from concrete-block and timber, with a steel roof. The internal ground surface exists as compressed soil in some areas, and concrete cover in others. The barn currently houses a number of items including a boat, a trailer and a water bowser.

Overall the site is surrounded by open fields, albeit with some residential properties along Crawlboys Lane. Photographs 1 to 11 below show some of the features described above.

Photograph 1 Showing the entrance onto the site from Crawlboys Lane



Photograph 2 Showing the concrete parking area with the grain silos, oil tank and vehicle disinfectant outside the northern end of the existing poultry shed



Photograph 3 Showing the storage inside the existing poultry shed



Photograph 4 Showing the tarmac section to the west of the existing poultry shed



Photograph 5 Showing paddock to east of existing poultry shed



Photograph 6 Showing the courtyard and stable to the south of the existing poultry shed



Photograph 7 Showing the concrete base of the demolished poultry shed from the northern end



Photograph 8 Showing the condition of the concrete base



Photograph 9 Showing the southern section of the concrete base where concrete removal has begun



Photograph 10 Showing the open fronted barn in the southwestern corner of the site



Photograph 11 Showing the soft-landscaped area to the west of the site



3.2 Development surrounding the site

Through reference to environmental datasheets, commercial and industrial activities, as well as other potentially significant features which currently exist within 200m of the site include:

- a generic tank - 40m to the west of the site;
- distribution and haulage services - 186m to the southwest of the site; and
- electrical equipment repair and servicing workshop - 200m to the southwest of the site.

There are no recorded petrol or fuel sites located within 200m of the site.

There are no underground high pressure oil or gas pipes recorded within 500m of the site, nor are there any underground electricity transmission cables within this distance.

Figure 1 below shows the proximity of these highlighted areas.

Figure 1 Location of nearest environmentally sensitive areas



5 Geology

5.1 Bedrock

Geological data states that the underlying geology of the specific area upon which this site lies consists of the Seaford Chalk Formation. This sedimentary bedrock formed approximately 83 to 89 million years ago in the Cretaceous Period when the local environment was dominated by warm chalk seas.

The thickness of this formation at the subject site has not been confirmed.

5.2 Superficial deposits

This bedrock is reported to be overlain by superficial glacial deposits comprising clay, silt, sand and gravel. These deposits were formed up to 3 million years ago during the Quaternary Period.

The depth of these deposits at the subject site has also not been confirmed.

5.3 Artificial deposits

BGS mapping does not record any artificial deposits overlying the geological deposits at this site location; however considering the characteristics of the site it is quite likely that there could be made-ground or at least hardcore present beneath the site surface in some areas.

5.4 Borehole data

British Geological Survey (BGS) borehole data has been consulted for this study.

A single borehole log has been detailed, which is expected to share similar geological strata to that which is present beneath the site.

SU24NE70 refers to a borehole located at The Cedars, Redenham Crossing, some 1.2km to the southeast of the site, which continued to a depth of 60.96m.

The log details chalk and flints to the base of the borehole. Groundwater was recorded at a depth of 33m (bgl).

http://scans.bgs.ac.uk/sobi_scans/boreholes/404157/images/10735236.html

5.5 Soil chemistry

Through reference to available data, the soil in the local area is expected to have an arsenic concentration of less than 15mg/kg, a cadmium concentration of less than 1.8mg/kg, a chromium concentration of 60-90mg/kg, a nickel concentration of 15-30mg/kg and a lead concentration of less than 100mg/kg.

5.6 Radon affected areas

According to the Health Protection Agency (HPA) mapping, the site is located within a radon affected area, as between 1 and 3% of properties are expected to be above the 'Action Level'.

However, through reference to BR211, radon protective measures are not deemed necessary for any new residential development in this area.

5.6 Non-coal mining

According to non-coal mining information provided by the BGS, sporadic underground mining of restricted extent may have occurred. However, the potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered.

6 Hydrology

6.1 Groundwater

The expected geology for the specific area of the site is bedrock of the Seaford Chalk Formation. According to the Environment Agency this bedrock has been classified as a 'Principal' aquifer, with high permeability status. This is designated when there are permeable layers capable of supporting water supplies on a strategic scale.

The superficial deposits overlying the bedrock at the site have been classified as a 'Secondary A' aquifer. This is designated due to permeable layers capable of supporting water supplies at a local scale opposed to a strategic scale.

Through reference to the BGS borehole log detailed it has been reported that groundwater has been identified at a depth of around 33m below ground level within 1500m of the site; however its presence or depth at the site has not been confirmed.

The site lies within an Environment Agency designated Source Protection Zone 3 (SPZ3), which suggests that groundwater could be present at a vulnerable depth in the subject site location.

6.2 Surface water

There are no significant surface water features within 200m of the site.

With regards to the movement of surface run-off at the site, within the paddock areas where there is soft landscaping, surface water would be expected to drain directly into the soil due to the permeable geology.

Conversely, where there is hard surface cover, percolation into the soil will be inhibited. This would result in surface run-off, presumably down-slope in an eastern direction towards the soft-landscaped area or managed by the aforementioned grated drainage within the courtyard.

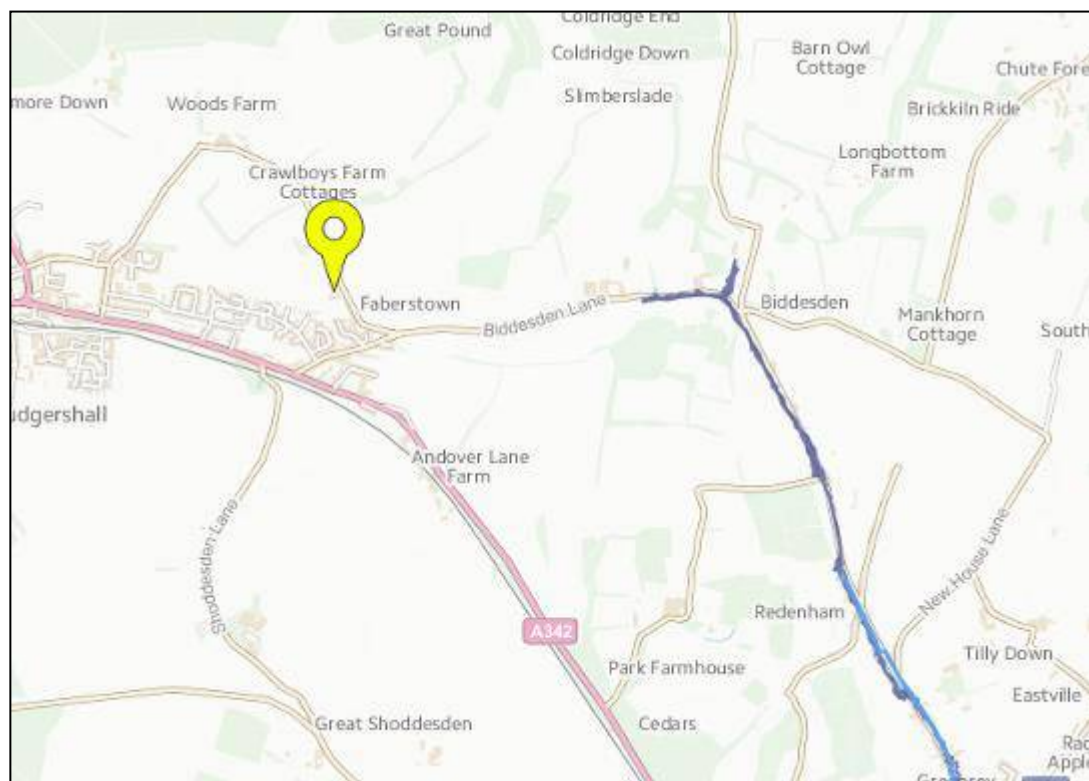
6.3 Flooding

Through reference to Environment Agency flood data the site falls within a designated Flood Zone 1, hence the annual probability of flooding from rivers here overall is deemed to be low.

Figure 2 below shows the presence of the nearest Flood Zones 2 and 3 located approximately 1.6km to the east.

These have been designated due to possible flooding of the River Bourne.

Figure 2 Showing the nearest flood risk areas to the site



Proposed development site

— Flood Zone 2

— Flood Zone 3

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7 Waste and other infilled land

7.1 Landfill

Environment Agency data, environmental datasheets and historical maps referenced during the compiling of the report indicate that there have been no historic landfill sites within 1500m of the site.

7.2 Infill

Records indicate that land infilling has not occurred within the surrounding area, with no features reported within 500m of the site according to the referenced environmental datasheets.

7.3 Other waste facilities

There have been no other recorded waste facilities within 250m of the site.

8 Available contaminated land information

8.1 Statutory contaminated land

Environmental datasheets state that there are no sites determined as Contaminated Land under Part 2A of the EPA 1990 within 500m of the site.

8.2 Planning search

Previous planning applications have been referred to for this area of Ludgershall in order to determine whether or not land contamination had been a material consideration in any corresponding decision notice, and if so, to consider any effect that these sites may have had on the subject site.

Through reference to Wiltshire Council planning records there appears to have been one request for a contaminated land investigation. This was for Parnham Coach Depot, 31 Andover Road, 1km to the southwest of the site, for the redevelopment of a coach depot and adjacent land for 24 three-storey town houses and parking. A Phase I study was undertaken by Contaminated Land Reporting Limited in January 2014, however; this was unavailable for reference at the time of compiling this current report.

8.3 Environmental incidents

Environmental datasheets state that there has been one recorded pollution incident within 250m of the site, which occurred 232m to the southeast of the site, where oils and fuels reportedly had a significant impact to both water and land, and a minor impact to air in May 2002.

8.4 Discharge consents

Environmental datasheets state that there have been no licensed discharge consents recorded within 250m of the site.

9 Conceptual site model

9.1 Sources

This report has identified that the site was unoccupied until at least the 1960s, whereupon two large poultry sheds were constructed. Poultry farming is believed to have continued until 2016. The current use of the site is for alpaca farming.

The northern poultry shed remains, whereas the other was destroyed by fire in 2016. The remaining shed is now used for vehicle and general storage (including the storage of oil); however it has concrete flooring which was seen to be in a reasonable state of repair.

The concrete base from the demolished poultry shed largely remains in-situ and is currently in a poor state of repair. This remaining hard surface has seen recent use for the general parking of vehicles and machinery. The process of removing the concrete base has started at the southern-most point, exposing underlying hardcore and possible made-ground.

The majority of the other structures upon the site also have concrete flooring. The open-fronted barn in the southwestern corner is an exception to this, where there is compressed soil ground cover in one area. The barn is used for the storage of vehicles and machinery, including a bowser.

It has to be considered possible that the former poultry shed and/or other buildings on this farm site could have been constructed using cement-bonded asbestos panelling. As such, the possibility also remains for asbestos fragments or residue to remain in places.

The paddock areas to the east and west of the poultry barns are soft-landscaped, and appear to be primarily used for alpaca grazing. The western section had a trailer parked upon it at the time of the walkover, other than which it did not appear to have any specific use.

The nature of the ground surface in the remaining unoccupied areas of the site varies with sections of tarmacadam, compressed soil and concrete. It is expected to be underlain by hardcore and/or made-ground, at least in some areas.

There is a vehicle disinfection point adjacent to the driveway onto the site. The resultant run-off is expected to have dispersed down-slope towards Crawlboys Lane. The disinfectant is dispensed from an IBC raised upon a concrete plinth.

Another feature to note is the presence of an oil tank in this same location. It is evident that this is a new tank with no noticeable evidence of leaks or spills; however the possibility remains for this to be a replacement tank, and therefore historical leakages and spillages have to be considered, either in this, or another location.

Consideration also has to be given to the fire which led to the destruction of the southern poultry shed. Contamination of the ground may well have resulted from the dispersion of burnt materials, either via air deposition, or via surface water run-off from that which was used to extinguish the fire.

There do not appear to be any off-site activities likely to have had an adverse effect on the site.

In considering these highlighted activities and features, potential contaminants would appear to include the following:

- heavy metals and other inorganics from general activities, and/or fire-water run-off, or possible made-ground or hardcore deposits;
- hydrocarbon residue from the use or storage/use of vehicles, or possible small-scale oil and/or fuel leaks;
- agrochemical residue from the storage or application of pesticides;
- asbestos within made-ground or hardcore, or possible residue following the fire destruction of the former poultry shed and/or from other nearby outbuildings; and
- ground gases from possible made-ground.

9.2 Receptors

The receptors that would need to be considered in this instance are:

- construction workers;
- future site occupiers; and
- buildings, structures and associated services.

The depth of groundwater beneath the site is not known, however in view of the fact that the site lies on a major aquifer it has to be considered possible that groundwater could be at risk from contamination; and therefore it should be considered a viable pathway and receptor in this instance.

9.3 Pathways

The proposal is to redevelop the site for residential use with associated areas of recreational soft landscaping. In considering this, the potential contamination pathways to receptors would appear to include the following:

- direct and indirect ingestion of soil and soil-dust during construction and occupation;
- direct dermal contact with soil and soil-dust during construction and occupation;
- direct inhalation of soil-dust and/or gases during construction and occupation;
- consumption of home-grown vegetables or soil attached to vegetables;
- inhalation or ignition of gases and/or vapours;
- direct contact with main services and building fabric below ground; and
- direct or indirect with groundwater and other off-site media

9.4 Possible pathway linkages

9.4.1 Heavy metals and other inorganics

- Direct and indirect ingestion of soil and dust - contaminated soil may be ingested by construction workers or future occupiers;
- dermal contact with soil and dust - inorganic contaminants may be absorbed through direct contact with contaminated soils by construction workers or future occupiers;
- inhalation of dust - airborne contaminated soil particles could be inhaled by construction workers or future occupiers;
- contact with building materials and services - some inorganic contaminants within the soil may affect the properties of either through direct contact; and
- inorganic contaminants have the potential to become dissolved or suspended within groundwater with the subsequent possibility of dispersion.

9.4.2 Hydrocarbons and other organics (agrochemicals)

- Direct and indirect ingestion of soil and dust - contaminated soil may be ingested by construction workers or future occupiers;
- dermal contact with soil and dust - organic contaminants may be absorbed through direct contact with contaminated soils by construction workers or future occupiers;
- inhalation of dust (indoors and outdoors) - airborne contaminated soil particles could be inhaled by construction workers or future occupiers;
- inhalation vapours - hydrocarbon vapours may be inhaled by construction workers or future occupiers;
- ignition of vapours - hydrocarbon vapours have the potential to be flammable or possibly explosive;
- contact with building materials and services - hydrocarbon residue within the soil may affect the properties of either through direct contact: and
- these organic contaminants have the potential to become suspended within groundwater with the subsequent possibility of dispersion.

9.4.3 Ground gases

- Inhalation - toxic gases may be present due to the breakdown of organic material within any made-ground, such that these could be inhaled by construction workers along with any on or off-site receptors; and
- ignition - explosive and flammable gases may be present due to the possible breakdown of organic material within made-ground.

9.4.4 Asbestos

- Inhalation of dust - airborne fibres may be inhaled by construction workers, or future occupiers.

9.5 Assumptions and uncertainties

9.5.1 Site history

It has been assumed that all uses of the site have been identified. Where there is any uncertainty a precautionary approach will generally have been made.

9.5.2 Geology, surface water and groundwater

It has been assumed that the geological map is representative of the site; however any unexpected variation could affect the risk to groundwater beneath the site (if present). In addition to this, the characteristics pertaining to the groundwater beneath the site are similarly not known. This includes the possible rest level and flow direction, as well as its potential vulnerability.

9.5.3 Contaminants

Although the presence of several contaminants is possible, their nature, location, concentration and mobility are not known.

9.5.4 Pathways

The absence of preferential flow paths such as pipe work, drains and service runs has not been confirmed.

9.5.5 Future site use

The likelihood or details of any future alteration or redevelopment of the site is not known; hence risk can only be ascertained with regard to the proposed layout and use.

9.6 Assessment of risk

The perceived risk associated with identified linkages has been assessed below in Table 1.

The risk algorithm used has been shown below in Figure 3.

Risk has been assessed on the understanding that the site will be developed for residential use with the creation of new soft landscaped recreational areas.

Figure 3 Risk assessment algorithm

Potential severity	Risk rating						Severity of hazard	Probability of hazard	Overall risk
	5	5	10	15	20	25	5 = Fatality	1 = Improbable	1 - 6 Low
	4	4	8	12	16	20	4 = Major	2 = Remote	8 - 12 Moderate
	3	3	6	9	12	15	3 = Minor	3 = Possible	15 - 25 High
	2	2	4	6	8	10	2 = Negligible	4 = Probable	
	1	1	2	3	4	5	1 = None	5 = Certainty	
		1	2	3	4	5			
	Probability						Severity of hazard x probability = risk rating		

Table 1 Perceived risk to receptors

Source(s) identified	Identified pathways	Overall risk	Comments
Possibly heavy metals and other inorganics, hydrocarbons, agrochemicals, asbestos and ground gases	Direct ingestion of soil and soil-dust	12	The likelihood of ingesting soil during construction work, gardening and recreation etc. is low. Ingestion is most likely to be limited to trace quantities through unwashed hands or ingesting airborne dusts etc. However the possibility exists for harmful contaminants to be present, therefore the corresponding risk must be deemed to be moderate at least.
	Dermal contact with soil and soil-dust	12	The potential for touching soil during construction work, gardening and recreation etc. is high. It is possible that some of the identified contaminants could exert a biological effect from absorption through the epidermis, or alternatively be transferred to the mouth. In either instance the extent of uptake is expected to be low, although as the possibility exists for harmful contaminants to be present, the corresponding risk must at least be deemed to be moderate during the construction phase.
	Inhalation of soil-dust (indoors and outdoors)	15	The potential for inhaling soil or airborne soil-derived dust during construction work is high, but low during gardening and recreation etc. Furthermore the possibility exists that amongst other possible contaminants the soil could contain asbestos fibres. In consideration of this the corresponding risk must at least be deemed to be potentially high; especially during the construction phase.
	Ingestion of home-grown vegetables	8	The likelihood of ingesting harmful levels of contaminants from either home-grown vegetables or from soil attached to these vegetables is low. However the possibility exists for harmful contaminants to be present, therefore the corresponding risk must at least be deemed to be low-moderate.

Table 1 (Cont.) Perceived risk to receptors

Source(s) identified	Identified pathways	Overall risk	Comments
Possibly heavy metals and other inorganics, hydrocarbons, agrochemicals, asbestos and ground gases	Inhalation of gases or vapours (indoors and outdoors)	12	There is a possibility that hydrocarbon residue could be present, such that this could become a hazard through inhalation or ignition. It is also possible that made-ground deposits could be present at the site, such that these could be generating methane and carbon dioxide; although there is little evidence to suggest that significant quantities of either will be present. However, for precautionary reasons the risk must at least be deemed to be moderate due to uncertainties.
	Ignition of gases or vapours (indoors and outdoors)	12	
	Direct contact with buildings	8	Some substances such as hydrocarbons can potentially present a significant risk to building fabric or underground services. It has been highlighted above that the potential exists for these to be present, however it is doubtful that the identified activities will have resulted in any great amount of residual ground contamination here, however for precautionary reasons the risk is deemed to be low-moderate due to unknowns.
	Contact with groundwater and other off-site media	8	It has been noted that the site lies above a principal aquifer, with the possibility that groundwater could be present at a vulnerable depth. For precautionary reasons the risk to groundwater and off-site receptors must at least be considered low-moderate due to these unknowns.

10 Summary and recommendations

10.1 Summary

This report has been prepared in support of the proposal for the demolition of a poultry shed and agricultural store and the erection of five new dwellings with access and parking, and the erection of a new agricultural store. It has noted that prior to the 1960s there appeared to be no identifiable historical use of the site, until it became a poultry farm. The site is now an alpaca farm.

The site originally consisted of two large poultry sheds, however following a destructive fire in 2016, only one of these sheds remains. It is currently used for vehicle and general storage. Only the concrete base remains of the shed destroyed by fire.

In considering the uses and features of the site, it has been concluded that there is some potential for ground contamination to be present; in addition to which it is expected that at least some areas of the site could be underlain by made-ground. It has further been concluded the presence of former structures at the site, in conjunction with possible made-ground, could have resulted in some degree of asbestos residue.

In addition to these possible sources of contamination, the conceptual site model has highlighted a number of potential pollutant linkages present such that these could link contamination to identified receptors; namely construction workers, future building occupiers, building fabric and underground services, and groundwater.

The majority of these linkages could be created by means of groundworks undertaken during the construction phase of the proposed development, and through the likely introduction of soft landscaped recreational areas. The linkage to groundwater in some parts of the site is considered to have been a long-standing possibility.

10.2 Recommendations

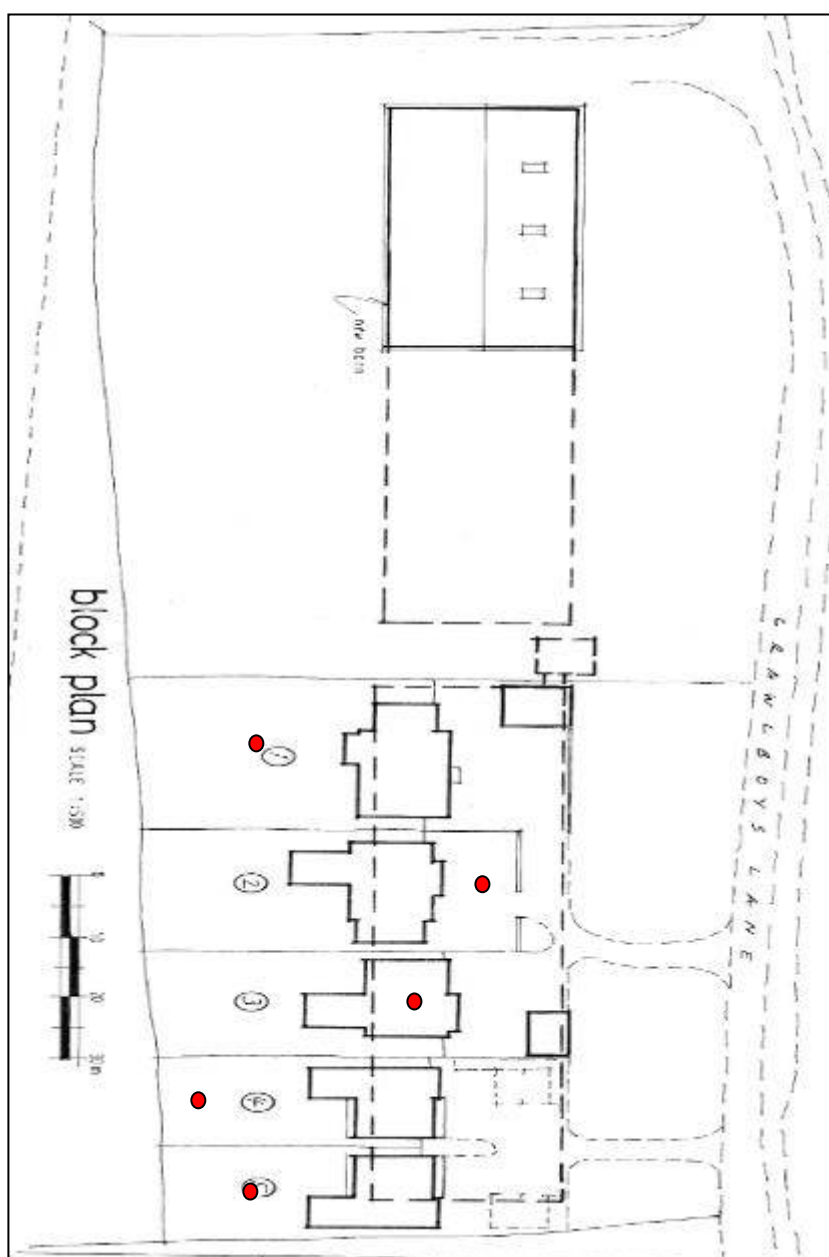
In view of the above conclusion further assessment of risk would need to be undertaken, in the form of an intrusive site investigation.

This should concentrate on areas where there could potentially be some unacceptable risk, focusing mainly on the proposed gardens areas, although potential linkages into proposed dwellings must also be considered.

In doing so, it is recommended that the sub-surface is physically characterised to a depth of at least 1000mm below the surface in a minimum of 5 locations, as approximately indicated below in Figure 4, in order to determine the nature of the sub-surface material, and the absence or presence of made-ground.

Representative soil samples should (at least) be obtained from each of these locations at depths of 100 - 200mm and 500 - 600mm below the surface; thereby assessing both the direct and indirect soil contact zones. Samples should be analysed for the determinands highlighted in the conceptual model.

Figure 4 Proposed soil sampling locations



In characterising the nature of the ground beneath the surface; more specifically the presence and depth of any made-ground/hardcore deposits, the conceptual site model (CSM) and perceived risk should be reviewed, in order to determine whether or not additional soil sampling is required, or ground gas monitoring should be considered.

If the nature of any made-ground present is such that methane or carbon dioxide generation is likely, then a representative number of gas wells may need to be introduced, and appropriate monitoring undertaken.

Finally it is recommended that an informal observation strategy should be put in place during all ground-works that may take place as part of this redevelopment.

Care should be taken during the working of the site to investigate any soils, which are suspected by sight, odour or suspicion, to be contaminated. In the event of any discovery of potentially contaminated soils or materials, the location, type and quantity should be recorded, and the contaminated land officer at Wiltshire Council notified immediately. Approval should be sought prior to continuing groundworks or implementing any mitigation.

The findings from such an investigation should allow any uncertainties or presumptions within the conceptual site model to be readdressed, and the risk reassessed accordingly.

11 Limitations

The results, comments and recommendations within this report are based upon the information made available at the time of undertaking this work, and relate to this specific work only. They must not be used to assess similar concerns at any other time, or at any other location.

Furthermore it should be pointed out that Apple Environmental Limited has been contracted to provide an objective preliminary risk assessment only, and as such has made every effort to achieve this aim.

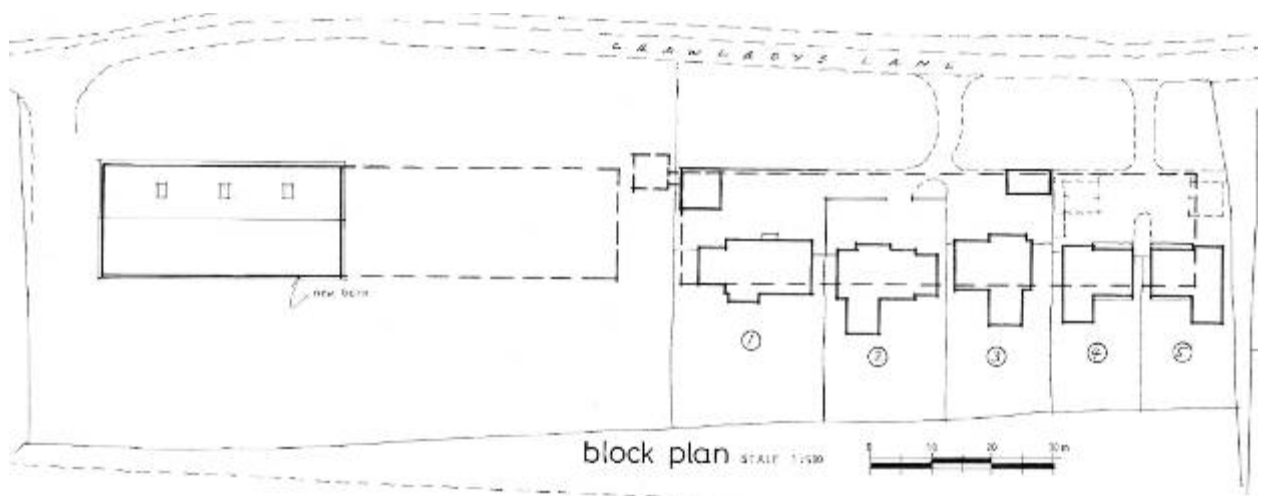
Apple Environmental Limited will not be held responsible for the accuracy of information quoted from third party sources, and furthermore will not be held responsible for any subsequent outcomes arising from the implementation of recommendations herein based on this information.

12 References and other sources of information

1. Investigation of potentially contaminated sites - code of practice (BSI 10175:2011+A2:2017)
2. Groundsure EnviroInsight - historical mapping and environmental data report.
3. Natural England Nature on the map:
<http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx>.
4. British Geological Survey website: <http://www.bgs.ac.uk>.
5. Environment Agency website:
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6. https://en.wikipedia.org/wiki/Ludgershall,_Wiltshire
7. <https://www.ludgershall-tc.gov.uk/history-of-ludgershall/>
8. <https://www.british-history.ac.uk/vch/wilts/vol15/pp119-135>

APPENDIX I

Proposed site plan



APPENDIX II

Historical maps

Site Details:

OAK TREE FARM, CRAWLBOYS
LANE, LUDGERSHALL, SP11
9PL

Client Ref: CL-2812-OAK
Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: County Series

Map date: 1880

Scale: 1:2,500

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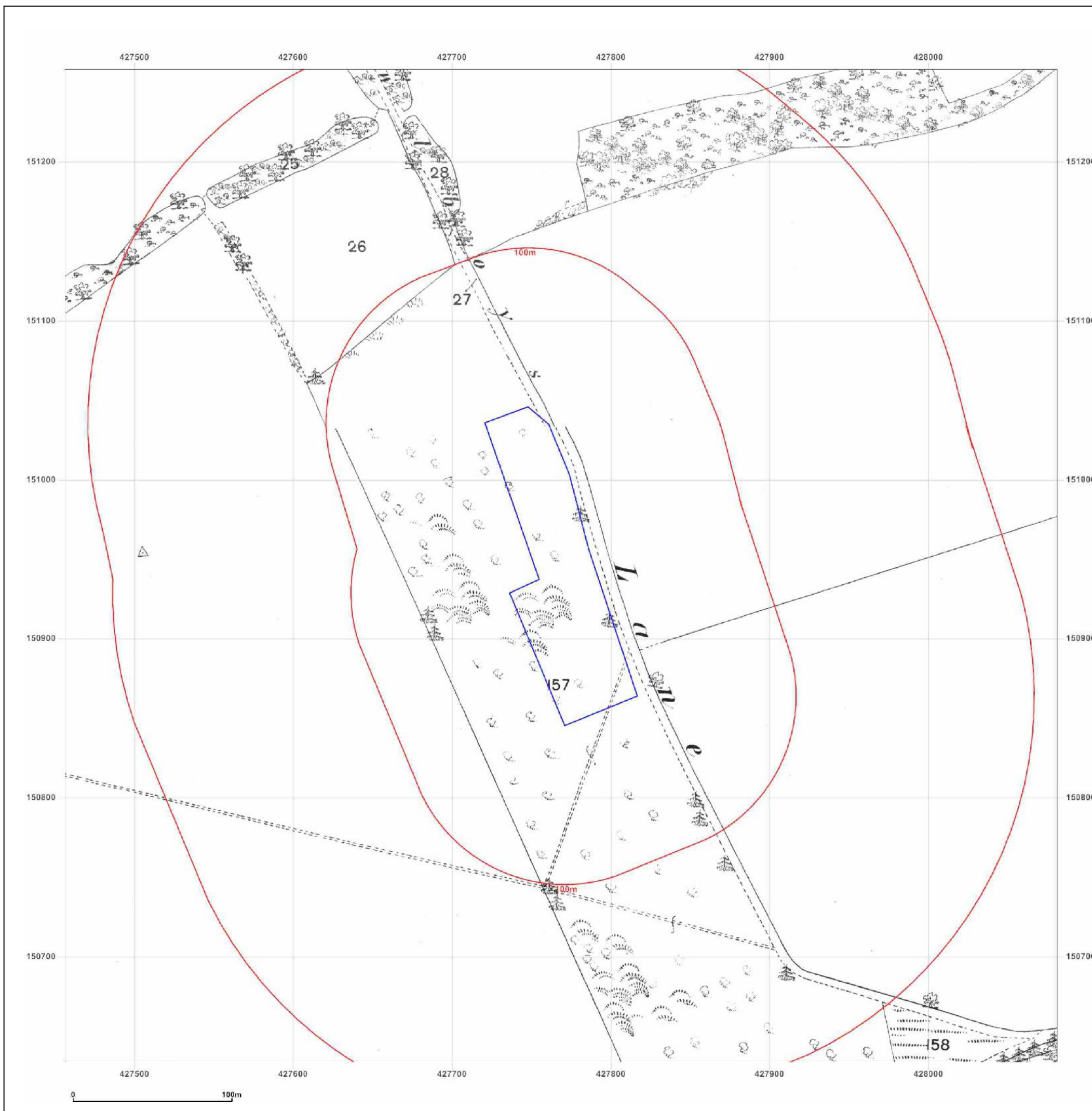


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LANE, LUDGERSHALL, SP11
9PL

Client Ref: CL-2812-OAK
Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: County Series

Map date: 1896-1900

Scale: 1:2,500

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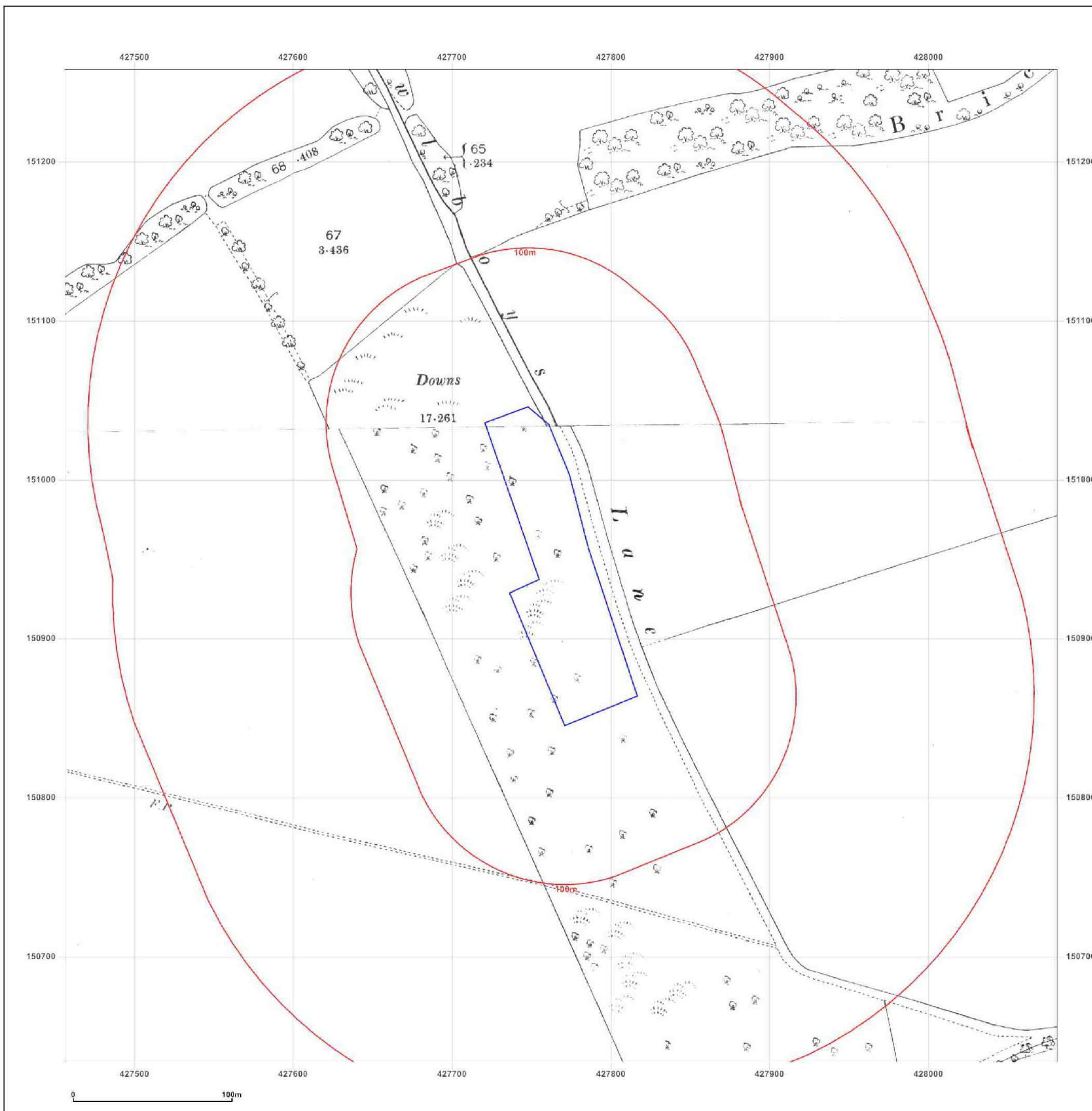


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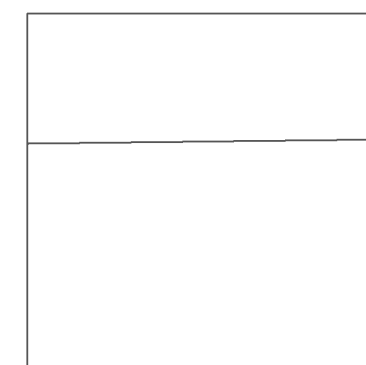
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Grid Ref: 427768, 150946

Map Name: County Series

Map date: 1910

Scale: 1:2,500

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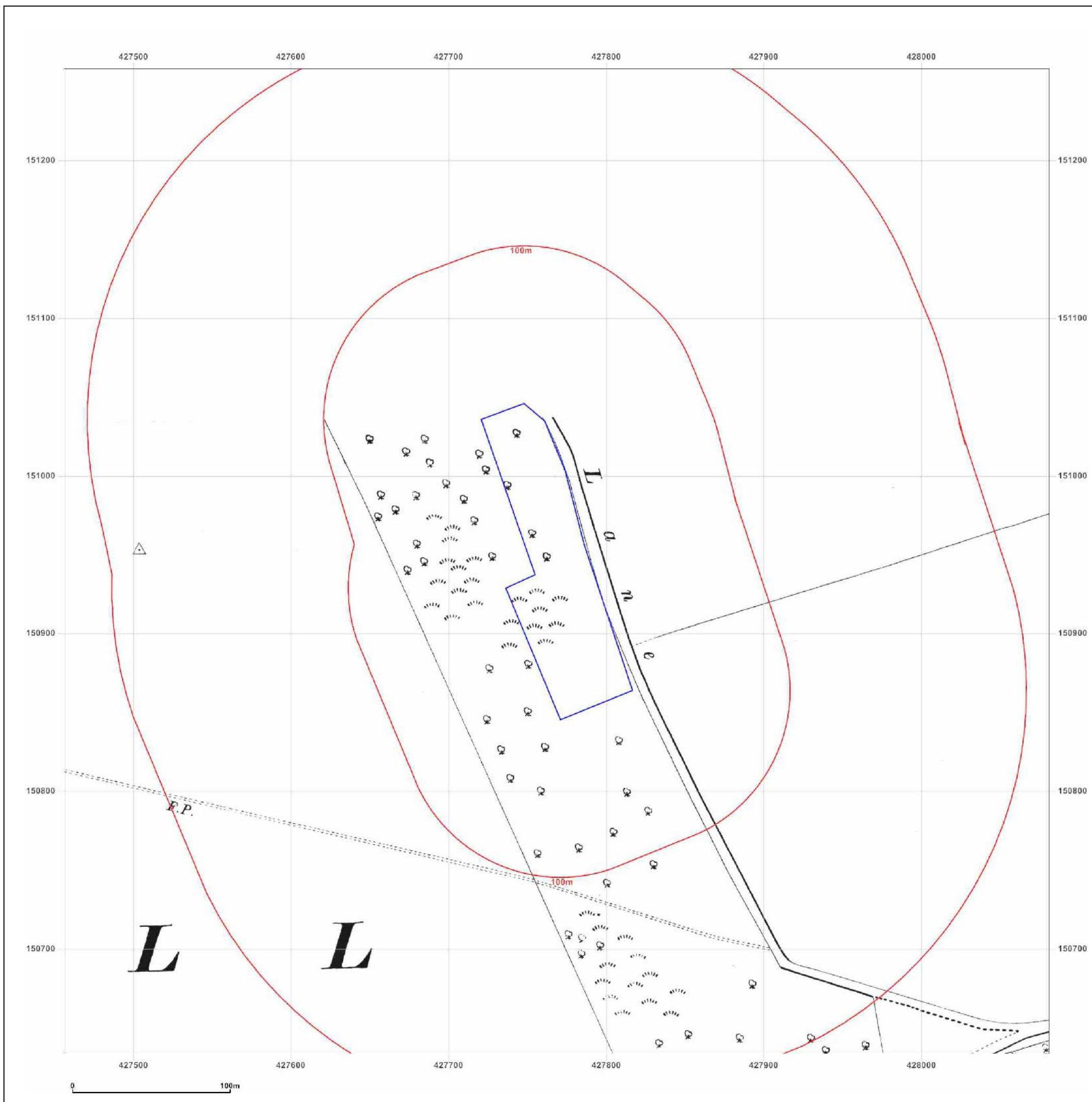


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9PL

Client Ref: CL-2812-OAK
Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: County Series

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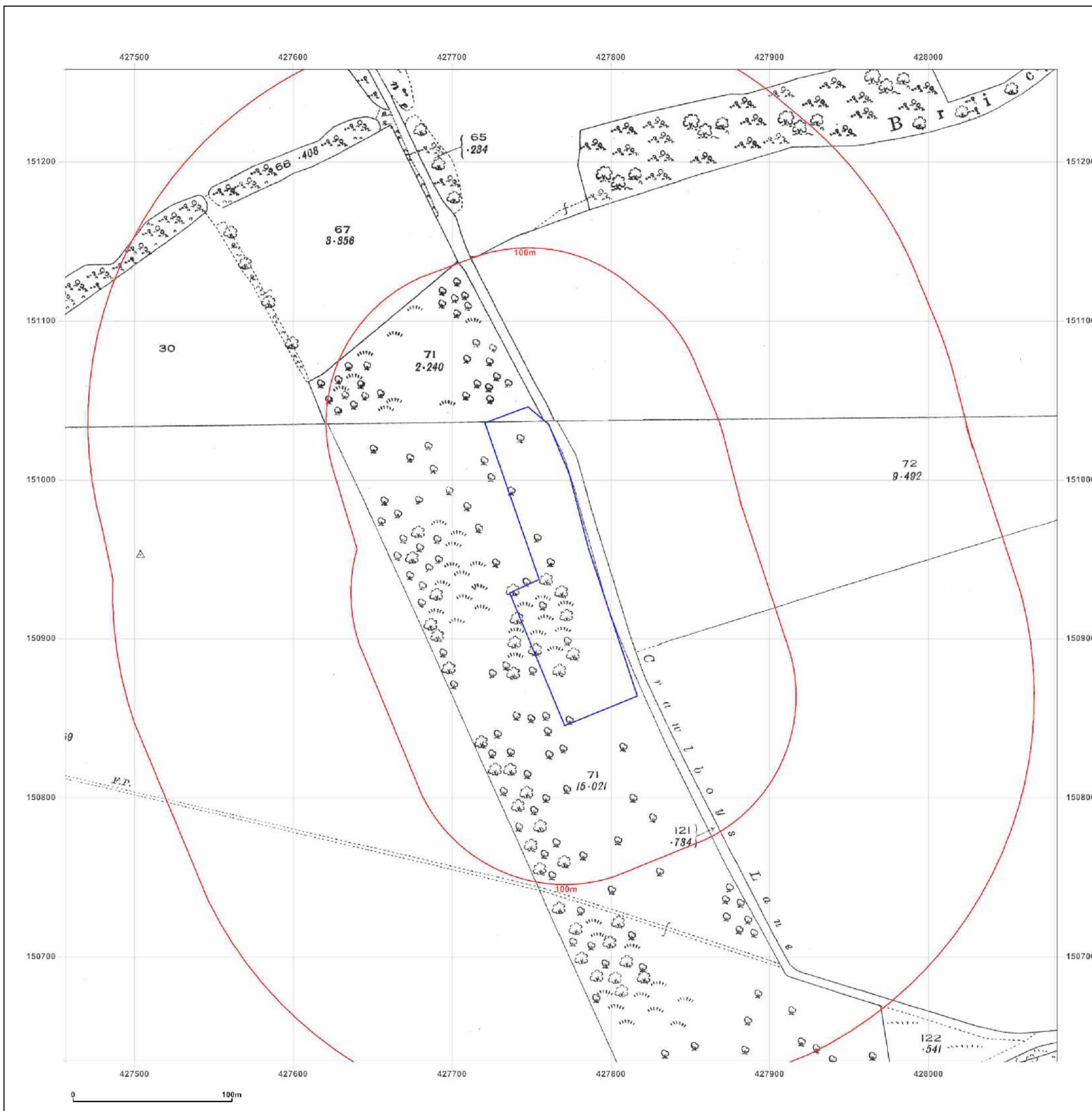


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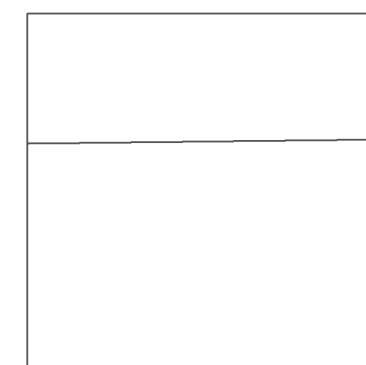
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Map Name: County Series

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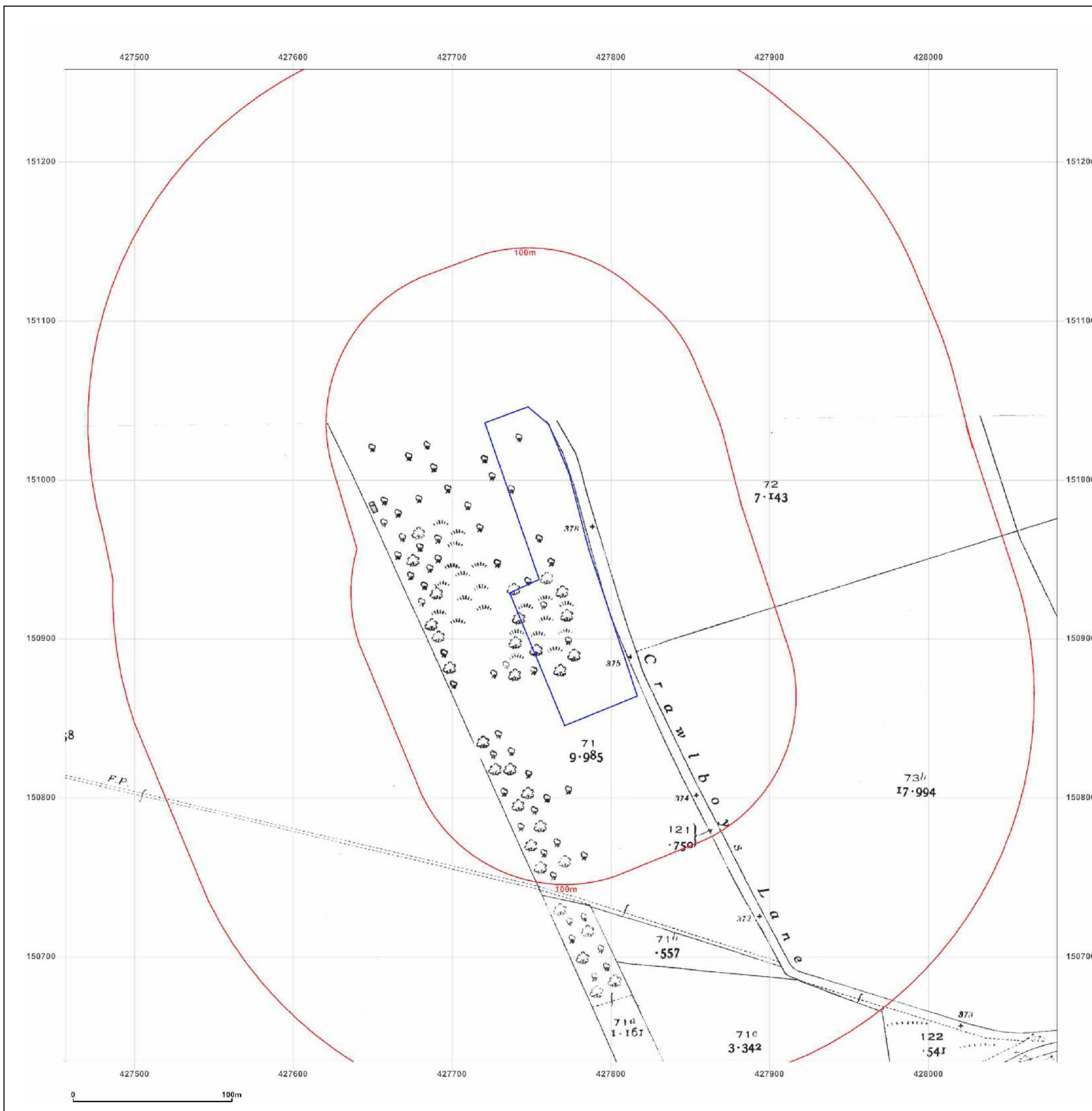


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LANE, LUDGERSHALL, SP11
9PL

Client Ref: CL-2812-OAK
Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: National Grid

Map date: 1970-1972

Scale: 1:2,500

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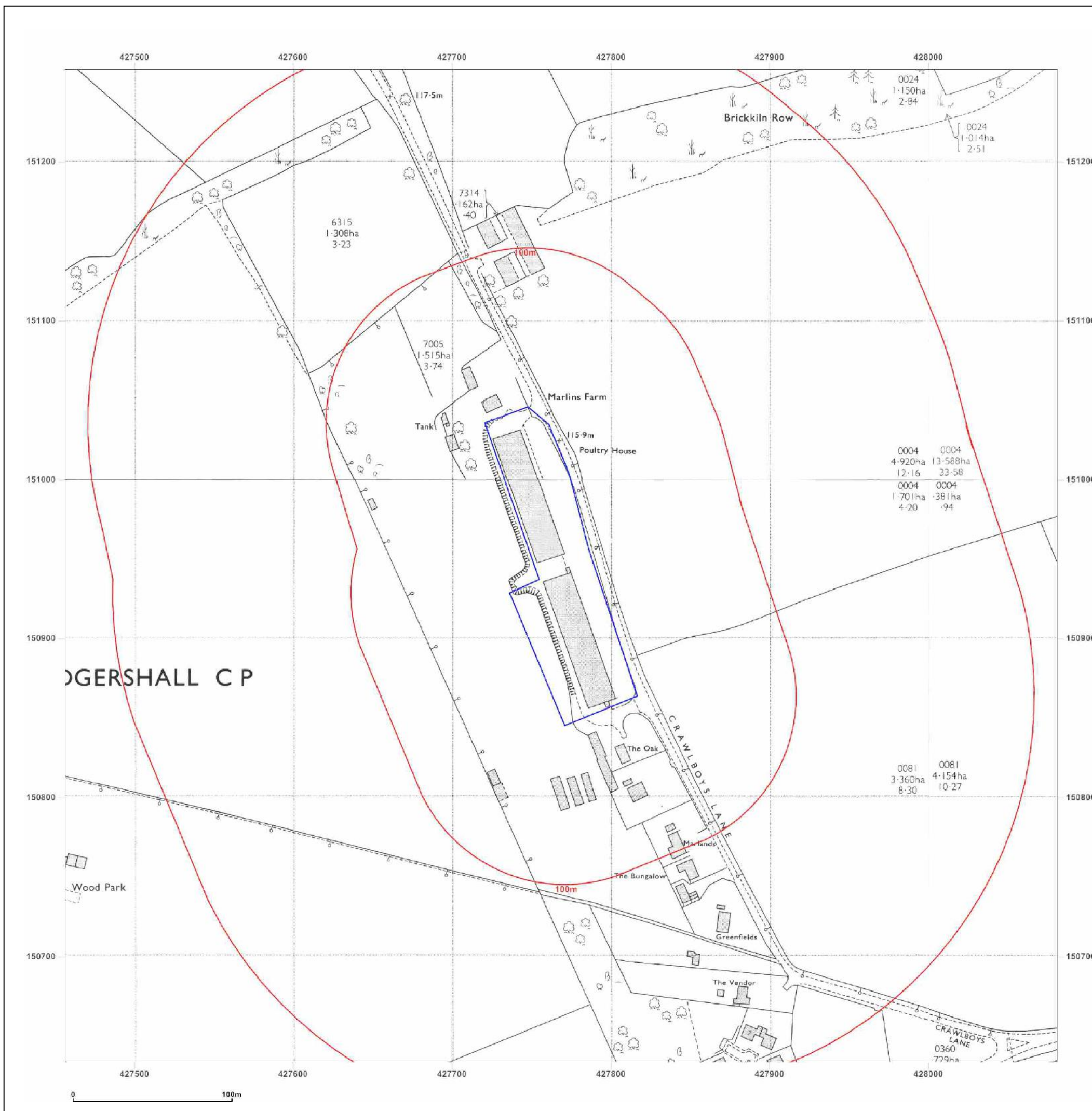


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9PL

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Grid Ref: 427768, 150946

Map Name: National Grid

Map date: 1971-1973

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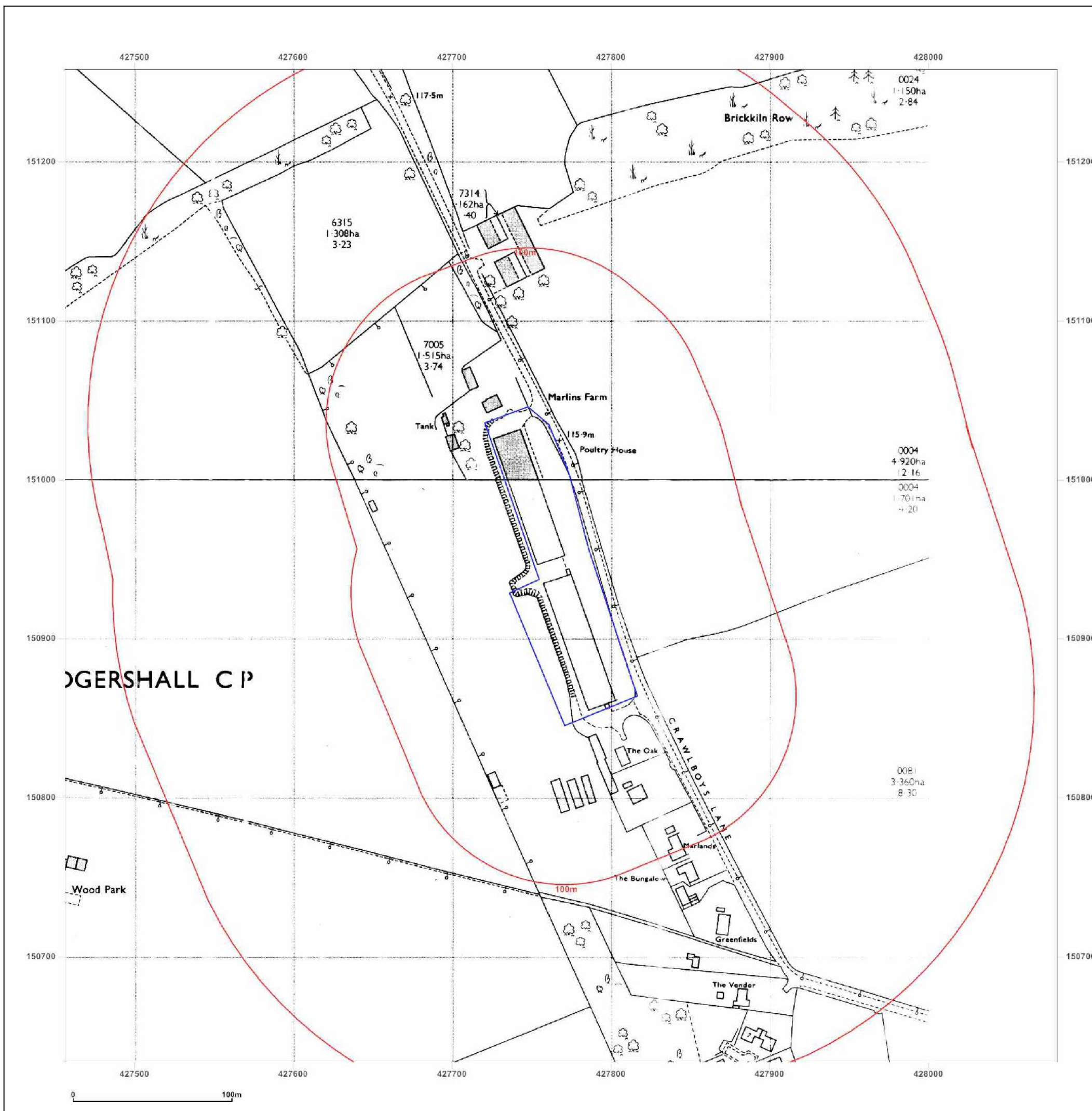


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Client Ref: CL-2812-OAK
Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: National Grid

Map date: 1974

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Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: National Grid

Map date: 1977

Scale: 1:2,500

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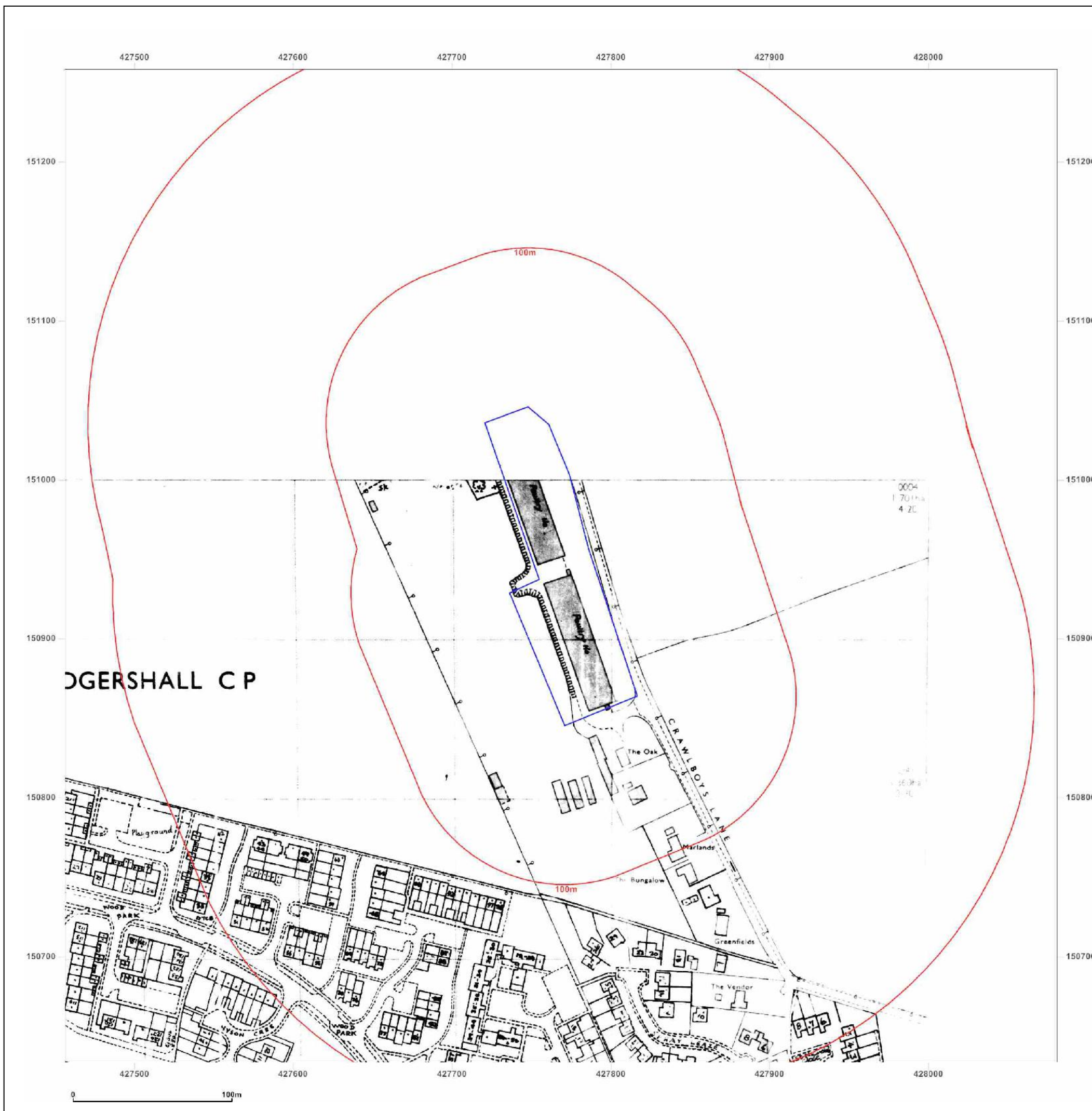


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9PL

Client Ref: CL-2812-OAK
Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: National Grid

Map date: 1982

Scale: 1:2,500

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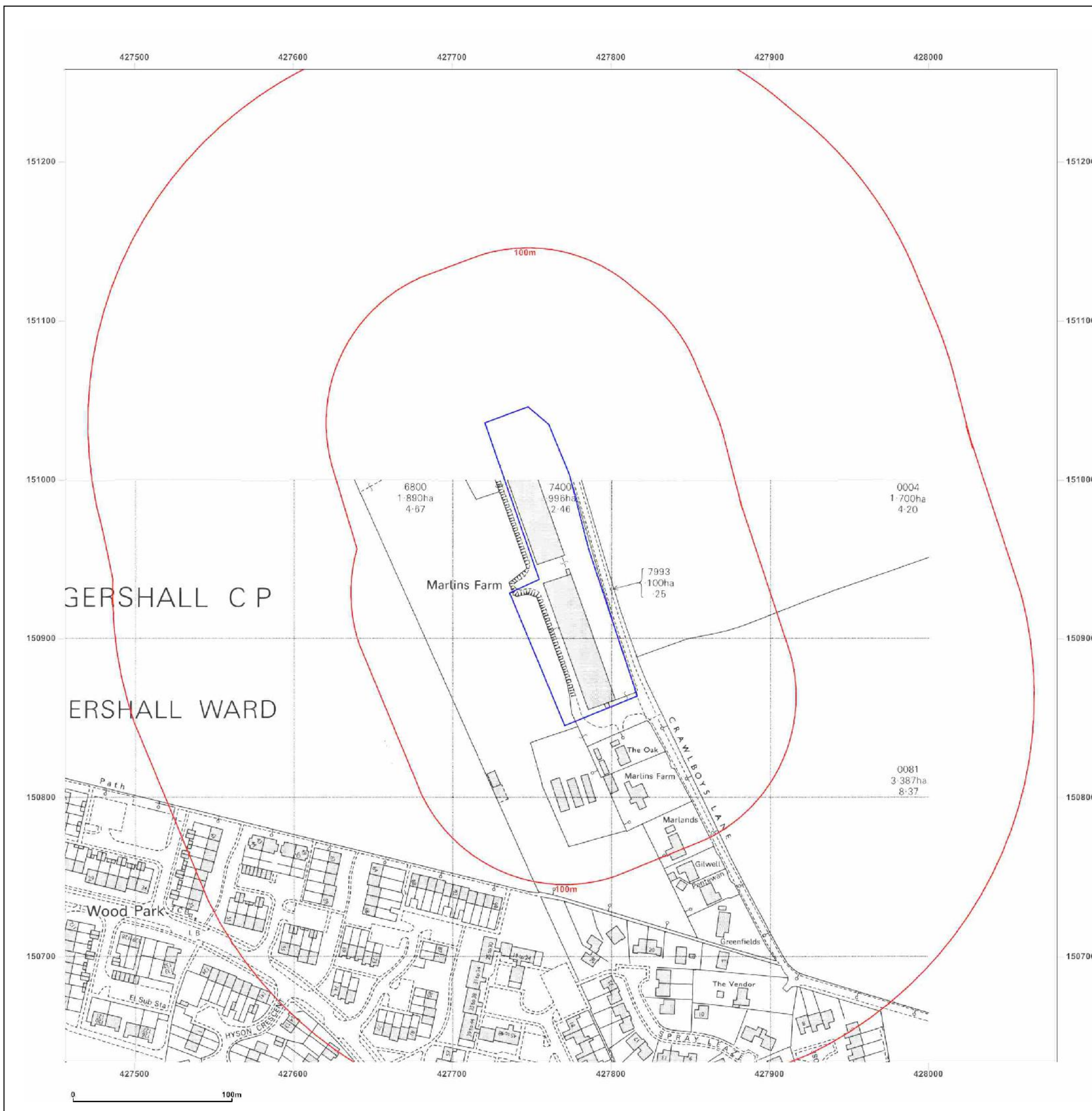


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Report Ref: GS-6294384
Grid Ref: 427768, 150946

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Printed at: 1:2,500



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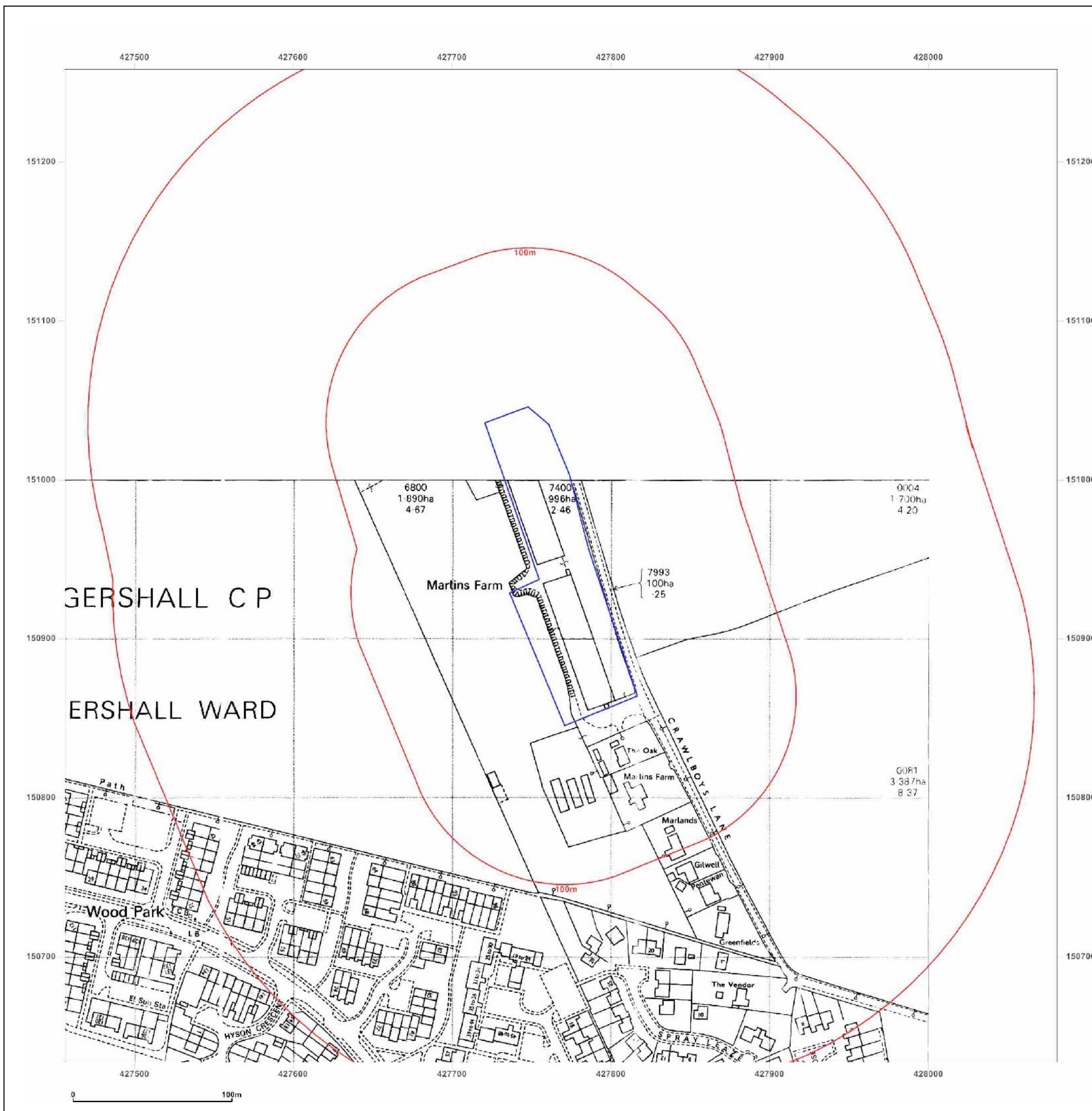


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9PL

Client Ref: CL-2812-OAK
Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: National Grid

Map date: 1992

Scale: 1:2,500

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Edition N/A
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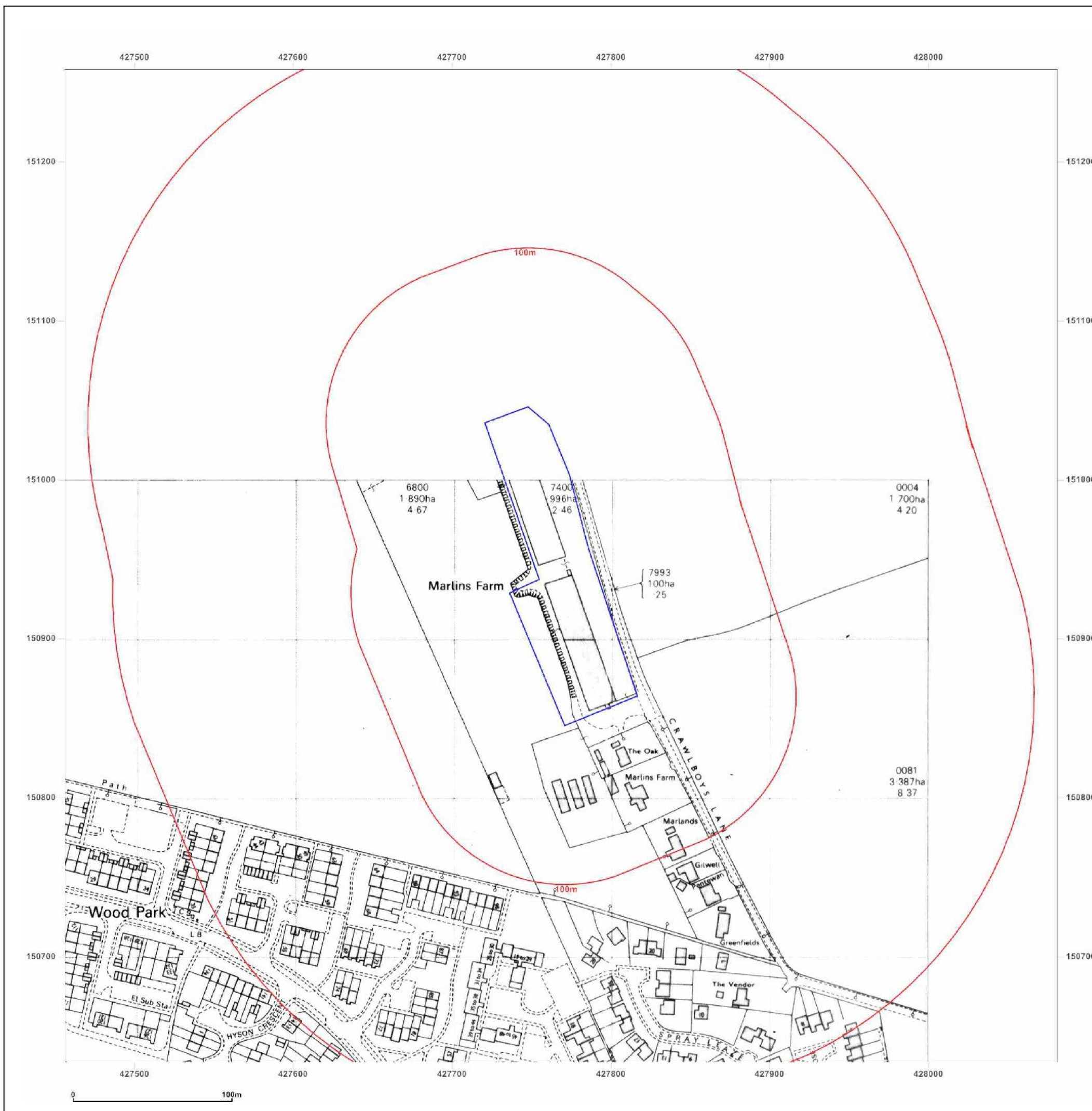


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9PL

Client Ref: CL-2812-OAK
Report Ref: GS-6294384
Grid Ref: 427768, 150946

Map Name: National Grid

Map date: 1994

Scale: 1:2,500

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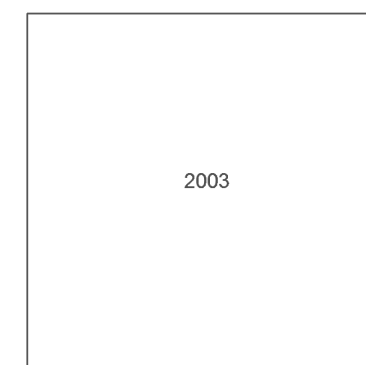
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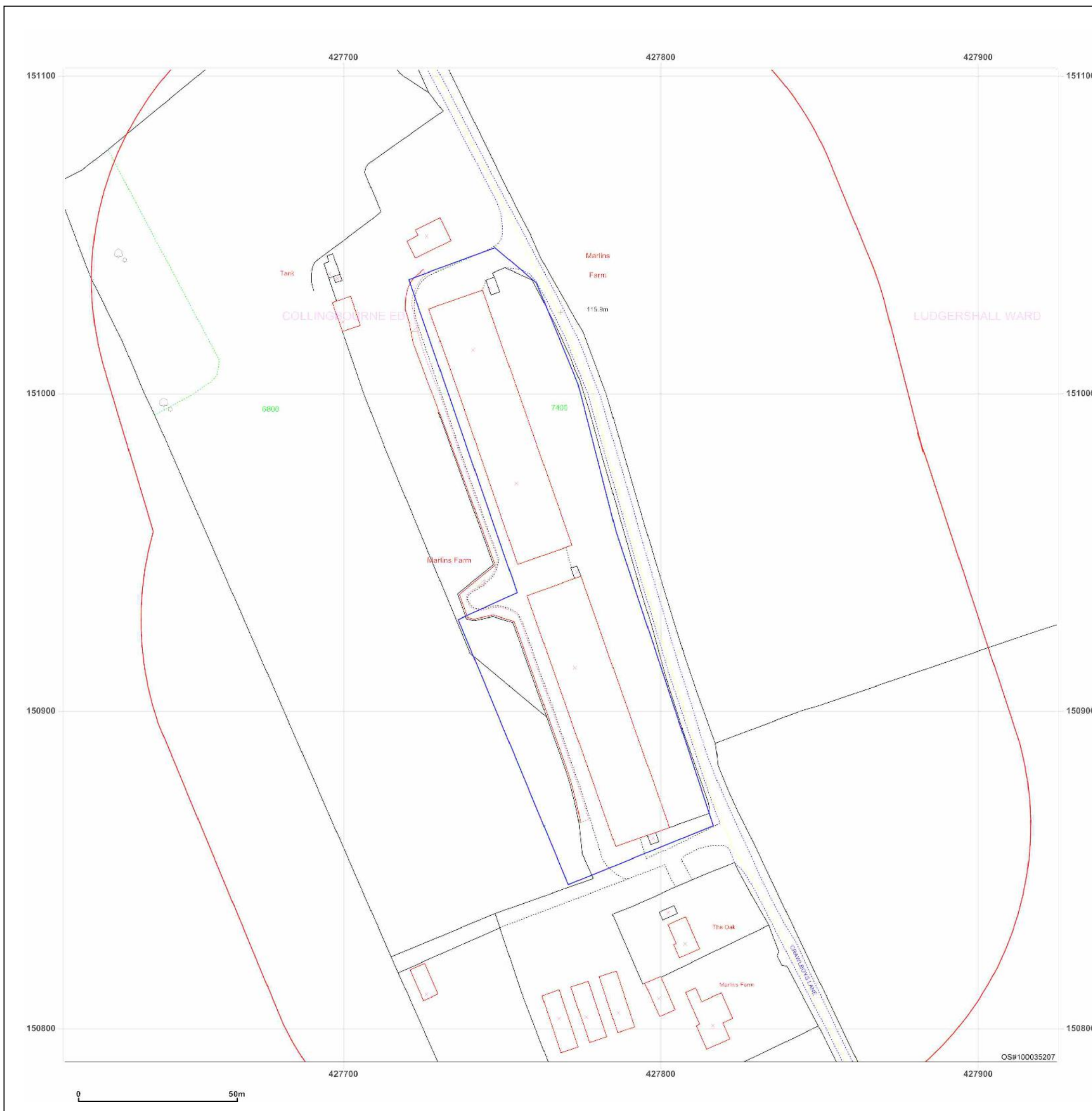


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APPENDIX III

Environmental datasheets

Address: OAK TREE FARM, CRAWLBOYS LANE, LUDGERSHALL, SP11 9PL
Date: 6 Sep 2019
Reference: GS-6294382
Client: Apple Environmental Ltd



Aerial Photograph Capture date: 28-Aug-2017
Grid Reference: 427772,150943
Site Size: 0.8676ha

Report Reference: GS-6294382
Client Reference: CL-2812-OAK

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Overview of Findings

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Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	0	14
1.2 Additional Information – Historical Tank Database	0	1	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	2	8
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	0	12
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	2	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	1	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	4	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	1	3	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	1
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology				0-500m		
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site				Identified		
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site				Identified		
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	1	0	8
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	1	0	2
6.6 Source Protection Zones (within 500m of the study site)	1	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	1	0	0	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	0	2	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Environment Agency Zone 2 floodplains within 250m of the study site	None identified					
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified					
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low					
7.4 Flood Defences within 250m of the study site	None identified					
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified					
7.6 Areas used for Flood Storage within 250m of the study site	None identified					
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Limited potential					
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	High					

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	2	11
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	1	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	2	0	0	0	2	0
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards	
9.1 Maximum risk of natural ground subsidence	Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Very Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Low
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	Identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

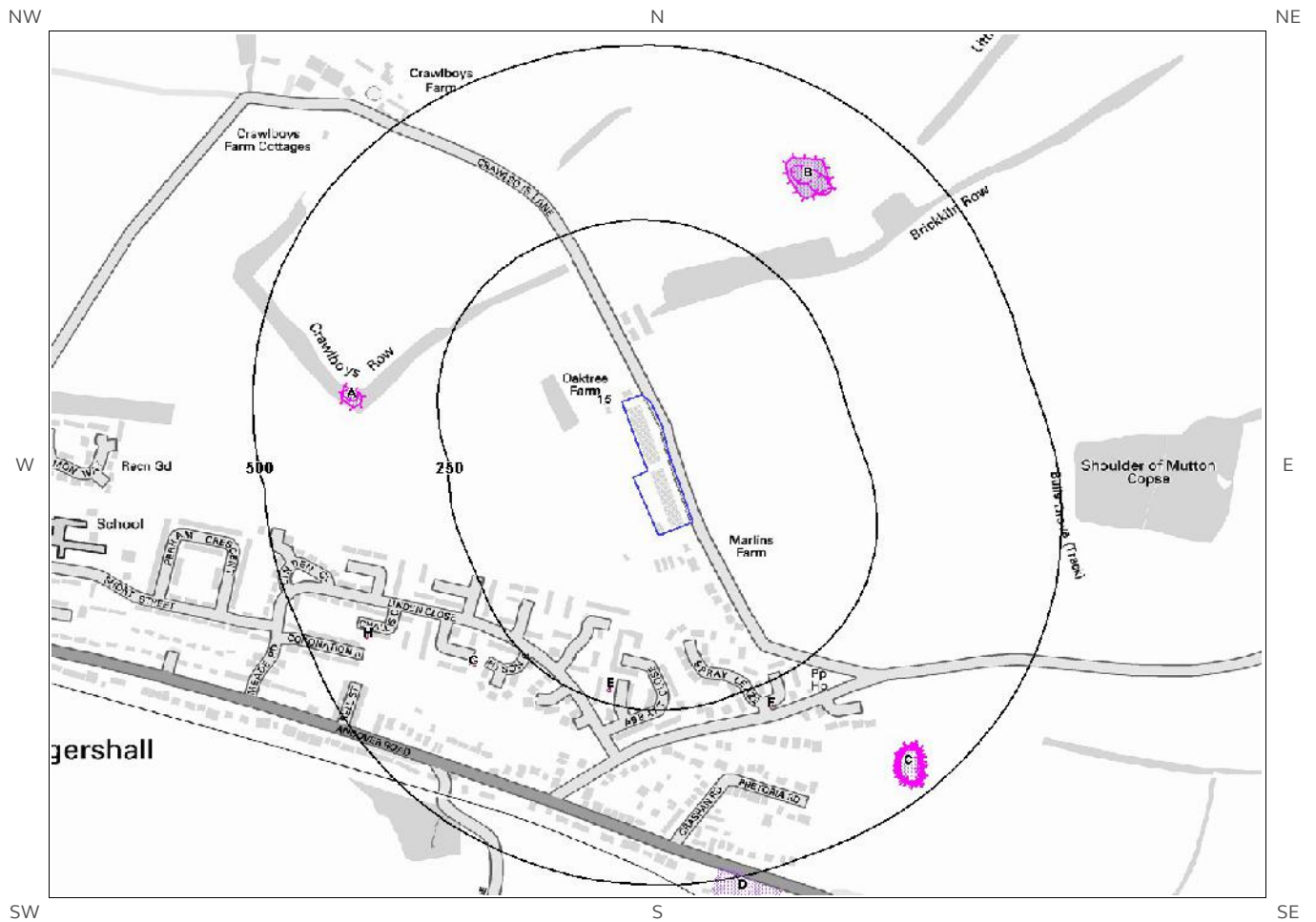
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



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Site Outline

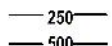
Historical 1:10,000 and 1:10,560 scale mapping



Industrial Land Use



Potentially Infilled Land



Search Buffers (m)

Historical 1:2,500, 1:1,250 and 1:500 scale mapping



Energy Features



Petrol Stations



Historical military sites



Tanks



Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 14

ID	Distance [m]	Direction	Use	Date
1A	353	W	Unspecified Disused Pit	1976
2B	357	NE	Unspecified Disused Pit	1976
3A	358	W	Unspecified Pit	1879
4B	369	NE	Unspecified Pit	1879
5C	429	SE	Unspecified Pit	1957
6C	430	SE	Unspecified Pit	1873
7C	431	SE	Old Chalk Pit	1888
8C	432	SE	Unspecified Pit	1926
9C	433	SE	Unspecified Pit	1901
10C	434	SE	Unspecified Pit	1909
11C	434	SE	Old Chalk Pit	1894
12C	436	SE	Unspecified Pit	1879
13D	482	S	Unspecified Works	1957
14D	485	S	Water Works	1926

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 1

ID	Distance (m)	Direction	Use	Date
15	22	W	Unspecified Tank	1972

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 10

ID	Distance (m)	Direction	Use	Date
16E	223	S	Electricity Substation	1982
17E	231	S	Electricity Substation	1992
18F	280	S	Electricity Substation	1992
19F	281	SE	Electricity Substation	1982
20F	281	SE	Electricity Substation	1970
21G	308	SW	Electricity Substation	1992
22G	309	SW	Electricity Substation	1982
23H	417	SW	Electricity Substation	1992
24H	418	SW	Electricity Substation	1970
25H	418	SW	Electricity Substation	1982

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary:

0

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site:

12

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
26A	353	W	Unspecified Disused Pit	1976
27B	357	NE	Unspecified Disused Pit	1976
28A	358	W	Unspecified Pit	1879
29B	369	NE	Unspecified Pit	1879
30C	429	SE	Unspecified Pit	1957
31C	430	SE	Unspecified Pit	1873
32C	431	SE	Old Chalk Pit	1888
33C	432	SE	Unspecified Pit	1926
34C	433	SE	Unspecified Pit	1901
35C	434	SE	Unspecified Pit	1909
36C	434	SE	Old Chalk Pit	1894
37C	436	SE	Unspecified Pit	1879



2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

2

The following Part A(1) and IPPC Authorised Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
4A	75	S	427810 150780	Operator: OAKTREE FARM Installation Name: OAKTREE POULTRY FARM EPR/NP3337MU Process: ASSOCIATED PROCESS Permit Number: NP3337MU Original Permit Number: NP3337MU EPR Reference: - Issue Date: 27/07/2007 Effective Date: 01/08/2007 Last date noted as effective: 2019-08-01 Status: EFFECTIVE
5A	75	S	427810 150780	Operator: OAKTREE FARM Installation Name: OAKTREE POULTRY FARM EPR/NP3337MU Process: INTENSIVE FARMING; > 40,000 POULTRY Permit Number: NP3337MU Original Permit Number: NP3337MU EPR Reference: - Issue Date: 27/07/2007 Effective Date: 01/08/2007 Last date noted as effective: 2019-08-01 Status: EFFECTIVE

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

0

Database searched and no data found.

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

1

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1	232	SE	427927.0 150660.0	Incident Date: 13-May-2002 Incident Identification: 78386.0 Pollutant: Oils and Fuel Pollutant Description: Kerosene and Aviation Fuel Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

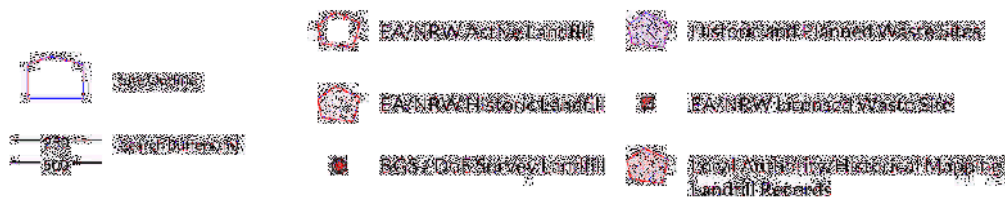
Database searched and no data found.

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

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site

0

Database searched and no data found.



3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

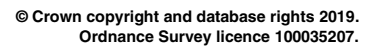
Database searched and no data found.

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

4

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	660	S	428040 150242	Site Address: Andover Road, Ludgershall, Hampshire, SP11 9PE Type: Vehicle Depollution Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TES002 EPR reference: EA/EPR/FB3108CS/A001 Operator: Test Valley Car Breakers Limited Waste Management licence No: 404030 Annual Tonnage: 499999.0 Issue Date: 07/06/2018 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Test Valley Car Breakers Correspondence Address: -
Not shown	661	S	428009 150229	Site Address: Shamrock Works, Andover Road, Ludgershall, Andover, Hampshire, SP11 9PD Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ACB002 EPR reference: EA/EPR/NB3431RD/V002 Operator: Lane Glen Waste Management licence No: 19833 Annual Tonnage: 5000.0 Issue Date: 25/10/1993 Effective Date: 26/03/2014 Modified: 17/06/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Andover Car Breakers Correspondence Address: -
Not shown	661	S	428009 150229	Site Address: Shamrock Works, Andover Road, Faberstown, Andover, Hampshire, SP11 9PE Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TYE001 EPR reference: EA/EPR/LP3092HC/A001 Operator: Tye David Keith Mr Waste Management licence No: 19833 Annual Tonnage: 520.0 Issue Date: 25/10/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Andover Car Breakers Correspondence Address: -
Not shown	661	S	428009 150229	Site Address: Shamrock Works, Andover Road, Ludgershall, Andover, Hampshire, SP11 9PD Type: Vehicle Depollution Facility <5000 tps Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ACB002 EPR reference: EA/EPR/NB3431RD/V003 Operator: Lane Glen Waste Management licence No: 19833 Annual Tonnage: 5000.0 Issue Date: 25/10/1993 Effective Date: 26/03/2014 Modified: 12/12/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Andover Car Breakers Correspondence Address: -



4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

4

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	40	W	Tank	427680 151036	Wiltshire, SP11	Tanks (Generic)	Industrial Features
2	186	SW	Triple T Services	427620 150737	59, Wood Park, Ludgershall, Andover, Wiltshire, SP11 9NS	Distribution and Haulage	Transport, Storage and Delivery
3	200	SW	Tech Workshop	427685 150665	83, Wood Park, Ludgershall, Andover, Wiltshire, SP11 9NT	Electrical Equipment Repair and Servicing	Repair and Servicing
4	226	S	Electricity Sub Station	427702 150630	Wiltshire, SP11	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
5	490	S	427754 150356	OBSOLETE	Andover Road, Ludgershall, Andover, Hampshire, SP11 9LU	Not Applicable	Obsolete

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site:

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site:

0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

5.3 Bedrock and Solid Geology

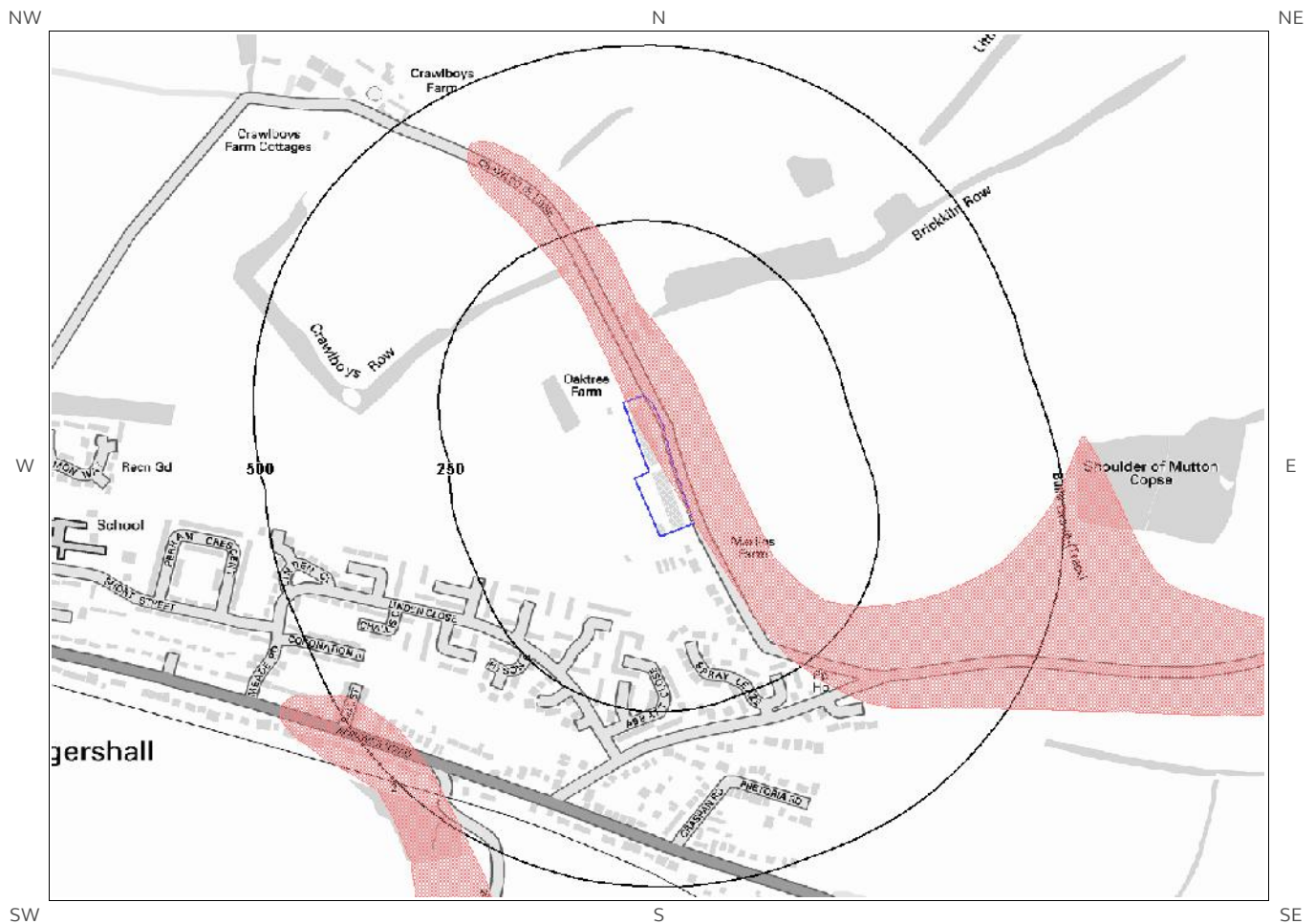
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
SECK-CHLK	SEAFORD CHALK FORMATION	CHALK

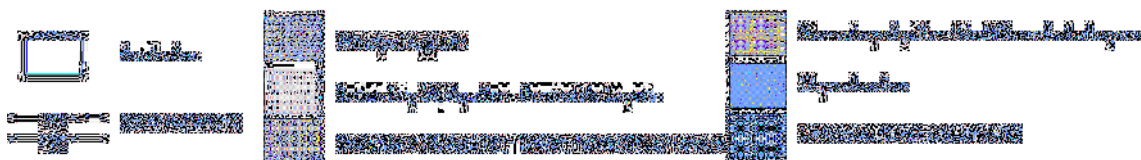
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

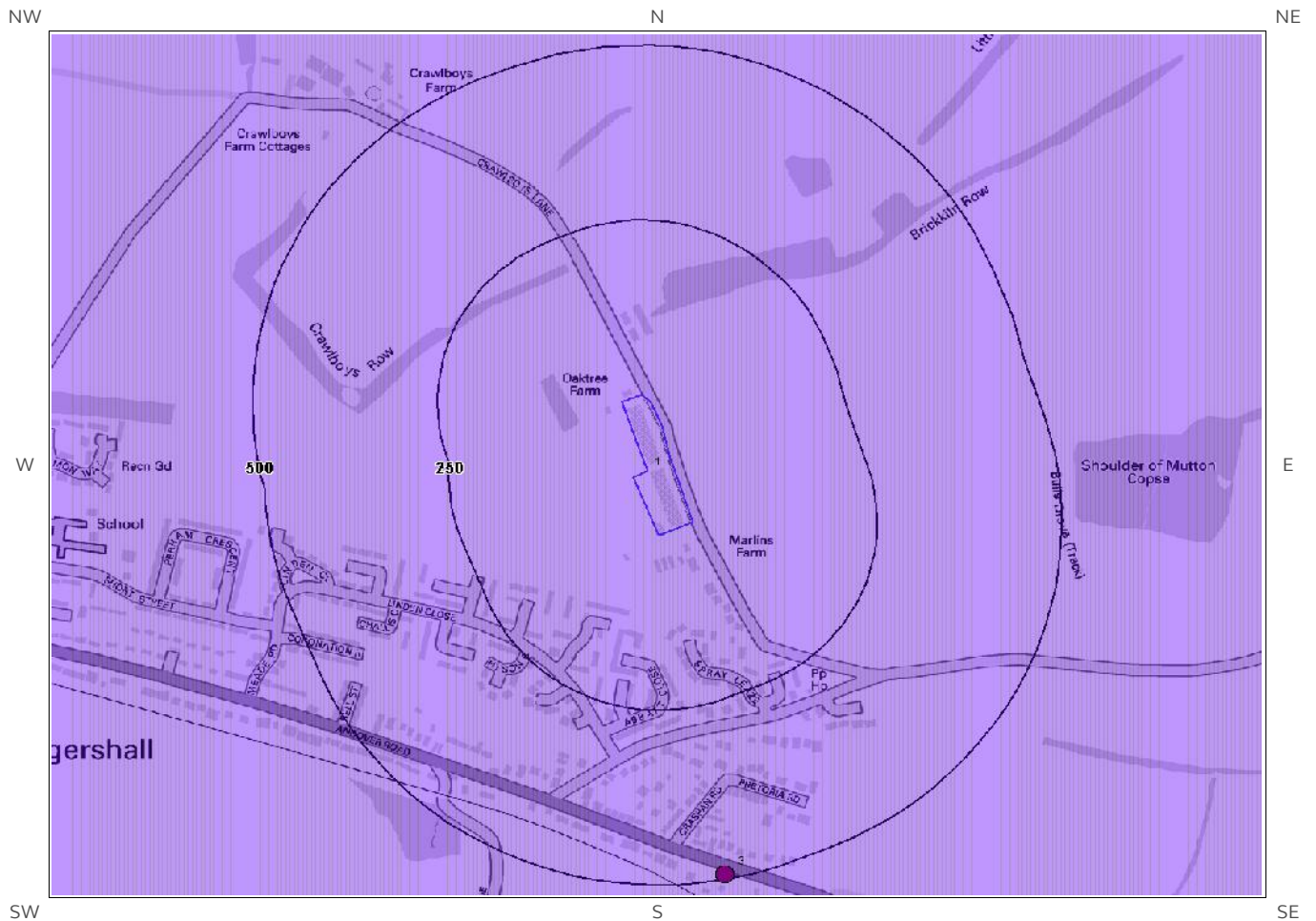
6a. Aquifer Within Superficial Geology



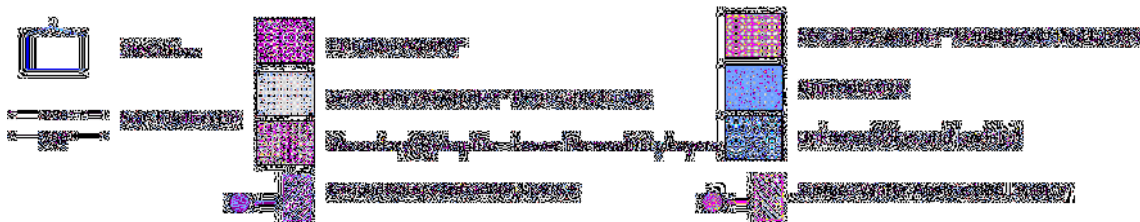
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6b. Aquifer Within Bedrock Geology and Abstraction Licences



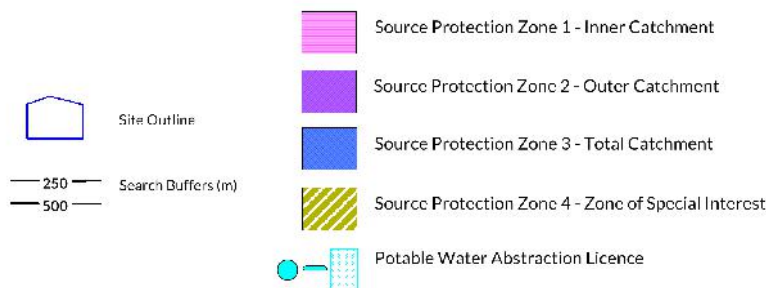
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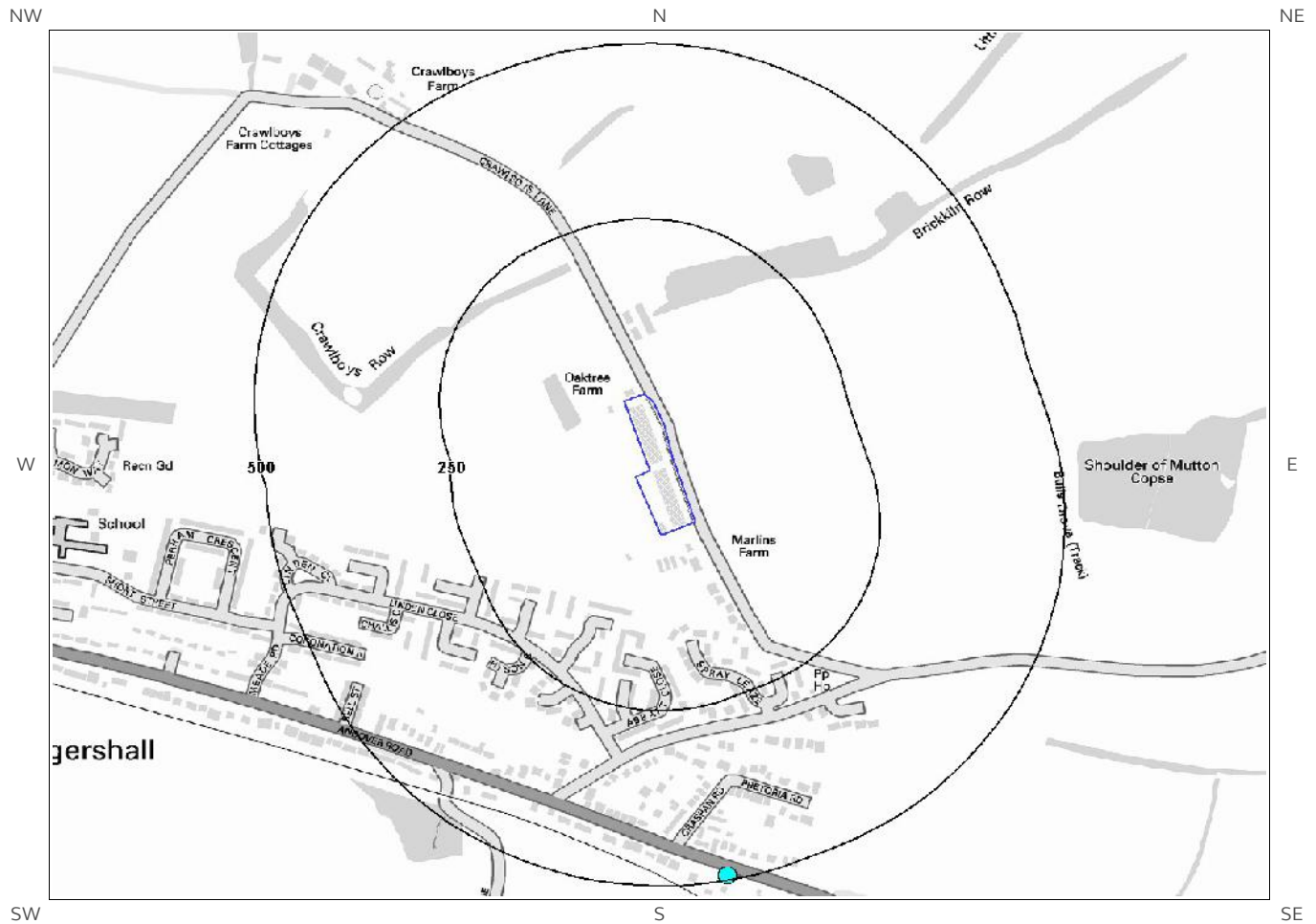
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



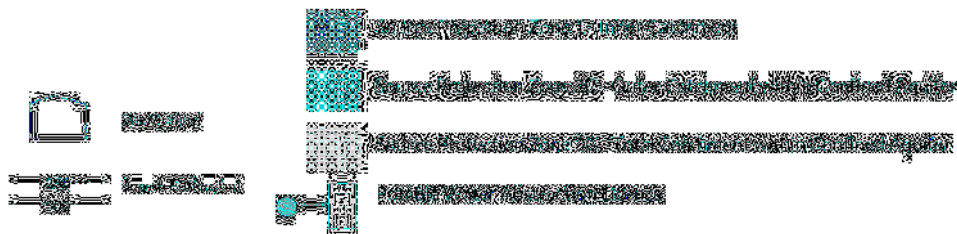
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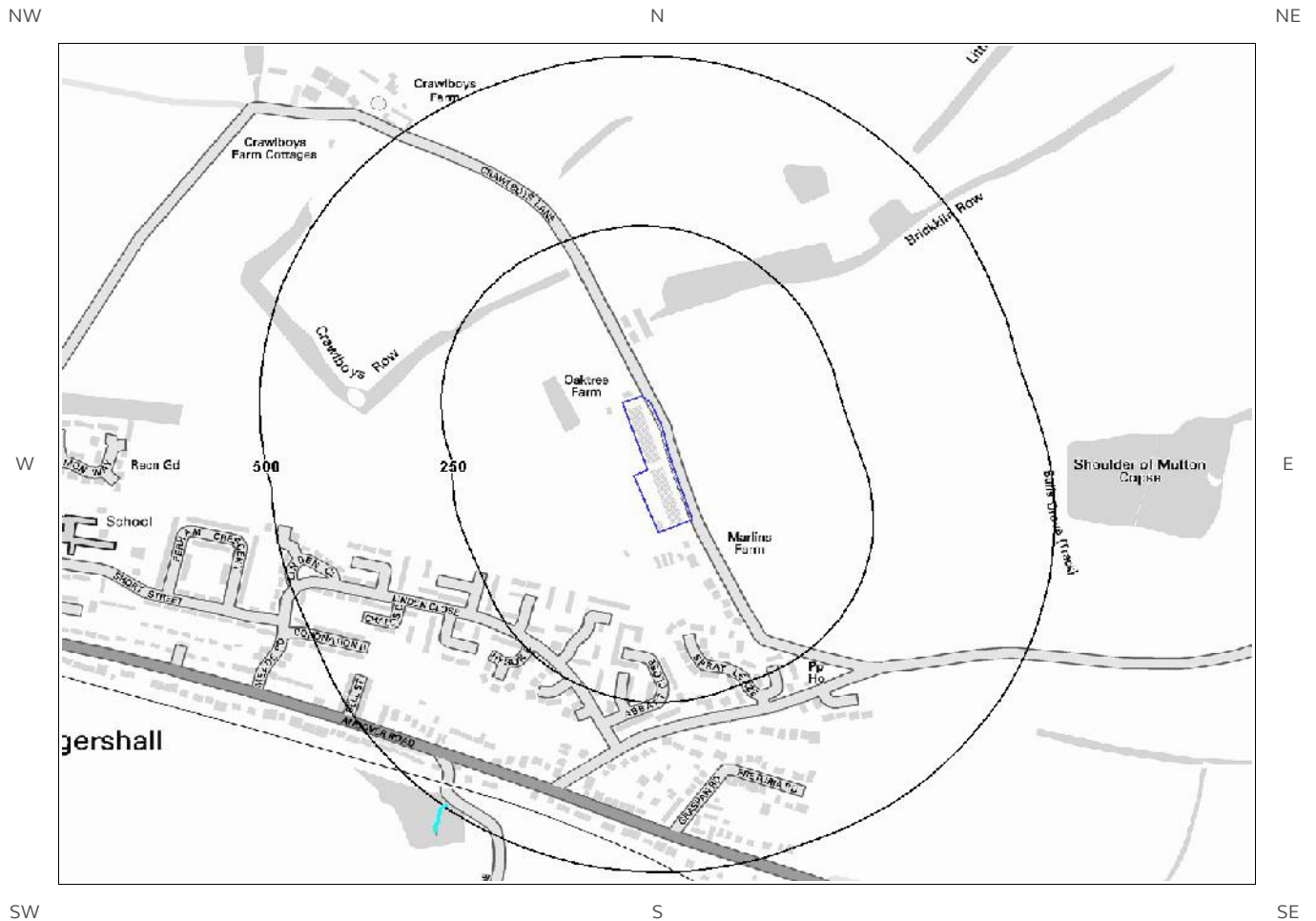
6d. Hydrogeology – Source Protection Zones within confined aquifer



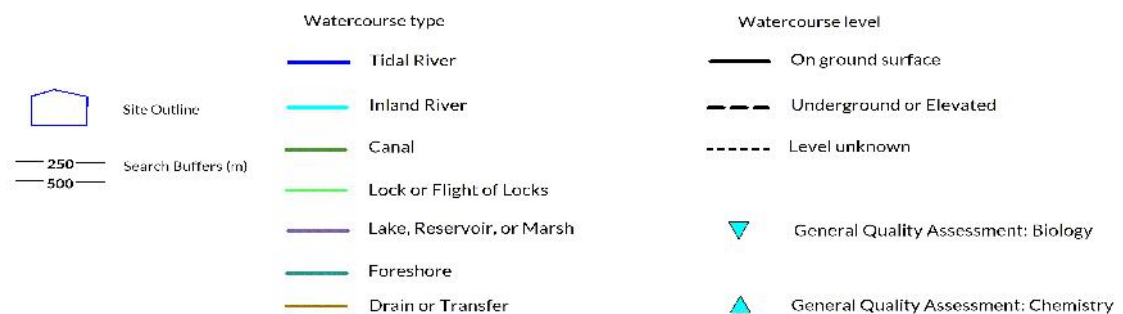
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6e. Hydrology – Watercourse Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	448	SW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site

Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
3	494	S	427860 150360	Status: Historical Licence No: 11/42/18.6.2/277 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: FABERSTOWN PS Data Type: Point Name: Southern Water Services Ltd Annual Volume (m³): 300,036 Max Daily Volume (m³): 1,182 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/06/2009 Version End Date:
Not shown	1504	E	429320 150840	Status: Historical Licence No: 11/42/18.6.1/229 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: BIDDESSEN HOUSE FARM, BIDDESSEN Data Type: Point Name: Moyne Annual Volume (m³): 13,637 Max Daily Volume (m³): 455 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/06/2009 Version End Date:
Not shown	1504	E	429320 150840	Status: Historical Licence No: 11/42/18.6.1/229 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: BIDDESSEN HOUSE FARM, BIDDESSEN Data Type: Point Name: Moyne Annual Volume (m³): 13,637 Max Daily Volume (m³): 455 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/06/2009 Version End Date:
Not shown	1533	E	429349 150843	Status: Historical Licence No: SO/042/0034/019 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: UNDERGROUND STRATA COMPRISING OF CHALK AT BIDDESSEN HOUSE Data Type: Point Name: Biddesden House Farm Partnership Annual Volume (m³): 13,700 Max Daily Volume (m³): 38 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 16/08/2016 Version End Date:
Not shown	1533	E	429349 150843	Status: Historical Licence No: SO/042/0034/019 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Southern Region Groundwater Point: UNDERGROUND STRATA COMPRISING OF CHALK AT BIDDESSEN HOUSE Data Type: Point Name: Biddesden House Farm Partnership Annual Volume (m³): 13,700 Max Daily Volume (m³): 38 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 16/08/2016 Version End Date:
Not shown	1533	E	429349 150843	Status: Active Licence No: SO/042/0034/019A Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: UNDERGROUND STRATA COMPRISING OF CHALK AT BIDDESSEN HOUSE Data Type: Point Name: Biddesden House Farm Partnership Annual Volume (m³): 13,700 Max Daily Volume (m³): 38 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/04/2017 Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1533	E	429349 150843	Status: Active Licence No: SO/042/0034/019A Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Southern Region Groundwater Point: UNDERGROUND STRATA COMPRISING OF CHALK AT BIDDSDEN HOUSE Data Type: Point Name: Biddesden House Farm Partnership Annual Volume (m³): 13,700 Max Daily Volume (m³): 38 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/04/2017 Version End Date:
Not shown	1636	SE	428460 149360	Status: Active Licence No: 11/42/18.6.2/425 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: SHODDESSEN POINT A, KIMPTON Data Type: Point Name: J R Bodman Ltd Annual Volume (m³): 37,236 Max Daily Volume (m³): 128 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 16/04/2019 Version End Date:
Not shown	1766	S	427500 149100	Status: Active Licence No: 11/42/18.6.2/425 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: SHODDESSEN POINT B, KIMPTON Data Type: Point Name: J R Bodman Ltd Annual Volume (m³): 37,236 Max Daily Volume (m³): 128 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 16/04/2019 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
2	494	S	427860 150360	Status: Historical Licence No: 11/42/18.6.2/277 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: FABERSTOWN PS Data Type: Point Name: Southern Water Services Ltd Annual Volume (m³): 300,036 Max Daily Volume (m³): 1,182 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1533	E	429349 150843	Status: Historical Licence No: SO/042/0034/019 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Southern Region Groundwater Point: UNDERGROUND STRATA COMPRISING OF CHALK AT BIDDSDEN HOUSE Annual Volume (m³): 13,700 Max Daily Volume (m³): 38 Original Application No: - Original Start Date: 16/08/2016 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1533	E	429349 150843	Data Type: Point Name: Biddesden House Farm Partnership	
				Version End Date:	
				Status: Active	
				Licence No: SO/042/0034/019A	
				Annual Volume (m³): 13,700	
Max Daily Volume (m³): 38					
Original Application No: -					
Original Start Date: 01/04/2017					
Expiry Date: 31/03/2025					
Issue No: 1					
Version Start Date:					
Version End Date:					

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

Identified

The following Source Protection Zones records are represented on the SPZ and Potable Water Abstraction Map (6c):

ID	Distance (m)	Direction	Zone	Description
1	0	On Site	3	Total catchment

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site

None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
11	E	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site None identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/Direction	Name	Type of Watercourse	Additional Details
1	497 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Test Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
Not shown	497 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Test Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

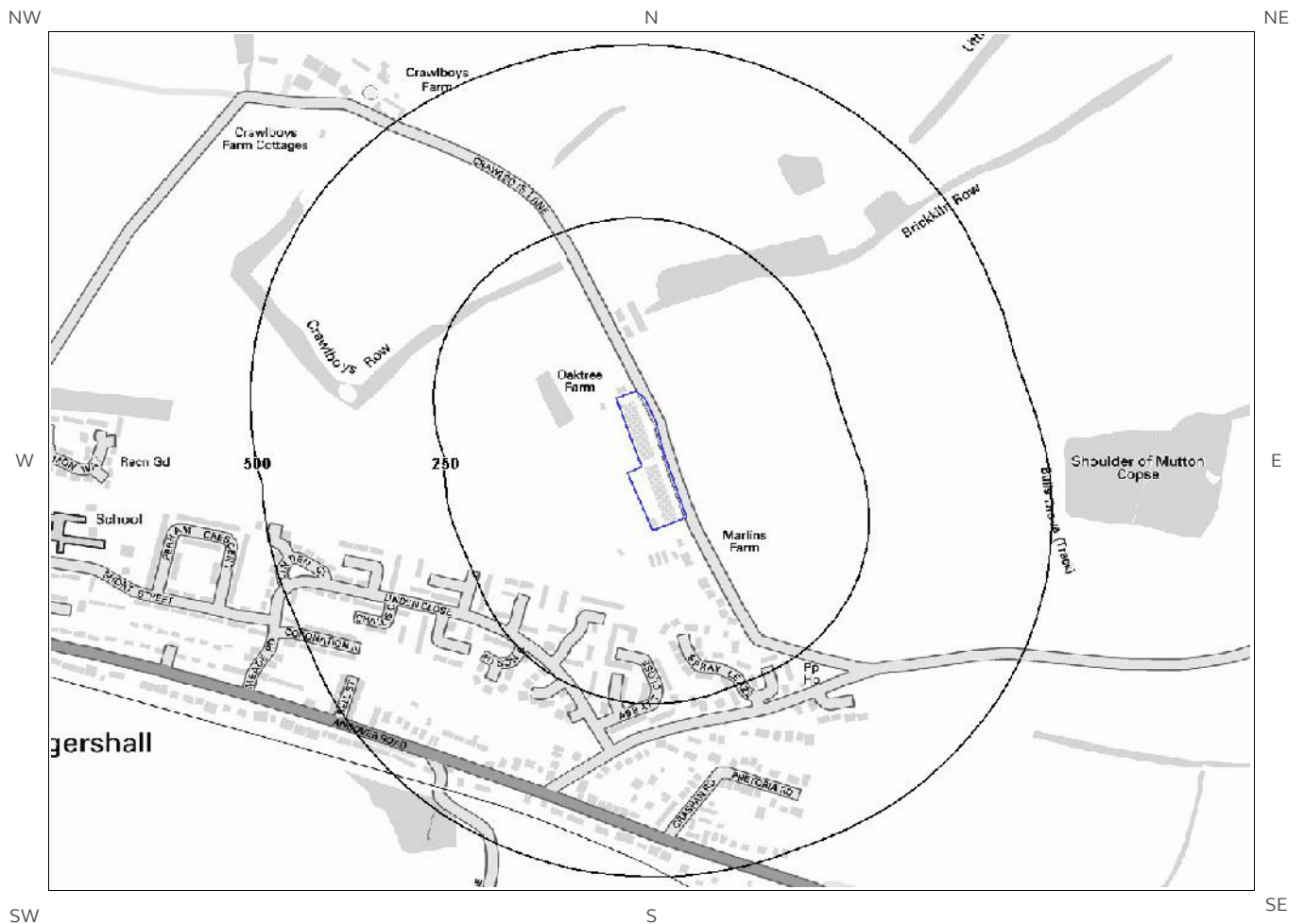
6.11 Surface Water Features

Surface water features within 250m of the study site

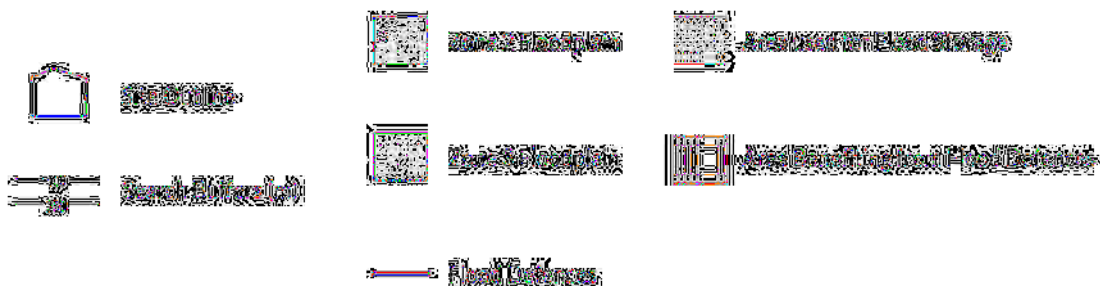
None identified

Database searched and no data found.

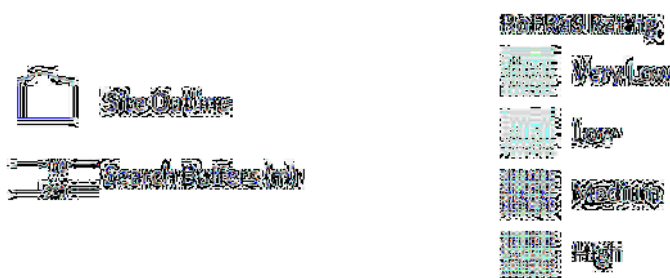
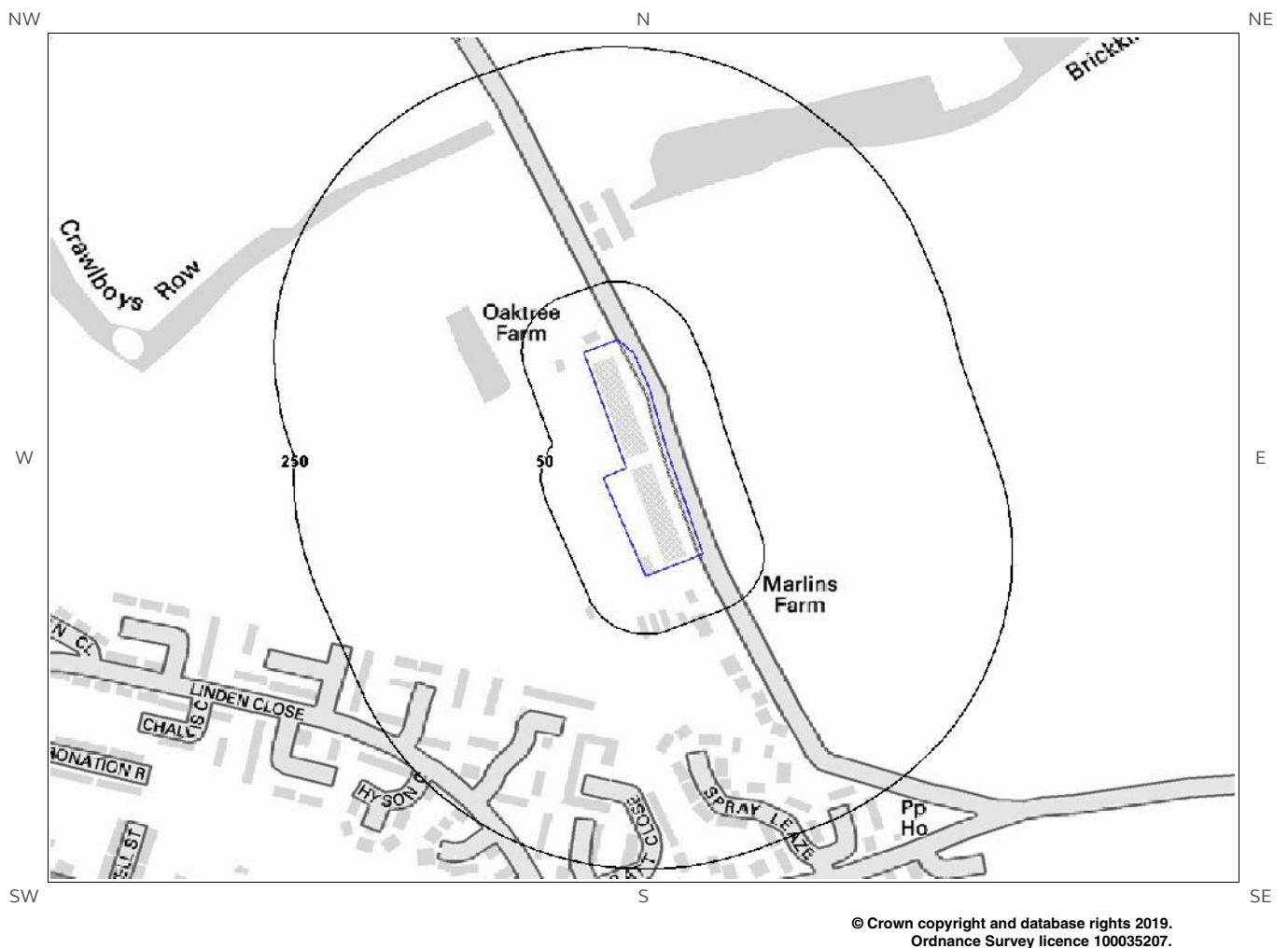
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m None identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m None identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

Database searched and no data found.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Flood Defences within 250m of the study site None identified
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site

None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site

Identified

Clearwater Flooding or Superficial Deposits Flooding

Clearwater Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Limited potential

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

7.8 Groundwater Flooding Confidence Areas

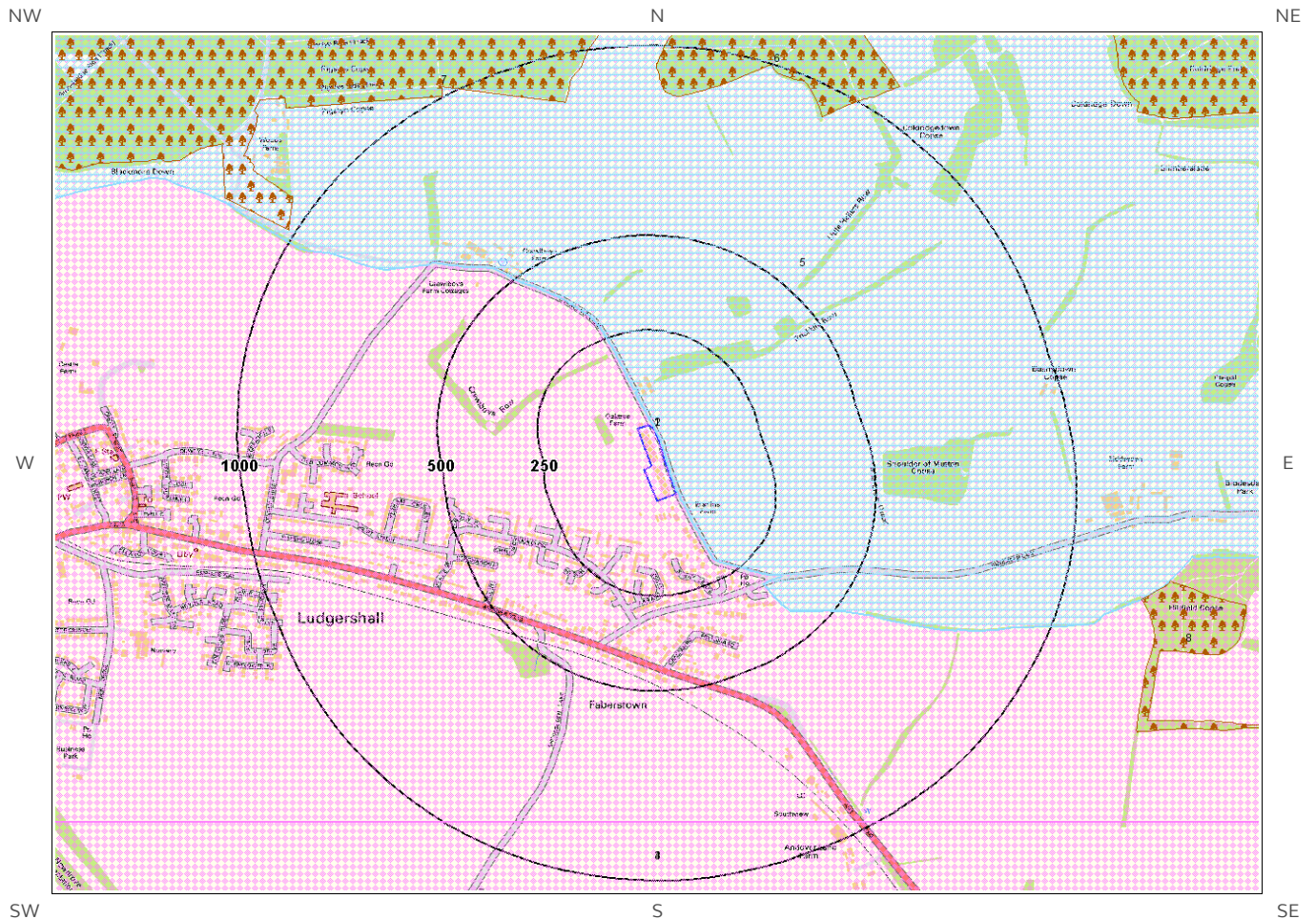
British Geological Survey confidence rating in this result

High

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site	Identified
---	------------

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

0

Database searched and no data found.

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

13

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
6	870	N	STERT COPSE	Ancient and Semi-Natural Woodland
7	875	N	COLDRIDGE WOOD	Ancient Replanted Woodland
8	1196	E	HILLFIELD COPSE	Ancient and Semi-Natural Woodland
Not shown	1374	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1497	N	COLDRIDGE WOOD	Ancient and Semi-Natural Woodland
Not shown	1542	NW	COLDRIDGE WOOD	Ancient and Semi-Natural Woodland
Not shown	1576	NW	COLDRIDGE WOOD	Ancient and Semi-Natural Woodland
Not shown	1601	N	COLDRIDGE WOOD	Ancient and Semi-Natural Woodland
Not shown	1692	SE	GROVE COPSE	Ancient and Semi-Natural Woodland
Not shown	1753	NE	COLDRIDGE WOOD	Ancient and Semi-Natural Woodland
Not shown	1762	SE	GROVE COPSE	Ancient Replanted Woodland
Not shown	1929	NW	COLDRIDGE WOOD	Ancient and Semi-Natural Woodland
Not shown	1990	SE	CUNNEYS DOWN COPSE	Ancient and Semi-Natural Woodland

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

0

Database searched and no data found.

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

1

The following Area of Outstanding Natural Beauty (AONB) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	AONB/NSA Name	Data Source
5	4	NE	North Wessex Downs	Natural England

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

4

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
1	0	On Site	Existing	DEFRA
2	0	On Site	Existing	DEFRA
3	845	S	Existing	DEFRA
4	845	S	Existing	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **Groundsure Geo Insight**, available from our **website**. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell** hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property possible increase in insurance risk due to soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site

Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site

None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

Identified

The following non-coal mining information is provided by the BGS:

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
0.0	On Site	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

Past underground mine workings are uncommon, localised and of limited area. The rock types present in this area are such that minor mineral veins may be present within them on which it is possible that there have been attempts to work these by underground methods and/or it is possible that small scale underground extraction of other materials may have occurred. All such occurrences are likely to be restricted in size and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com



British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:

Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk



Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506

Web: www.environment-agency.gov.uk

Email: enquiries@environment-agency.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe

Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505



Local Authority

Authority: Wiltshire Council
Phone: 0300 456 0100

Web: <http://www.wiltshire.gov.uk/>

Address: County Hall, Bythesea Road, Trowbridge, Wiltshire, BA14

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444



APPENDIX IV

Geological datasheets

Address: OAK TREE FARM, CRAWLBOYS LANE, LUDGERSHALL, SP11 9PL
Date: 6 Sep 2019
Reference: GS-6294383
Client: Apple Environmental Ltd



Aerial Photograph Capture date: 28-Aug-2017
Grid Reference: 427772,150943
Site Size: 0.8676ha

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslide within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale

2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslide within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?

Yes

2.3.3 Are there any records of linear features within 500m of the study site boundary?

No

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	0	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	1	4

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	1	0	0	0	1
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

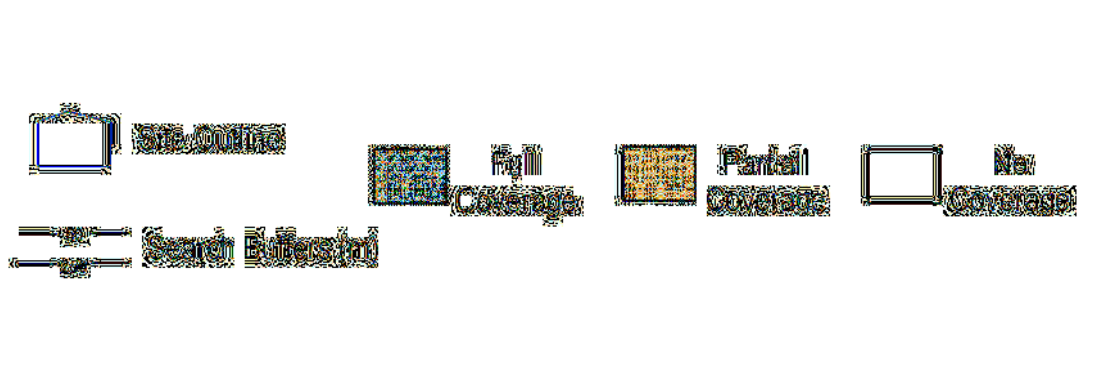
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Very Low				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Low				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	0	0		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	4	0	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	845.0	Some deposits are mapped	Full	Full	No coverage

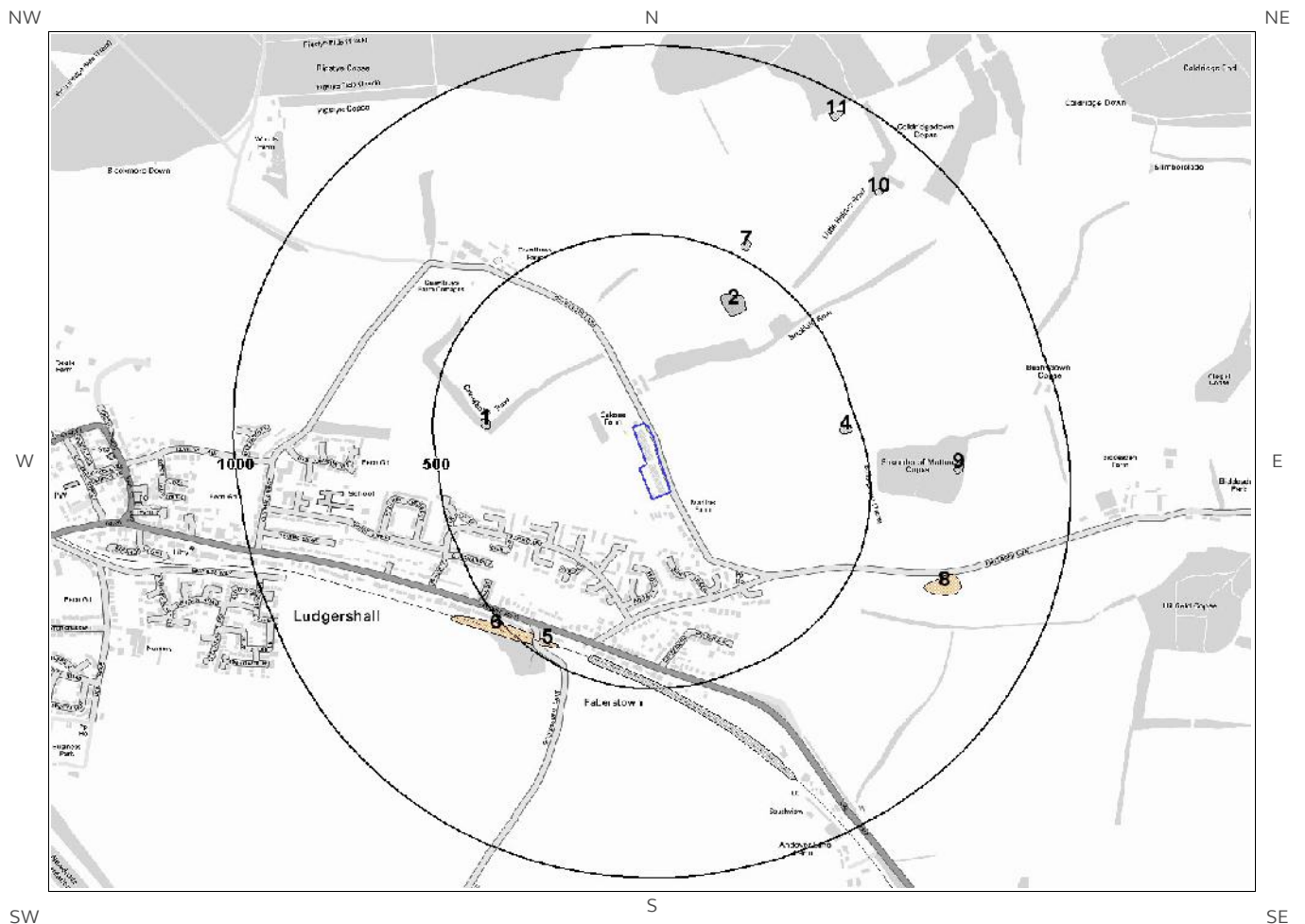
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

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1. Geology 1:10,000 scale

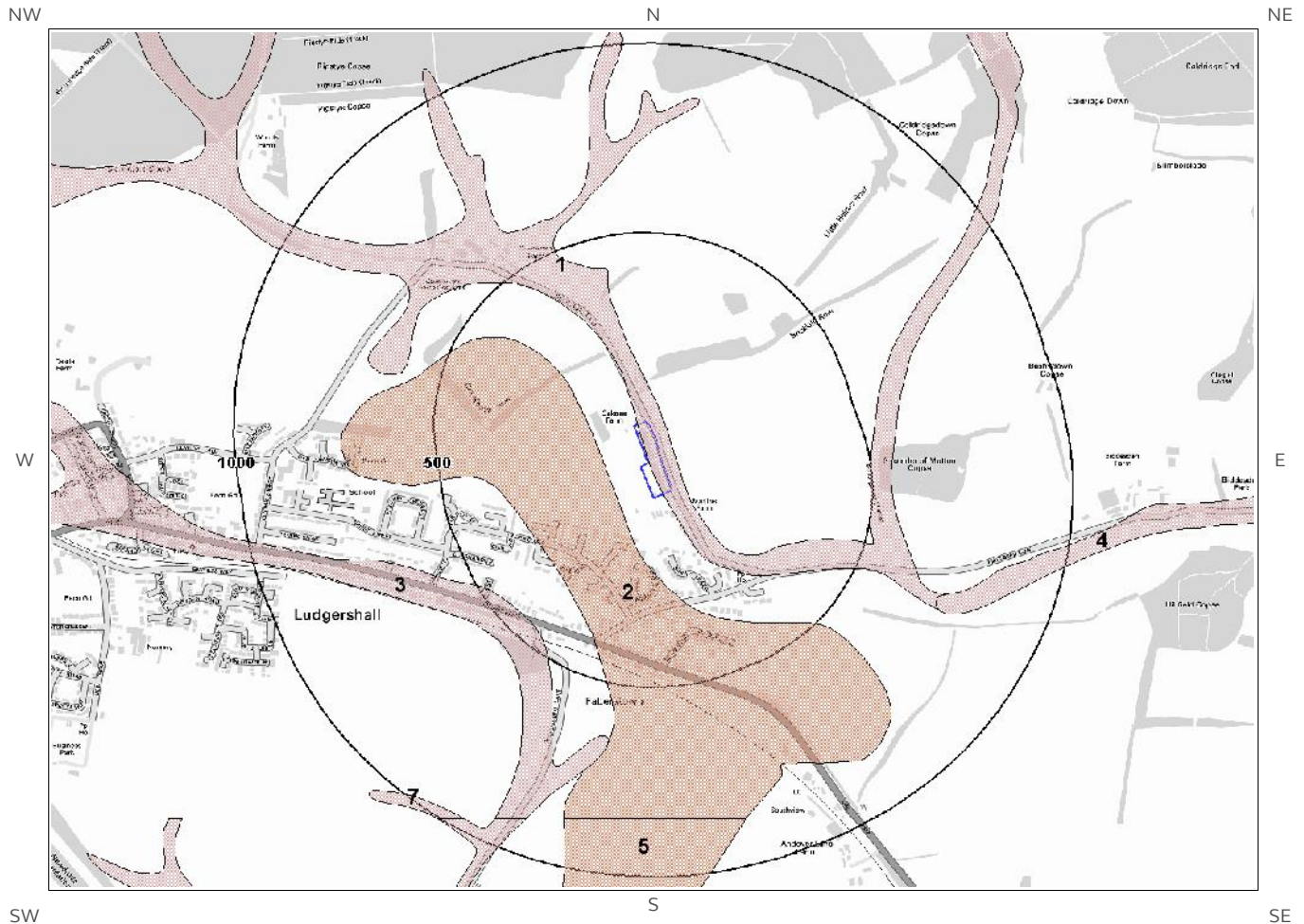
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

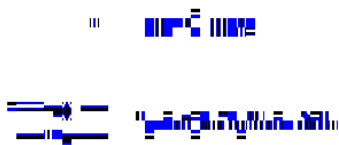
ID	Distance	Direction	LEX Code	Description	Rock Description
1	356.0	W	WGR-VOID	Worked Ground (Undivided)	Void
2	358.0	NE	WGR-VOID	Worked Ground (Undivided)	Void
3	437.0	S	WGR-VOID	Worked Ground (Undivided)	Void
4	450.0	E	WGR-VOID	Worked Ground (Undivided)	Void
5	451.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	464.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	HEAD-XCZSV	Head - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
2	83.0	W	HEAD1-XCZSV	Head, 1 - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
3	448.0	SW	HEAD-XCZSV	Head - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

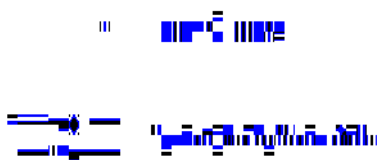
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	SECK-CHLK	Seaford Chalk Formation - Chalk	Santonian Age - Coniacian Age

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

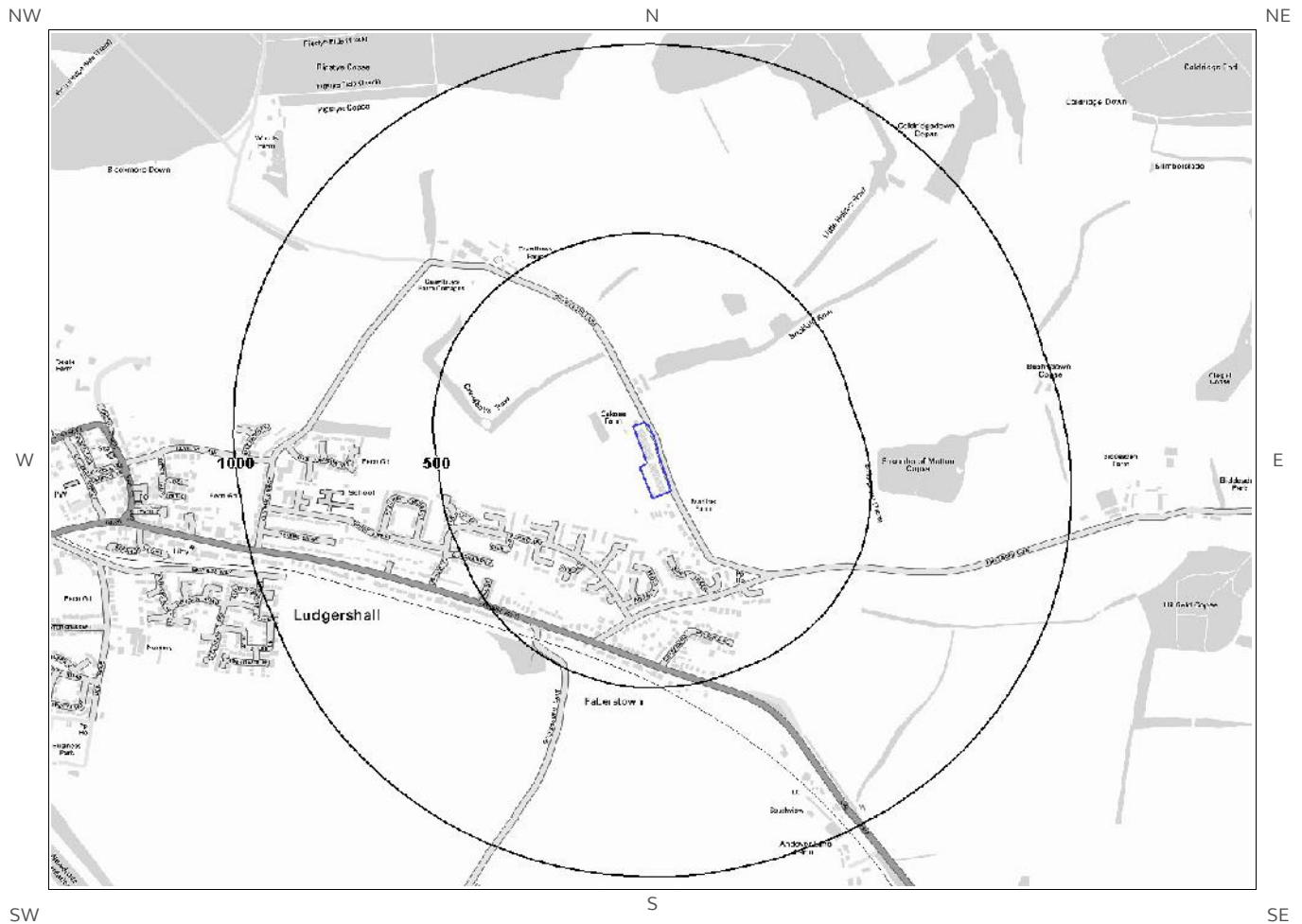
Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 283

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

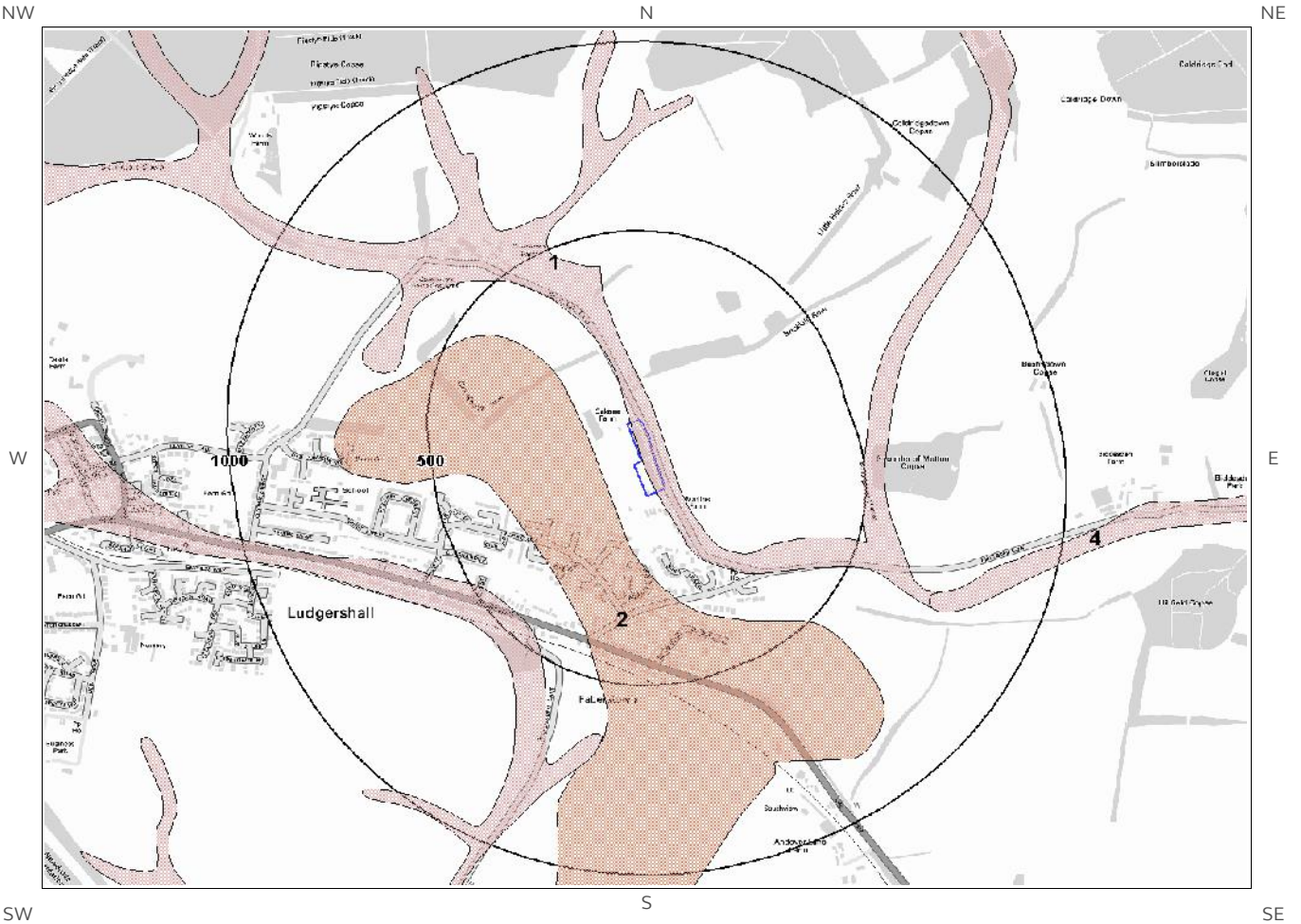
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

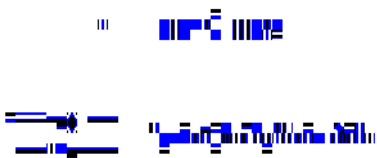
Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
2	82.0	W	HEAD1-XCZSV	HEAD, 1	CLAY, SILT, SAND AND GRAVEL
3	448.0	SW	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	High	Very Low

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 283

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	SECK-CHLK	SEAFORD CHALK FORMATION - CHALK	CONIACIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Very High	Very High

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

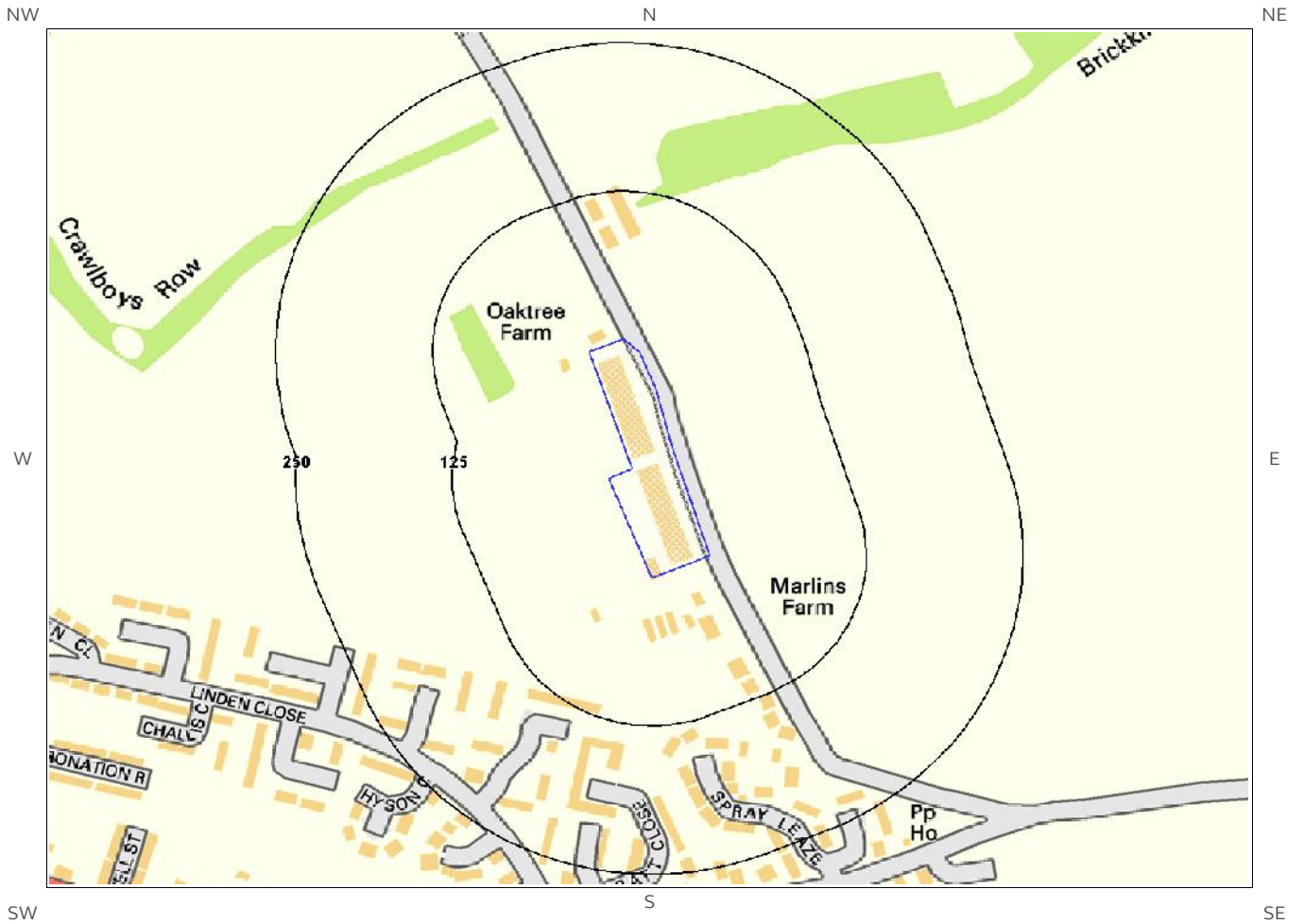
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? No

Database searched and no data found.

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	448.0	SE	428110 150525	Chalk	Ludgershall Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	660.0	SW	427286 150397	Chalk	Ludgershall Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	685.0	S	428050 150220	Chalk	Ludgershall Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	709.0	E	428480 150615	Sand & Gravel	Biddesden Lane Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	730.0	E	428542 150944	Chalk	Shoulder of Mutton Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased



5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
Not shown	845.0	S	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled “Review of mining instability in Great Britain, 1990” PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

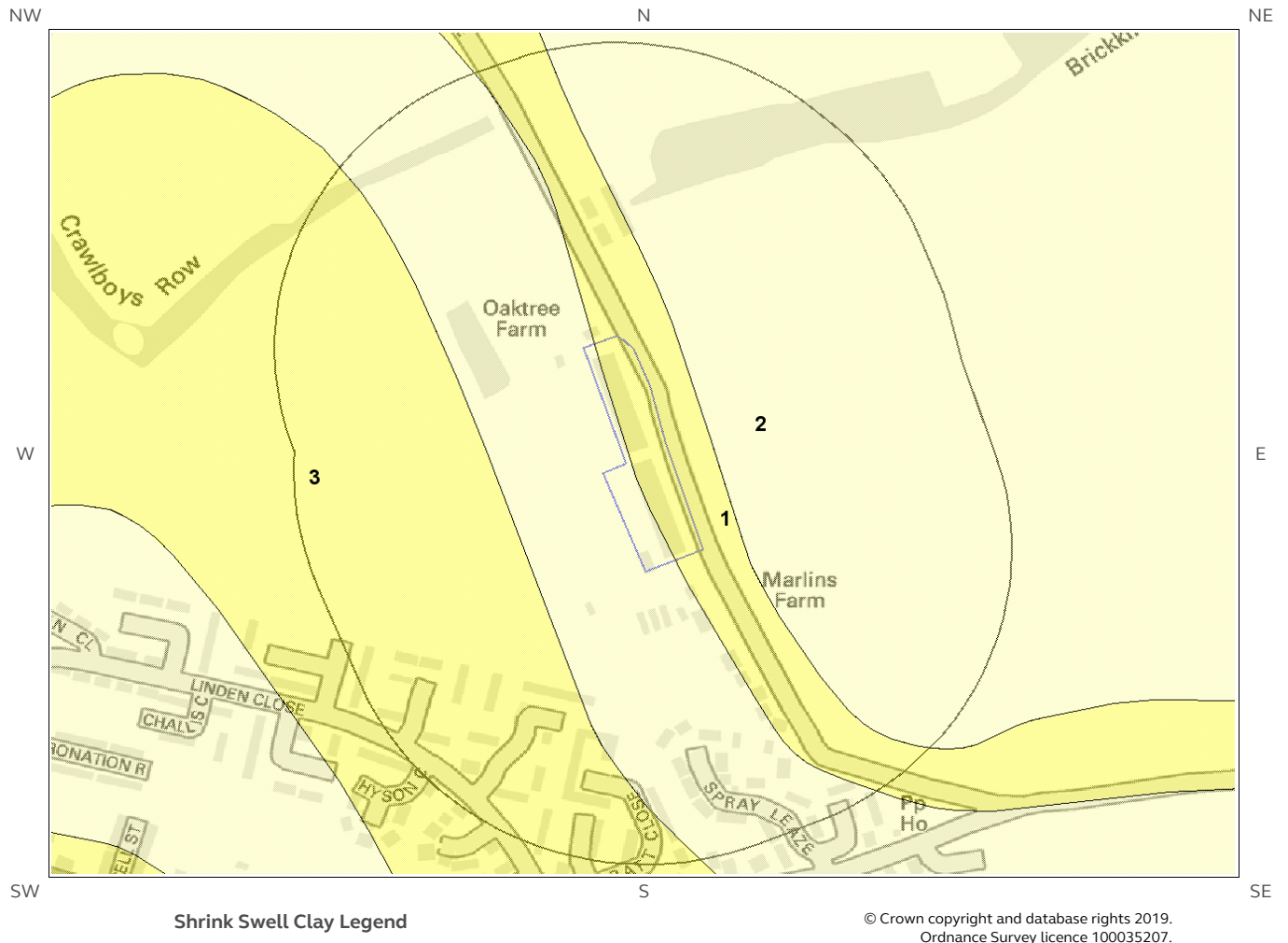
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

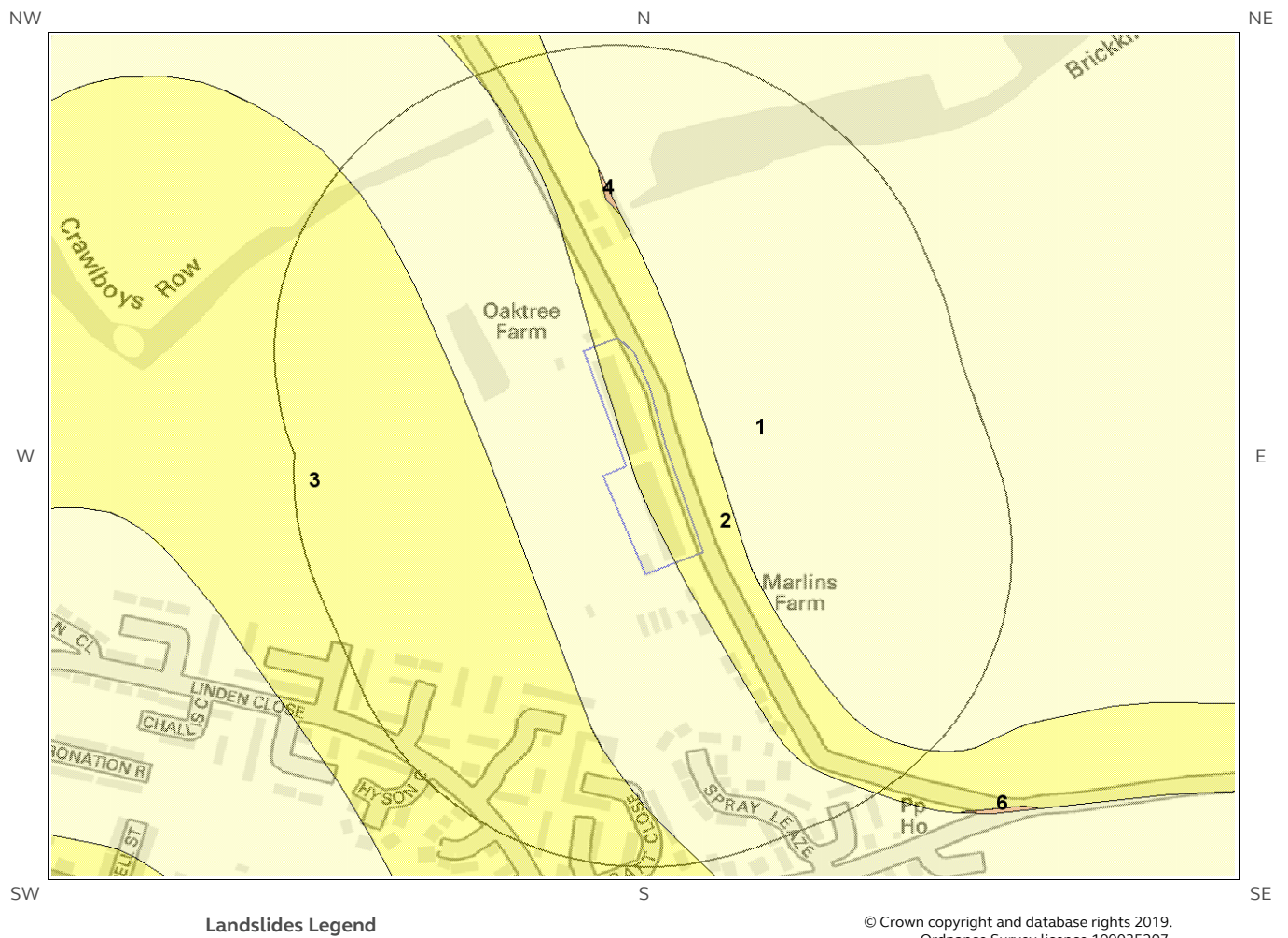
Database searched and no data found.

6 Natural Ground Subsidence

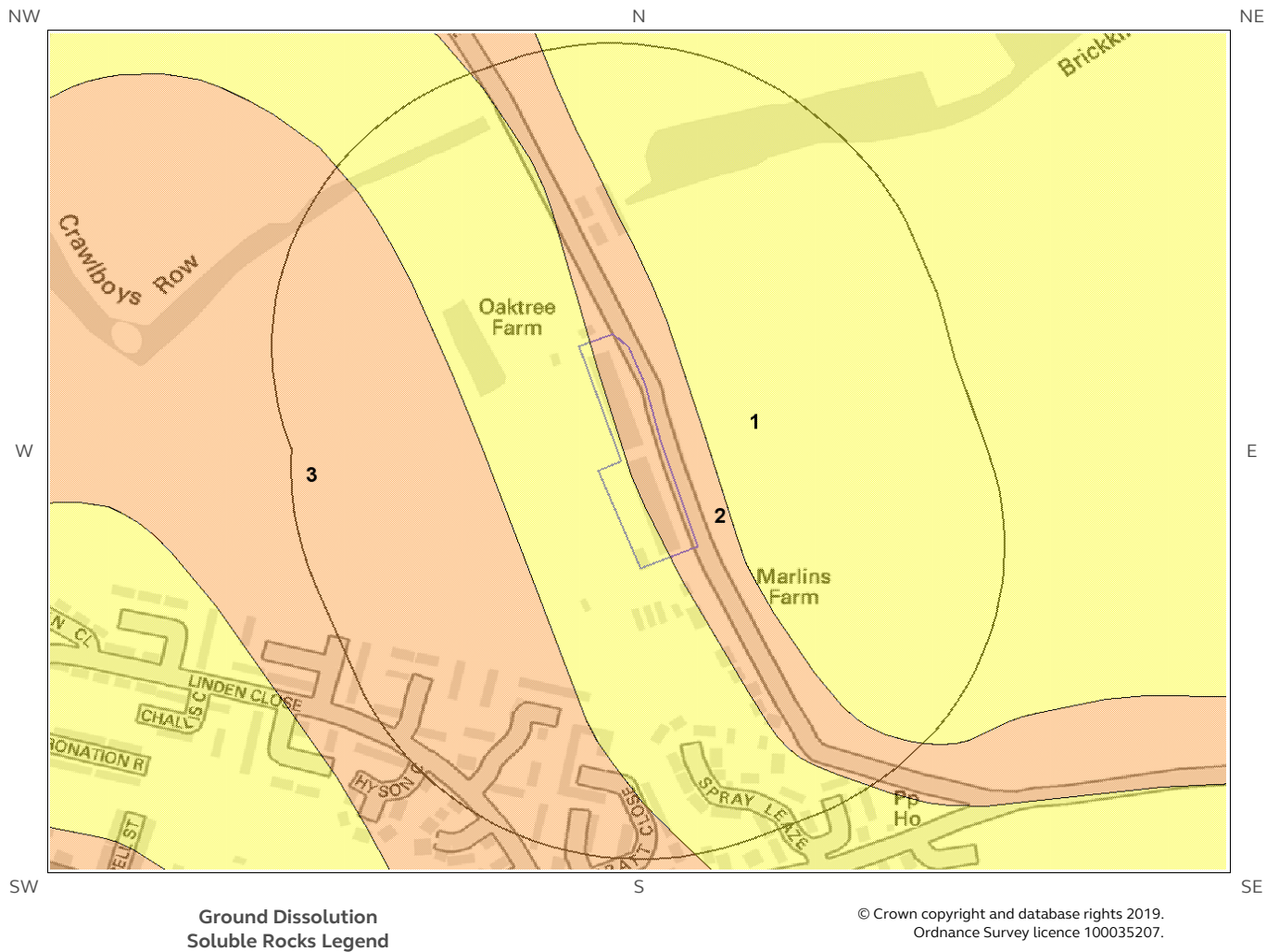
6.1 Shrink-Swell Clay map



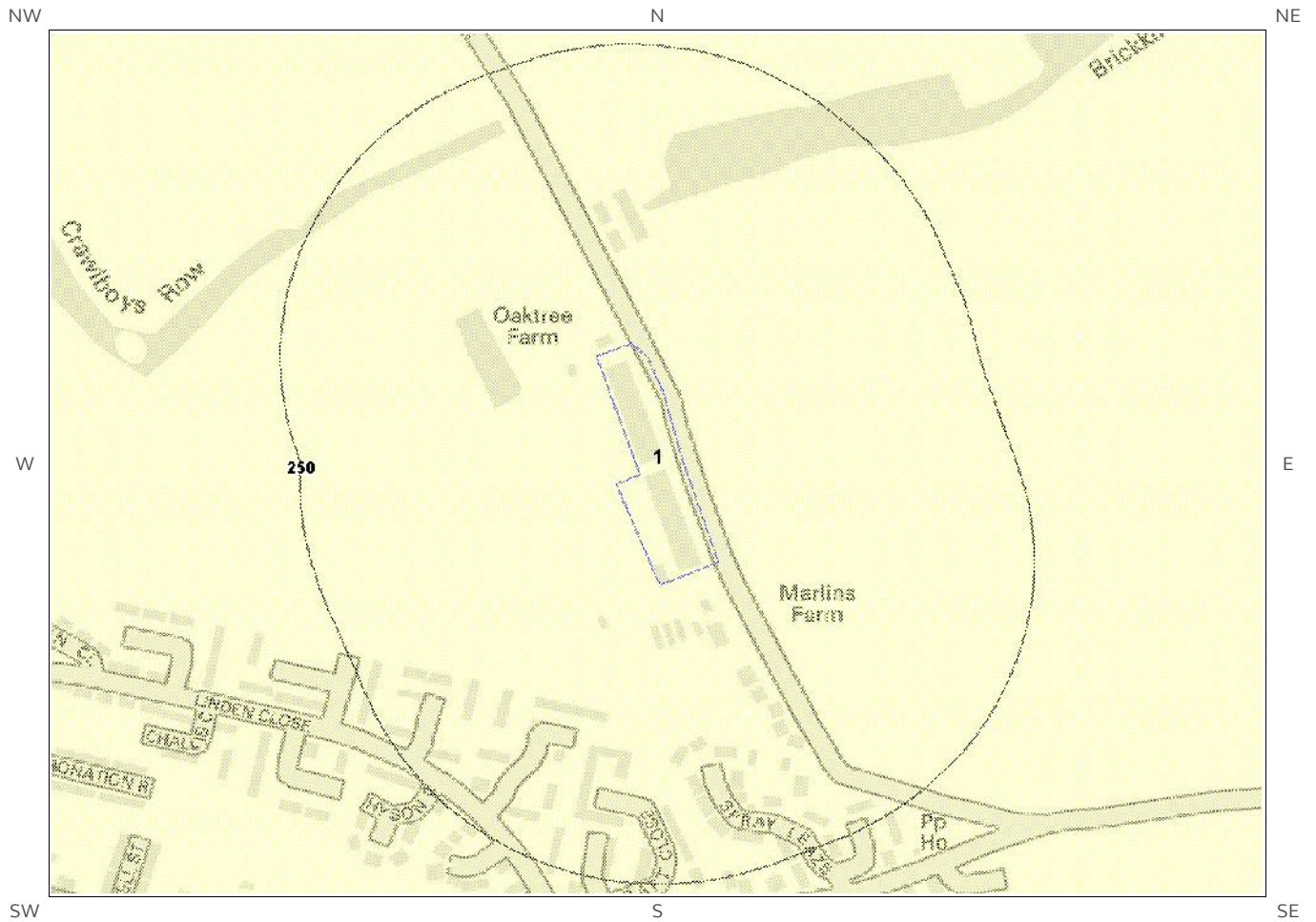
6.2 Landslides map



6.3 Ground Dissolution of Soluble Rocks map



6.4 Compressible Deposits map

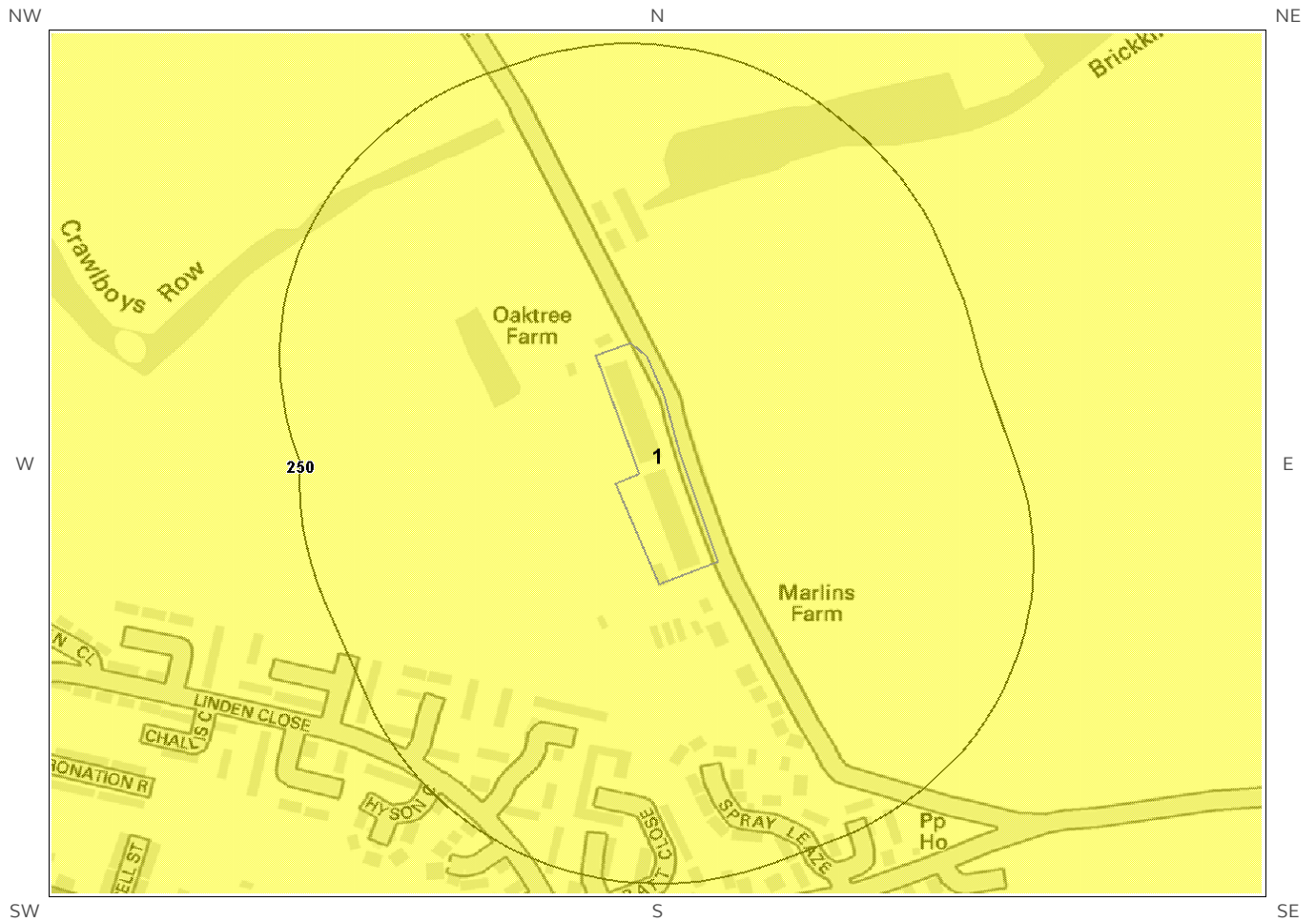


Compressible Deposits Legend

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6.5 Collapsible Deposits map

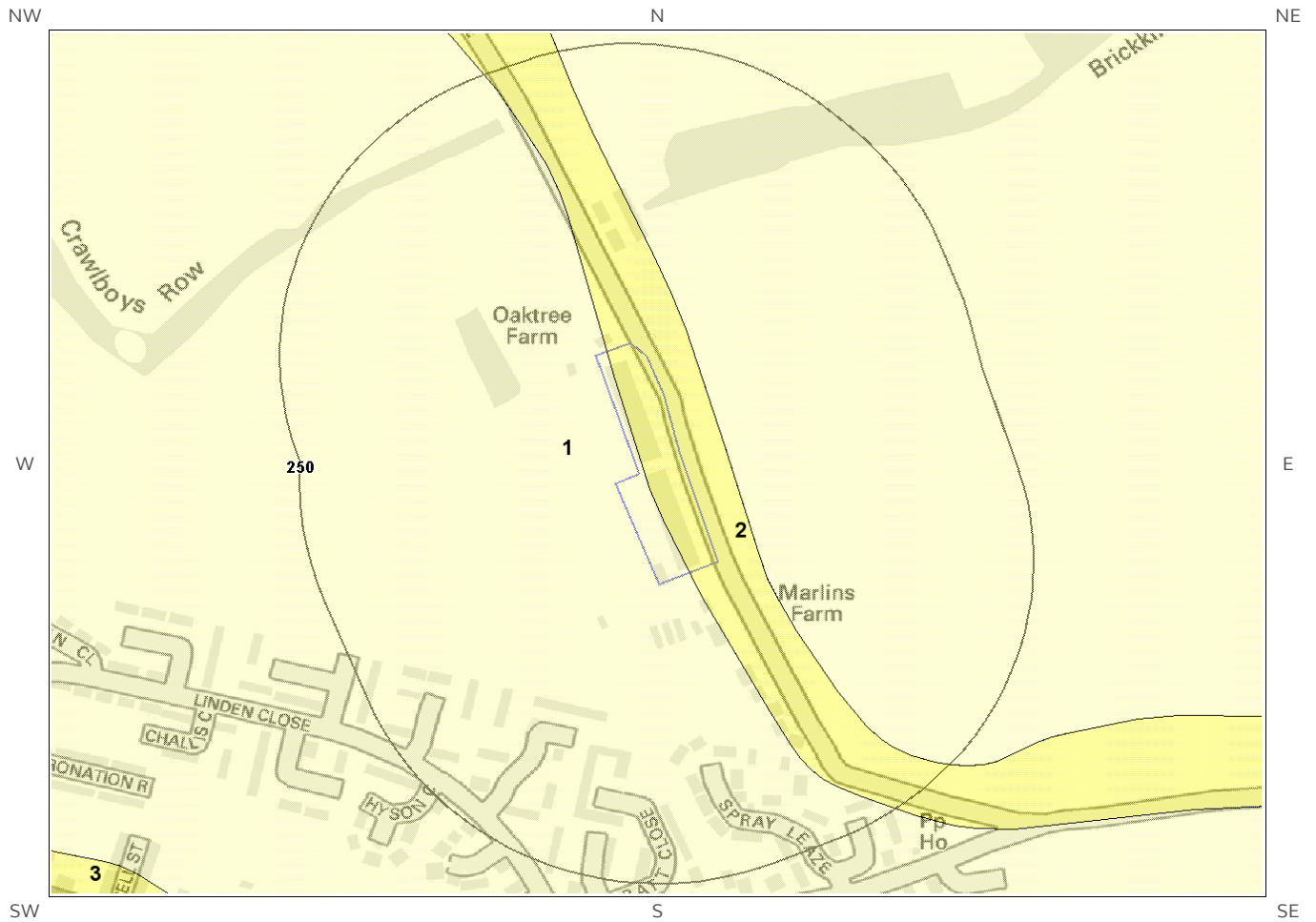


Collapsible Deposits Legend

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6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site** boundary? Low

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for slope instability identified. No special actions required to avoid problems due to landslides. No special ground investigation required and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.
2	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

* This includes an automatically generated 50m buffer zone around the site

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.
2	0.0	On Site	Low	Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build - site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property - possible increase in insurance risk due to soluble rocks.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

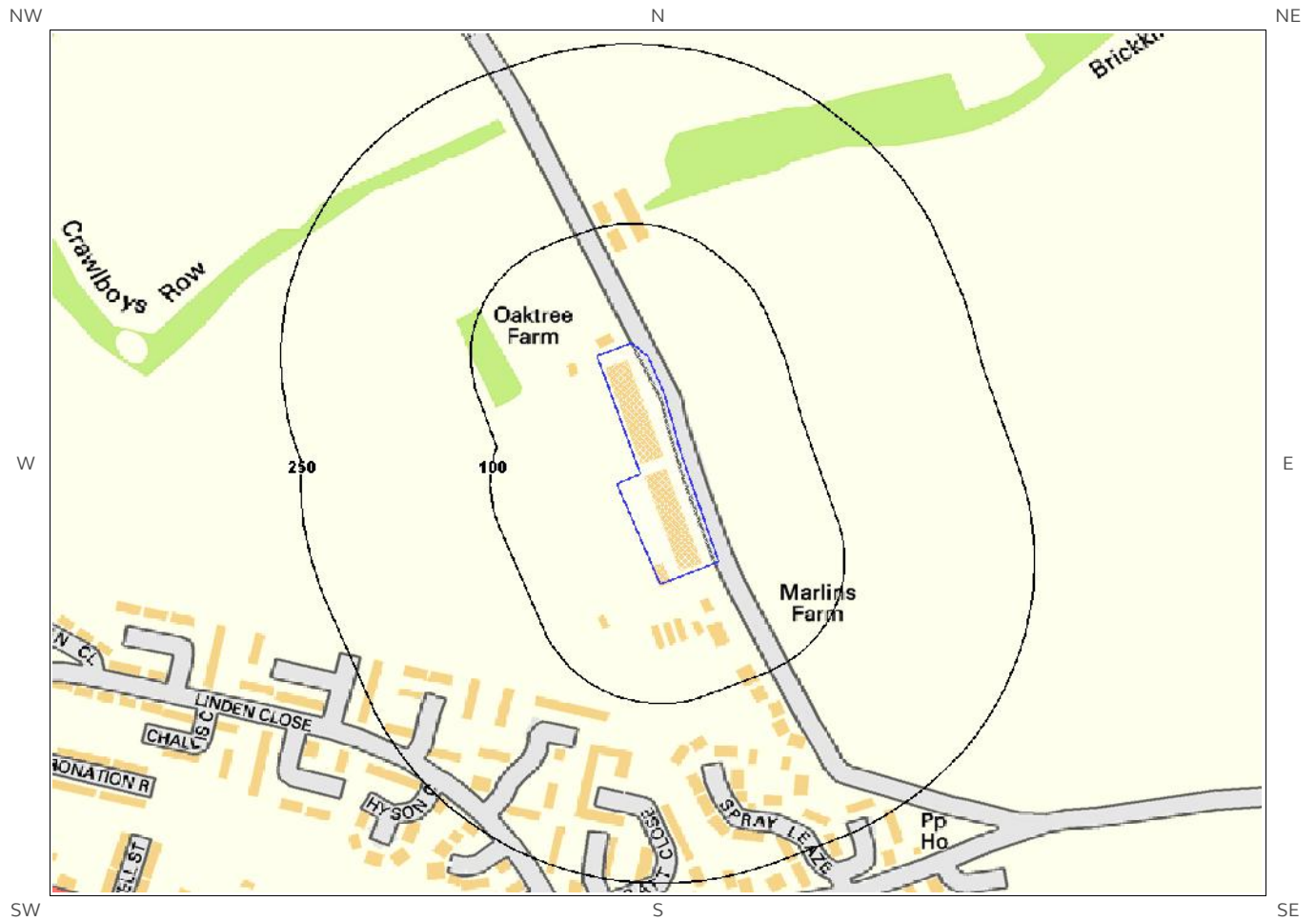
6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

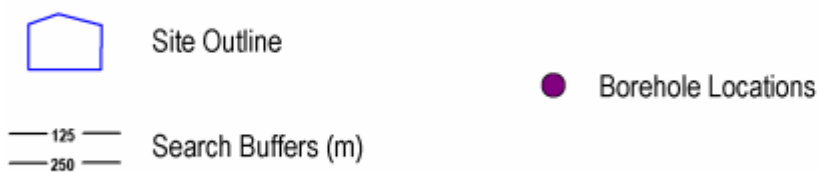
ID	Distance (m)	Direction	Hazard Rating	Details
2	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

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7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

0

Database searched and no data found.

8 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

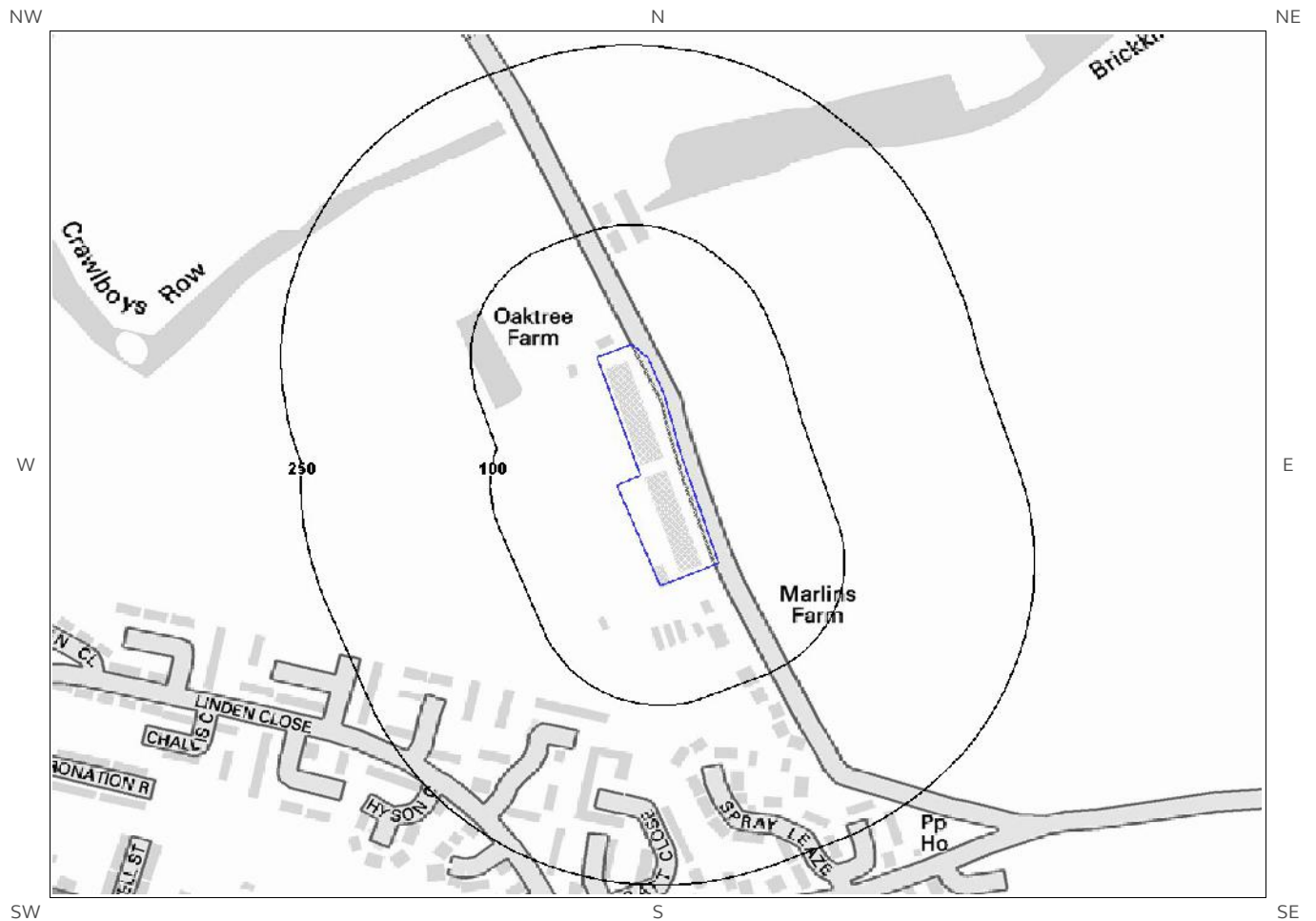
4

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

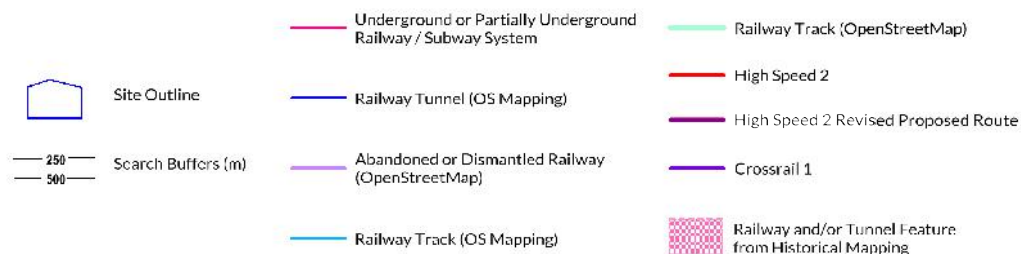
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

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