

ENVIRONMENTAL DESK STUDY
AND
PRELIMINARY
RISK ASSESSMENT

Northney Farm
St. Peter's Road
Hayling Island
Hampshire
PO11 0RX



May 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 the prior approval of the change of use of an agricultural building into a dwelling with associated garden areas. Planning Ref. APP/18/01090.

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 on Hayling Island, to the east of Portsmouth.

2.2 Historical maps

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

1866 - 1867

The site is located within the area of Northney, and currently exists as land associated with either Northend Farm or North Farm; being that it lies centrally between both features. The area of land occupied by the site falls between two fields, and appears to contain a small square outbuilding or other structure on the western section.

The two farms comprise several buildings and plantations, and essentially form a ring around the subject site. The closest of these buildings appears to be around 5m to the west, whereas the furthest appear to be around 100m to the northeast and southeast.

A pond is present around 20m to the west of the site western boundary, with others approximately 60m to the north, 70m to the northeast, 85m to the southeast, and 100m and 130m to the south.

A residential property labelled as 'Battens' is present 150m to the south.

1896 - 1897

Mapping now shows that the subject site is actually associated with Northend Farm, containing a single 'L' shaped building consisting of several adjoined sections occupying the northern boundary of the farm. There have been significant changes on the farm with the addition of a number of new buildings.

The aforementioned pond 85m to the southeast is now shown as a well.

1907 - 1909

Additional structures have now been constructed to the south of the site on other parts of Northend Farm, and new structures are also present on North Farm to the northeast.

The aforementioned dwelling 'Battens' is now labelled as Red House Farm. An old clay pit is also shown 150m to the southeast.

1914

No significant changes visible within 250m of the site.

1931 - 1932

Northend Farm is now referred to as Northney Farm. A large barn has been constructed, which appears to adjoin the southeastern corner of the aforementioned 'L' shaped building on the site. Northney farm is now seen to be situated to the immediate east of Church Road.

The area previously occupied by Red House Farm has been developed with the introduction of a small road, labelled as Clovelly Road, which is now aligned with eleven dwellings. This extends eastwards onto the area of the aforementioned old clay pit, which presumably has been infilled.

1942 - 1946

Three structures, which appear to be dwellings, have now been constructed 50m to the north of the site. A holiday camp is now present 100m to the north.

1957

No significant changes visible within 250m of the site.

1968 - 1969

Extensive residential development has occurred to the immediate north and northwest of the site, with dwellings aligning the newly developed Northney Lane running west to east around 50m to the north of the site at its closest.

1972

The holiday camp to the north has been extended, and is now known as Northney Holiday Village. A playing field is present 20m to the west of the site.

1993

No significant changes visible within 250m of the site.

1994

A tank is shown around 10m to the south of the subject site building, and two new large structures (presumed to be barns) have been constructed on the southeastern section of the outer-lying farm, around 70m to the southeast of the subject building.

The aforementioned Northney Holiday Village to the north no longer appears to be present.

2002

The former holiday village land to the north has now been developed with dwellings.

2010 - 2014

No significant changes visible within 250m of the site.

2.3 Historical and archaeological records

Hayling Island is an island located in the Borough of Havant, east of Portsmouth.

Occupation of the area is known to date back to the Iron Age, whereupon a shrine was once located in the north of the island. This subsequently became a Roman temple in the 1st Century BC.

Early industry on the island included salt production between the 11th and 19th Centuries, mackerel fishing, shellfish harvesting and farming.

In the 20th Century the island had a brick making industry, which was situated close to copses (for kiln wood) and close to the water for barge transportation.

In the 1820s, an attempt was made to turn the island into a seaside resort, but this was not successful. The island industry industries remained as farming or fisheries until the early 20th Century. In 1824, a wooden bridge was constructed across the channel to Langstone, to connect the island to the mainland.

Although farming on the subject site has existed for well over 150 years, Northney Farm itself was developed during the 1930s. Prior to which large parts of the land were sectioned off into small holdings and allotments. The farm has subsequently been divided into dairy farming and arable crops.

2.4 Identified historical commercial/industrial sites

Through reference to historical data, there has been one potentially significant feature within 200m of the site, which was an old clay pit located 149m to the southeast (dated 1907 - 1909).

There has been one recorded historical tank existing within 200m of the site, which is an unspecified tank located 4m to the southeast of the site boundary (dated 1994 - 1996).

There is one recorded historical energy feature within 200m of the site, which is an electricity substation, located 46m to the northwest (dated 1994 - 1996).

There are 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 are discussed below in Section 3.

3 Current setting

3.1 General

The subject site exists as adjoining farm outbuildings, within a working farm location. It is accessed directly from St. Peter's Road to the west, via the main farm entrance and car parking area.

The buildings form an 'L' shaped arrangement, of which the western-most section is a single-storey brick structure with a slate roof. This was the former cart-shed constructed around the turn of the 20th Century. The front part of this building exists as two separate sections, of which the right-hand side has concrete ground cover, and is in use for the storage of wood and vehicles. The ground surface is in a reasonable state of repair and shows only light localised staining.

The left-hand side of the former cart-shed is being used for general storage, much of which appears to be plumbing/heating related. Storage within this area is extensive, and the ground surface is compacted soil. This was notably stained in some areas.

At the rear of the cart-shed section of the building there is a concrete courtyard. The surface here shows extensive cracking and repairs. This area slopes southwards towards the main cow-shed, at the front of which there is a yard drain or soakaway. The cow-shed is constructed from 'presumed' asbestos cladding to the roof and upper walls. There is also a large silo in the corner of the yard, which is understood to have only ever been used for grain.

The section of building that extends eastwards from the cart-shed is being used as calf pens. The ground surface here has concrete cover overlain by straw. This section of the building adjoins a two-storey extended brick-built, slate-roofed building, within which the flooring is part stone blocks and part concrete. The flooring is in a good state of repair, and only shows minor staining. This building was also originally designed for the keeping of livestock; as indicated by a central drainage gulley and feeding trough, but is now used for general storage.

This eastern-most section abuts a large barn used for hay bale storage. This also appears to have the upper walls and roof clad with cement-bonded asbestos panelling. At the eastern façade of the subject building there is a small area of land that is expected to become a soft landscaped garden for the proposed dwelling. This is currently extensively overgrown with vegetation of low ecological value, and also houses a number of bee hives.

Beyond the farm entrance to the west there are open fields, whereas to the immediate north and south of the entrance there are residential properties. Photographs 1 to 11 below show some of the features described above.

Photograph 1 Showing the entrance onto the site



Photograph 2 Showing the former cart-shed on the western section of the site



Photograph 3 Showing the storage inside the former cart-shed



Photograph 4 Showing the calf pens at the rear of the cart-shed



Photograph 5 Showing inside the calf pens



Photograph 6 Showing the courtyard at the rear of the cart-shed



Photograph 7 Showing the eastern-most section of the subject building



Photograph 8 Showing inside the eastern-most section



Photograph 9 Showing the adjacent silo and hay barn



Photograph 10 Showing the proposed garden area



Photograph 11 Showing St. Peter's Road looking northwestwards



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 250m of the site include:

- dairy farming - 34m to the south of the site;
- an electricity substation - 49m to the northwest of the site;
- aircraft charters - 134m to the northeast of the site;
- container and storage services - 226m to the southeast of the site; and
- a water pumping station- 237m north of the site.

There are no recorded petrol or fuel sites located within 250m 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.

4 Environmental setting

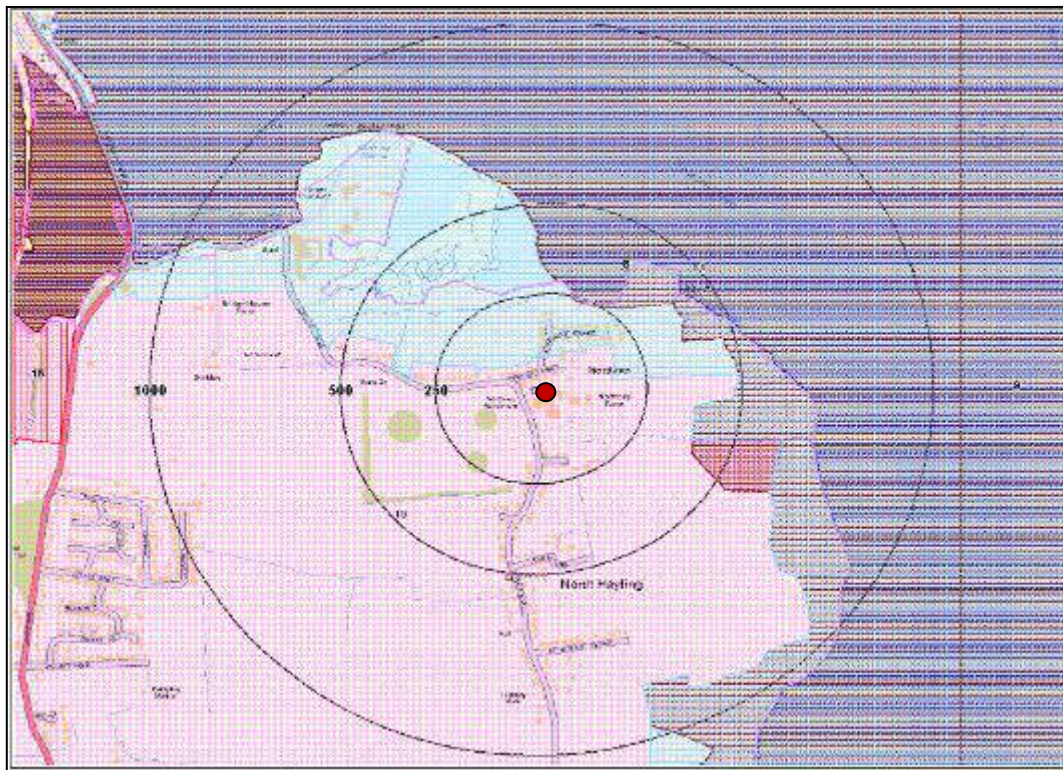
Ordnance Survey maps were used in conjunction with the MAGIC website (formerly English Nature's Nature on the Map) in order to ascertain the location of sensitive habitat areas and other places of special or scientific interest within the vicinity of the site.

The site itself is located within 68m of Chichester Harbour, which is an Area of Outstanding Natural Beauty (AONB).

There are three Sites of Special Scientific Interest (SSSI) located within 2km, the nearest being Chichester Harbour located 239m north, which is also a Special Protection Area (SPA). Solent Maritime, which is a Special Area of Conservation (SAC) is located 247m north of the site.

Figure 1 below shows the proximity of these highlighted areas.

Figure 1 Location of nearest environmentally sensitive areas



● Subject site

(Reference: Natural England (MAGIC))

5 Geology

5.1 Bedrock

Geological data states that the underlying geology of the specific area upon which this site lies consists of the Lewes Nodular, Seaford, Newhaven, Culver and Portsdown Chalk Formations. These sedimentary bedrocks were formed approximately 72 to 94 million years ago in the Cretaceous Period when the local environment was dominated by warm chalk seas.

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

5.2 Superficial deposits

This bedrock is reported to be overlain by river terrace gravels. 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 concrete site surface.

5.4 Borehole data

British Geological Survey (BGS) borehole data has been consulted for this study. Three boreholes have been selected as they are expected to share similar geological strata to that which is present beneath the site surface or are within close proximity of the site.

SU70 SW56 refers to a borehole at Hayling Island main drain BH44, 40m to the north, which continued to a depth of 3.04m.

The log details 0.61m of topsoil underlain by 1.83m of firm brown sandy clay. From here to the base of the borehole 0.6m of brown sandy clay with flints and chalk was present. Groundwater was not recorded.

SU70 SW57 refers to a borehole at Hayling Island main drain BH45, 50m to the west, which continued to a depth of 6.1m.

The log details 0.3m of topsoil underlain by 2.14m of firm brown sandy silty clay. This was subsequently underlain by 1.22m of hard, silty sandy clay with flints. From here to the base of the borehole 2.44m of hard and soft chalk with some flints was present. Groundwater was not recorded.

SU70 SW60 refers to a borehole at Hayling Island main drain BH47, 250m to the south, which continued to a depth of 3.7m.

The log details 0.61m of topsoil by soft brown sandy clay with chalk and flints to 3.05m, overlying soft brown sandy clay to 3.35m, and then with chalk to the base of the borehole. The groundwater depth was not recorded although seepage was noted at the base of the bore.

5.5 Radon affected areas

According to the Health Protection Agency (HPA) mapping, the site is not located within a radon affected area, as less than 1% of properties are expected to be above the 'Action Level'.

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 the Coal Authority the site is not located within an identified mining area.

6 Hydrology

6.1 Groundwater

The expected geology for the specific area of the site is bedrock of the Upper 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.

Despite the presence of the aquifer the borehole logs referred to do not appear to show groundwater presence at a vulnerable depth in this area. This is supported by the fact that the site does not lie within an Environment Agency designated Groundwater Source Protection Zone.

6.2 Surface water

There are no significant surface water features within 200m of the site, although it is quite possible that there may be some land drains in the vicinity of the farm.

With regards to the movement of surface run-off at the site, much of the land is hard-surfaced, and consequently it is not expected for water to percolate directly into the ground within such areas.

A soakaway or storm water storm drain is however present to the south of the courtyard area, and is believed to have been managing all over-land flow in this part of the site.

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 two historic landfill sites within 1500m of the site.

The closest of these was on land at a former football pitch, 302m to the northeast of the site, where it is understood that inert waste was accepted from 1991.

It is not known when this site ceased operation. It is suspected that this may have been for ground engineering purposes.

7.2 Infill

Records indicate that land infilling may have occurred within the surrounding area, with several features reported within 500m of the site according to the referenced environmental datasheets; the closest of refers to a pond located 91m south of the site.

Through reference to historical mapping this pond appears to have been infilled sometime in the late 1960s prior to the development of this area for housing.

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 Hayling Island 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 Havant Borough Council planning records there appear to have been no requests for contaminated land investigations within the vicinity of the site; hence no other reports were consulted during the compiling of this current report.

8.3 Environmental incidents

Environmental datasheets state that there have been no recorded pollution incidents within 500m of the site.

8.4 Discharge consents

There is one active licensed discharge consent within 250m of the site, located on the outer-lying area of Northney Farm, 58m to the southeast. The licence relates to the discharge of unspecified trade effluent into the freshwater river.

9 Conceptual site model

9.1 Sources

This report has identified that the site appears to have been in agricultural use for over 150 years, although perhaps in its more current form since the 1930s. This is understood to have included both dairy and arable farming.

More specifically, the buildings on the area of land forming the subject site appear to have been constructed during the 1890s for a number of associated activities, including cart storage, animal pens and grain storage.

The majority of these building areas have concrete flooring, however part of the western-most section of the subject building has compressed soil ground cover.

The internal areas are currently being used for general storage, other than the open-sided calf pens at the rear. There was no evidence of liquid storage, such as agricultural chemical applications, or of fuel storage. It is understood that there had once been an above ground fuel tank adjacent to the cow shed, some 40m from the subject site boundary, which has since been moved to a bunded location further away.

The tank highlighted on environmental datasheets to the immediate southeast of the subject site has been identified as a grain silo.

The courtyard area is concrete covered, although in a poor state of repair. It is not expected for this to have seen any specific use, other than possibly for the temporary parking of agricultural vehicles. It is expected for this concrete cover to be underlain by made-ground and/or hardcore, although it is not expected to extend to any significant depth.

A small area of soft landscaping to the immediate east of the subject building is currently overgrown, and was inaccessible at the time of the walkover. It is quite possible that this also has seen general (or temporary) storage of items over the years.

It is not expected for any of the subject building to have asbestos materials present, nor to have had asbestos materials present previously. It is however noted that the hay barn that abuts the southeastern corner of the eastern section of the building has been clad with presumed cement-bonded asbestos panelling.

There do not appear to have been 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 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;
- volatiles from the storage of solvents or similar items;
- asbestos (possible residue within hardcore base) and/or from other nearby structures; 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 considering the information made available for this report, there is little to suggest that groundwater or other off-site media are at risk from contamination in this location. These are therefore not considered to be viable receptors in this instance.

9.3 Pathways

The development proposal is to redevelop the subject building for residential use with an associated area of 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; and
- direct contact with main services and building fabric below ground.

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; and
- contact with building materials and services - some inorganic contaminants within the soil may affect the properties of either through direct contact.

9.4.2 Hydrocarbons and volatiles

- 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 - organic vapours may be inhaled by construction workers or future occupiers;

- ignition of vapours - organic vapours have the potential to be flammable or possibly explosive; and
- contact with building materials and services - organic residue within the soil may affect the properties of either through direct contact.

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 and future occupiers; and
- ignition - explosive 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 nature and presence of groundwater beneath the site is similarly not known. This includes the possible rest level and flow direction; although this report has concluded that the groundwater is likely to be present at a vulnerable depth.

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 in residential use with a soft landscaped garden.

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 and other organics, 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.

Table 1 (Cont.) Perceived risk to receptors

Source(s) identified	Identified pathways	Overall risk	Comments
Possibly heavy metals and other inorganics, hydrocarbons and other organics, asbestos and ground gases	Ingestion of vegetables and soil attached to 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 is deemed to be low-moderate.
	Inhalation of gases or vapours (indoors and outdoors)	12	There is a possibility that hydrocarbon or other solvent 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 organic substances 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.

10 Summary and recommendations

10.1 Summary

This report has been prepared in support of the proposal to a single dwelling with soft landscaped gardens. It has identified the only former use of the site as being associated with cattle and arable farming, which appears to have been occurring here, in some form, for at least 150 years.

The subject building itself appears to have been used throughout this time for general storage and livestock rearing; and continues to do so. The majority of this has been performed on areas with hard ground cover, but not only is some of this in a poor state of repair, some areas exhibit a direct pathway to the underlying soil; either by means of soft or pervious cover.

As such, potential sources of ground contamination have been identified for this site due to this former use, in addition to which it is expected that the site could be underlain by made-ground or hardcore. The latter may well include materials now considered to be hazardous.

In addition to these possible sources, 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.

These linkages would be created by means of groundworks undertaken during the construction phase of the proposed development, and through the introduction of recreational soft landscaped garden areas.

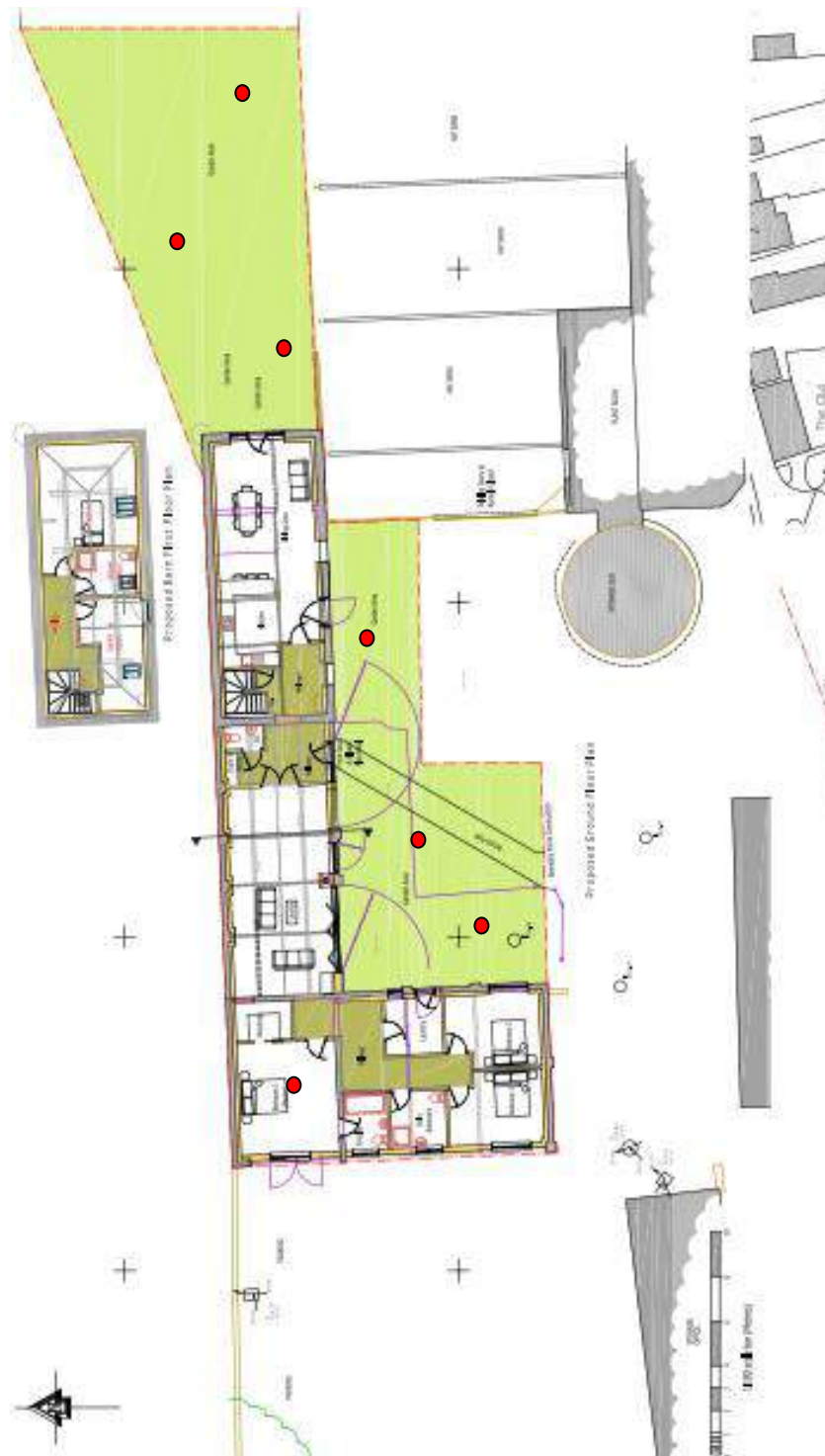
10.2 Recommendations

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. This should include proposed gardens areas as well as internal and external areas where the soil may not be completely protected.

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 7 locations, as approximately indicated below in Figure 4, in order to determine the nature of the sub-surface material and 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 Havant Borough 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.

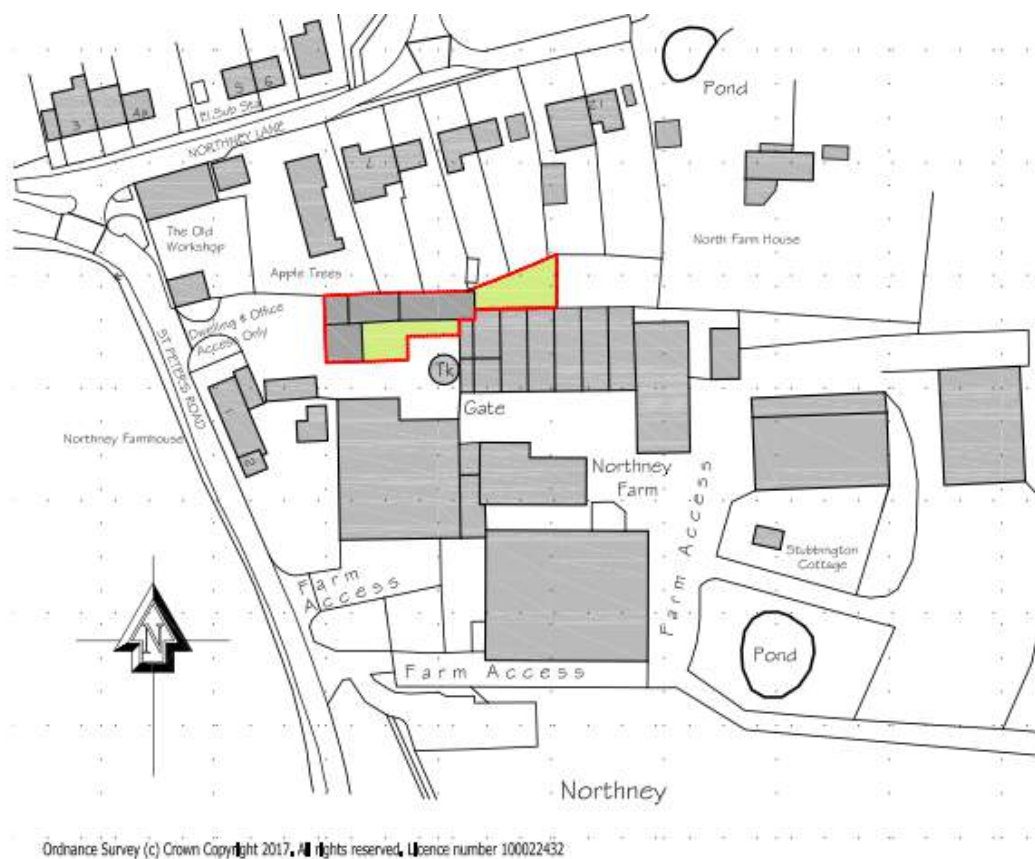
Apple Environmental Limited will not be held responsible for the accuracy of information quoted from third party sources, and furthermore will not be held responsible for any subsequent outcomes arising from the implementation of recommendations herein based on this information.

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>.
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5. Environment Agency website:
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6. <https://en.wikipedia.org/wiki/haylingisland>
7. <http://www.localhistories.org/hayling.html>
8. <https://haylingu3a.org.uk/hayling-in-prehistory-and-early-history-to-domesday/>
9. <https://northney.farm/about/history/>

APPENDIX I

Location plan



APPENDIX II

Historical maps

Site Details:

NORTHNEY FARM, ST PETERS
ROAD, HAYLING ISLAND, PO11
0RX

Client Ref: CL-2698-NF
Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: County Series

Map date: 1866

Scale: 1:10,560

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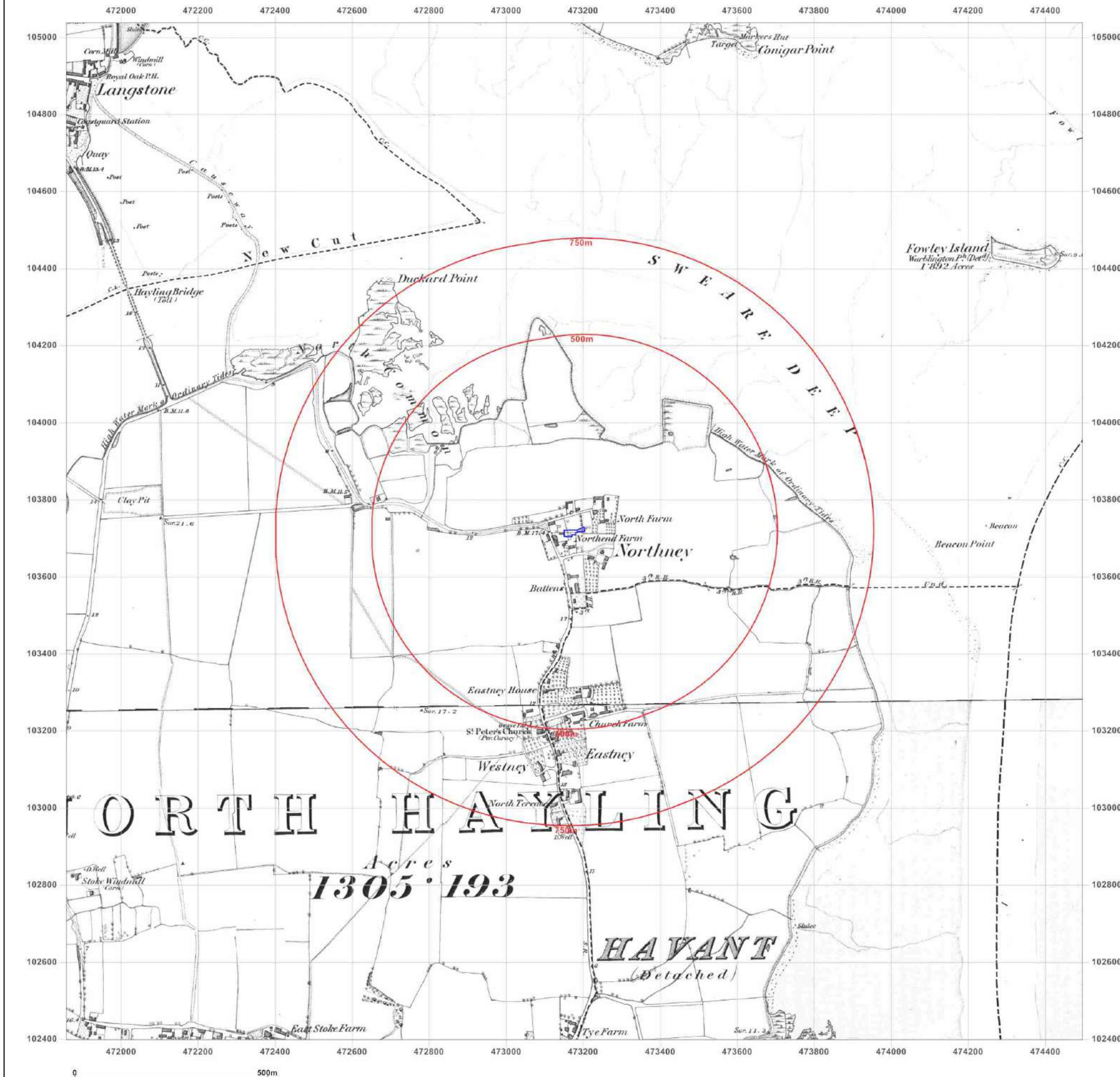


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ROAD, HAYLING ISLAND, PO11
0RX

Client Ref: CL-2698-NF
Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: County Series

Map date: 1896

Scale: 1:10,560

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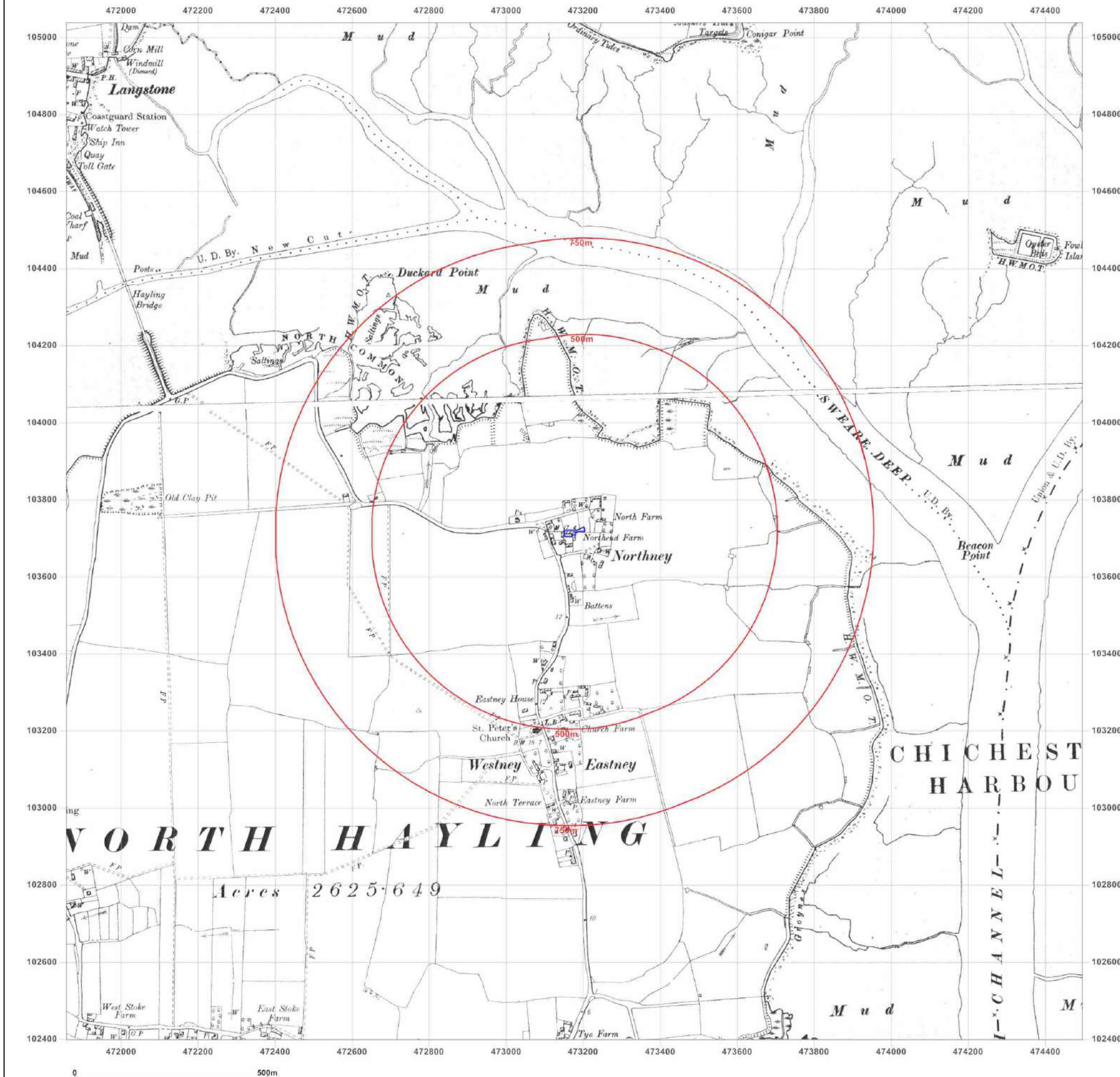


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Grid Ref: 473177, 103717

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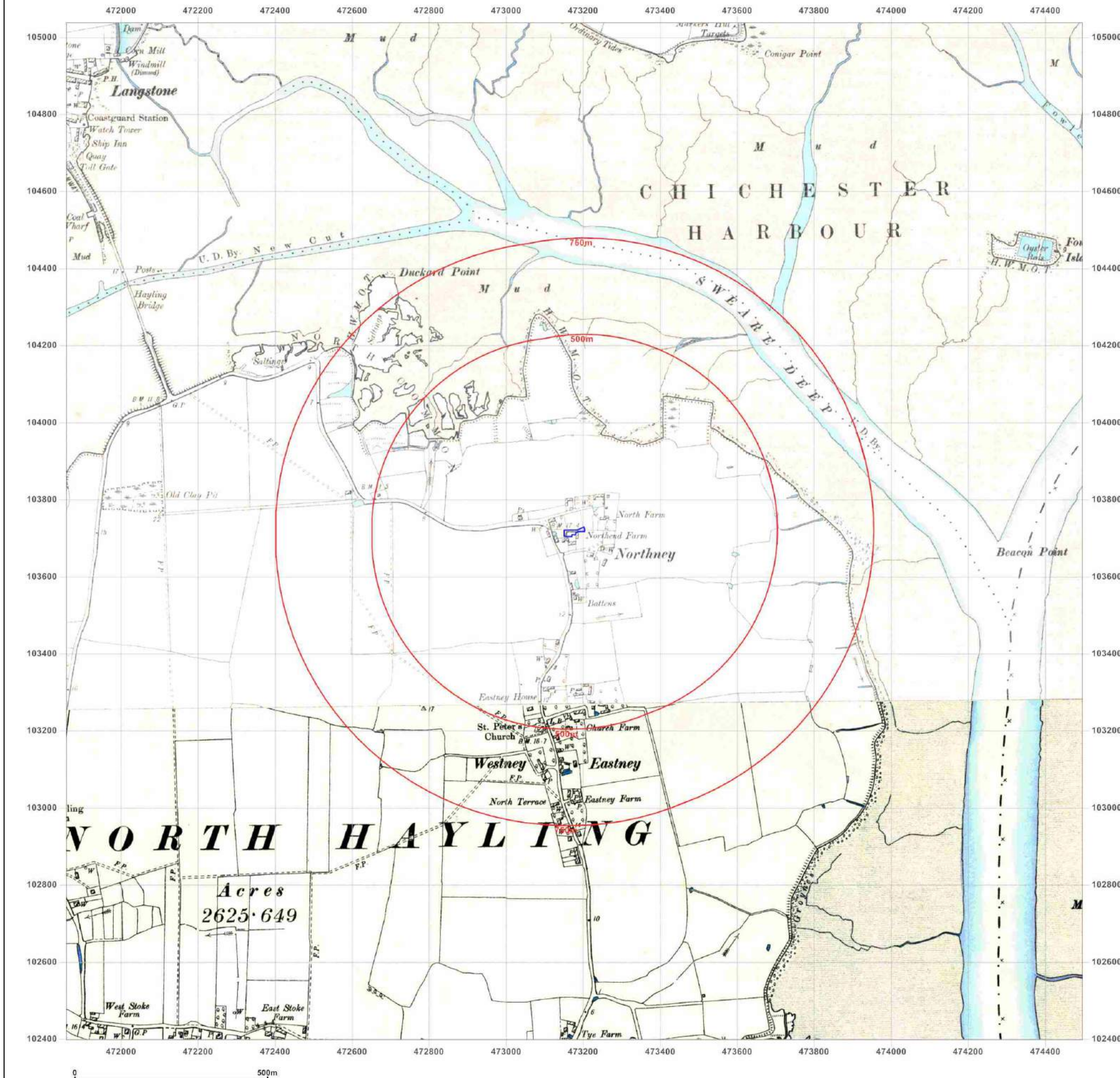


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Report Ref: GS-5950406
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Map Name: County Series

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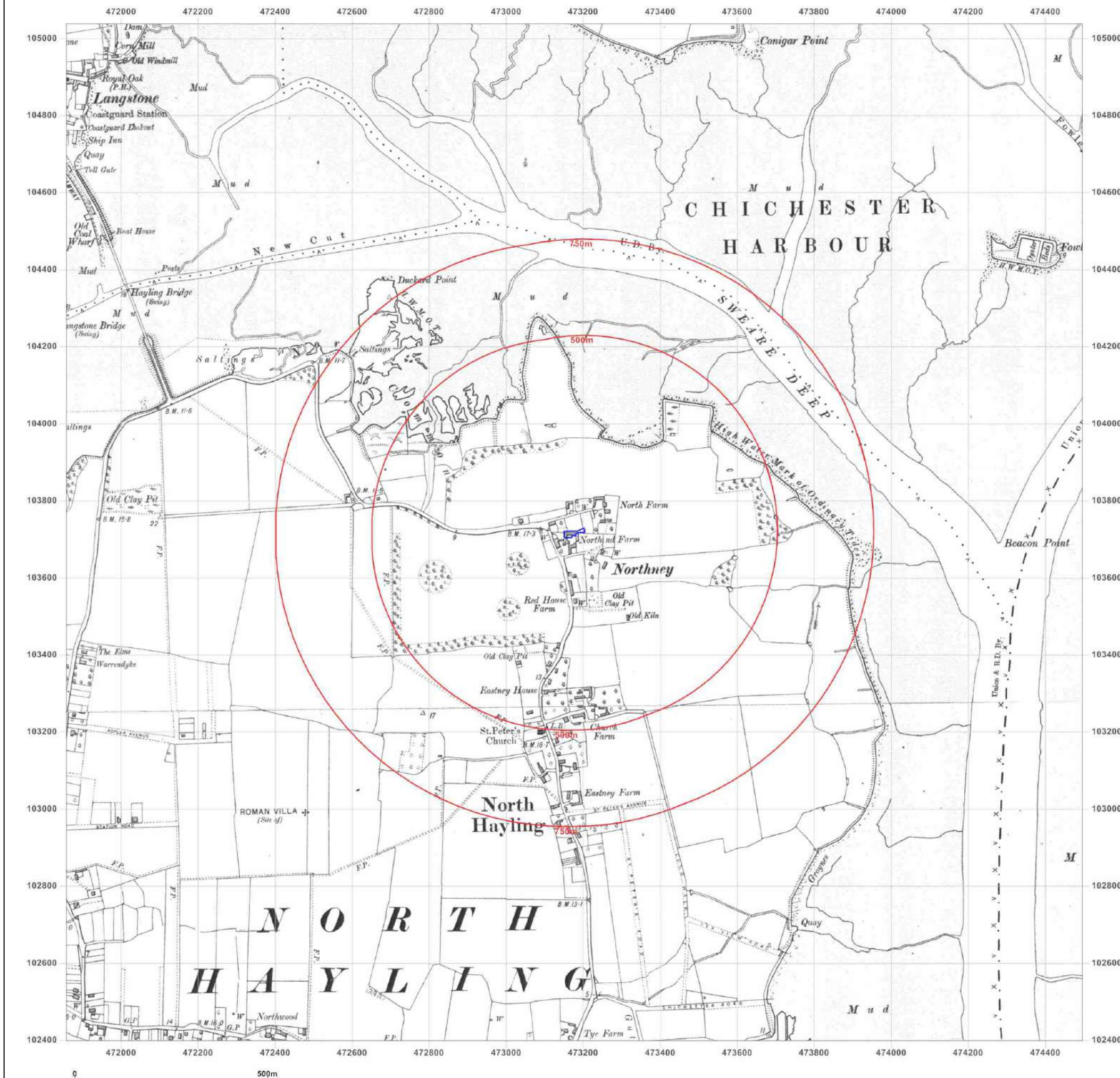


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Client Ref: CL-2698-NF
Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: County Series

Map date: 1909

Scale: 1:10,560

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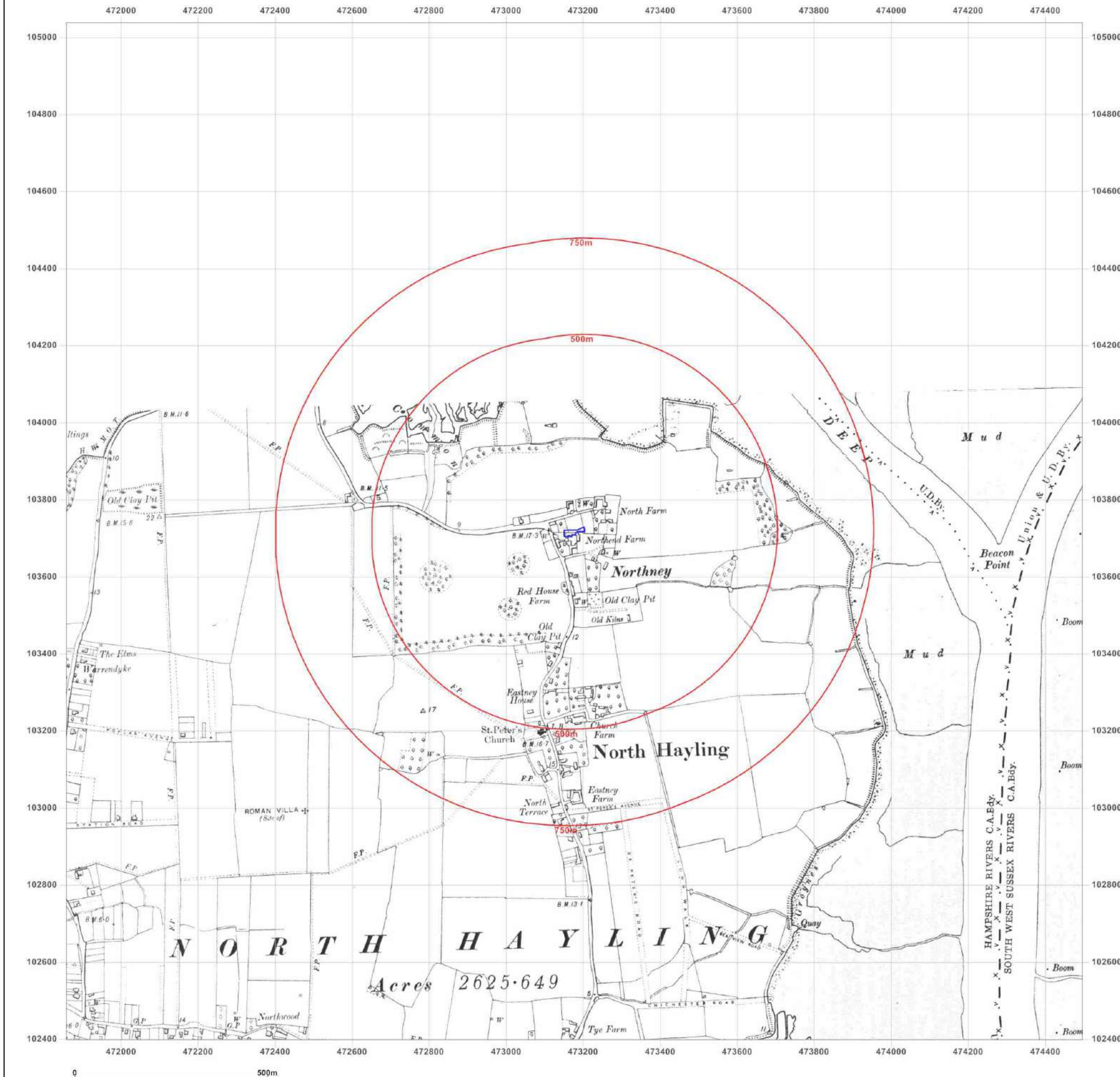


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Client Ref: CL-2698-NF
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Grid Ref: 473177, 103717

Map Name: County Series

Map date: 1909-1914

Scale: 1:10,560

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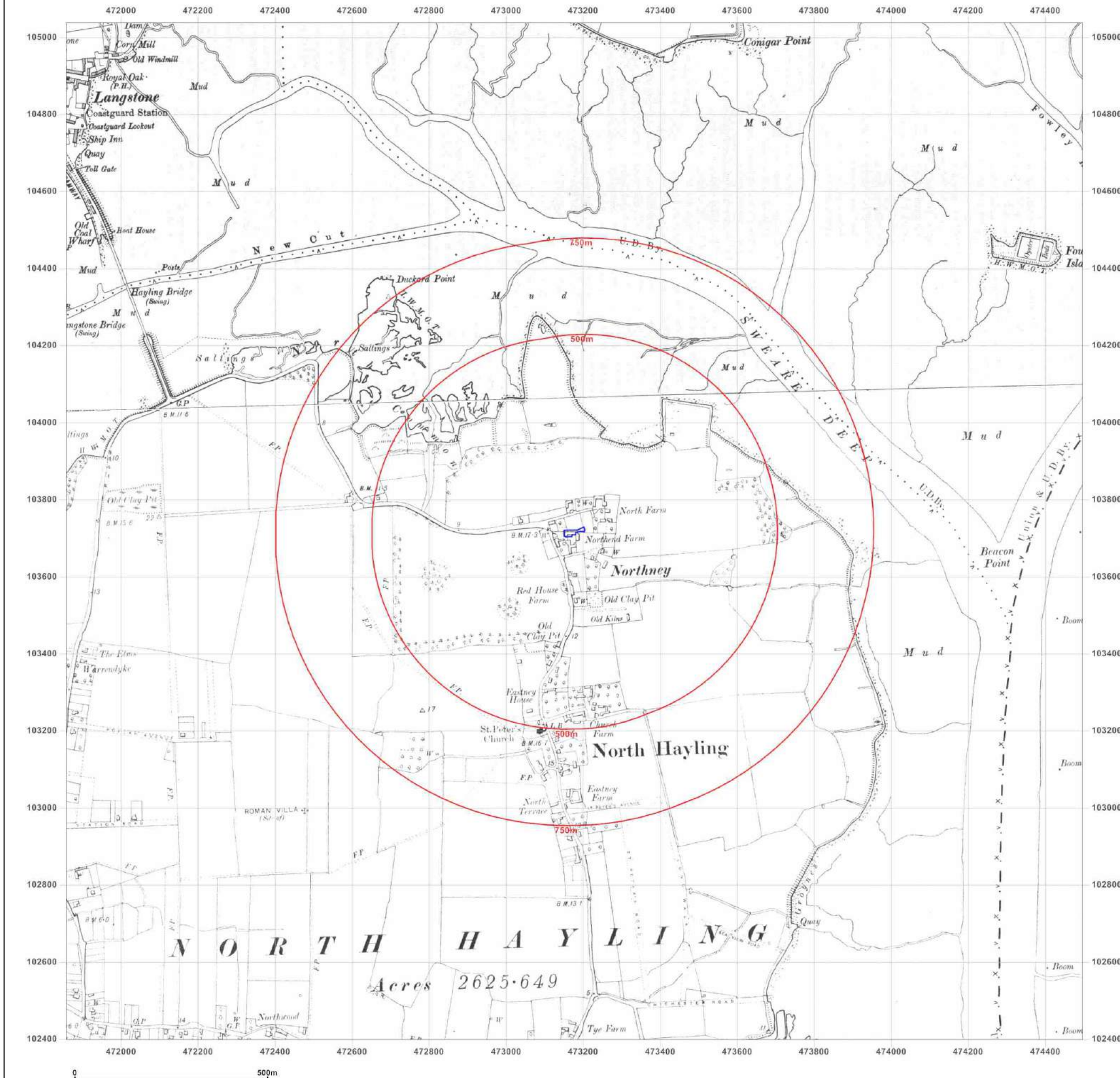


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Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: County Series

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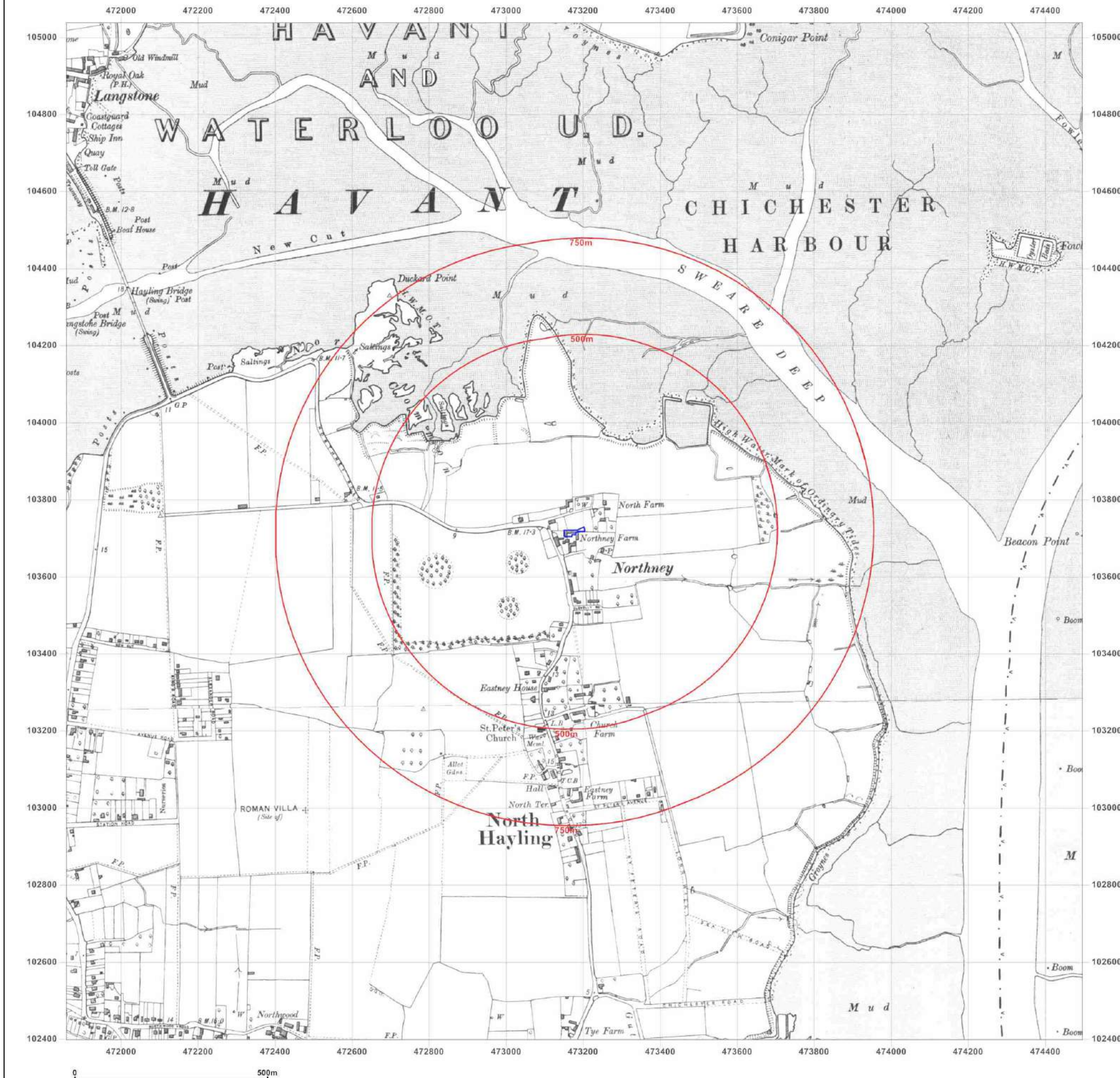


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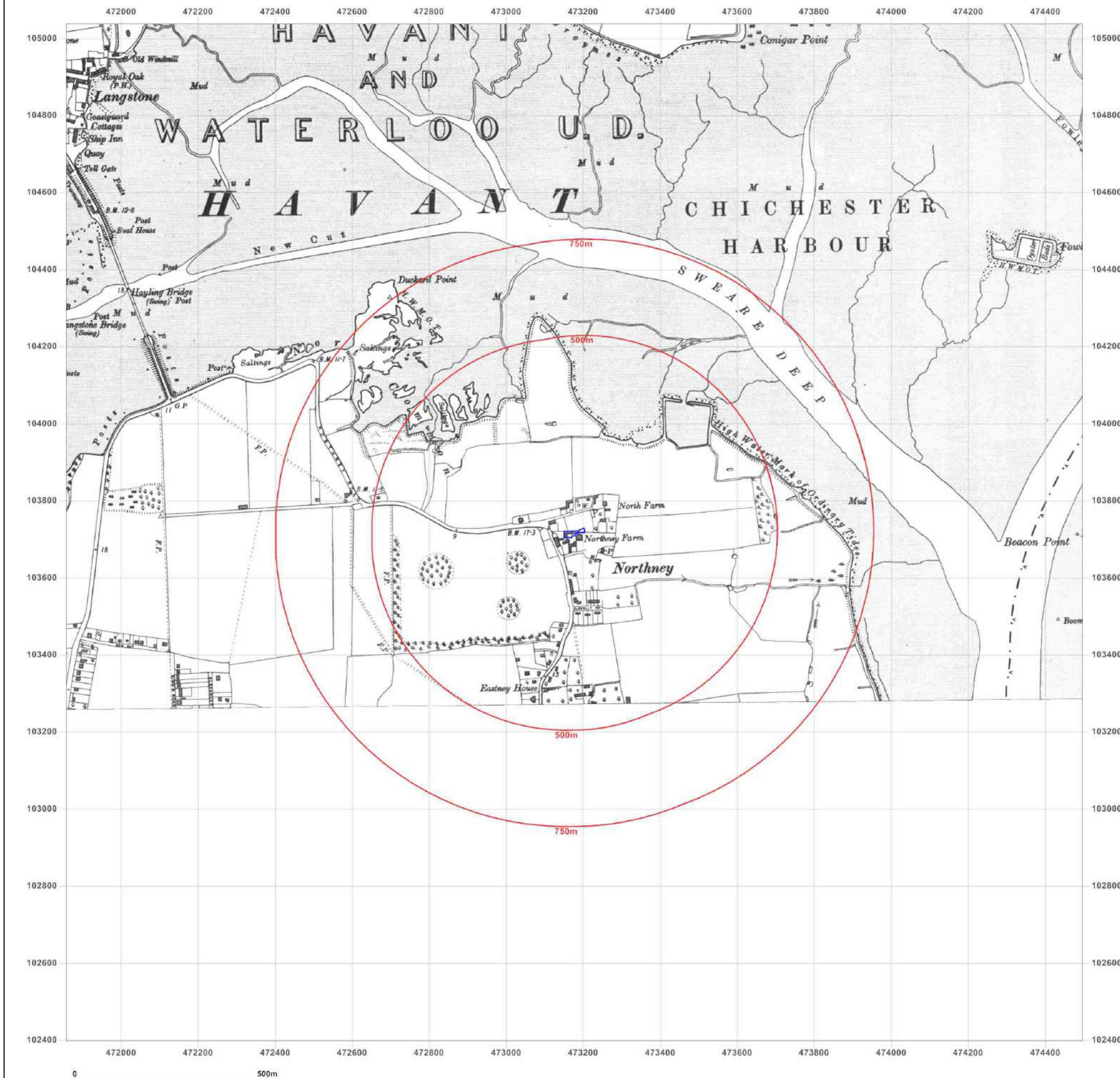


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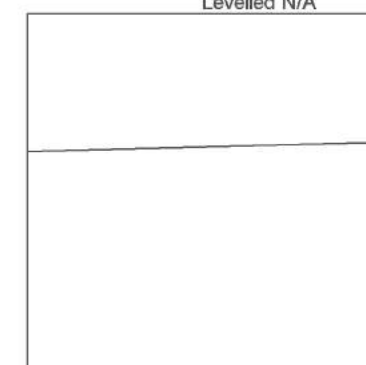
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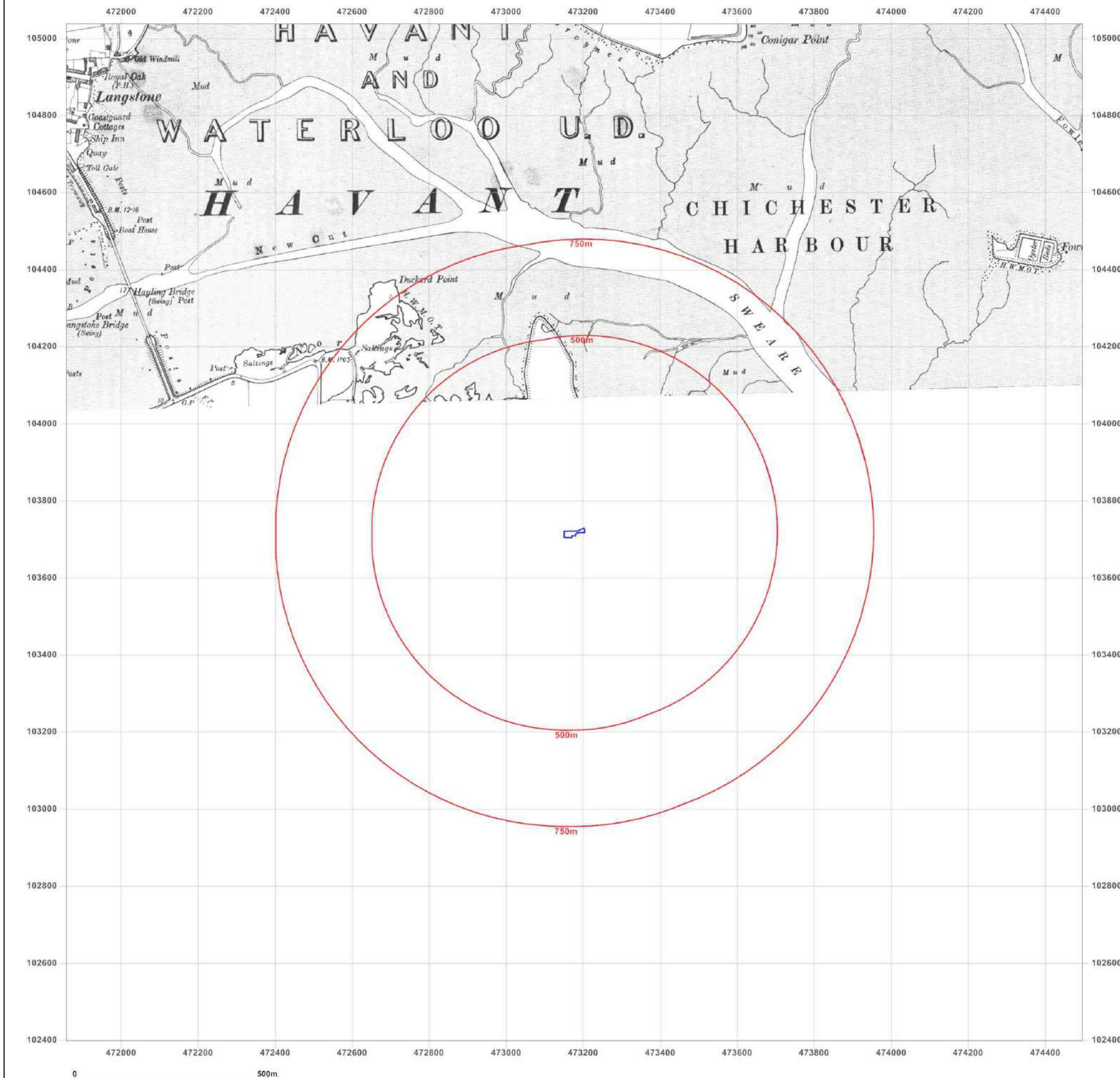


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Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: County Series

Map date: 1938-1942

Scale: 1:10,560

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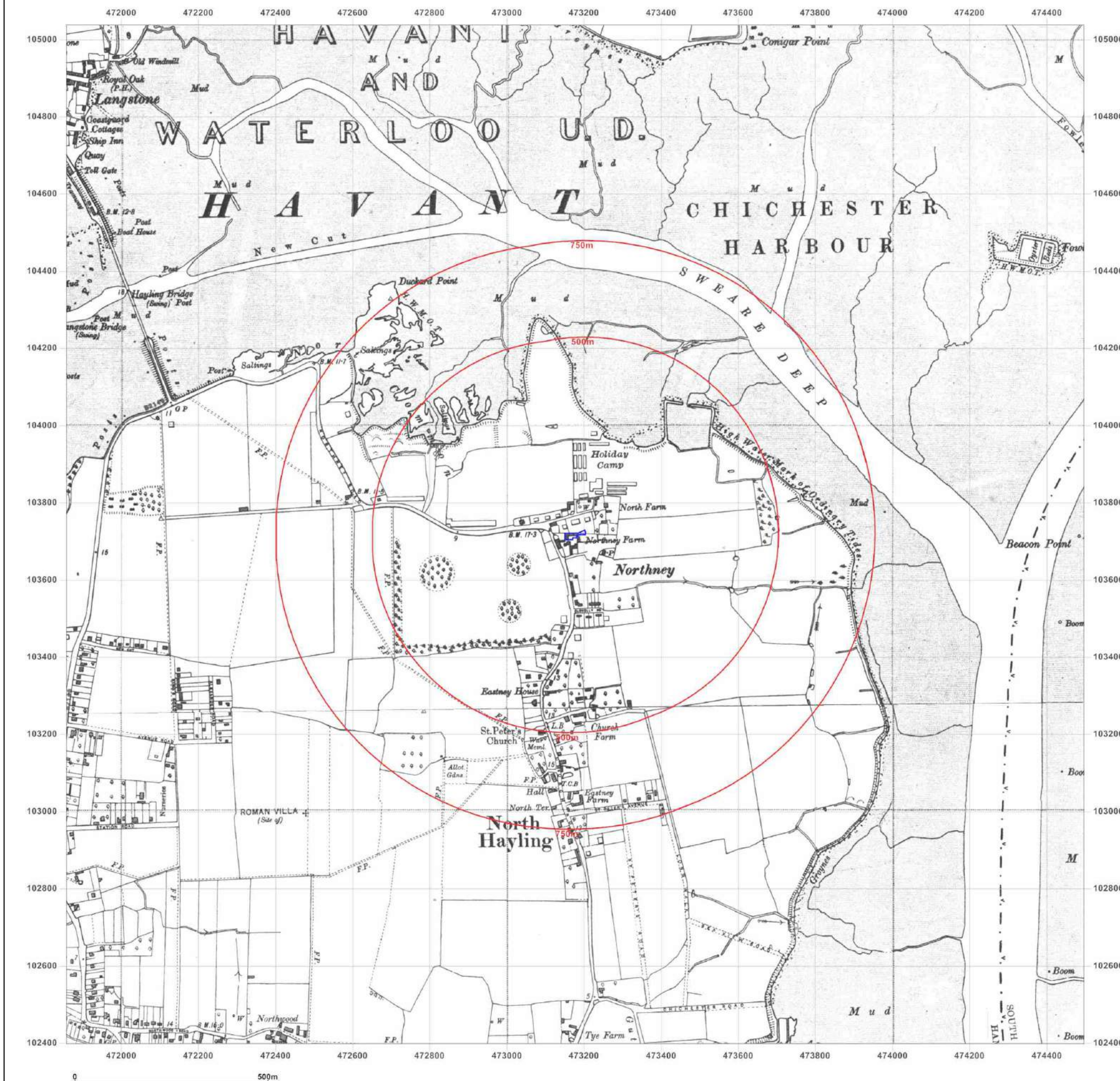


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Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: County Series

Map date: 1946

Scale: 1:10,560

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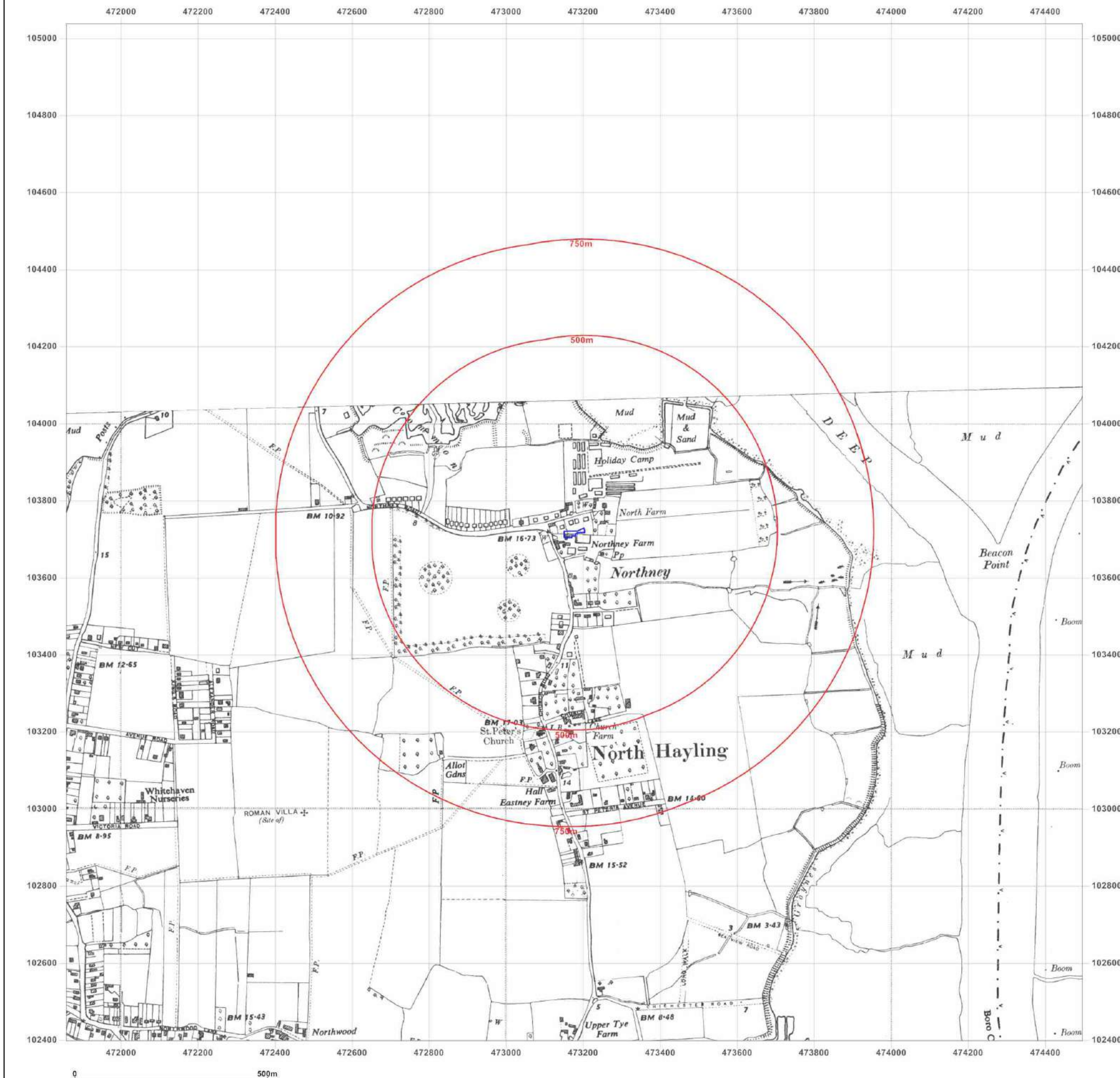


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Client Ref: CL-2698-NF
Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: Provisional

Map date: 1957

Scale: 1:10,560

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Surveyed 1957
Revised 1957
Edition N/A
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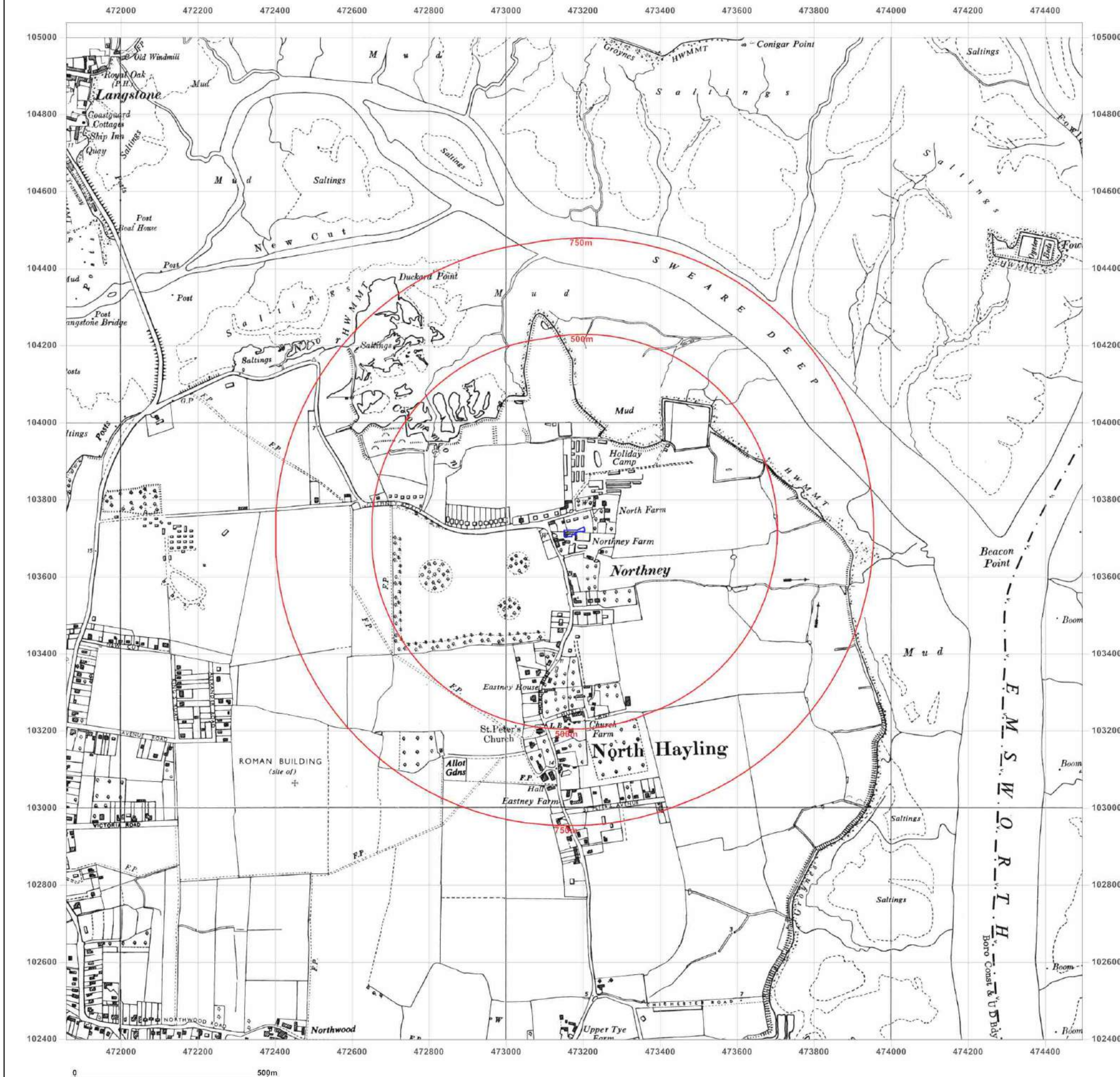


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Client Ref: CL-2698-NF
Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: National Grid

Map date: 1972

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1968
Revised 1972
Edition N/A
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Levelled 1971

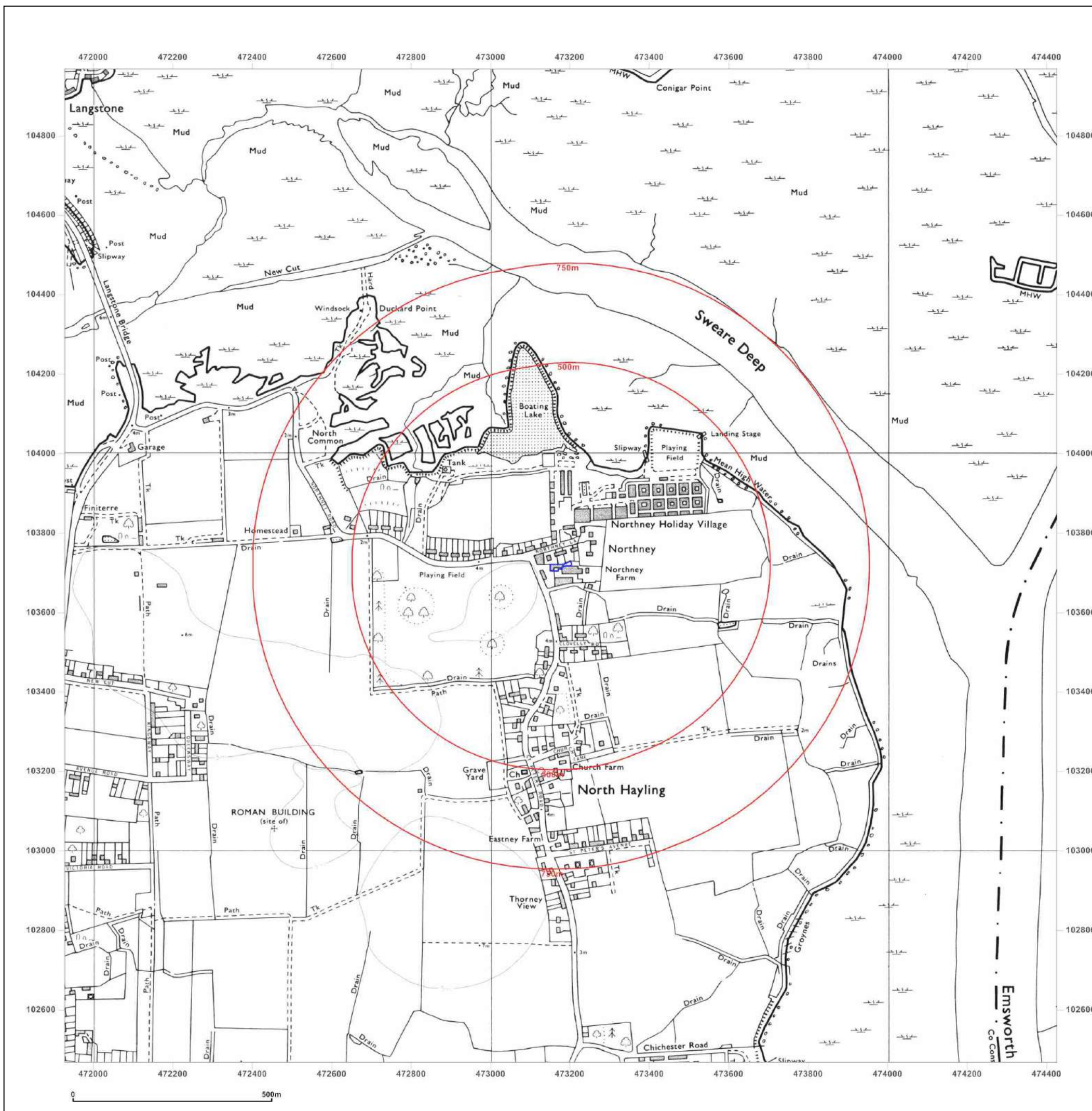


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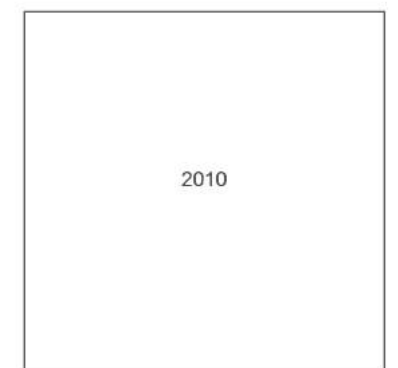
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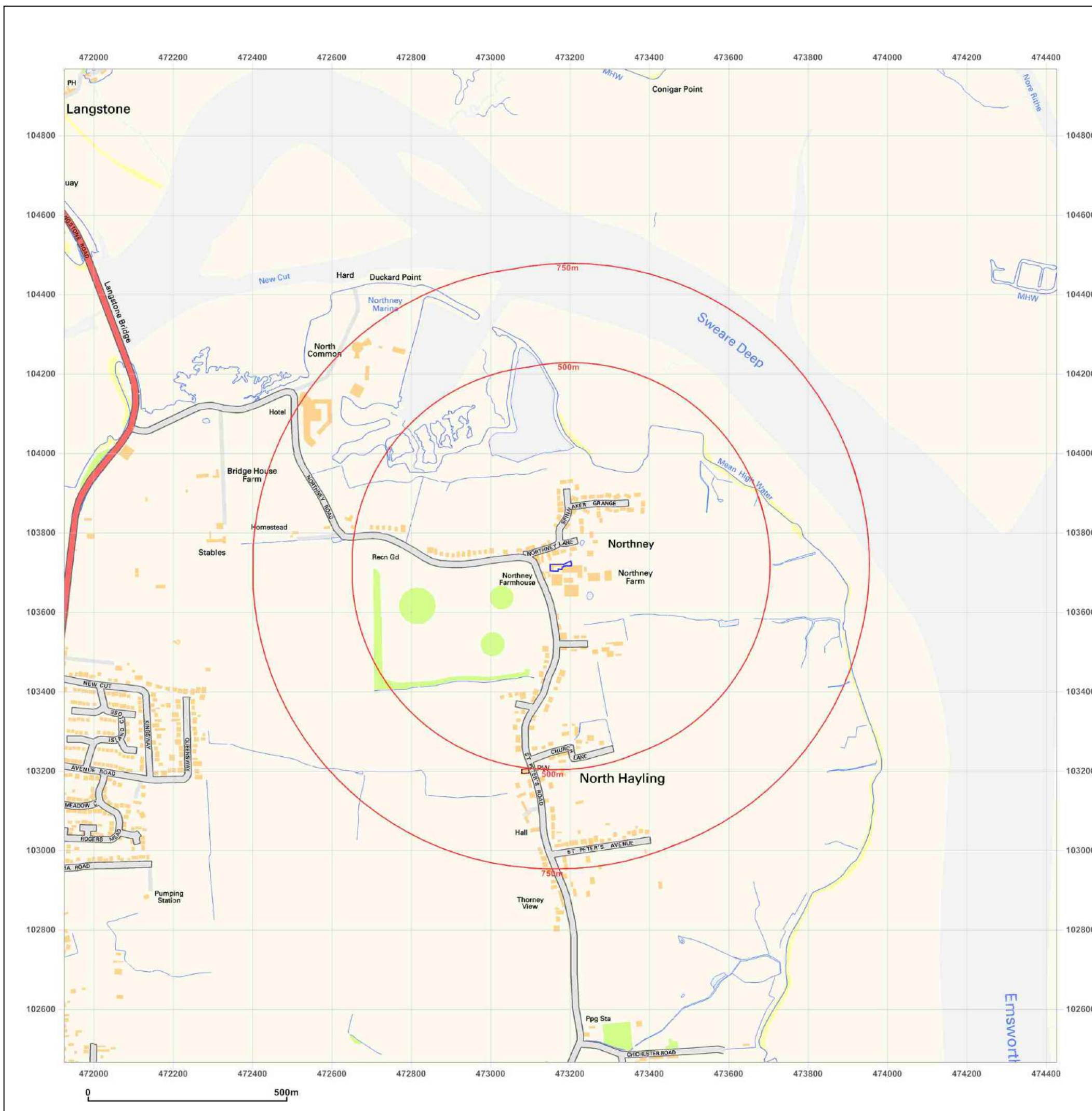


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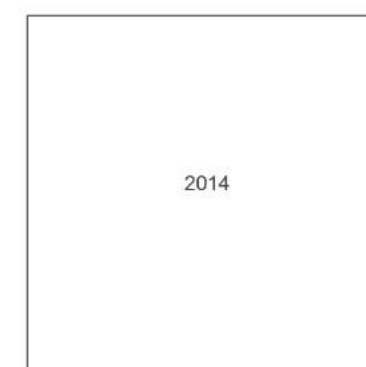
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Report Ref: GS-5950406
Grid Ref: 473177, 103717

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000

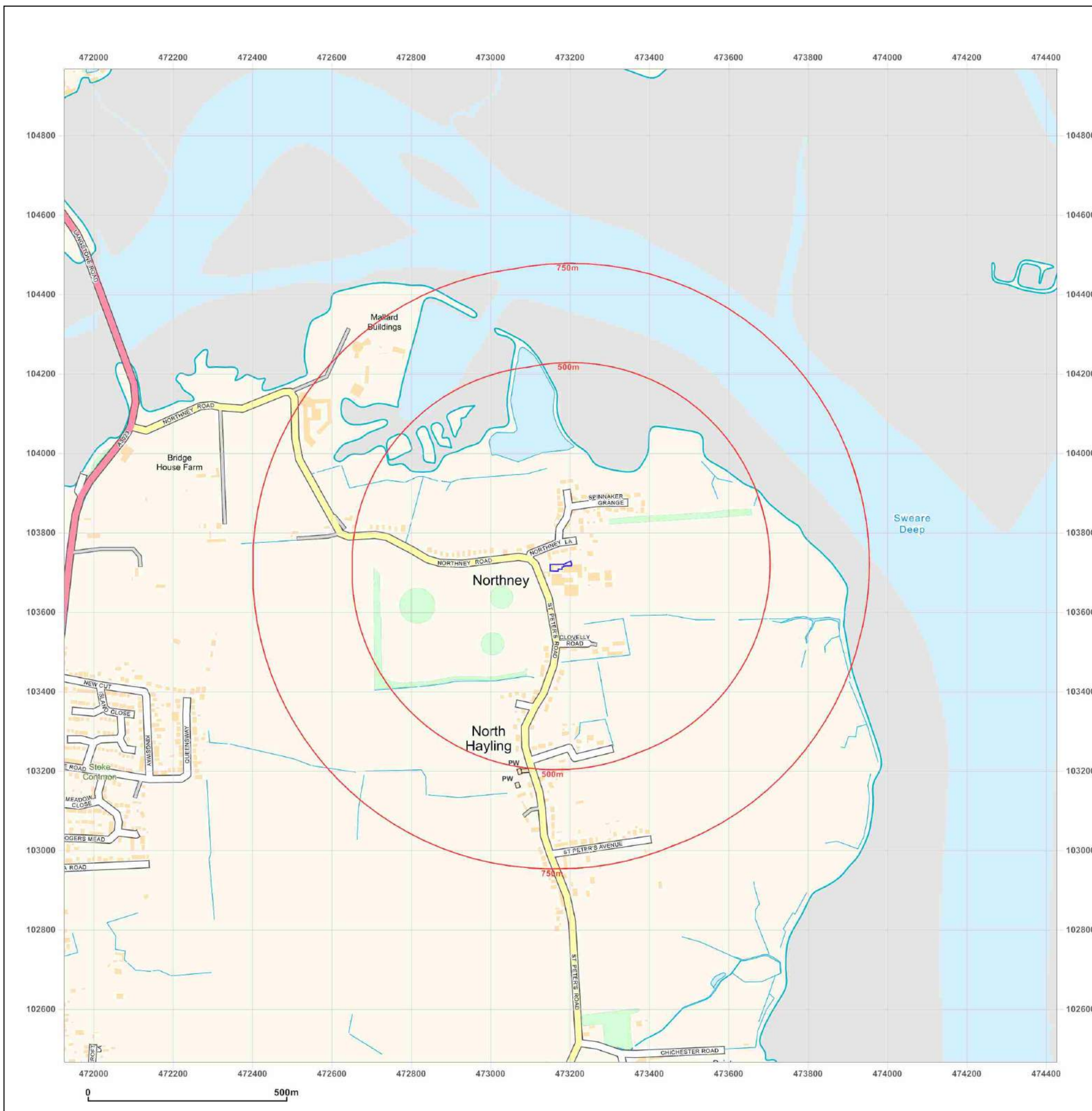


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APPENDIX III

Environmental datasheets

Address: NORTHNEY FARM, ST PETERS ROAD, HAYLING ISLAND, PO11 0RX
Date: 16 Apr 2019
Reference: GS-5950405
Client: Apple Environmental Ltd



Aerial Photograph Capture date: 28-Jun-2018
Grid Reference: 473161,103711
Site Size: 0.0634ha

Report Reference: GS-5950405
Client Reference: CL-2698-NF

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Overview of Findings

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1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	12	18
1.2 Additional Information – Historical Tank Database	0	2	0	1
1.3 Additional Information – Historical Energy Features Database	0	2	0	0
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	12	29
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	0	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	1	1
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	0	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	1	0	1
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	1
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	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	2	3	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
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	0	0	0
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	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	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	0	1	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	16	66	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Environment Agency Zone 2 floodplains within 250m of the study site	Identified					
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	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	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	1	0	0	2
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	1	0	0	1
8.4 Records of Special Protection Areas (SPA)	0	0	1	0	0	1
8.5 Records of Ramsar sites	0	0	1	0	0	6
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	4
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	0	1	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	1	0	0	0	0	2
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	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	Very 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	Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	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 not in a Radon Affected Area, as less than 1% 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	None 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.

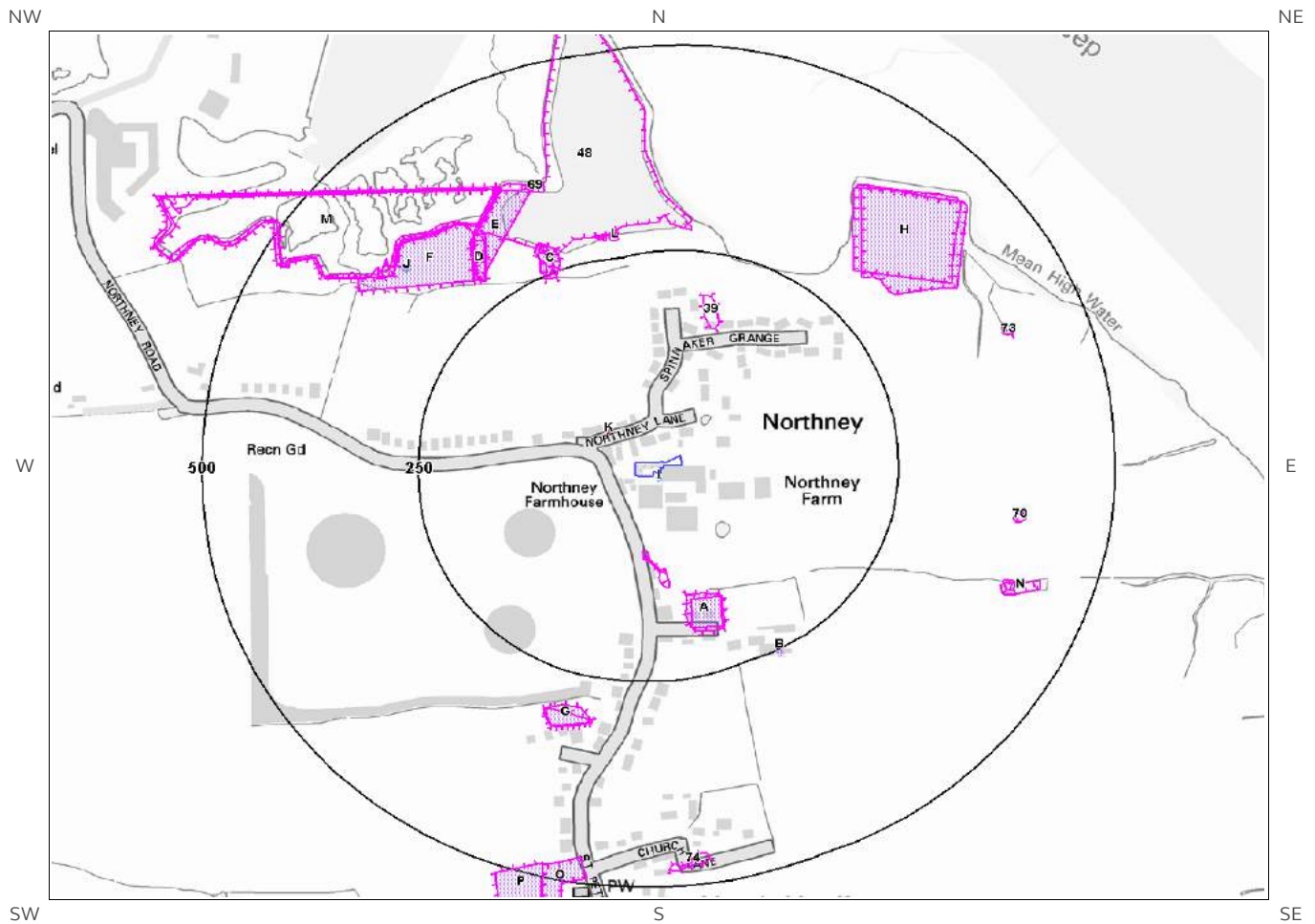
Note: Maps

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).

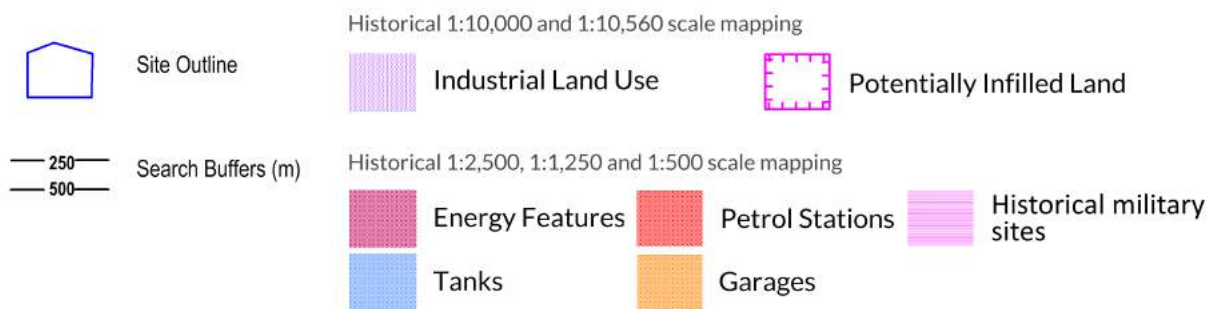
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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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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: 30

ID	Distance [m]	Direction	Use	Date
1A	149	S	Old Clay Pit	1907
2A	156	S	Old Clay Pit	1909
3B	240	SE	Unspecified Old Kiln	1907
4B	243	SE	Unspecified Old Kilns	1909
5C	243	N	Unspecified Heap	1957
6C	248	N	Unspecified Heap	1907
7C	248	N	Unspecified Heap	1942
8C	248	N	Unspecified Heap	1931
9C	248	N	Unspecified Heap	1896
10C	248	NW	Unspecified Heap	1946
11C	248	NW	Unspecified Heap	1909
12C	248	NW	Unspecified Heap	1896
13D	281	NW	Unspecified Heap	1957
14D	281	NW	Unspecified Heap	1931
15D	281	NW	Unspecified Heap	1942
16D	281	NW	Unspecified Heap	1896
17D	281	NW	Unspecified Heap	1907
18E	285	NW	Unspecified Pit	1909
19E	285	NW	Unspecified Pit	1896
20E	285	NW	Unspecified Pit	1946
21G	289	S	Old Clay Pit	1907
22F	289	NW	Unspecified Pit	1896
23F	289	NW	Unspecified Pit	1946
24F	289	NW	Unspecified Pit	1909
25G	299	S	Old Clay Pit	1909
26H	301	NE	Unspecified Pit	1896
27H	303	NE	Unspecified Pit	1866
28J	350	NW	Unspecified Tank	1970
29O	468	S	Grave Yard	1866
30P	483	S	Grave Yard	1970

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: 3

ID	Distance (m)	Direction	Use	Date
31I	4	SE	Unspecified Tank	1994
32I	4	SE	Unspecified Tank	1996
33J	350	NW	Unspecified Tank	1968

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: 2

ID	Distance (m)	Direction	Use	Date
34K	46	NW	Electricity Substation	1994
35K	46	NW	Electricity Substation	1996

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: 41

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

ID	Distance(m)	Direction	Use	Date
36	91	S	Ponds	1896
37A	149	S	Old Clay Pit	1907
38A	156	S	Old Clay Pit	1909
39	159	N	Pond	1957
40C	243	N	Unspecified Heap	1957
41C	248	N	Unspecified Heap	1907
42C	248	N	Unspecified Heap	1931
43C	248	N	Unspecified Heap	1942
44C	248	N	Unspecified Heap	1896
45C	248	NW	Unspecified Heap	1909
46C	248	NW	Unspecified Heap	1946
47C	248	NW	Unspecified Heap	1896
48	269	N	Boating Lake	1970
49L	272	N	Pond	1942
50L	273	N	Pond	1942
51D	281	NW	Unspecified Heap	1957
52D	281	NW	Unspecified Heap	1931
53D	281	NW	Unspecified Heap	1942
54D	281	NW	Unspecified Heap	1896
55D	281	NW	Unspecified Heap	1907
56E	285	NW	Unspecified Pit	1909
57E	285	NW	Unspecified Pit	1946
58E	285	NW	Unspecified Pit	1896
59G	289	S	Old Clay Pit	1907
60F	289	NW	Unspecified Pit	1896
61F	289	NW	Unspecified Pit	1946

62F	289	NW	Unspecified Pit	1909
63G	299	S	Old Clay Pit	1909
64H	301	NE	Unspecified Pit	1896
65H	303	NE	Unspecified Pit	1866
66M	339	NW	Water Body	1909
67M	339	NW	Ponds	1946
68M	344	NW	Ponds	1896
69	346	N	Pond	1942
70	388	E	Pond	1942
71N	395	E	Pond	1970
72N	397	E	Pond	1942
73	402	E	Pond	1942
74	463	S	Ponds	1866
75O	468	S	Grave Yard	1866
76P	483	S	Grave Yard	1970

2. Environmental Permits, Incidents and Registers Map



- | | | |
|-----------------------------|---------------------------------------|--|
| Site Outline | Recorded Pollution Incident | RAS 3 & 4 Authorisations |
| Search Buffers (m) | Dangerous Substances (List 1) | Part A(1) Authorised Processes and Historic IPC Authorisations |
| 250 | Dangerous Substances (List 2) | Part A(2) and Part B Authorised Processes |
| 500 | Water Industry Referrals | COMAH / NIHHS Sites |
| Licenced Discharge Consents | Sites Determined as Contaminated Land | Hazardous Substance Consents and Enforcements |
| Red List Discharge Consents | | |

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:

0

Database searched and no data found.

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:

2

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1	58	SE	473210 103660	Address: NORTHNEY FARM, NORTHNEY FARM, ST.PETERS ROAD, HAYLING ISLAND, HAMPSHIRE Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: H00059 Permit Version: 1 Receiving Water: FRESHWATER RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 22/01/1965 Effective Date: 22-Jan-1965 Revocation Date: -
2	405	NW	472830 103970	Address: NORTHNEY HOLIDAY VILLAGE, NORTHNEY HOLIDAY VILLAGE, NORTHNEY, NORTH HAYLING ISLAND HAMPSHIRE Effluent Type: SEWAGE DISCHARGES - UNSPECIFIED - NOT WATER COMPANY Permit Number: H01165 Permit Version: 1 Receiving Water: SALINE ESTUARY Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 01/04/1991 Effective Date: 01-Apr-1991 Revocation Date: 01/07/1991

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:

0

Database searched and no data found.

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

0

Database searched and no data found.

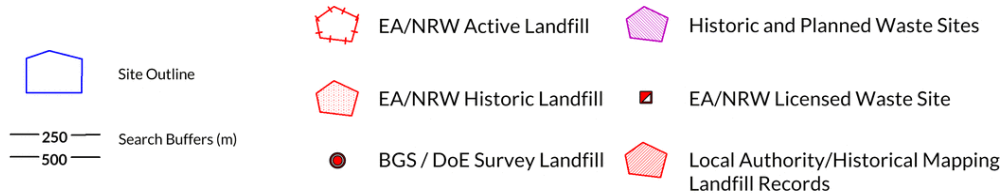
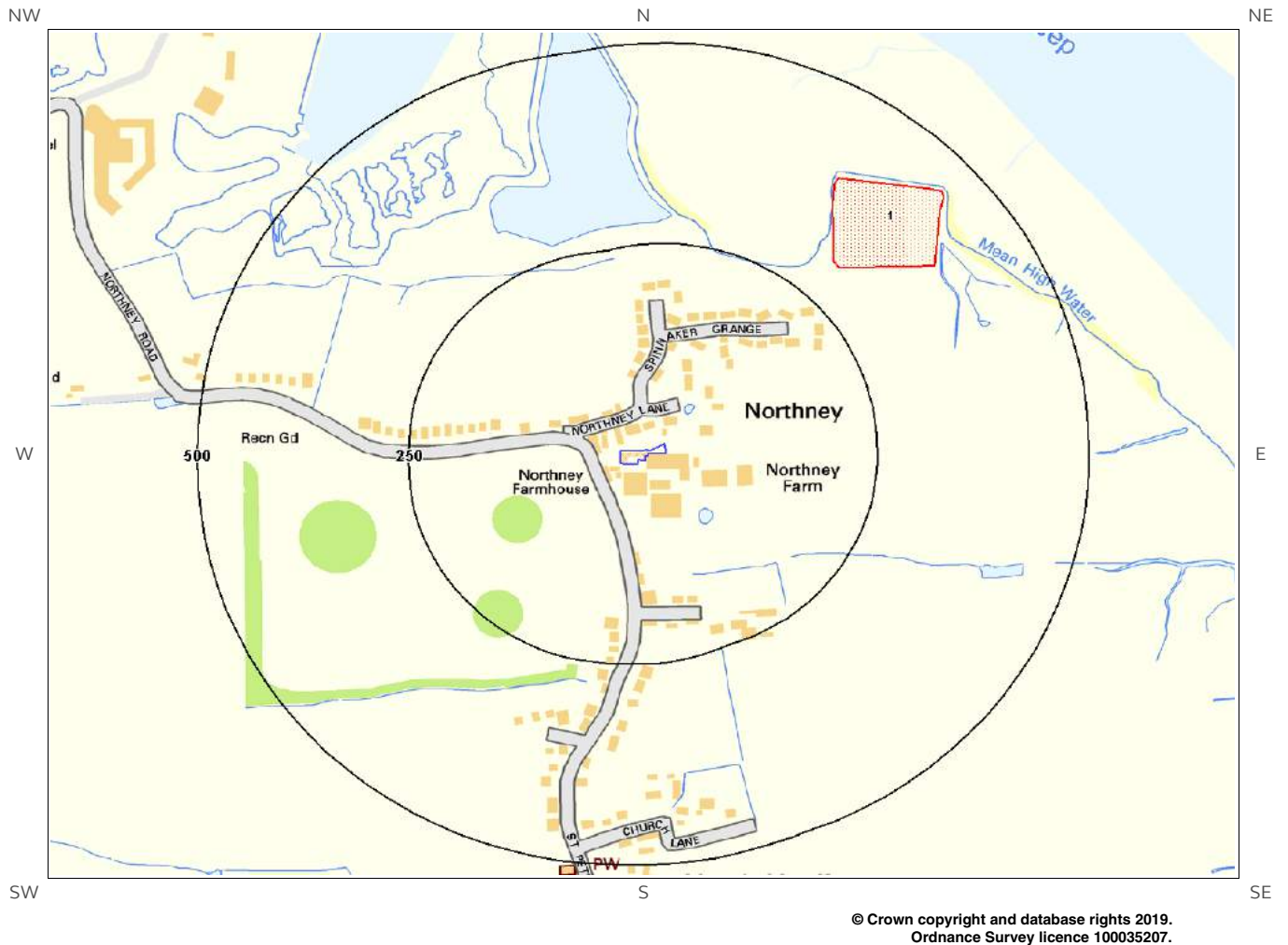
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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 Map



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:

2

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
1	302	NE		Site Address: Land at former Football Pitch, Old Football Pitch, Hayling Island Waste Licence: Yes Site Reference: FHA6, 13/19 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 22-Jan-1991 Licence Surrendered: Licence Holder Address: Rookmore Farm, West Ashling Road, Hambrook, West Sussex Operator: - Licence Holder: Twocan Limited First Recorded: 22-Jan-1991 Last Recorded: -
Not shown	1452	W		Site Address: Land West Of Old Railway, Hayling Island, Hampshire Waste Licence: - Site Reference: FHA9, HAV 3 Waste Type: Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -

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:

1

The following landfill records are represented as points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1455	W	471599 103341	Refuse Tip	1967 mapping	Polygon

3.2 Other Waste Sites

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

0

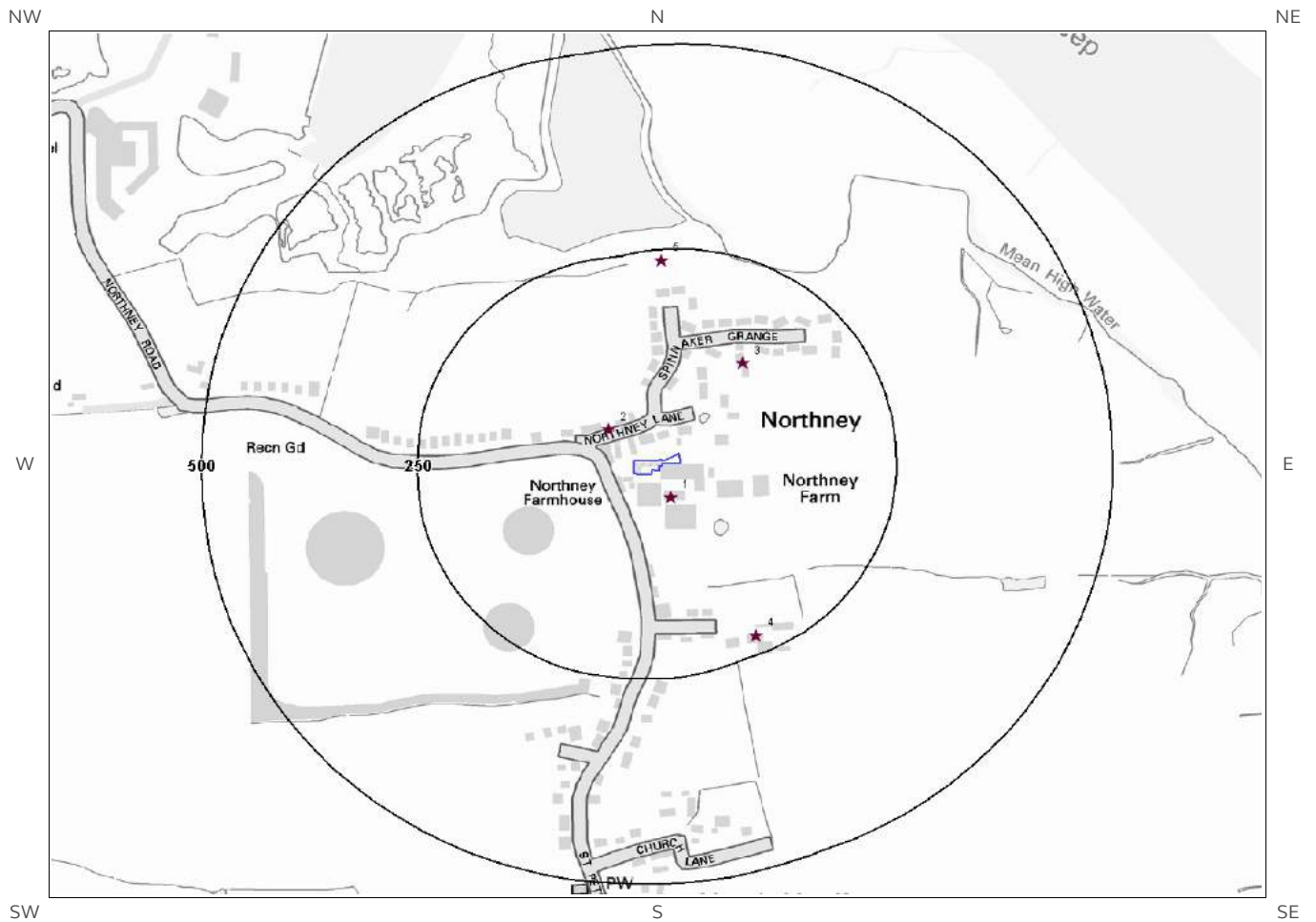
Database searched and no data found.

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

0

Database searched and no data found.

4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

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

5

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	34	S	A H Brown Ltd	473192 103677	Northney Farm, St. Peters Road, Hayling Island, Hampshire, PO11 0RX	Dairy Farming	Farming
2	49	NW	Electricity Sub Station	473120 103760	Hampshire, PO11	Electrical Features	Infrastructure and Facilities
3	134	NE	Concrair Flight Charter Ltd	473275 103841	12, Spinnaker Grange, Hayling Island, Hampshire, PO11 0SJ	Aircraft Charters	Contract Services
4	226	SE	M R Hawes	473290 103508	18, Clovelly Road, Hayling Island, Hampshire, PO11 0SD	Container and Storage	Transport, Storage and Delivery
5	237	N	Pumping Station	473181 103966	Hampshire, PO11	Water Pumping Stations	Industrial Features

4.2 Petrol and Fuel Sites

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

0

Database searched and no data found.

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
RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY

5.3 Bedrock and Solid Geology

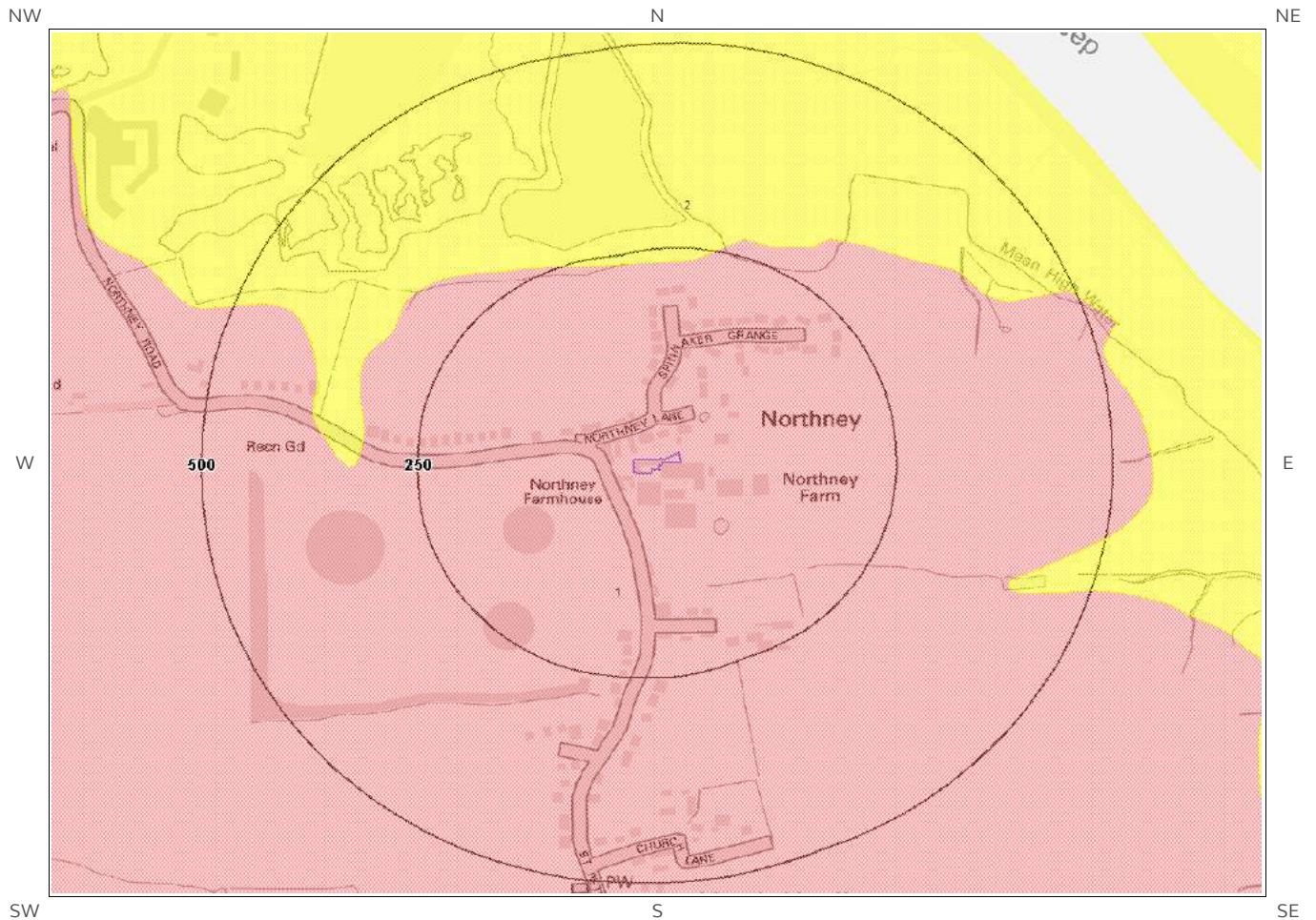
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LPCK-CHLK	LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED)	CHALK

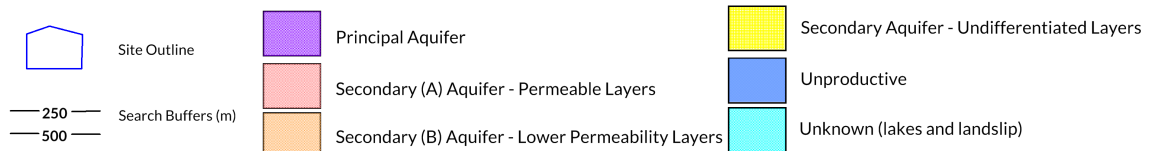
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

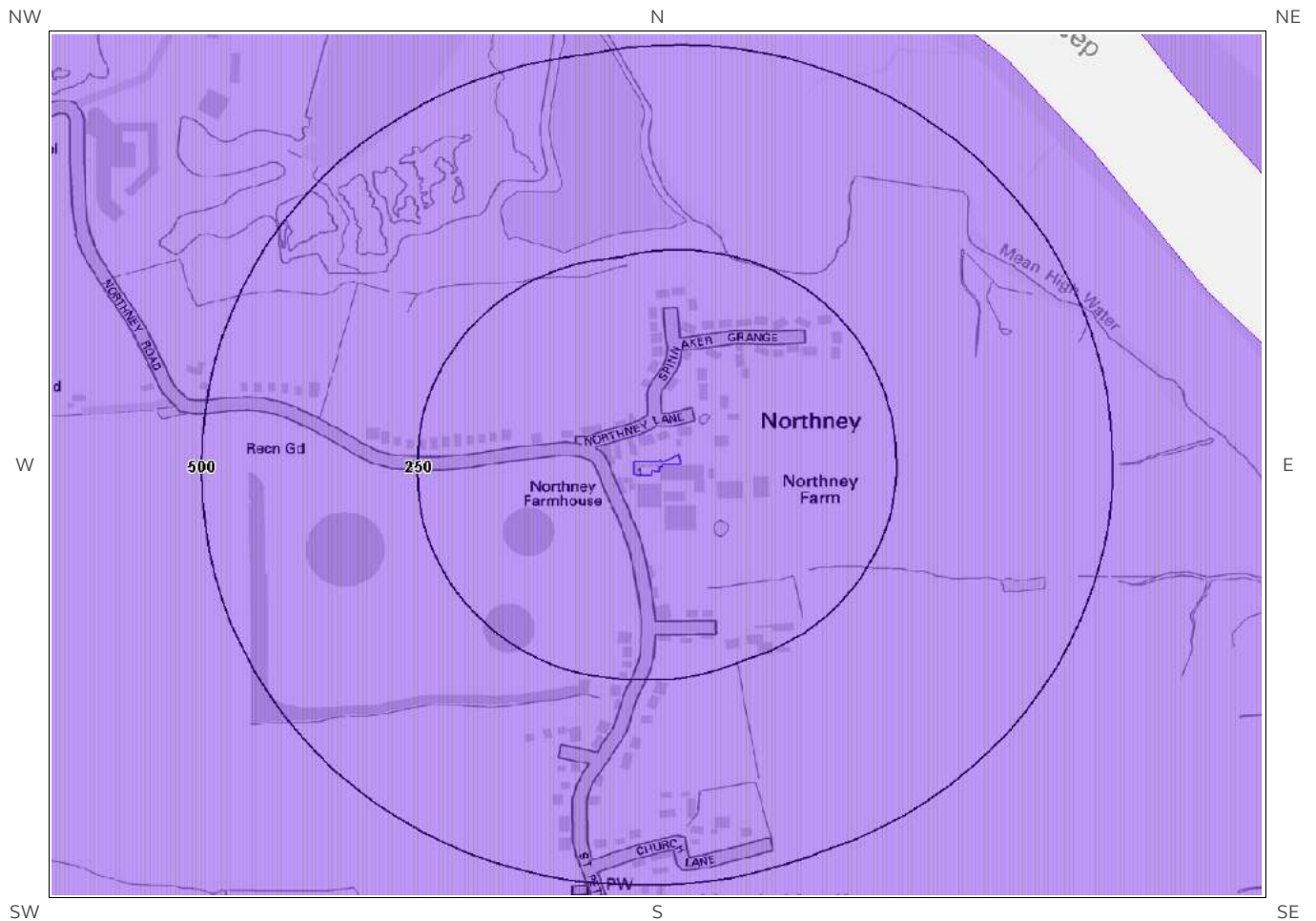
6a. Aquifer Within Superficial Geology



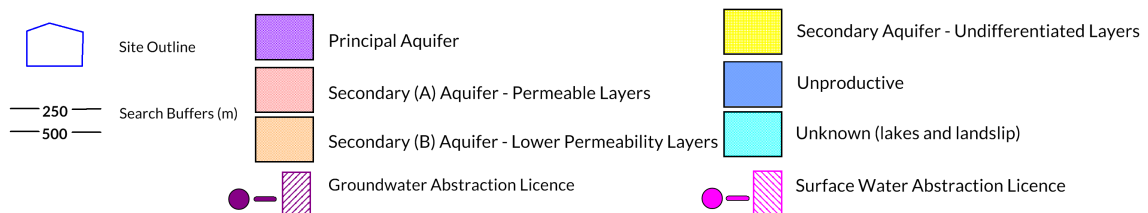
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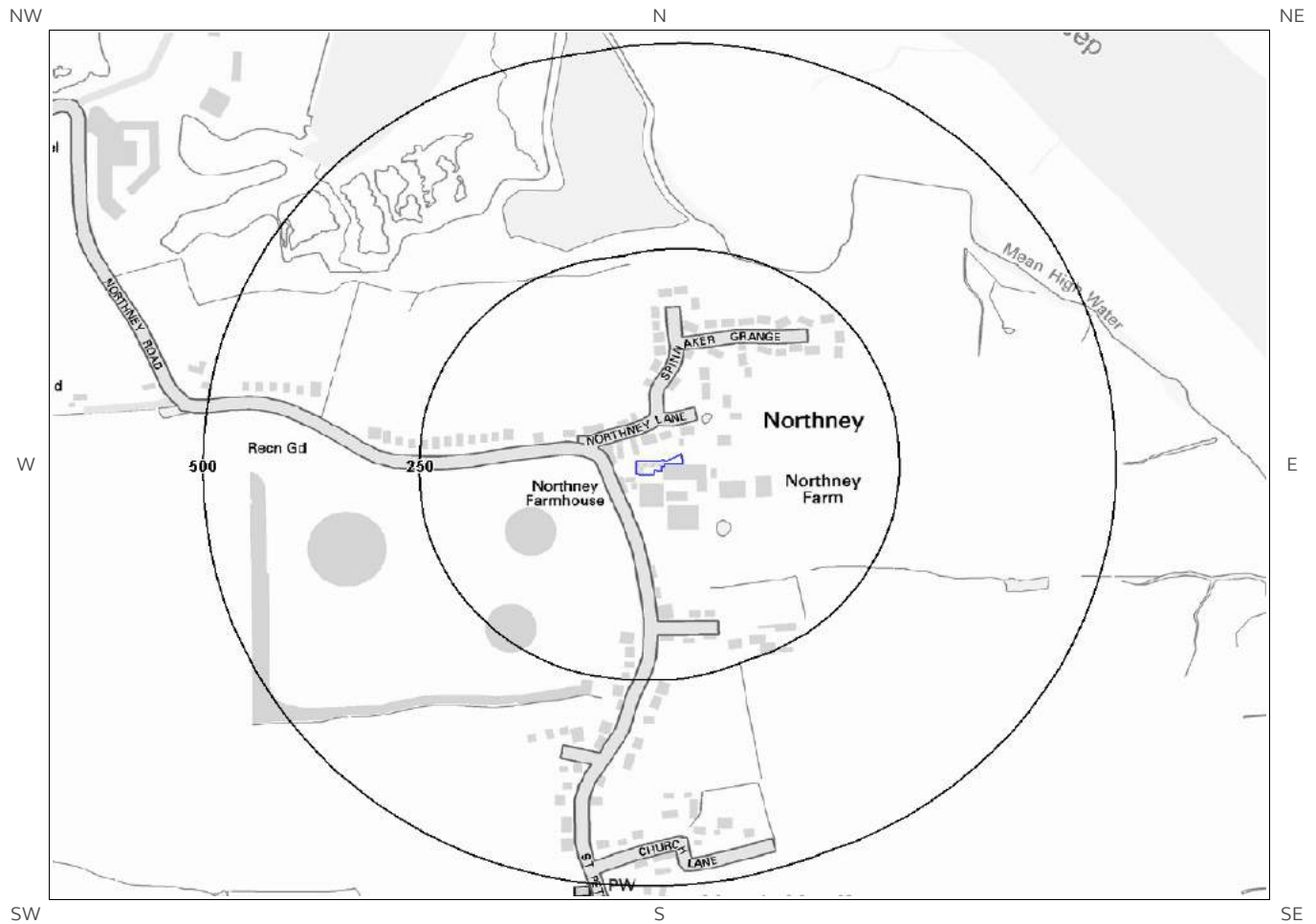
6b. Aquifer Within Bedrock Geology and Abstraction Licences



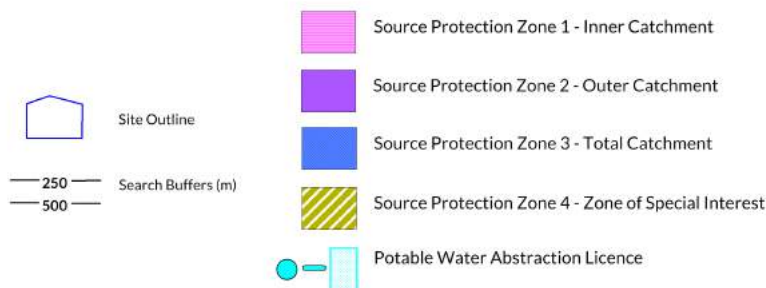
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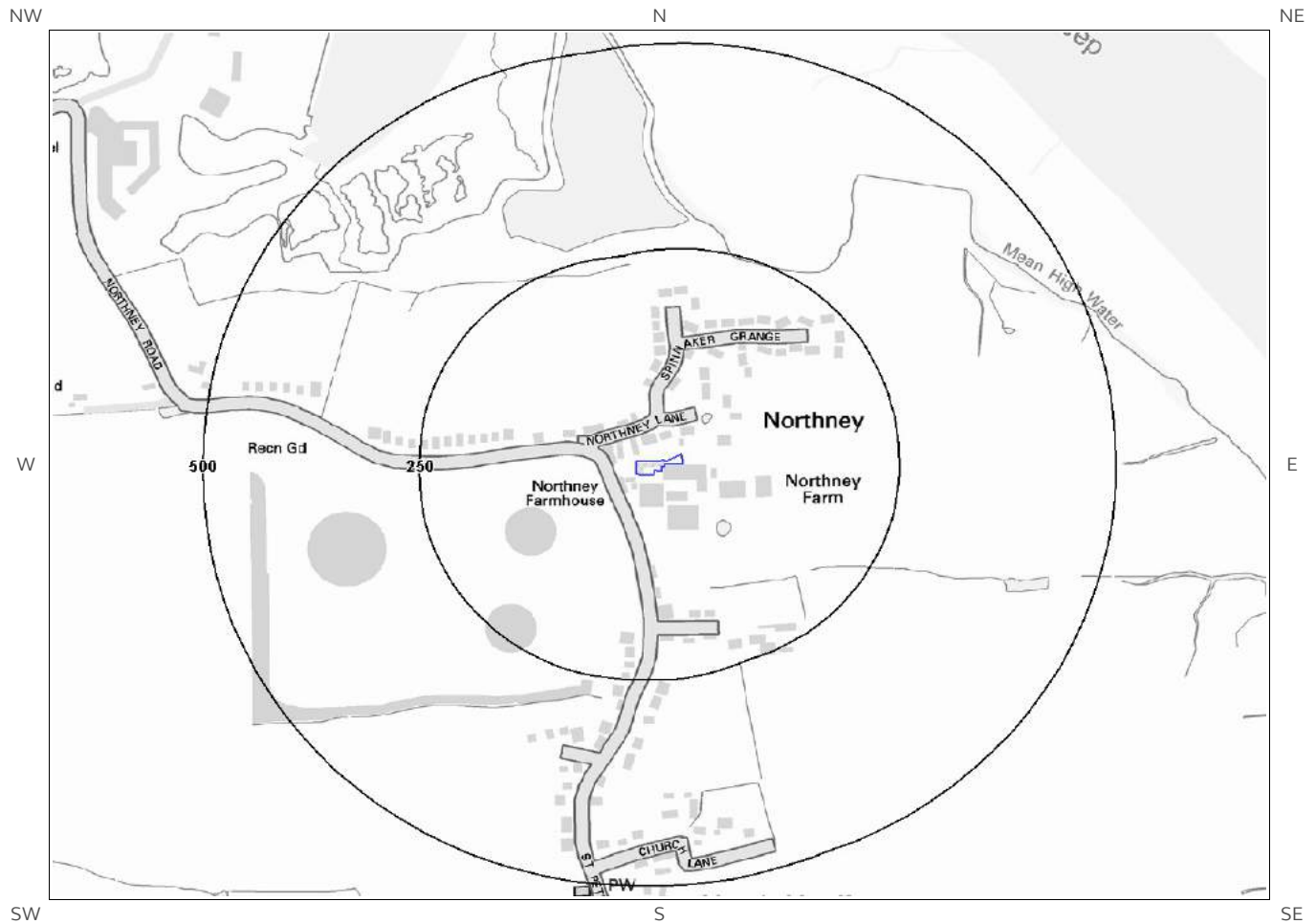
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



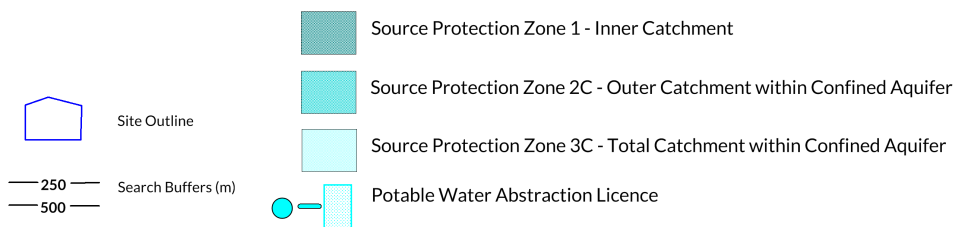
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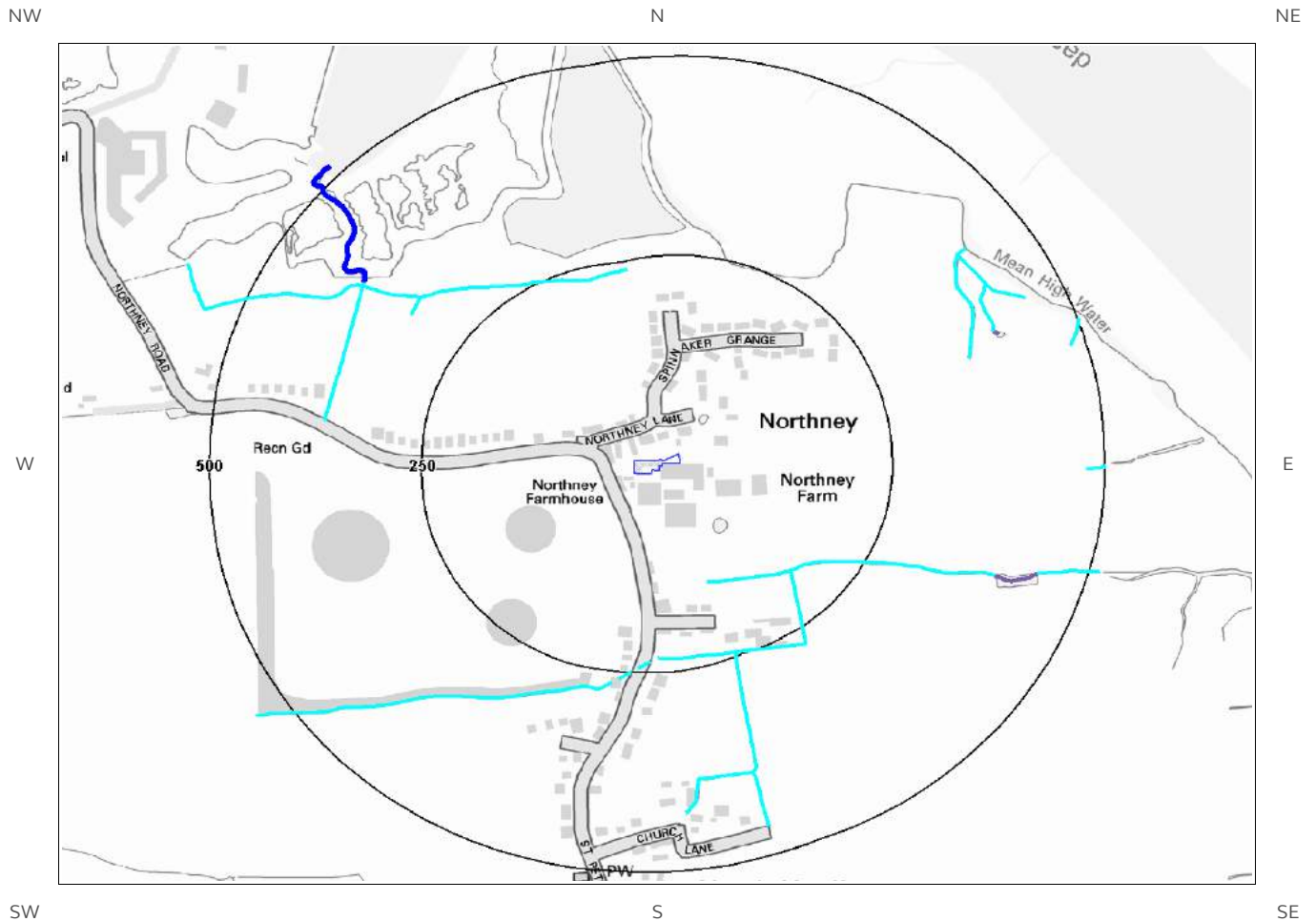
6d. Hydrogeology – Source Protection Zones within confined aquifer



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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	234	N	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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 None identified

Database searched and no data found.

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

None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

None identified

Database searched and no data found.

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.
103	N	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	150 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire 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
5	150 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
2	188 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	188 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire 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	188 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	188 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	192 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	192 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	232 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	232 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	232 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	232 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	234 N	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	234	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	N			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	245 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	245 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	274 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	274 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	312 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	312 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	313 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	313 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	321 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	321 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	324 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
17	324 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
14	345 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	345 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	351 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	351 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	364 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
20	364 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
17	365 W	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	365 W	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	365 W	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	365 W	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	366 W	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
23	366 W	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire 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
20	387 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	387 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
21	388 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
22	388 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
23	388 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	388 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	388 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	388 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
24	389 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	389 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
25	390 NW	-	Tidal river or stream.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
29	390 NW	-	Tidal river or stream.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	391	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	E			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	391 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	393 NW	-	Tidal river or stream.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	393 NW	-	Tidal river or stream.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
28	394 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	394 S	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
29	397 E	-	Lake, loch or reservoir.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.8
Not shown	397 E	-	Lake, loch or reservoir.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.8
30	402 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	402 NE	-	Lake, loch or reservoir.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.3
Not shown	402 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	402 NE	-	Lake, loch or reservoir.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.3
32	413 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
33	413 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
34	413 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
36	413 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
37	413 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
38	413 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
35	419 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	419 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
36	421 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
37	421 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	421 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	421 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
38	442 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire 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	442 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
39	478 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
Not shown	478 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
40	482 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	482 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
41	498 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	498 E	-	Inland river not influenced by normal tidal action.	Catchment Area: East Hampshire Relationship to Ground Level: Underground 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

Identified

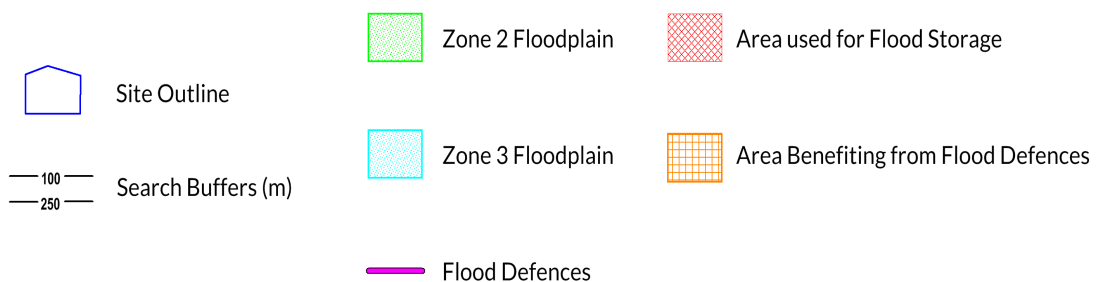
The following surface water records are not represented on mapping:

Distance (m)	Direction
248	N
150	SE
194	SE
234	N

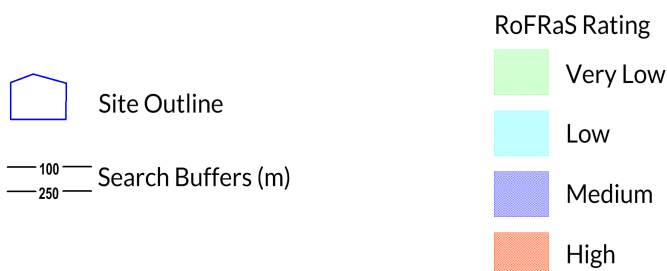
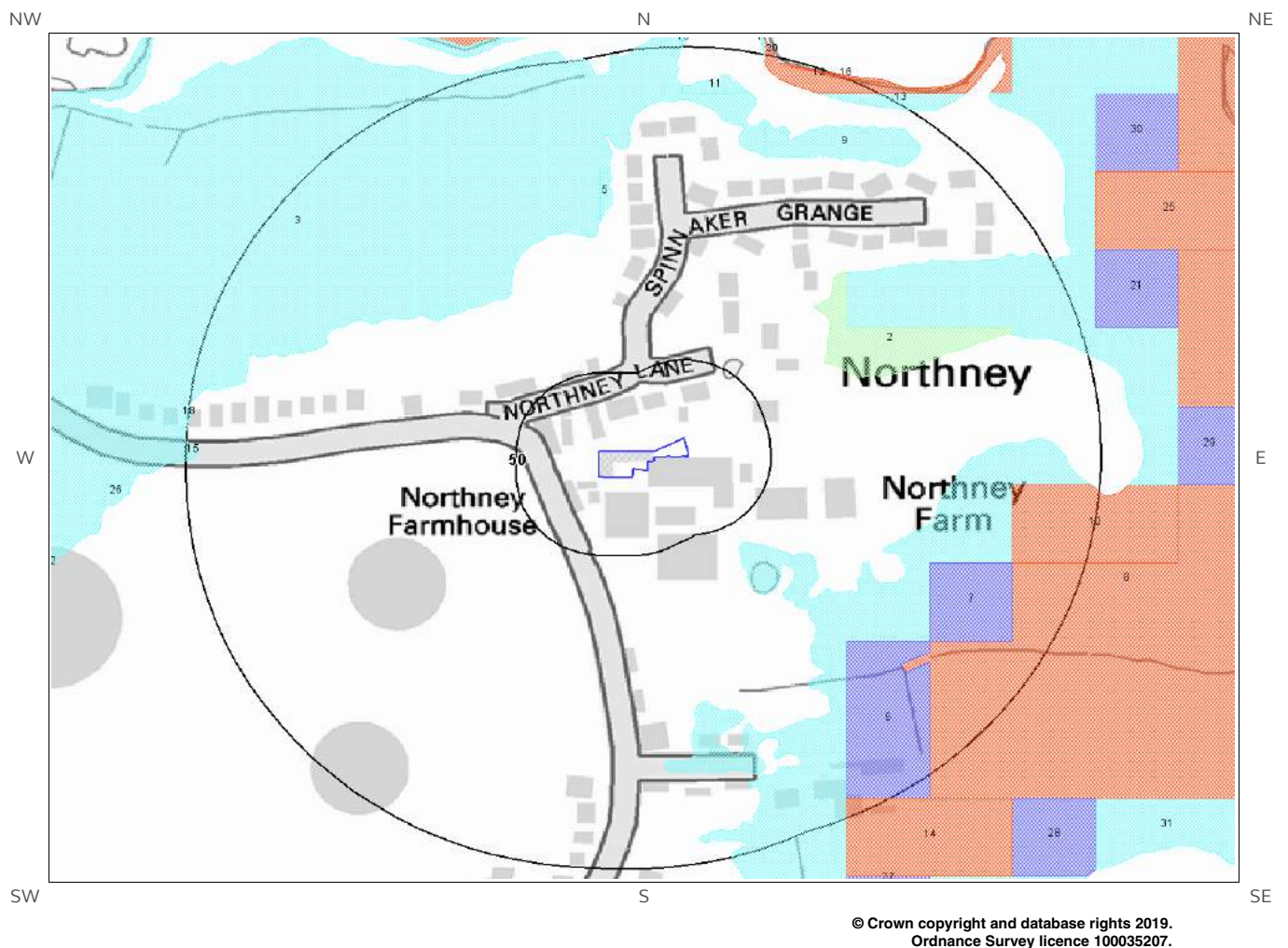
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



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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

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:

ID	Distance (m)	Direction	Update	Type
1	64	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
2	113	NW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m

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.

ID	Distance (m)	Direction	Update	Type
1	114	NE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
2	128	NW	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)

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 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.

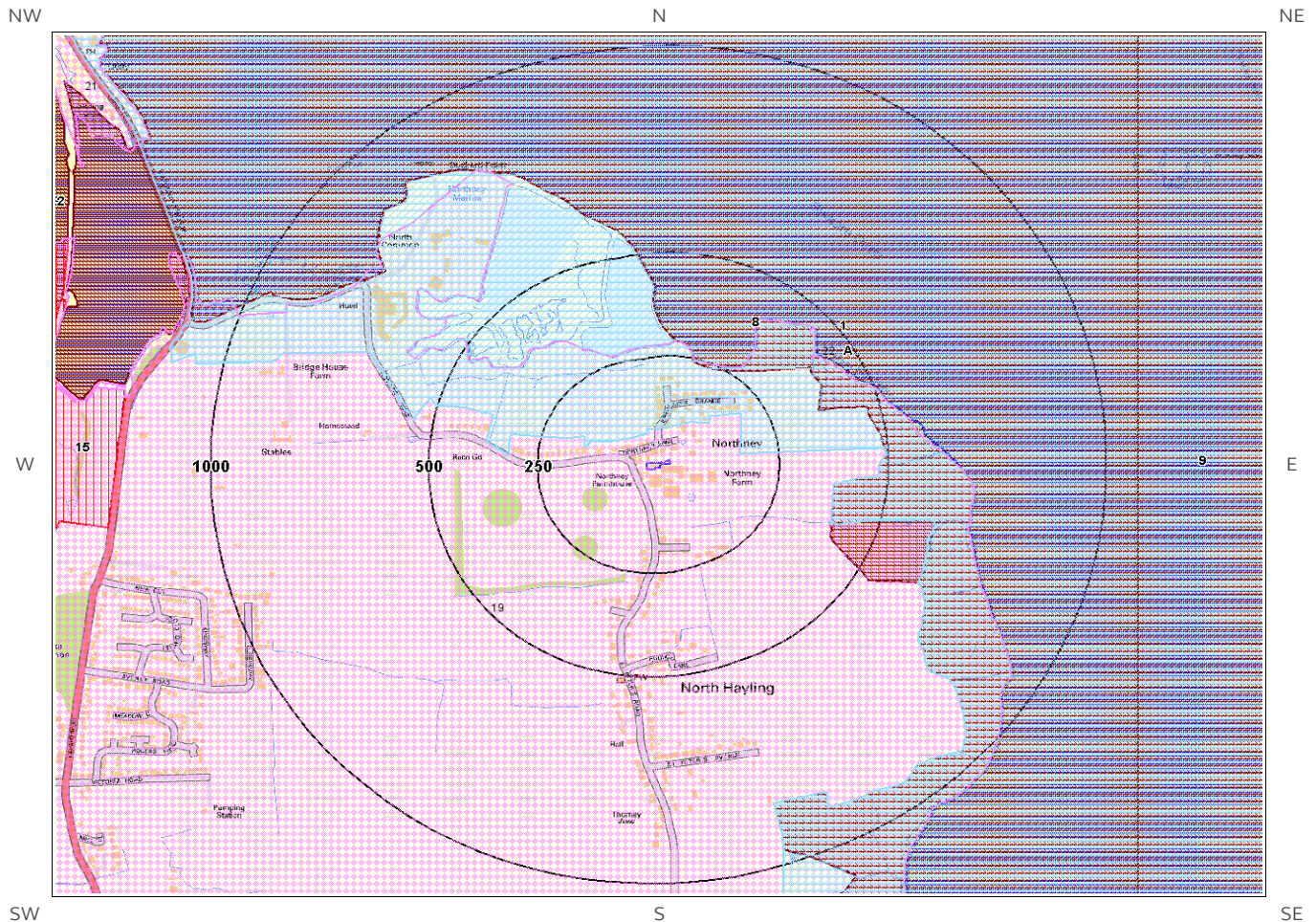
7.8 Groundwater Flooding Confidence Areas

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:

3

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
5A	239	N	Chichester Harbour	Natural England
Not shown	1351	N	Warblington Meadow	Natural England
7B	1399	W	Langstone Harbour	Natural England

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:

2

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

ID	Distance (m)	Direction	SAC Name	Data Source
1	247	N	Solent Maritime	Natural England
2	1399	W	Solent Maritime	Natural England

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

2

The following Special Protection Area (SPA) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SPA Name	Data Source
3A	239	N	Chichester and Langstone Harbours	Natural England
4B	1399	W	Chichester and Langstone Harbours	Natural England

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

7

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

ID	Distance (m)	Direction	Ramsar Site Name	Ramsar Site Status	Data Source
8	239	N	Chichester and Langstone Harbours	Listed	Natural England
9	1072	E	Chichester and Langstone Harbours	Listed	Natural England
Not shown	1140	N	Chichester and Langstone Harbours	Listed	Natural England
Not shown	1388	S	Chichester and Langstone Harbours	Listed	Natural England
12	1399	W	Chichester and Langstone Harbours	Listed	Natural England
Not shown	1567	NE	Chichester and Langstone Harbours	Listed	Natural England
Not shown	1722	SE	Chichester and Langstone Harbours	Listed	Natural England

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

0

Database searched and no data found.

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

4

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
15	1209	W	Hayling Billy	Natural England

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1423	W	West Hayling	Natural England
Not shown	1680	E	Eames Farm	Natural England
Not shown	1717	S	Gutner Point	Natural England

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
22	68	N	Chichester Harbour	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:

3

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
19	0	On Site	Existing	DEFRA
Not shown	1213	N	Existing	DEFRA
21	1220	N	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 Low

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

Hazard
Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

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 Very Low

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

Hazard
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.

* 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

Low

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

Hazard
Slight possibility for collapsible deposit problems after major changes in loading or groundwater conditions. Normal maintenance to avoid large amounts of water entering the ground through pipe leakage or soak-aways should reduce the likelihood of problems due to collapsible deposits. For new build, assess the possibility of collapsible (loessic) deposits in ground investigation. For existing property, no significant increase in insurance risk from collapsible deposits is likely.

9.1.6 Running Sand

Maximum Running Sand** 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
Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

* 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 not in a Radon Affected Area, as less than 1% 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

None identified

Database searched and no data found.

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: Havant Borough Council
Phone: 023 9244 6019

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

Address: Civic Centre, Civic Centre Road, Havant, Hampshire, PO9

Gemapping PLC

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



APPENDIX IV

BGS borehole logs

SU970SW56 Hayling Island Main Drain BH44

FOUNDATION ENGINEERING
Ltd.**BOREHOLE LOG**

British Geological Survey

British Geological Survey

British Geological Survey

LOCATION : Hayling Island

BOREHOLE No. : 44.

BOREHOLE DIA. : 8"

GROUND LEVEL :

DATE (Start) : 21.6.62.

WATER LEVEL : —

50 70 SW/56

7315.0375

lin 316

Dates	Description	Thickness	Depth	Sample	Remarks
	Topsail	2'-0"	0'-0"		
			2'-0" (0.61m)		
	Firm brown sandy clay	6'-0"		1	Brick earth
			(2.44m)		
	Brown sandy clay with flints and chalk	2'-0"	8'-0"		
			10'-0" (3.05m)	2	End of borehole.
					R.T.W.
					27.10.83

BOREHOLE SCALE : 1" = 5' • : DISTURBED SAMPLE I : UNDISTURBED SAMPLE + STANDARD PENETRATION TEST

SU970SW57 Hayling Island BH45

FOUNDATION ENGINEERING
Ltd.**BOREHOLE LOG**

SU 70 SW/57

7310. 0370

LOCATION : Hayling Island

BOREHOLE No. : 45.

in 216

BOREHOLE DIA. : 8"

GROUND LEVEL :

DATE (Start) : 21.6.62.

WATER LEVEL : —

Dates	Description	Thickness	Depth	Sample	Remarks
	Topsail	1'-0"	0'-0" 1'-0" (0.30m)		
	Firm brown sandy silty clay	7'-0"		1	Brickwork
			8'-0" (2.44m)	2	
	Hard silty sandy clay with flints	4'-0"		3	
			12'-0" (3.66m)		
	Hard and soft chalk with some flints.	8'-0"		4	UMCK
			20'-0" (6.10m)	5	22 blows/ft. End of borehole.

R.T.W.
27.11.82

BOREHOLE SCALE: 1" = 5' : DISTURBED SAMPLE I : UNDISTURBED SAMPLE + STANDARD PENETRATION TEST

SU970SW60 Hayling Island Main Drain BH47

FOUNDATION ENGINEERING
Ltd.**BOREHOLE LOG**

SU 70 SW/60

7315. 0342

LOCATION : *Hayling Island*BOREHOLE No. : *47.*BOREHOLE DIA. : *8"*GROUND LEVEL : *1 in 331*DATE (Start) : *19.6.62.*

WATER LEVEL :

Dates	Description	Thickness	Depth	Sample	Remarks
	<i>Top soil</i>	<i>2'-0"</i>	<i>0'-0"</i>		
			<i>2'-0"</i> <i>(0.61m)</i>		
	<i>soft brown sandy clay with chalk and flints.</i>	<i>8'-0"</i>			<i>Brickearth</i>
			<i>(3.05m)</i>		
	<i>soft brown sandy clay</i>	<i>1'-0"</i>	<i>10'-0"</i>		<i>Water seeping through chalk</i>
	<i>Chalk</i>	<i>1'-0"</i>	<i>(3.35m)</i>		<i>at bottom of borehole.</i>
			<i>12'-0"</i>		<i>Uruck</i>
			<i>(3.66m)</i>		<i>End of borehole</i>
					<i>R.T.V.</i>
					<i>27.10.87</i>

BOREHOLE SCALE : 1" = 5' • : DISTURBED SAMPLE I : UNDISTURBED SAMPLE + STANDARD PENETRATION TEST