

A PHASE I DESK STUDY REPORT TO SUPPORT THE RESIDENTIAL DEVELOPMENT OF:

LAND OFF WINDMILL RISE, WETHERDEN, IP14 3LE



CLIENT: Mr Geoff Rand
AGENT: Durrants
REFERENCE: DJM/19.414/Phase1
DATE: 12 December 2019

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1. TERMS OF REFERENCE

A F Howland Associates Limited was instructed by Mr Geoff Rand (the “Client”) to carry out a Phase I Desk Study at Land off Windmill Rise, Wetherden, IP14 3LE (Fig. 19.414/PhaseI/01). This was required to support an outline planning application referenced DC/19/05445 for the residential development of the site. An indicative site layout is shown on a drawing referenced 303224 20-002, prepared by Durrants Building Consultancy, dated September 2019 and included in Appendix D for reference.

This report presents historical and environmental information collated for the site and gives details of a walkover survey undertaken to confirm the current condition of the site and surrounding area. The information is used to develop a preliminary conceptual model using the source-pathway-receptor principle and provides a qualitative risk assessment of land contamination.

An environmental database report was commissioned to provide background information and is included in Appendix B. Other sources of data were used to verify the findings of the environmental database report and add details where appropriate; these are listed in the appendices.

The report has been carried out in general accordance with accepted best practice and methodologies (BSI, 2017) (DEFRA and EA, 2004) (DCLG, 2010) and was prepared for the sole and exclusive use of the Client and their advisors. Other parties using the contained information do so at their own risk and any duty of care to those parties is specifically excluded subject to copyright as detailed below.

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2. LOCATION

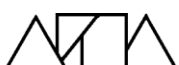
The site is accessed and located off Windmill Rise, on the northern edge of the village of Wetherden, Suffolk, approximately 6 km north west of Stowmarket and centred at National Grid reference 600735, 263018. The site is at an elevation of approximately 52 m above Ordnance Datum (aOD) in the north western corner which falls to approximately 50 m aOD in the south eastern corner, as indicated on a topographical survey drawing referenced PLS-NO-FT-TS-00, prepared by Parish Land Surveys, dated September 2019 and included in Appendix D for reference.

The geomorphology of the area comprises a shallow valley for a tributary of the River Gipping, which trends in a south eastern direction towards and beyond Stowmarket. The area to the north and west gently rises to an approximate elevation of between 60 and 70 m aOD.

3. GEOLOGY

The regional geology as mapped for the area by the British Geological Survey (BGS, 2019) indicates bedrock of the Crag Group (sand and gravel) overlain by superficial deposits of the Lowestoft Formation comprising diamicton in the north and sand and gravel in the south. The geology is reproduced on drawing 19.414/Phase I/02, which is included in Appendix D, and confirms the geomorphology of the area, with superficial Alluvium mapped in the base of the valley to the east associated with a water course, which trends in a south eastern direction.

There are two nearby archive borehole records held by the BGS, referenced TM06SW63 and TM06SW60, which are located approximately 75 m to the south west and 175 m to the south east respectively, as indicated on drawing 19.414/Phase I/02. The borehole records are included in Appendix C for reference. Borehole TM06SW63 recorded approximately 4.5 m of "Boulder Clay" (Lowestoft Formation [diamicton]) overlying sand and gravel, possibly Crag Group, to approximately 29 m depth overlying chalk to the base. Borehole TM06SW60 recorded approximately 11.5 m of "Boulder Clay" (Lowestoft Formation [diamicton]) overlying sand and gravel to approximately 24 m depth overlying chalk to the base. These boreholes suggest a wider extent of Lowestoft Formation (diamicton) than indicated on the BGS mapping and drawing 19.414/Phase I/02.



4. HYDROLOGY

The closest surface water features are ponds approximately 100 m to the north and north west, as well as 2 no. surface water courses, indicated to be unnamed minor rivers, approximately 106 m to the north east and 138 m west of the site respectively at their closest extent. The rivers are tributaries of the River Gipping and trend in an approximate north west to south east direction. There are no surface water or potable water abstraction licences within 2 km of the site.

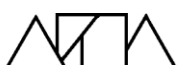
The diamicton of the Lowestoft Formation is designated a secondary (undifferentiated) aquifer status, whilst the sand and gravel is designated a secondary (A) aquifer status. The underlying Crag Group bedrock is classified as a principal aquifer. The site is located within a total catchment (Zone 3) source protection zone. There are two groundwater abstraction licences within a kilometre of the site, noted to be historical, located approximately 288 m and 719 m to the south east and north west respectively and both associated with a groundwater source of supply for general farming and domestic purposes.

Regional hydrogeological mapping indicates groundwater to be at approximately 34 m aOD, corresponding to approximately 16 to 18 m below ground level (bgl) (Institute of Geological Sciences, 1981). Archive BGS borehole TM06SE63 recorded a groundwater level of approximately 12 m bgl, corresponding to approximately 40 m aOD, which is slightly shallower than the regional mapping.

5. HISTORICAL INFORMATION

A review of historical information has been undertaken, including OS mapping and aerial images. The historical map extracts are included in Appendix C. A summary of the pertinent details is presented below.

In 1884, the earliest historical map extract reviewed, the site comprised the south eastern corner of an arable field, plot no. 285, with a footpath bisecting the site on an approximate east to west alignment. There was a *windmill* and *engine house* surveyed approximately 40 m to the south west at their closet extent. To the south and east were smaller field enclosures, with the tree-lined boundaries. The site was outside the village extent of Wetherden at this time, with the centre of the village approximately 150 m to the south east. The main road infrastructure and layout of the village was already generally



established, with Kate's Lane surveyed on east to west alignment approximately 100 m to the south and Ashfield Road shown on a north to south alignment approximately 100 m to the east. Other notable features are small ponds approximately 30 m to the south, and 100 m to the north west and north respectively.

There are no significant changes to the site over the course of the historical mapping, other than a field boundary was established along the northern edge of the site by the 1980s with anecdotal evidence indicating that the site was then used as paddocks for a residential property known as *Cedar Lodge*, surveyed approximately 55 m to the west at its closest extent. The site has remained in use as paddocks to the present-day. The western boundary of the site was established in the early 2000s associated with the development of residential properties on Windmill Rise. The present-day layout of the site and surrounding area is shown on an historical map extract from 2003.

In the surrounding area, notable changes over the course of the historical map extracts include the development and expansion of Wetherden, particularly during the 1960s and 1980s, whereby land to the south of the site along Kate's Lane was developed predominantly to a residential end use. This includes the area where the windmill and engine house were surveyed in 1884, although this area is shown to have been redeveloped to a *works* by the 1980s. Anecdotal evidence from the Client has provided further information on the works. The area was used by his great-grandfather in the late 1800s/early 1900s and included a forge, wood-working shed and general storage shed, which would have been around the time the windmill and engine house were surveyed on the map extracts. By 1915, E Rand and Sons Limited was established on the area, which was then used as an engine maintenance works. This included the construction of a brick workshop where the former sheds were located. The area was occupied by E Rand and Sons Limited until its residential redevelopment in the late 1990s/early 2000s with the establishment of Windmill Rise. The works are not considered to have ever encroached onto site and were approximately 30 m to the south west at their closest extent to the proposed access road.

Publicly available aerial images from 2000 through to the present-day have been reviewed and confirm the findings of the map extracts, with the site comprising an enclosed grassed area considered to be a paddock with a small stable on the north western boundary of the site. Residential properties surround the site to the east, south and west,



with a field to the north. There are no changes to the site or immediate surrounding area over the course of the aerial images, except the scale and nature of vegetation.

Additional information available from the environmental database report indicates that there is one historical pollution event recorded within 500 m of the site, approximately 160 m to the south east, associated with inorganic chemicals/products and occurred on 9 September 2001. This had a minor impact to water only and is not considered to have affected the site.

6. HAZARDOUS GASES

Building Research Establishment report BR211 (BRE, 2015) indicates that the site is not within an area where specific protection from radon gas is required. There are no historical or current landfill sites within a kilometre of the site. There is no evidence of potentially infilled land on site.

The environmental database report indicates three potentially infilled features within 250 m of the site. They are reported to be a pond and pit feature approximately 90 m west and 170 m north west respectively, as well a cemetery 220 m to the south west of the site. However, the historical map extracts indicate the unspecified pit may be a pond. Notwithstanding, if any of these features in the wider surrounding area have been infilled, the distance from the site, presence of low permeability soils and little topographical gradient in the area suggests that there is unlikely to be significant ground gas migration towards the site. The preferential pathway would be vertical degassing to the atmosphere. There are no other areas of potentially infilled land within 500 m of the site.

There are no fuel storage tanks noted on the environmental database report within 250 m of the site.

7. CURRENT LAND USES

The site comprises a paddock, with a small stable just in the north western corner and on the boundary of the site. The site is surrounded by residential properties to the east, south and west and a field to the north. There are 3 no. current industrial sites within 500 m of the site, which include a pump, pumping station and electrical sub-station between 167 and 249 m to the south and south east of the site. These are not considered to have any



impact on the site. There are no petrol or fuel sites within 500 m of the site. The wider surrounding area beyond the village of Wetherden is agricultural.

8. WALKOVER SURVEY

A walkover survey was carried out on 11 December 2019 to enable identification of the current land use and other details not otherwise available from the archival information. The salient features are shown on drawing 19.414/Phase I/03.

The site comprised a roughly square, grassed, paddock which was accessed from Windmill Rise via a short gravelled track. The boundaries of the site were defined by a timber post and rail fence, with semi-mature to mature trees and hedgerows beyond on the northern, eastern and southern boundaries. There was a small single-storey stable of timber construction with a felt tiled and corrugated metal roof, which straddled the north western boundary and corner of the site. It had a concrete hardstanding base. No access was made inside the stable

The site was surfaced with a mix of long and short grass, which is considered to be a result of grazing patterns. The southern area of the paddock was currently in use at the time of the walkover. Near the stable and by the northern boundary of the site was a tractor and trailer, which was being used to remove horse manure from site, as well as red plastic bowser. The bowser was empty at the time of the walkover but had a faint hydrocarbon odour internally. The bowser was of a modern construction and in good order, with no evidence of any significant spills or leakages.

In the wider surrounding area, there were residential properties to the east, south and west, with further paddocks and fields to the north. The site was on the northern edge of Wetherden.

9. DISCUSSION OF ENVIRONMENTAL ISSUES

The residential development of the site will introduce sensitive human receptors and will include private garden and soft landscaped areas.

Superficial deposits of the Lowestoft Formation, including diamicton and sand and gravel are mapped from surface and underlain by the Crag Group (sand and gravel) bedrock, with



the bedrock classified as a principal aquifer. The diamicton is a secondary (undifferentiated) aquifer, whilst the superficial sand and gravel is a secondary (A) aquifer.

The closest surface water features are ponds approximately 100 m to the north and north west, as well as two minor rivers approximately 106 m to the north east and 138 m to the west. The rivers are tributaries of the River Gipping. The site is within a total catchment source protection zone, but there are no active abstraction licences within 500 m of the site.

A review of historical and contemporary archives, as well as anecdotal evidence, indicates that the site was an arable field until becoming a paddock in the late 1970s, which was associated with a residential property to the west of the site. The site remains in use as a paddock. The surrounding area was fields until the development along Kate's Lane to the south and Ashfield Road to the east, such that the site is surrounded by residential properties to the east, south and west. There was a windmill and engine house on an area approximately 30 m to the south west of the site, which was subsequently redeveloped in the early 1900s to an engine maintenance works occupied by E Rand and Sons Limited. The works is considered to be off site and is unlikely to have impacted the site. This area was redeveloped in the late 1990s/early 2000s to a residential end-use establishing Windmill Rise.

The previous and current uses of the site are unlikely to have introduced significant contamination.

The historical agricultural and more recent residential land uses surrounding the site are unlikely to have introduced significant contamination that would have adversely affected the site. Although the former works to the south west is considered a potential historical contaminative land use, it is not considered to have impacted the site and, notwithstanding, this area has been redeveloped to a residential end use.

There are no areas of potentially infilled ground on site or in the immediate surrounding area. Therefore, there are not considered to be any significant on or off site sources of ground gas or vapours.



10. PRELIMINARY CONCEPTUAL MODEL

Following a review of the archival information and the walkover survey a preliminary conceptual model was devised to determine the risk to appropriate targets from the potential contaminating activities assessed for the site. This collates the evidence gained and establishes the potential linkages that may exist under the principle of “source-pathway-receptor” and is presented in Table 1 below.

A risk category is determined for the potential linkages and an assessment made of risk and the significance of that risk from professional judgement. Risk assessment classification is included in Appendix E. Where appropriate, further work is recommended to assess whether the potential linkages are realised and a revised conceptual model formulated as part of a Phase II investigation.

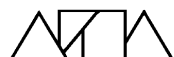
It should be noted that an assessment of risk to construction workers suggests that only contamination of acute toxicity might represent an unacceptable risk to the health of construction workers but which should be managed through health and safety procedures.



Source of Contamination	Pathway	Receptor	Probability and Reasoning	Consequence and Reasoning	Risk Classification
Potentially Contaminated Soils	Direct contact, inhalation, ingestion	Human end-users	Unlikely – No significant contamination sources identified on site. Former works to south west did not encroach onto site and has been redeveloped to residential end-user and therefore not considered to have impacted the site.	Medium – Chronic damage to human health	Low Risk
		Construction workers		Minor – Potential short term exposure can be managed with PPE and adoption of good hygiene practices	Very Low Risk
	Percolation of leachate / mobile contaminants	Groundwater	Unlikely – No significant contamination sources identified on site. Former works to south west did not encroach onto site and has been redeveloped to residential end-user and therefore not considered to have impacted the site.	Medium – The site is on a principal aquifer and within total catchment source protection zone. No nearby active abstraction licences. Groundwater anticipated to be approximately between 12 and 18 m bgl	Low Risk
		Surface water		Mild – No nearby surface water features. Closest are two minor rivers approximately 106 m to the north east and 138 m to the west.	Very Low Risk
	Direct Contact	Buried concrete	Unlikely – No significant contamination sources identified	Mild – Damage to buildings/structures	Very Low Risk
	Permeation through water supply pipes	Human end-users	Unlikely – No significant contamination sources identified	Medium – Chronic damage to human health	Low Risk
Ground Gas & Vapours (Unknown infilled ground)	Gas/vapour migration through permeable strata, ingress and accumulation in structures	Human end-users & Structures	Unlikely – No significant areas of infilled ground on site or in the surrounding area. Low permeability soils preventing significant ground gas migration.	Severe – Acute risk to potential end users	Low Risk¹
Radon Gas		Human end-users	Unlikely – Site outside of radon affected area	Medium – Chronic risk to human end users	Low Risk

Notes: ¹whilst a low/moderate risk has been concluded based on the probability and consequence, the lack of ground gas sources makes the risk low or negligible

Table 1 – Preliminary Conceptual Site Model



11. SUMMARY & RECOMMENDATIONS

1. A Phase I Desk Study was undertaken to support the residential development of land off Windmill Rise, Wetherden, Suffolk.
2. Geological mapping indicates the site to be underlain by deposits of the Lowestoft Formation (diamicton and sand and gravel) overlying bedrock of the Crag Group (sand and gravel).
3. Groundwater is considered to be approximately 12 to 18 m bgl. Bedrock geology is classified as a principal aquifer, whilst the diamicton is classified as a secondary (undifferentiated) aquifer and the sand and gravel as a secondary (A) aquifer. There are no nearby active abstraction licences and the site is within a total catchment source protection zone.
4. The closest surface water features are ponds approximately 100 m to the north and north west, as well as 2 no. surface water courses, indicated to be unnamed minor rivers, approximately 106 m to the north east and 138 m west of the site respectively at their closest extent. The rivers are tributaries of the River Gipping.
5. The site was part of an arable field until the late 1970s and since then has been used as a paddock. The surrounding area was agricultural, but now comprises residential properties to the east, south and west as a result of the development of Wetherden by the 1980s. There are still fields to the north of the site. There was an engineering works approximately 30 m to the south west from the early 1900s, which was redeveloped to a residential end-use in the late 1990s.
6. The use of the site and general agricultural and residential land use surrounding the site are unlikely to have introduced significant contamination. Whilst the former engineering works to the south west is considered to be a historical potentially contaminative activity, it is not considered to have adversely affected the site. Notwithstanding, it has been redeveloped to a residential end use.
7. A low risk to human end-users and a very low risk construction workers has been identified from direct contact, inhalation or ingestion of potentially contaminated soil.
8. Groundwater is considered to be at a low risk, whilst surface water is considered to be at a very low risk.
9. Buried concrete is considered to be at a very low risk from being affected by contamination arising from the former use of the site.
10. There is considered to be a low risk of the permeation of contaminants through water supply pipes.

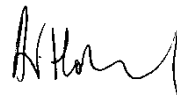


11. There are no significant sources of ground gas or vapours on or off site in the immediate surrounding area. There are also low permeability soils across the site. Therefore, a low risk from ground gas and vapours has been concluded.
12. The site is not in a radon affected area. A low risk from radon gas is concluded.
13. The site is considered suitable for the proposed end-use. No further investigation is considered to be required.



Mr D J Myhill
MSc FGS

A F HOWLAND ASSOCIATES
12 December 2019



Eur Ing Dr A F Howland
MSc PhD DIC CEng FIMMM CGeol FGS



APPENDIX A: REFERENCES

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APPENDIX B: ENVIRONMENTAL DATABASE REPORT

Groundsure Enviro Insight Report Reference: GS-6506759



Address: WINDMILL RISE, WETHERDEN, IP14 3LE
Date: 9 Dec 2019
Reference: GS-6506759
Client: A F Howland Associates

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 05-May-2018
Grid Reference: 600729,263017
Site Size: 0.4472ha

Report Reference: GS-6506759
Client Reference: DJM-19-414

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Overview of Findings

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1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	3	8	2
1.2 Additional Information – Historical Tank Database	0	0	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	2	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	6	3
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	0	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	1	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	2	2
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	1
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	1	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	6

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	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	On-site	0-50m	51-250	251-500	501-1000	1000-2000
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		
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	1	1	14
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)	1	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	0	2	1	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	34	34	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	None identified					
7.6 Areas used for Flood Storage within 250m of the study site	None identified					
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential below Surface					
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Low					

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	9
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

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

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	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	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is 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.

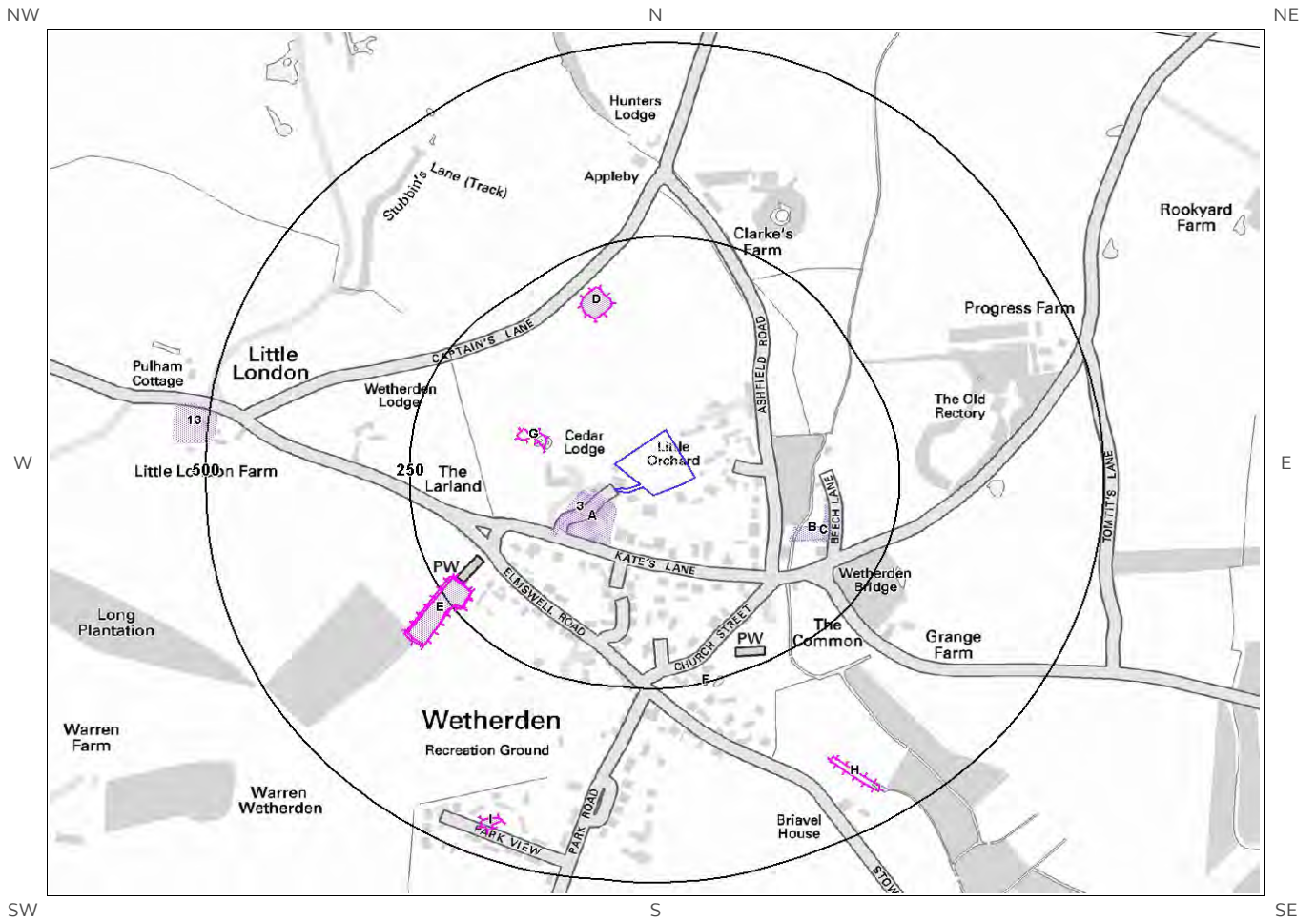
Note: Maps

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).

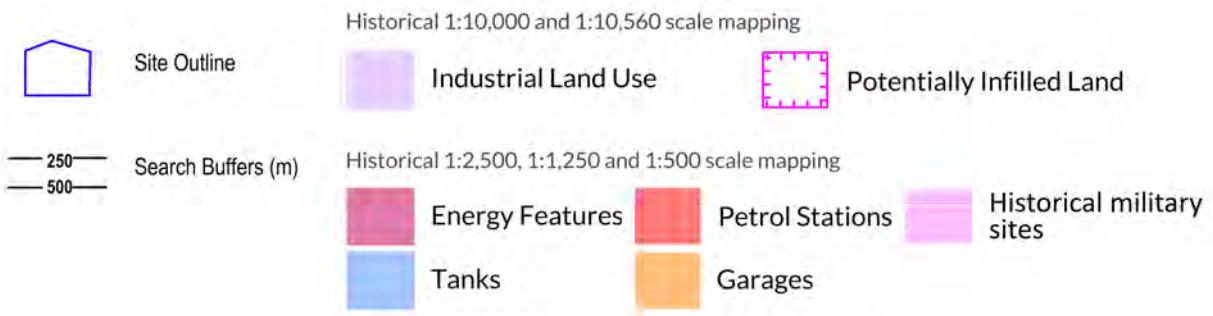
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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: 13

ID	Distance [m]	Direction	Use	Date
1A	17	SW	Unspecified Works	1983
2A	24	SW	Windmill	1905
3	28	SW	Corn Windmill	1884
4B	136	SE	Smithy	1958
5B	137	SE	Smithy	1905
6C	164	SE	Smithy	1884
7C	164	SE	Smithy	1950
8D	168	NW	Unspecified Pit	1905
9D	168	NW	Unspecified Pit	1905
10E	219	SW	Cemetery	1950
11E	221	SW	Cemetery	1958
12I	446	S	Gravel Pit	1884
13	489	W	Malthouse	1884

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: 0

Database searched and no data found.

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
14F	248	S	Electricity Substation	1999

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: 9

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

ID	Distance(m)	Direction	Use	Date
16G	87	W	Ponds	1884
17G	87	W	Ponds	1950
18D	168	NW	Unspecified Pit	1905
19D	168	NW	Unspecified Pit	1905
20E	219	SW	Cemetery	1950
21E	221	SW	Cemetery	1958

22H	397	SE	Pond	1884
23H	397	SE	Pond	1950
24I	446	S	Gravel Pit	1884

2. Environmental Permits, Incidents and Registers Map



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- | | | | | | |
|---|--------------------|---|-------------------------------|---|--|
|  | 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 |
| | |  | Dangerous Substances (List 2) |  | Part A(2) and Part B Authorised Processes |
| | |  | Water Industry Referrals |  | COMAH / NIHHS Sites |
| | |  | Licenced Discharge Consents |  | Sites Determined as Contaminated Land |
| | |  | Red List Discharge Consents |  | Hazardous Substance Consents and Enforcements |

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:

1

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

ID	Distance (m)	Direction	NGR	Details	
2	320	SE	600900 262700	Address: CHURCH STREET/STOWMARKET ROAD, WETHERDEN, STOWMARKET, SUFFOLK Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PRENF00108 Permit Version: 1	Receiving Water: Trib River Gipping Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 21/11/1988 Effective Date: 21-Nov-1988 Revocation Date: 13/02/1992

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

1

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

ID	Distance (m)	Direction	NGR	Details	
1	160	SE	600900.0 262890.0	Incident Date: 09-Sep-2001 Incident Identification: 29771.0 Pollutant: Inorganic Chemicals/Products Pollutant Description: Other Inorganic Chemical or Product	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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



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- | | | | | | |
|---|------------------------|---|---------------------------|---|---|
|  | Site Outline |  | EA/NRW Active Landfill |  | Historic and Planned Waste Sites |
|  | 250 Search Buffers (m) |  | EA/NRW Historic Landfill |  | EA/NRW Licensed Waste Site |
|  | 500 Search Buffers (m) |  | BGS / DoE Survey Landfill |  | Local Authority/Historical Mapping Landfill Records |

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:

4

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
Not shown	887	SW		Site Address: Warren Heath, Warren Heath, Wetherden Waste Licence: Yes Site Reference: SFK/LS/031/01 Waste Type: Inert, Industrial, Commercial, Household, Special, Liquid sludge Environmental Permitting Regulations (Waste) Reference: AZ1/L/HUN001 Licence Issue: 03-Mar-1987 Licence Surrendered: Licence Holder Address: - Operator: Hunts Refuse Disposals Limited Licence Holder: Hunts Refuse Disposals Limited First Recorded: 01-Nov-1986 Last Recorded: -
Not shown	944	SW		Site Address: Haughley Park, Wetherden, Stowmarket Waste Licence: Yes Site Reference: FSMS 21, 907/01/13/46 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 03-Oct-1991 Licence Surrendered: Licence Holder Address: Haughley Park, Stowmarket, Suffolk Operator: John Rannoch Limited Licence Holder: John Rannoch Limited First Recorded: 31-Dec-1991 Last Recorded: 31-Dec-1993
Not shown	1343	W		Site Address: Kiln Lane, Elmswell, Bury St. Edmunds, Suffolk Waste Licence: - Site Reference: OFSMS6, MSK5 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
Not shown	1425	W		Site Address: Off Warren Lane, Elmswell, Bury St Edmunds, Suffolk Waste Licence: - Site Reference: - Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Thedwastre Rural District Council Licence Holder: - First Recorded: 31-Dec-1968 Last Recorded: -

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

1

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1386	W	599300.0 263000.0	Address: Off Warren Lane, Elmswell, Bury St Edmunds, Suffol BGS Number: 1357.0	Risk: No risk to aquifer Waste Type: N/A

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

2

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	950	SW	600060 262216	Refuse Tip	1979 mapping	Polygon
Not shown	1352	W	599292 263040	Refuse Tip	1973 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:

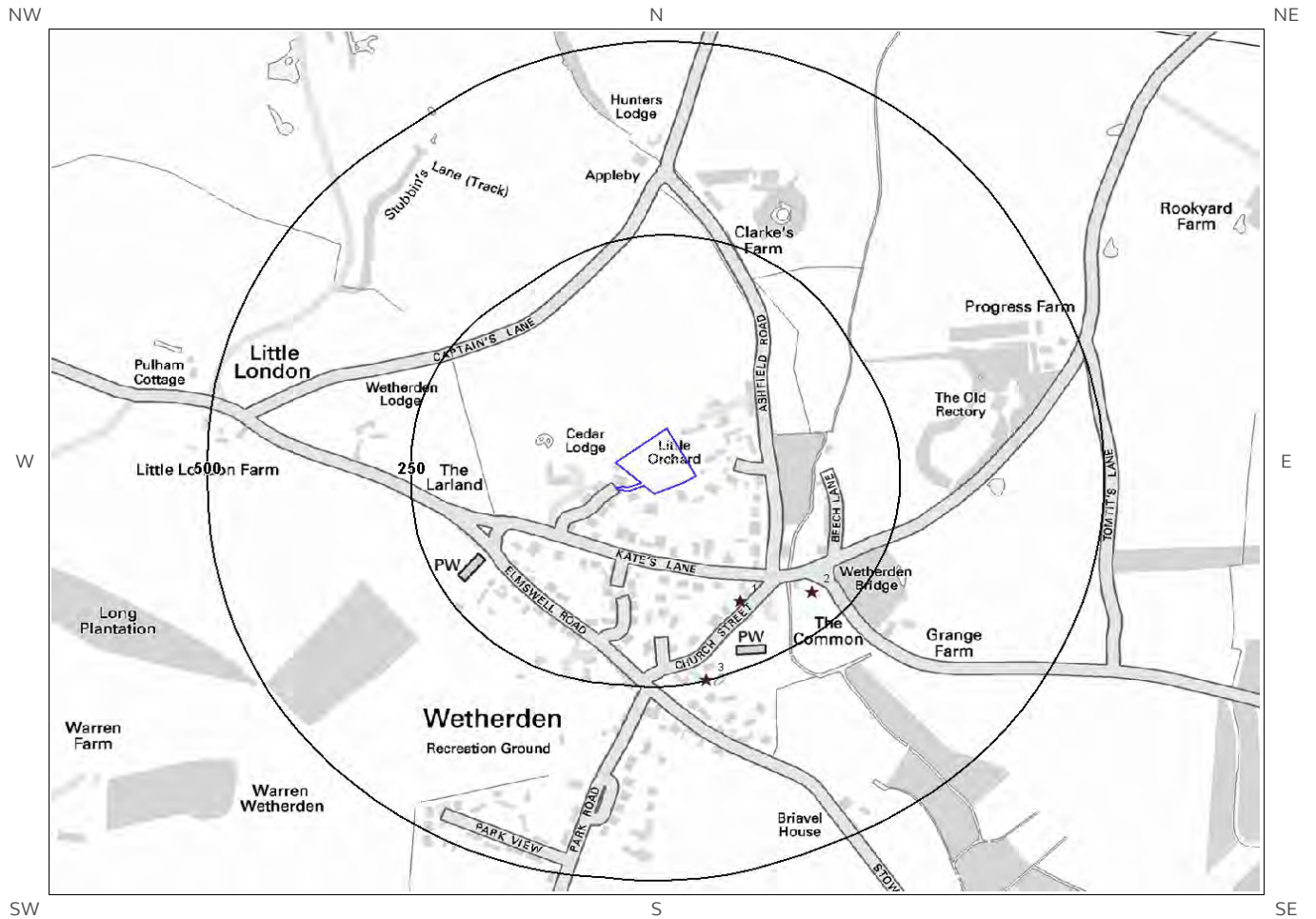
6

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1100	SW	599700 262500	Site Address: Warren Heath, Wetherden, Suffol Type: Co-Disposal Landfill Site	Issue Date: 03/03/1987 Effective Date: - Modified: -

ID	Distance (m)	Direction	NGR	Details	
				Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HUN001 EPR reference: EA/EPR/HP3095ND/A001 Operator: Hunts Refuse Disposals Ltd Waste Management licence No: 70696 Annual Tonnage: 999999.0	Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Warren Farm Correspondence Address: -
Not shown	1100	SW	599700 262500	Site Address: Warren Heath, Wetherden, Suffolk Type: Co-Disposal Landfill Site Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HUN001 EPR reference: - Operator: Hunts Refuse Disposals Ltd Waste Management licence No: 70696 Annual Tonnage: 0.0	Issue Date: 03/03/1987 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Warren Farm Correspondence Address: Manor Farm, Bridgham, Norwich, Norfolk, NR16 2RX
Not shown	1296	W	599440 262630	Site Address: Lawn Farm Quarry, Old Bury Road, Wetherden, Stowmarket, Suffolk, IP14 3JU Type: Inert LF Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AGG002 EPR reference: EA/EPR/EB3800FS/V002 Operator: Aggmax Transport Ltd Waste Management licence No: 400631 Annual Tonnage: 74999.0	Issue Date: 21/08/2013 Effective Date: 16/12/2016 Modified: 11/05/2017 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Lawn Farm Quarry Correspondence Address: -
Not shown	1296	W	599440 262630	Site Address: Lawn Farm Quarry, Old Bury Road, Wetherden, Stowmarket, Suffolk, IP14 3JU Type: Inert LF Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AGG002 EPR reference: EA/EPR/EB3800FS/V002 Operator: Aggmax Transport Ltd Waste Management licence No: 400631 Annual Tonnage: 74999.0	Issue Date: 21/08/2013 Effective Date: 16/12/2016 Modified: 11/05/2017 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Lawn Farm Quarry Correspondence Address: -
Not shown	1296	W	599440 262630	Site Address: Lawn Farm Quarry, Old Bury Road, Wetherden, Stowmarket, Suffolk, IP30 9RS Type: Inert LF Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AGG103 EPR reference: EA/EPR/AB3408GG/V002 Operator: Aggmax Limited Waste Management licence No: 400631 Annual Tonnage: 175000.0	Issue Date: 21/08/2013 Effective Date: - Modified: 24/09/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Lawn Farm Quarry Correspondence Address: -
Not shown	1405	SW	599424 262369	Site Address: Lawn Farm Quarry, Old Bury Road, Wetherden, Stowmarket, Suffolk, IP30 9RS Type: Treatment of waste to produce soil <75,000 tpy Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AGG103 EPR reference: EA/EPR/AB3408GG/A001 Operator: Aggmax Limited Waste Management licence No: 400631 Annual Tonnage: 74999.0	Issue Date: 21/08/2013 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Lawn Farm Quarry Correspondence Address: -

4. Current Land Use Map



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-  Site Outline
-  Current Industrial Sites
-  Electricity Transmission Cables
-  Search Buffers (m)
-  Petrol & Fuel Sites
-  Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 3

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	167	SE	Pump	600838 262840	Suffolk, IP14	Water Pumping Stations	Industrial Features
2	205	SE	Pumping Station	600926 262852	Suffolk, IP14	Water Pumping Stations	Industrial Features
3	249	S	Electricity Sub Station	600797 262738	Suffolk, IP14	Electrical Features	Infrastructure and Facilities

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
LOFT-DMTN	LOWESTOFT FORMATION	DIAMICTON
LOFT-XSV	LOWESTOFT FORMATION	SAND AND GRAVEL

5.3 Bedrock and Solid Geology

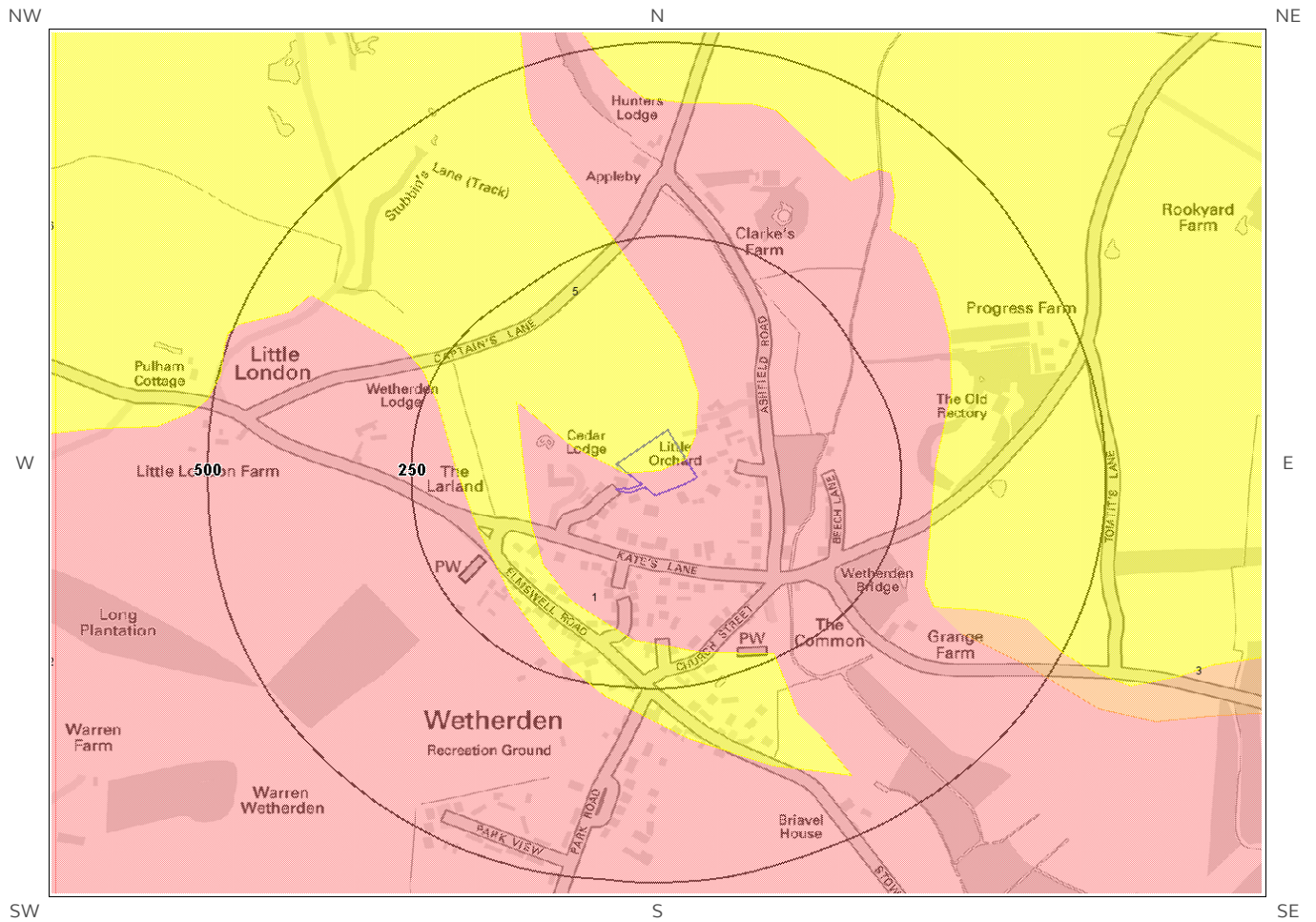
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
CRAG-S	CRAG GROUP	SAND

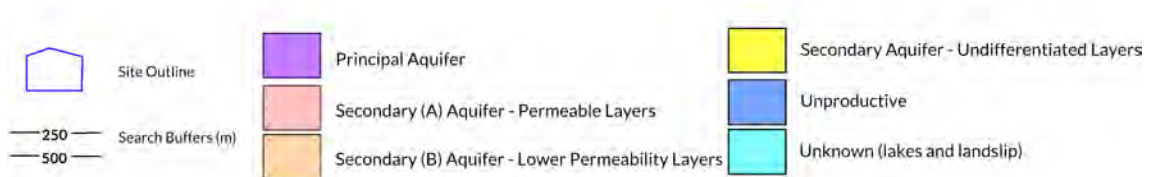
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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6b. Aquifer Within Bedrock Geology and Abstraction Licences



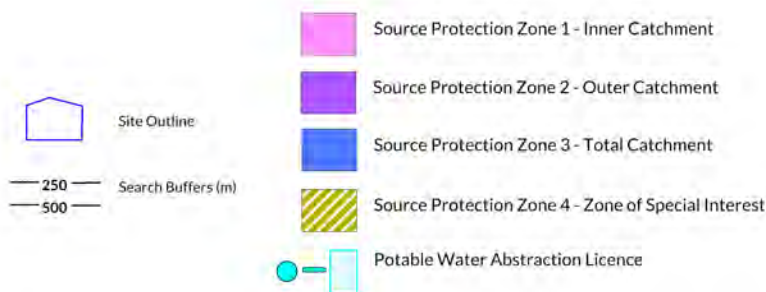
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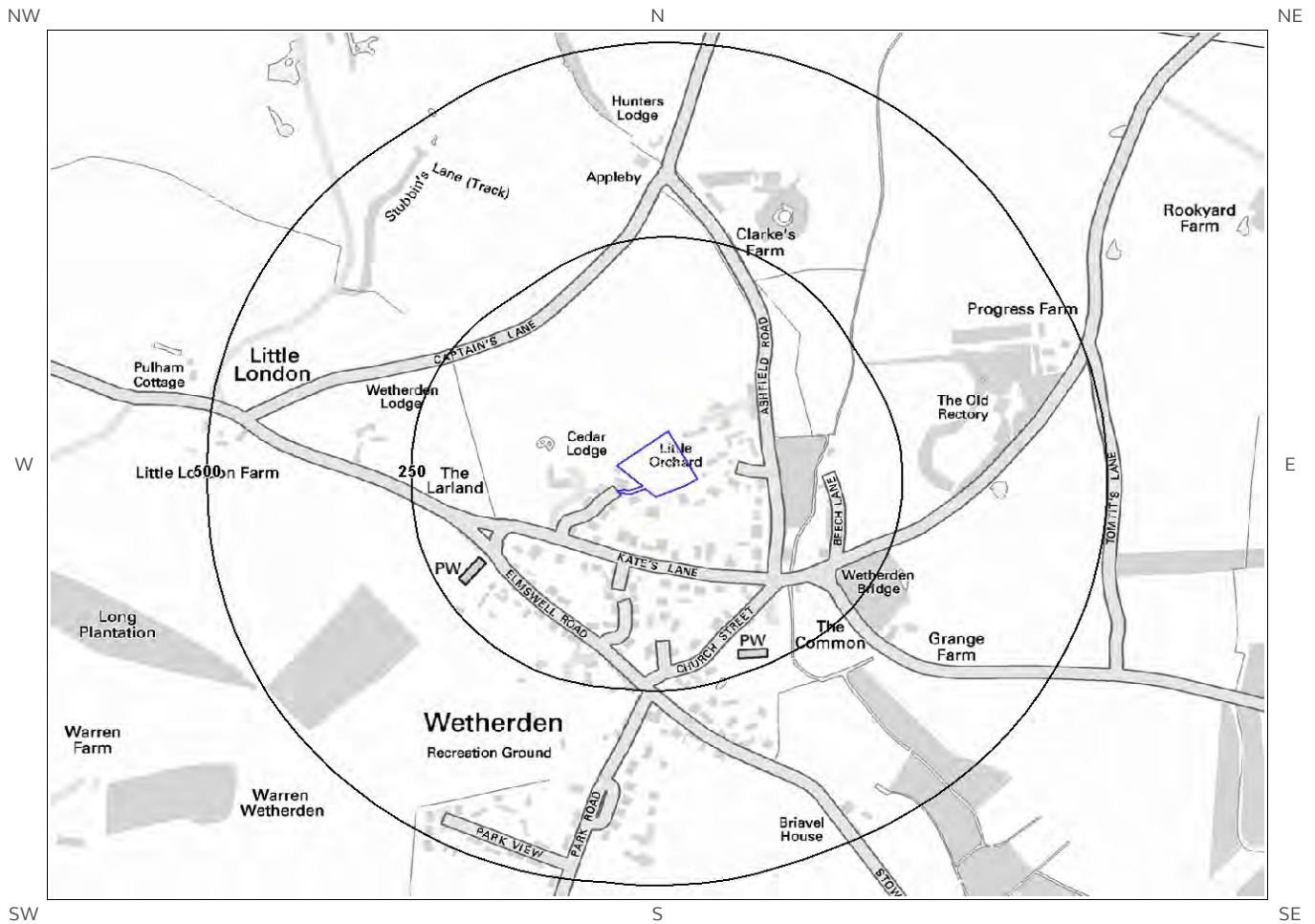
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



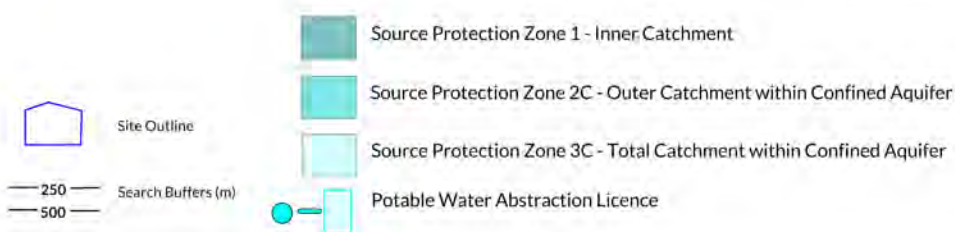
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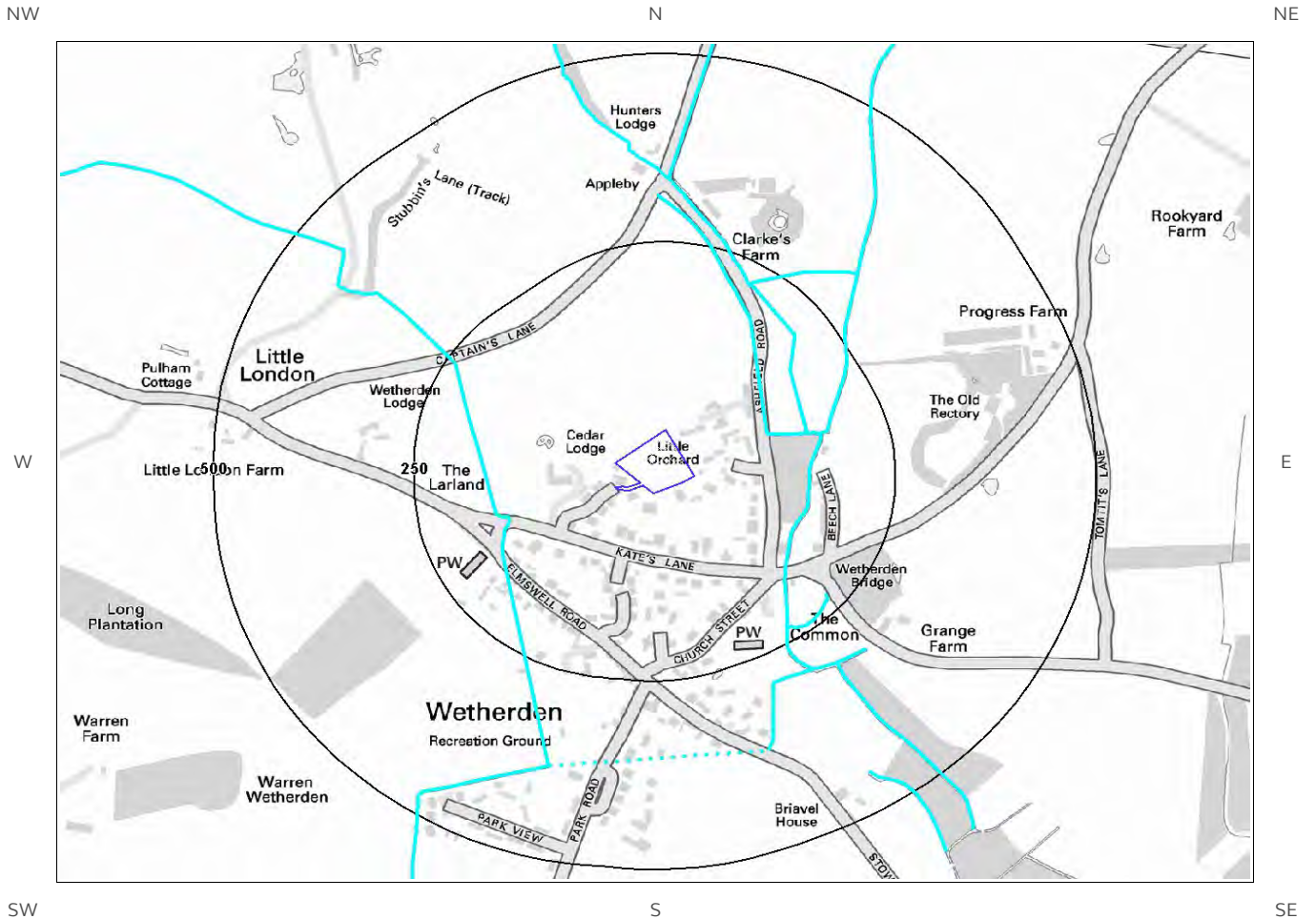
6d. Hydrogeology – Source Protection Zones within confined aquifer



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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
5	0	On Site	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
3	333	SE	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers

6.2 Aquifer within Bedrock Deposits

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

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

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

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

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site

Identified

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

ID	Distance (m)	Direction	NGR	Details
3	288	SE	601030 262850	Status: Historical Licence No: 7/35/08/*G/0095 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE AT GRANGE FM,WETHERDEN Data Type: Point Name: MAHONY Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1966 Version End Date:
Not shown	719	NW	600250 263590	Status: Historical Licence No: 7/35/08/*G/0112 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE AT MUTTON HALL,WETHERDEN Data Type: Point Name: GOSLING Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/08/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/08/1966 Version End Date:
Not shown	1099	S	600410 261920	Status: Historical Licence No: 7/35/08/*G/0167 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE AT HAUGHLEY PARK Data Type: Point Name: JOHN RANNOCH LTD Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/06/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1967 Version End Date:
Not shown	1133	S	600430 261880	Status: Historical Licence No: 7/35/08/*G/0168 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE NO 6 AT HAUGHLEY PARK Data Type: Point Name: JOHN RANNOCH LTD Annual Volume (m ³): 265,000 Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/06/1967 Expiry Date: - Issue No: 101 Version Start Date: 12/09/2003 Version End Date:
Not shown	1133	S	600430 261880	Status: Active Licence No: 7/35/08/*G/0168 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE NO 6 AT HAUGHLEY PARK Data Type: Point Name: 2 Sisters Food Group Annual Volume (m ³): 265,000 Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/06/1967 Expiry Date: - Issue No: 102 Version Start Date: 11/06/2009 Version End Date:
Not shown	1197	S	600450 261810	Status: Historical Licence No: 7/35/08/*G/0168 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE NO 4 AT HAUGHLEY PARK Data Type: Point Name: JOHN RANNOCH LTD Annual Volume (m ³): 265,000 Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/06/1967 Expiry Date: - Issue No: 101 Version Start Date: 12/09/2003 Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1197	S	600450 261810	<p>Status: Active Licence No: 7/35/08/*G/0168 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE NO 5 AT HAUGHLEY PARK Data Type: Point Name: 2 Sisters Food Group</p> <p>Annual Volume (m³): 265,000 Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/06/1967 Expiry Date: - Issue No: 102 Version Start Date: 11/06/2009 Version End Date:</p>
Not shown	1201	S	600430 261810	<p>Status: Historical Licence No: 7/35/08/*G/0168 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE NO 2 AT HAUGHLEY PARK Data Type: Point Name: JOHN RANNOCH LTD</p> <p>Annual Volume (m³): 265,000 Max Daily Volume (m³): - Original Application No: - Original Start Date: 01/06/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/10/1998 Version End Date:</p>
Not shown	1203	S	600420 261810	<p>Status: Historical Licence No: 7/35/08/*G/0168 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE NO 1 AT HAUGHLEY PARK Data Type: Point Name: JOHN RANNOCH LTD</p> <p>Annual Volume (m³): 265,000 Max Daily Volume (m³): - Original Application No: - Original Start Date: 01/06/1967 Expiry Date: - Issue No: 101 Version Start Date: 12/09/2003 Version End Date:</p>
Not shown	1203	S	600420 261810	<p>Status: Active Licence No: 7/35/08/*G/0168 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE NO 1 AT HAUGHLEY PARK Data Type: Point Name: 2 Sisters Food Group</p> <p>Annual Volume (m³): 265,000 Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/06/1967 Expiry Date: - Issue No: 102 Version Start Date: 11/06/2009 Version End Date:</p>
Not shown	1231	S	600430 261780	<p>Status: Historical Licence No: 7/35/08/*G/0168 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE NO 3 AT HAUGHLEY PARK Data Type: Point Name: JOHN RANNOCH LTD</p> <p>Annual Volume (m³): 265,000 Max Daily Volume (m³): - Original Application No: - Original Start Date: 01/06/1967 Expiry Date: - Issue No: 101 Version Start Date: 12/09/2003 Version End Date:</p>
Not shown	1231	S	600430 261780	<p>Status: Active Licence No: 7/35/08/*G/0168 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE NO 3 AT HAUGHLEY PARK Data Type: Point Name: 2 Sisters Food Group</p> <p>Annual Volume (m³): 265,000 Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/06/1967 Expiry Date: - Issue No: 102 Version Start Date: 11/06/2009 Version End Date:</p>
Not shown	1775	N	600340 264790	<p>Status: Historical Licence No: 7/35/08/*G/0047 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE AT BOTANY BAY FM,ELMSWELL Data Type: Point Name: DYBALL</p> <p>Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 01/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/02/1966 Version End Date:</p>

ID	Distance (m)	Direction	NGR	Details	
Not shown	1842	SE	601540 261320	Status: Historical Licence No: 7/35/08/*G/0116 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE AT MOORBRIDGE FM,HARLES'N Data Type: Point Name: BEVAN	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/09/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/09/1990 Version End Date:
Not shown	1991	NW	598900 263900	Status: Historical Licence No: 6/33/41/*G/0043 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE 1 AT ELMSWELL Data Type: Point Name: R BAKER & SON (ELMSWELL) LTD	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/06/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1966 Version End Date:
Not shown	1991	NW	598900 263900	Status: Historical Licence No: 6/33/41/*G/0043 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE 2 AT CATTLE PENS Data Type: Point Name: R BAKER & SON (ELMSWELL) LTD	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/06/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1966 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

Identified

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

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

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site None identified

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
0	On Site	Minor 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.
136	SW	Minor Aquifer/High Leaching Potential	H2	Deep, permeable, coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.
141	E	Minor Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
310	SE	Minor Aquifer/High Leaching Potential	H2	Deep, permeable, coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.

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	106 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	106 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	106 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	106 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	138 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	138 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	138 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	138 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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
				conditions) Average Width in Watercourse Section (m): Not Provided
5	141 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
12	141 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
6	143 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	143 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	151 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	151 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	151 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	151 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	156 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
16	156 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
10	166 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
11	166 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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
17	166 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
18	166 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	182 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	182 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	220 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	220 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
20	220 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
21	220 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	225 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
22	225 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
16	231 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
23	231 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
17	239	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	NW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
24	239 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	254 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
25	254 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	258 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
26	258 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
20	263 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	263 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
21	264 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	264 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	288 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	288 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	294 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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): 3.7
30	294 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
24	304 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
25	304 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
31	304 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
32	304 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
26	319 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
33	319 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
27	327 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
34	327 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	333 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	333 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	333 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	333 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
30	352 S	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	352 S	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	377 S	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	377 S	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
32	448 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	448 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
33	463 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	463 SE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
34	477 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping 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	477 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Gipping Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

6.11 Surface Water Features

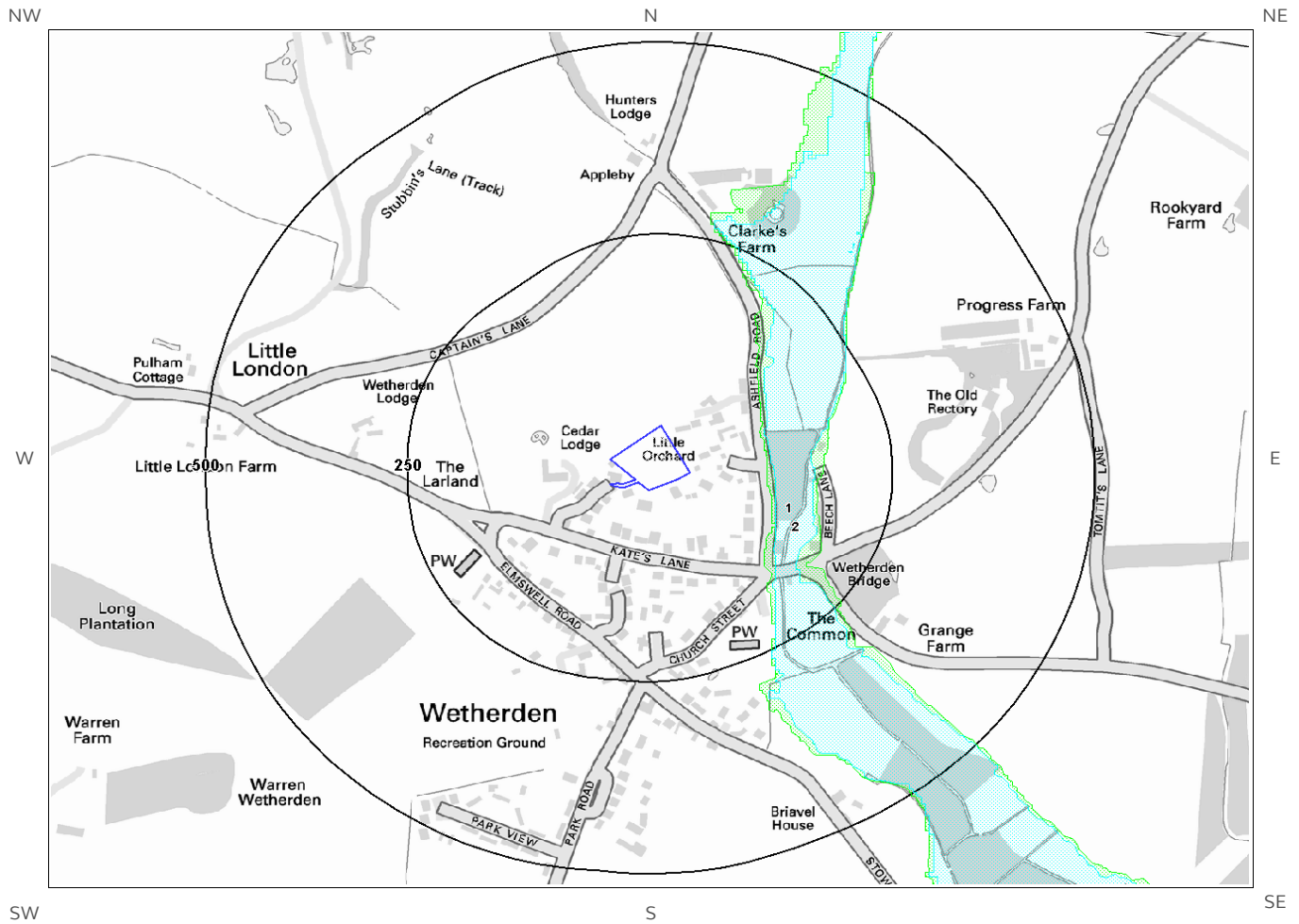
Surface water features within 250m of the study site

Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
106	NE
138	W
139	SE
143	W
151	E
170	SE
182	NE
213	NE
220	NE
227	NE
232	NE

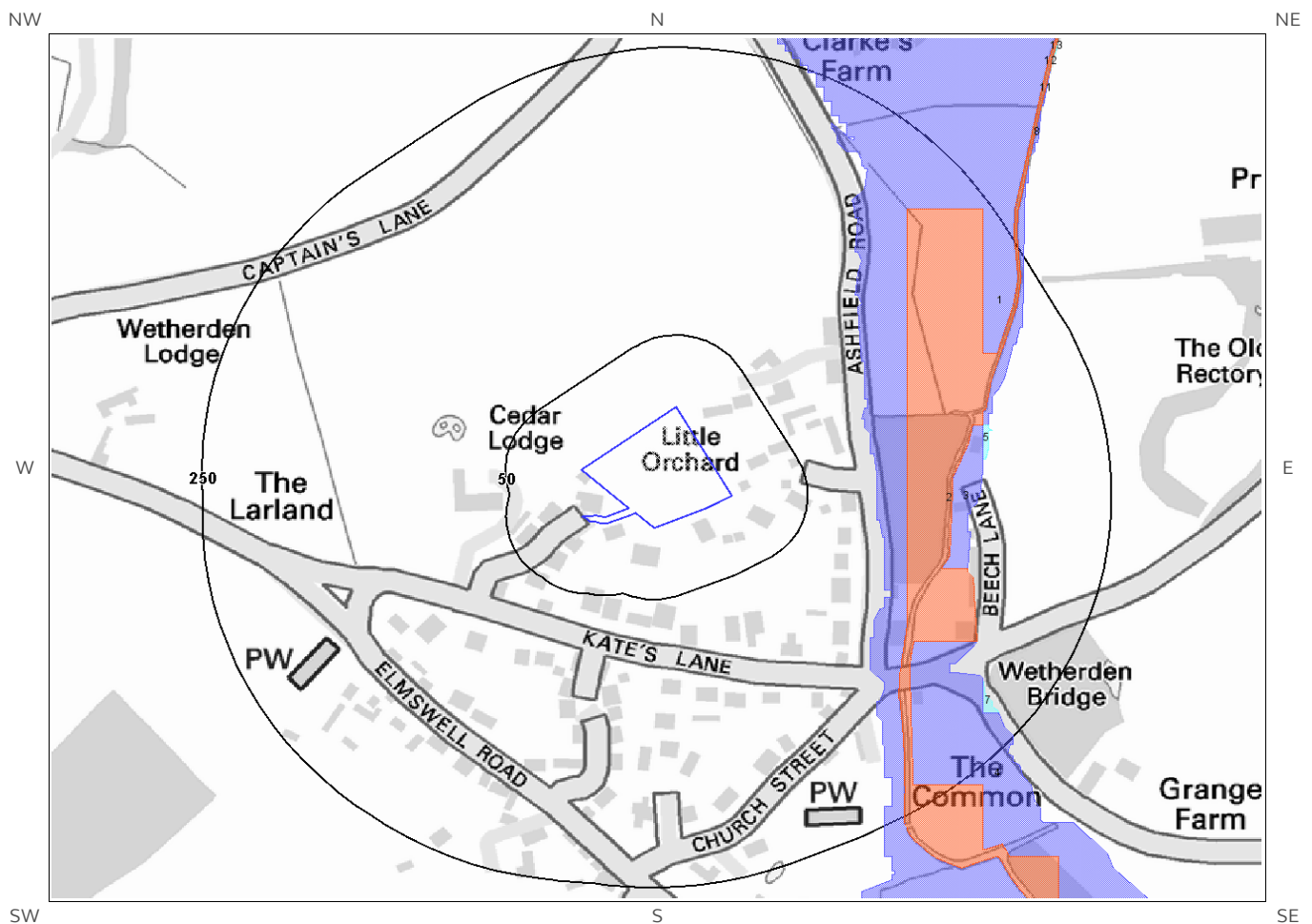
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



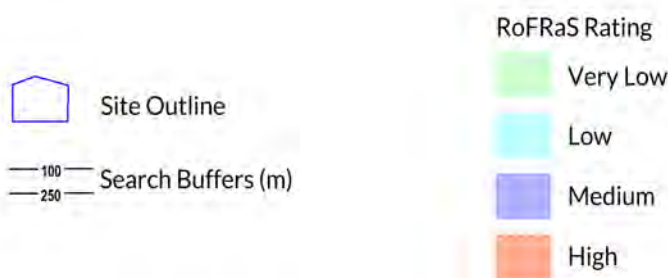
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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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	95	E	19-Nov-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	100	E	19-Nov-2019	Zone 3 - (Fluvial 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 None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site None identified

7.7 Groundwater Flooding Susceptibility Areas

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

Clearwater Flooding or Superficial Deposits Flooding Clearwater Flooding

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

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

Potential below Surface

Where potential for groundwater flooding of property situated below ground level is indicated, this means that given the geological conditions there may be a groundwater flooding hazard to basements and other below surface infrastructure. 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. If there are records of previous incidences of groundwater flooding, then is recommended that other information e.g. rainfall history, property type, and land drainage information in addition to previous records of flooding be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

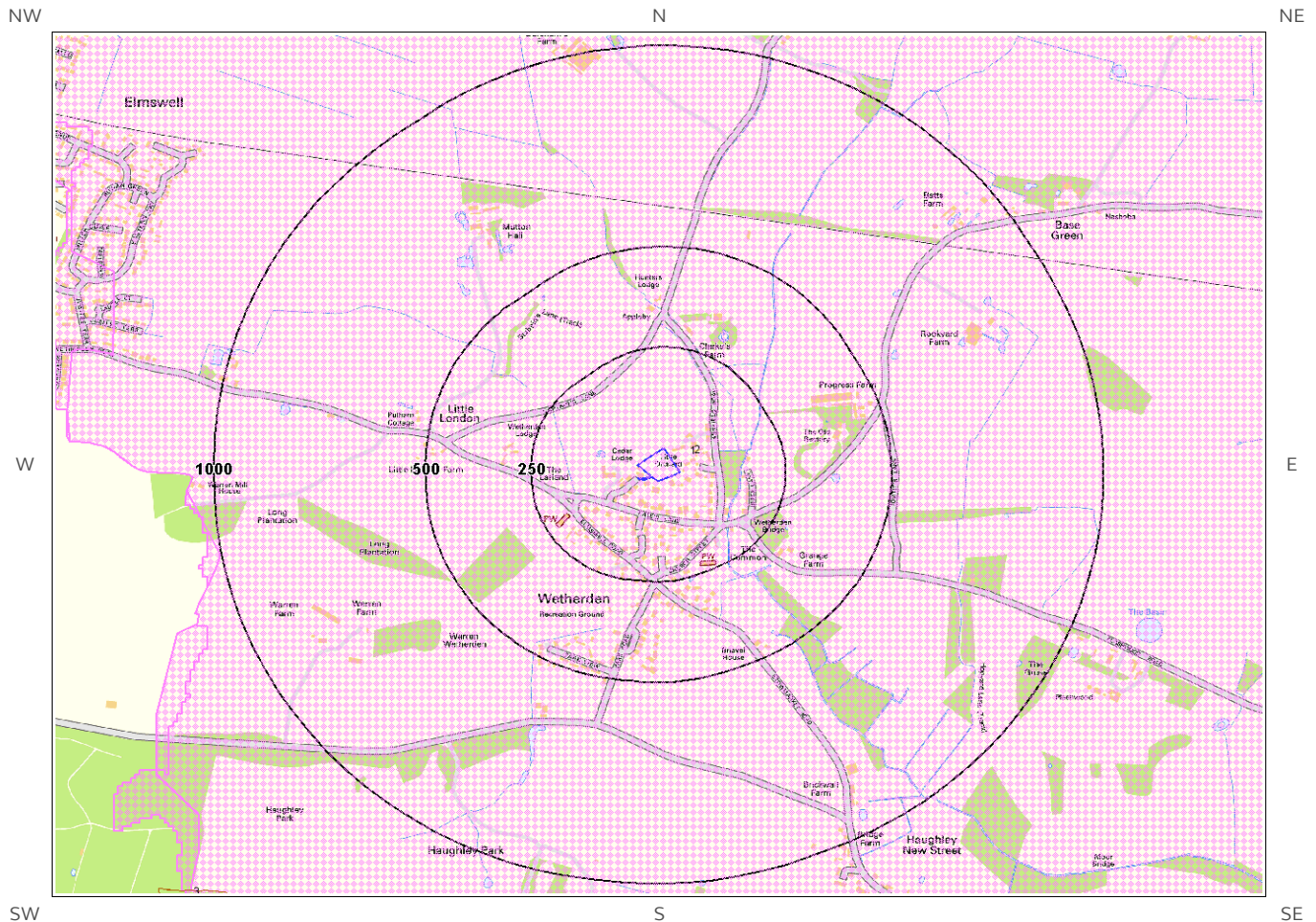
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result Low

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

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

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site

Identified

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

9

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

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
3	1294	SW	Unknown	Ancient Replanted Woodland
Not shown	1457	SW	Unknown	Ancient Replanted Woodland
Not shown	1580	S	Unknown	Ancient & Semi-Natural Woodland
Not shown	1625	SW	Unknown	Ancient Replanted Woodland
Not shown	1670	S	Unknown	Ancient & Semi-Natural Woodland
Not shown	1688	SE	BROAD BORDER	Ancient & Semi-Natural Woodland
Not shown	1705	SE	BROAD BORDER	Ancient Replanted Woodland
Not shown	1872	SE	BROAD BORDER	Ancient & Semi-Natural Woodland
Not shown	1889	SW	Unknown	Ancient Replanted Woodland

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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:

2

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

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

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 Negligible

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

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

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

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site

Negligible

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

Hazard

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

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site

Very Low

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

Hazard

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

9.1.6 Running Sand

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

Very Low

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

Hazard

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

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

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is 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: Mid Suffolk District Council
Phone: 03001 234 000

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

Address: Endeavor House, 8 Russell Road, Ipswich, IP1 2BX

Gemapping PLC

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



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.

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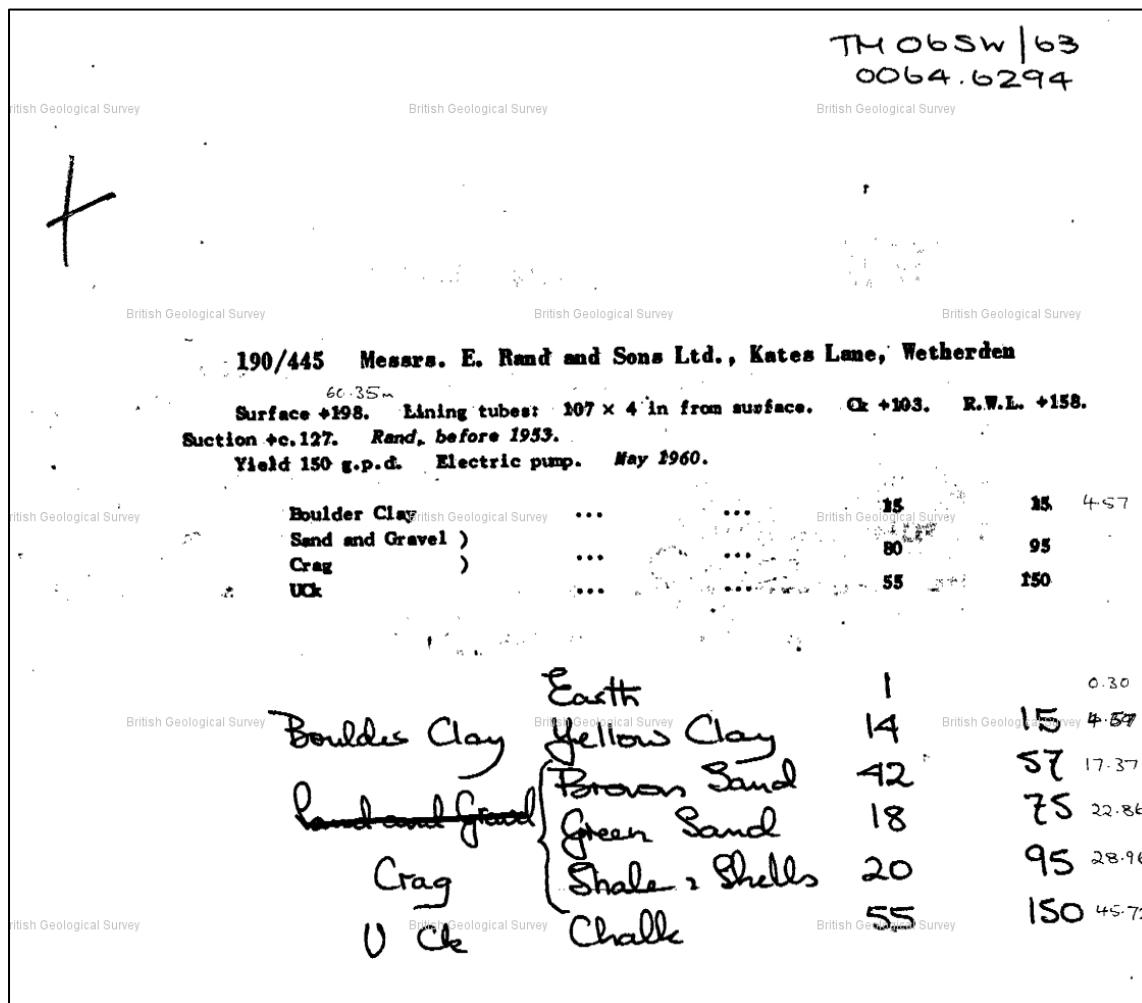
APPENDIX C: OTHER SUPPORTING DOCUMENTS

Archive BGS Borehole Records – TM06SW63 and TM06SW60

Historical Map Extracts – Groundsure report reference: GS-6506760



Archive BGS Borehole Record – TM06SW63



Archive BGS Borehole Record – TM06SW60

TM06SW | 60
0088.6286

British Geological Survey

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British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

British Geological Survey

190/378 Gipping R.D.C., Public Well, Church Street, Wetherden. (Disused)

Surface +141. Lining tubes: 91 x 4 in from surface. R.W.L. +136. P.W.L. +135.
Suction +119. Yield 450 g.p.h. (7 h. test). Rand, 1948.
Handpump. May 1960.

Boulder Clay	38	38	11.58
Sand and Gravel	40	78	23.77
Uk	72	150	45.72



Site Details:

WINDMILL RISE, WETHERDEN,
IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: County Series

Map date: 1884

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
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IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: County Series

Map date: 1903

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1903
Revised 1903
Edition N/A
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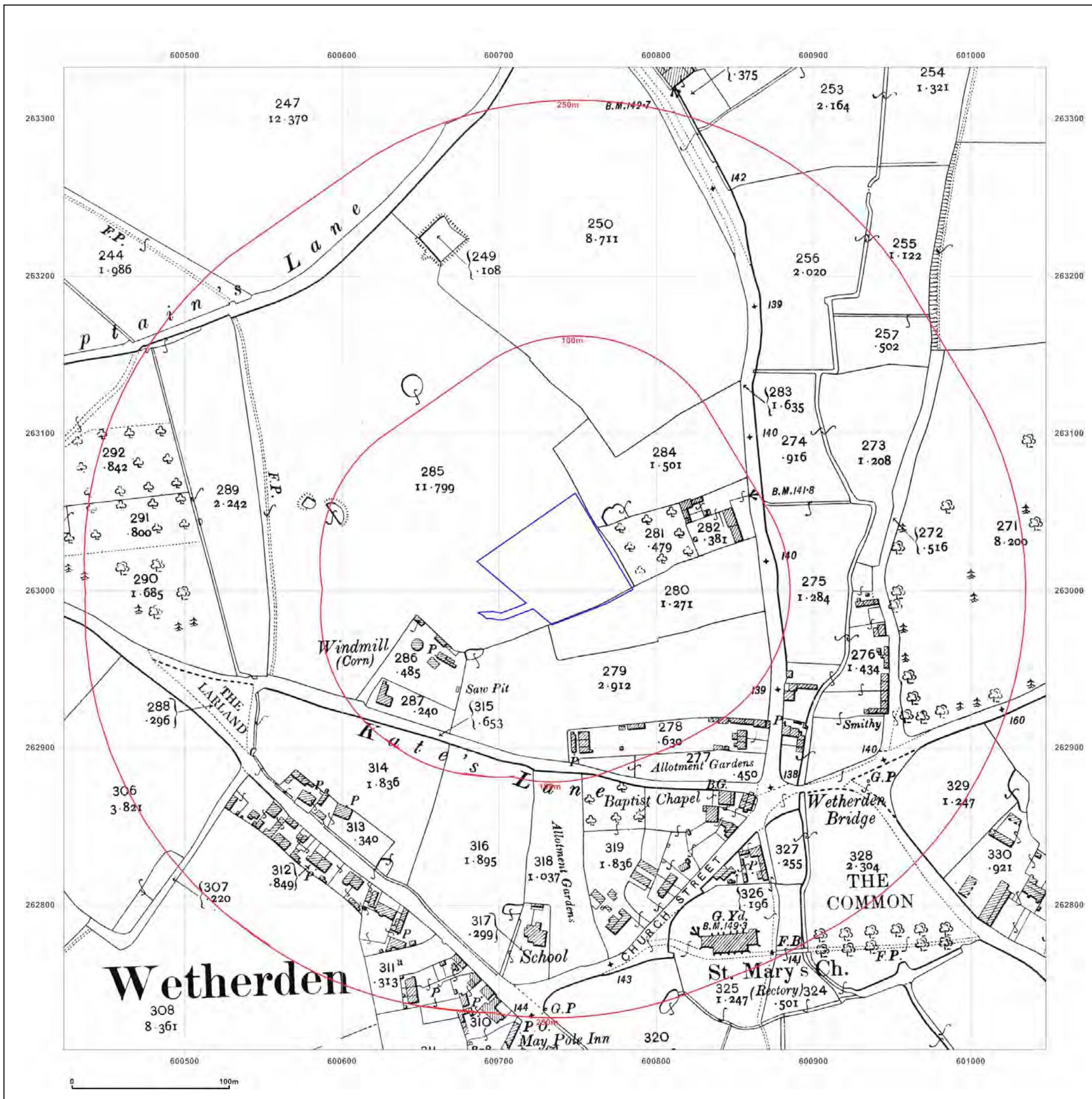


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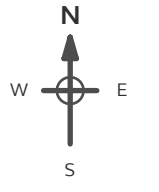
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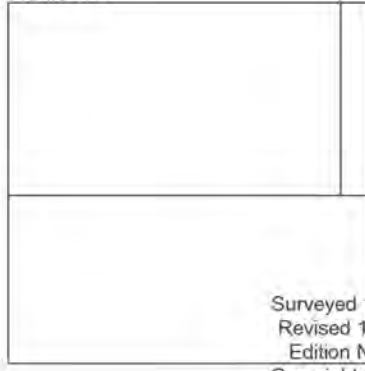


Site Details:
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 IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: National Grid
Map date: 1979-1981
Scale: 1:2,500
Printed at: 1:2,500



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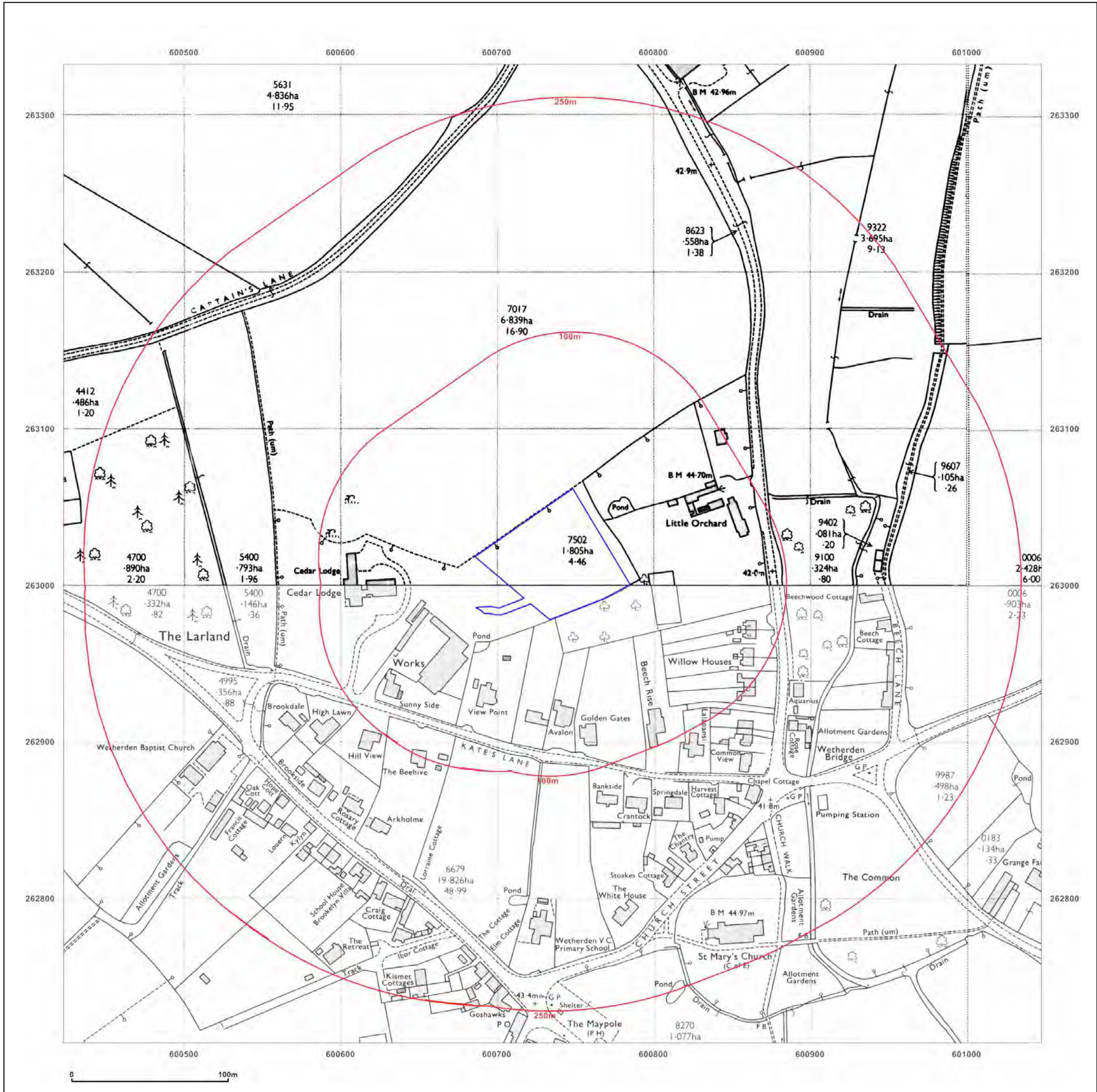


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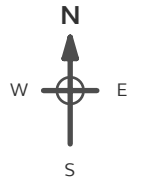
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Site Details:
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 IP14 3LE

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Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: National Grid
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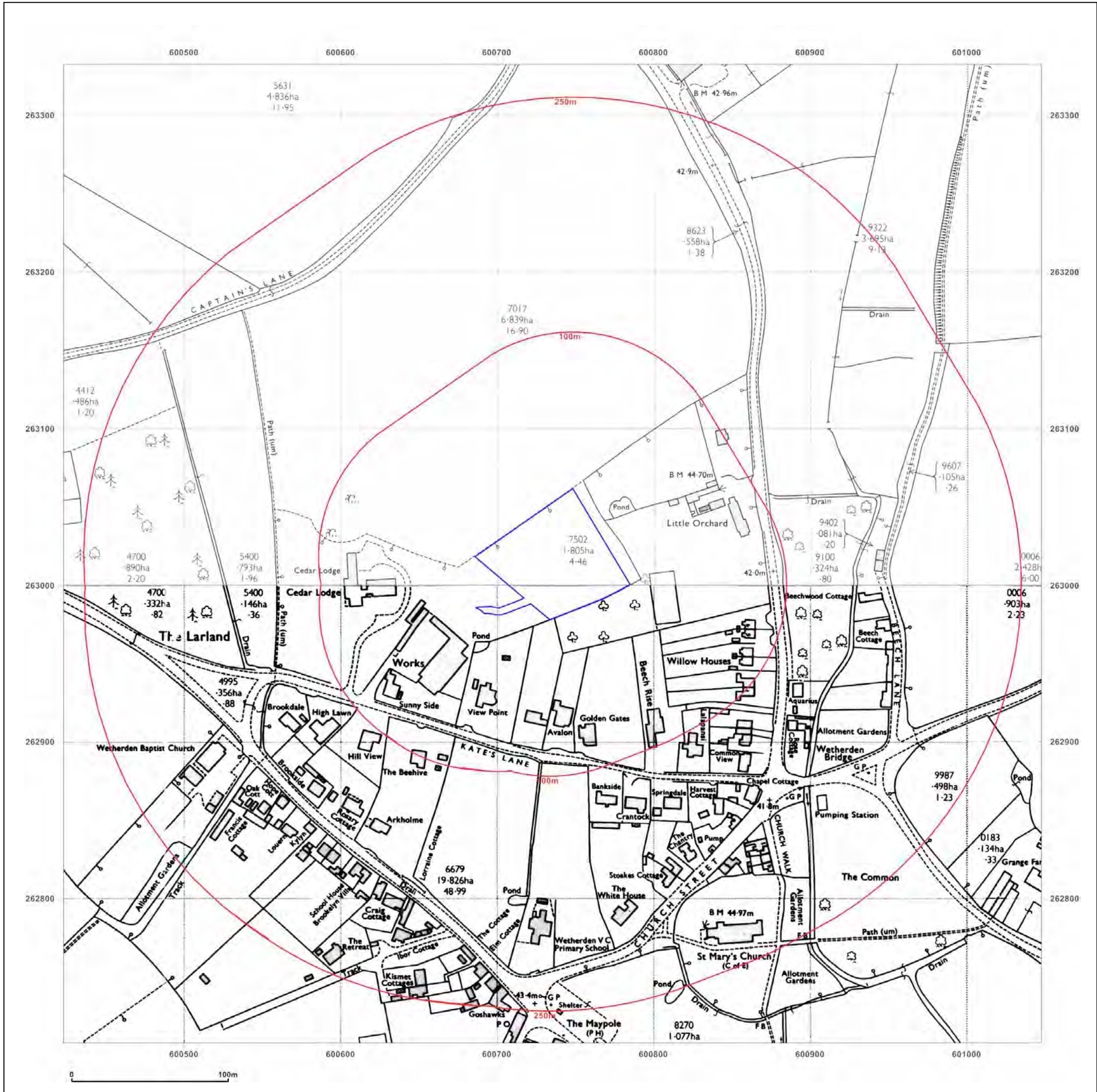
Surveyed 1979 Revised 1979 Edition N/A Copyright 1981 Levelled 1971	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A
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Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: National Grid

Map date: 1995

Scale: 1:2,500

Printed at: 1:2,500



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Revised N/A
Edition N/A
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Edition N/A
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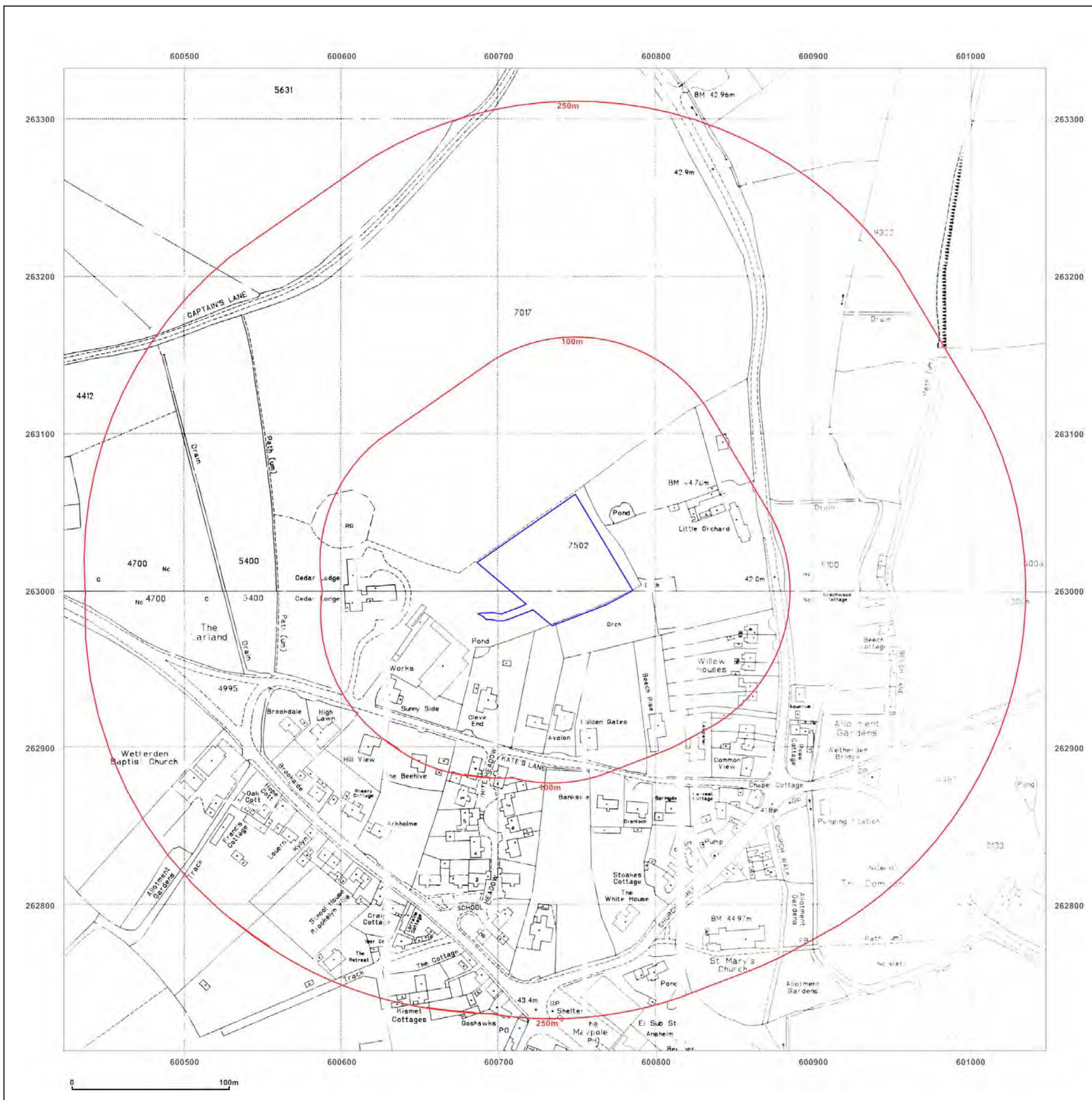


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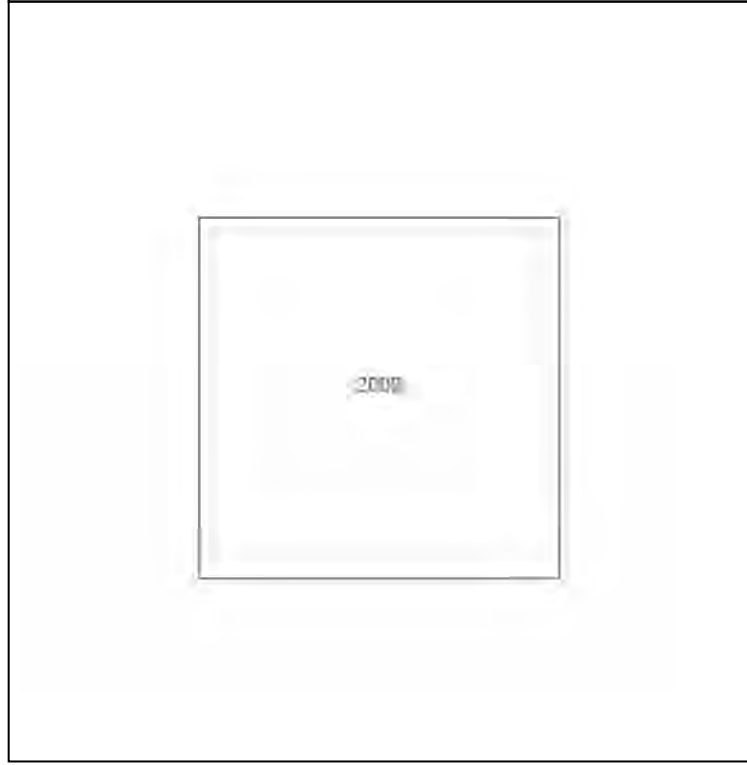
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Grid Ref: 600735, 263020

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: County Series

Map date: 1884-1888

Scale: 1:10,560

Printed at: 1:10,560



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Revised N/A
Edition N/A
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Revised 1884
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Site Details:

WINDMILL RISE, WETHERDEN,
IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: County Series

Map date: 1884-1888

Scale: 1:10,560

Printed at: 1:10,560



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Site Details:

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IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: County Series


Map date: 1903-1905

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1884
Revised 1905
Edition 1905
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Surveyed 1884
Revised 1903
Edition N/A
Copyright N/A
Levelled N/A

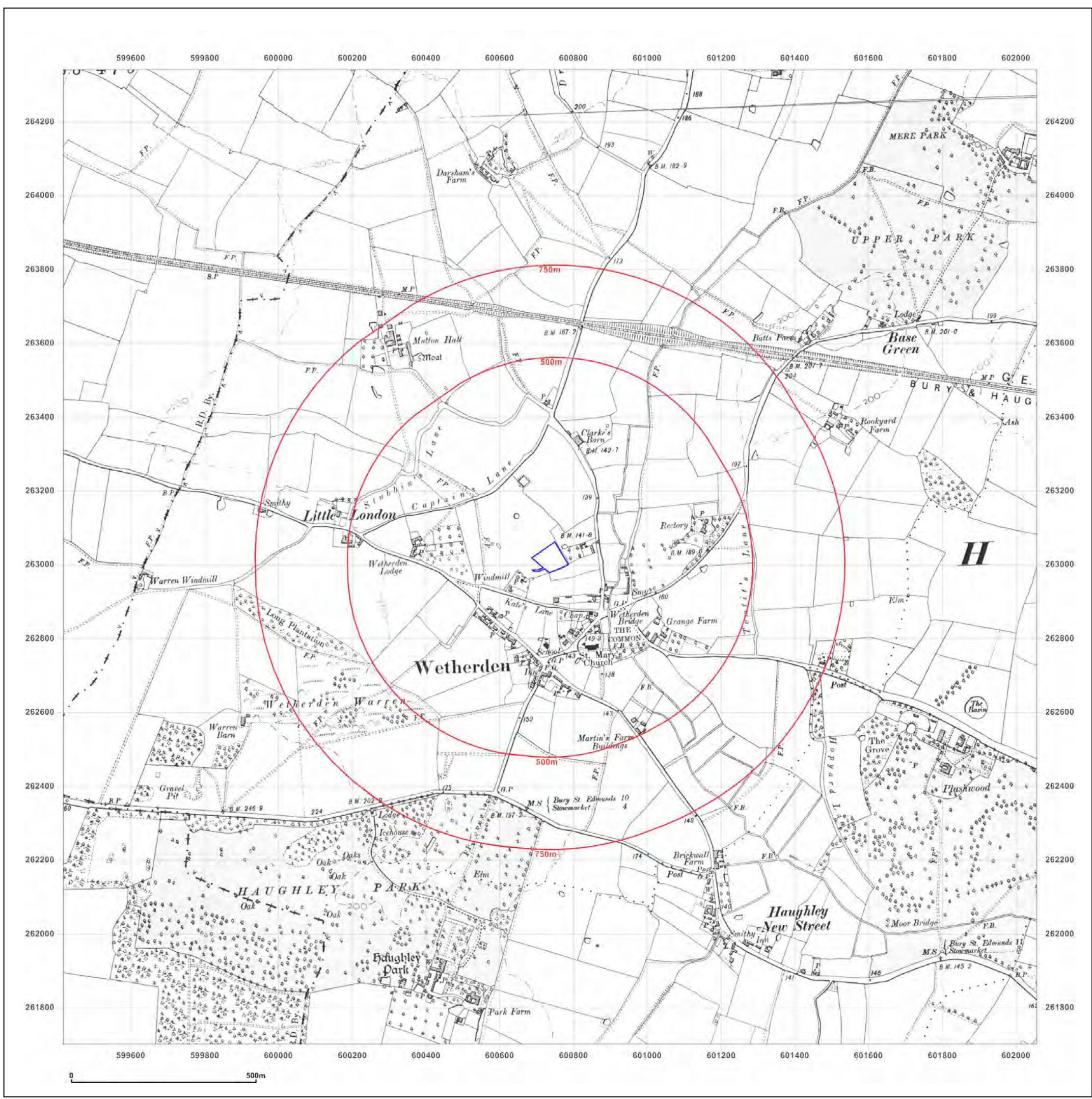


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Site Details:

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IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: County Series

Map date: 1905

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1884
Revised 1905
Edition 1905
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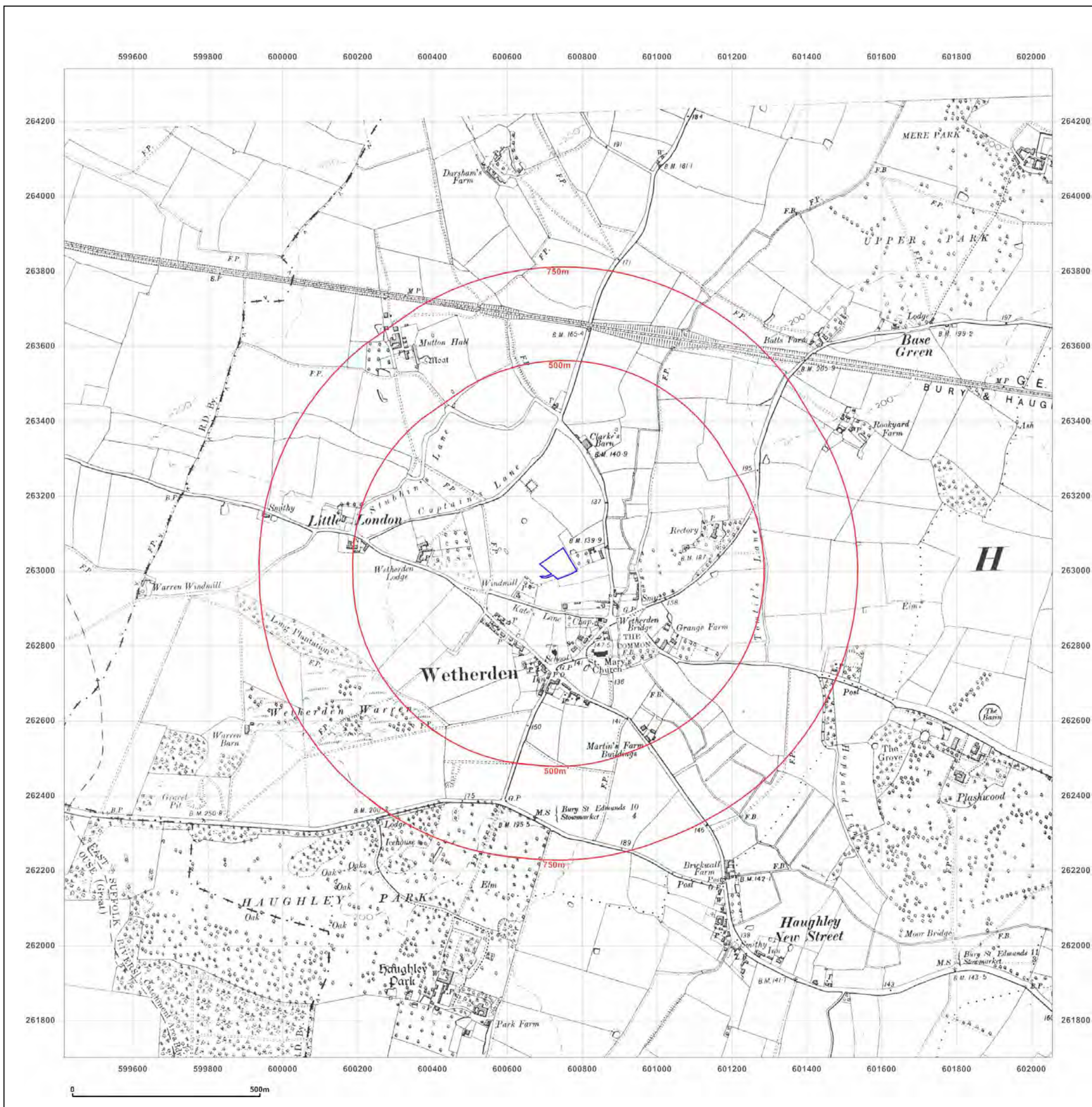


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Site Details:

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IP14 3LE

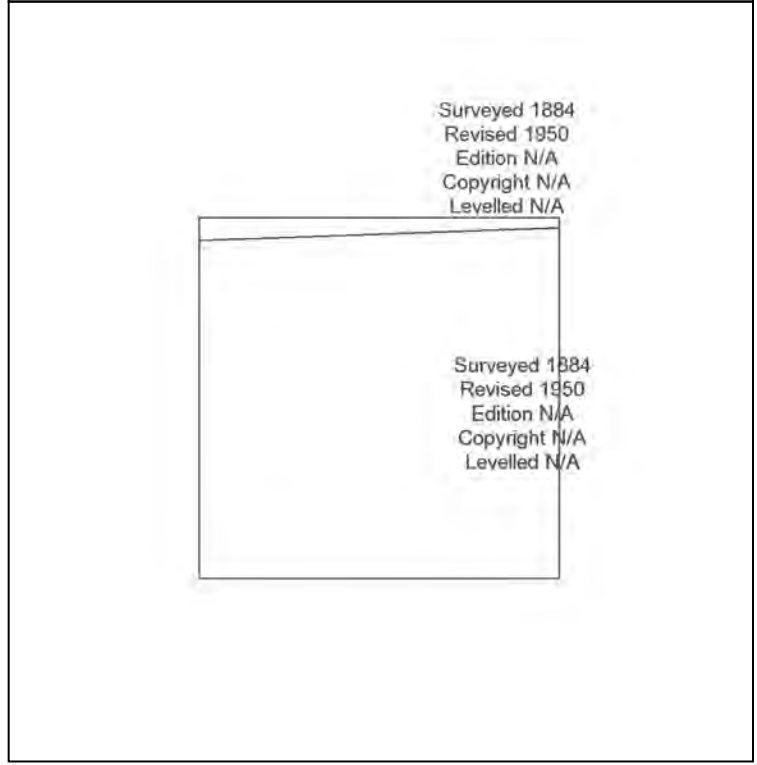
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Map Name: County Series

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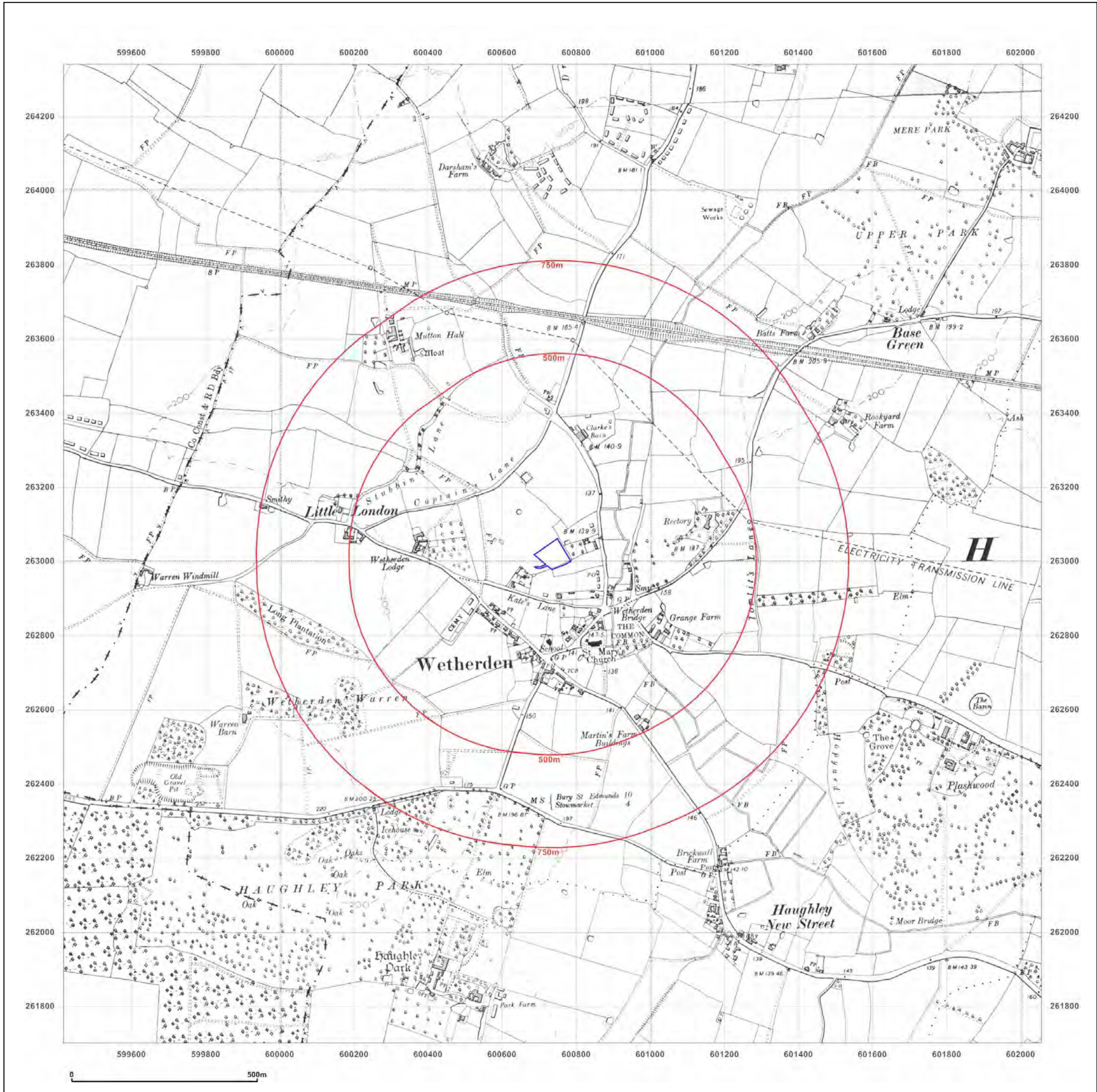


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Site Details:

WINDMILL RISE, WETHERDEN,
IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: Provisional

Map date: 1958

Scale: 1:10,560

Printed at: 1:10,560



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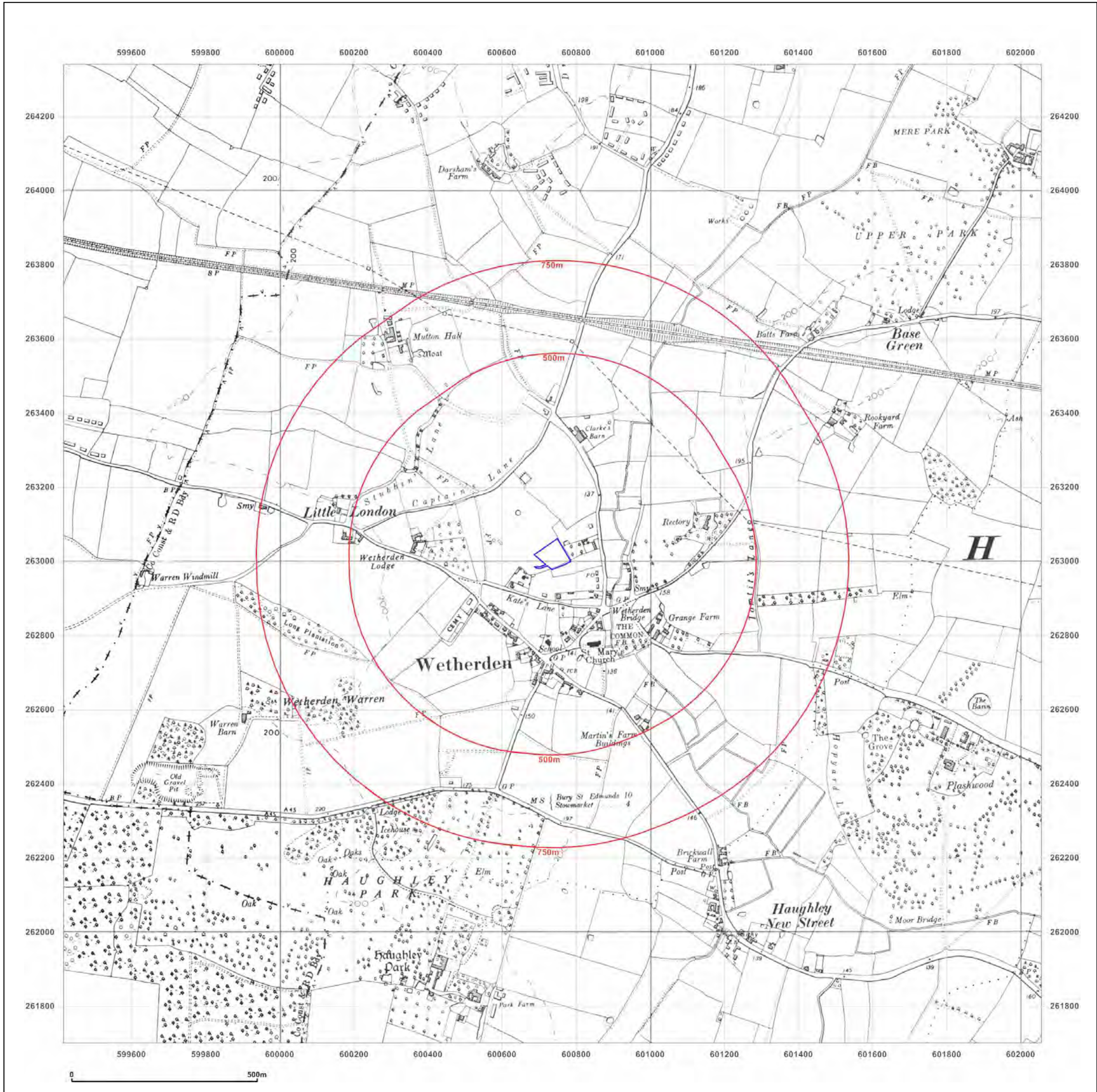


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Site Details:

WINDMILL RISE, WETHERDEN,
IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: National Grid

Map date: 1981-1983

Scale: 1:10,000

Printed at: 1:10,000



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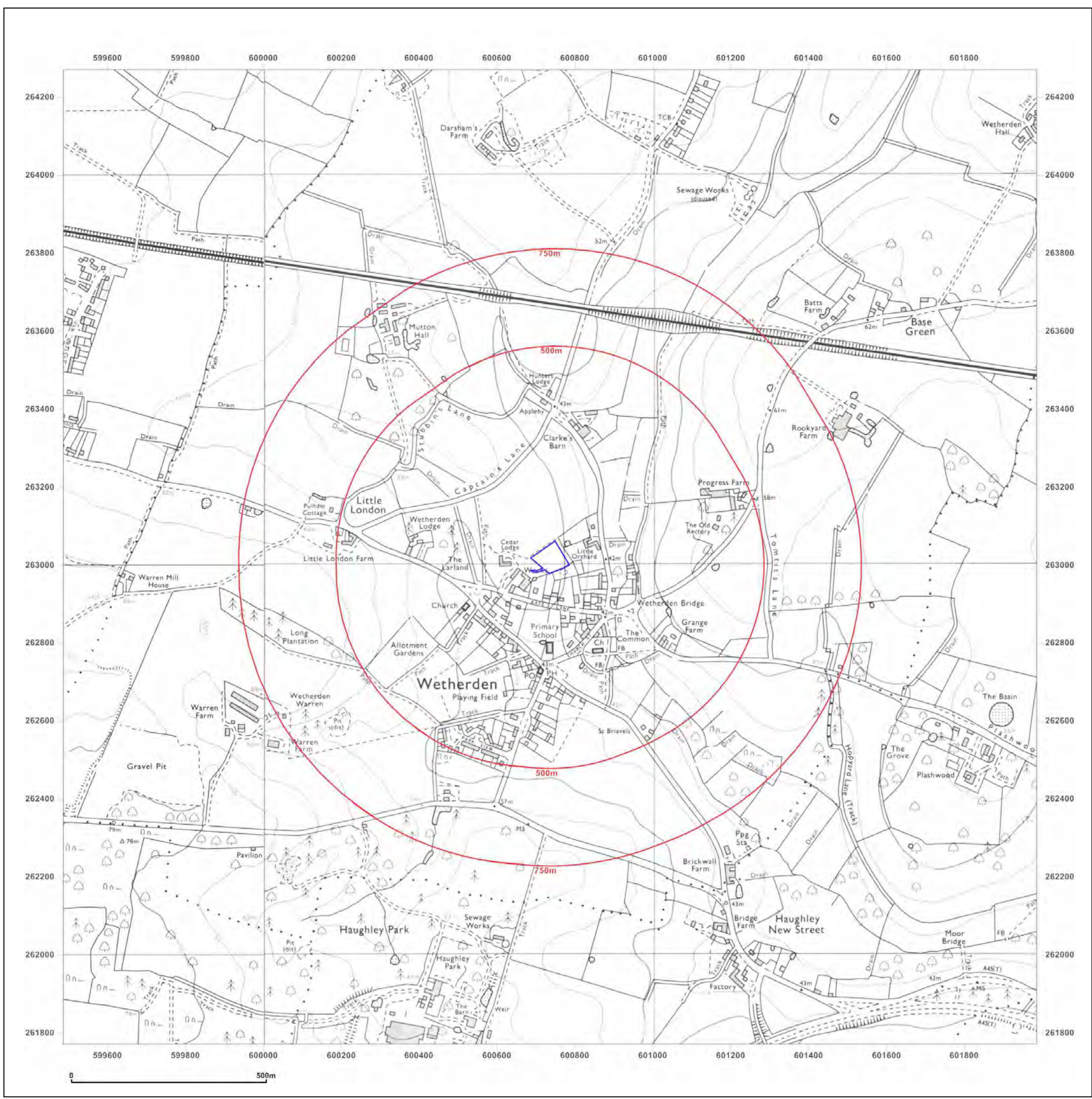


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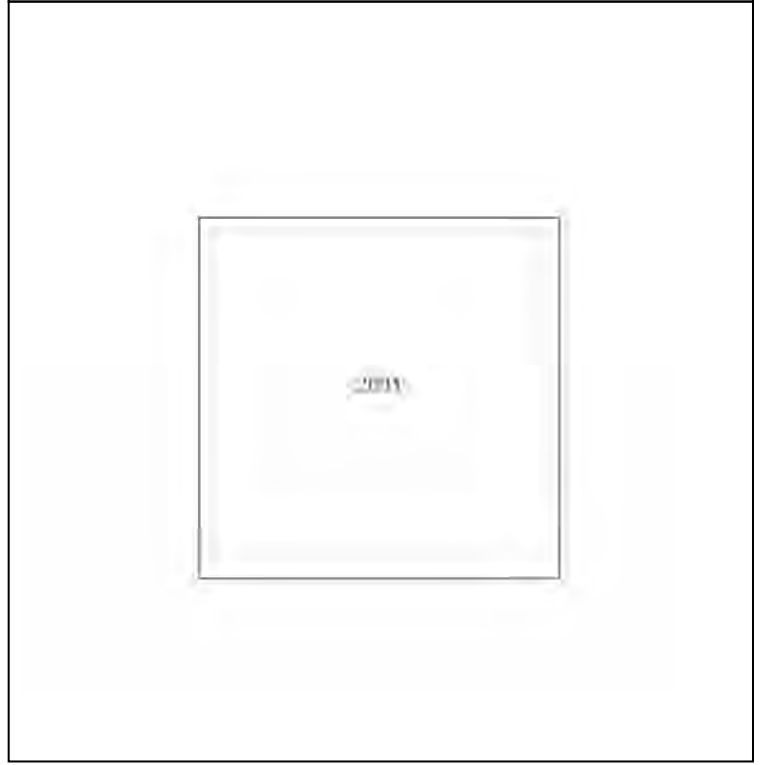
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Site Details:
 WINDMILL RISE, WETHERDEN,
 IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
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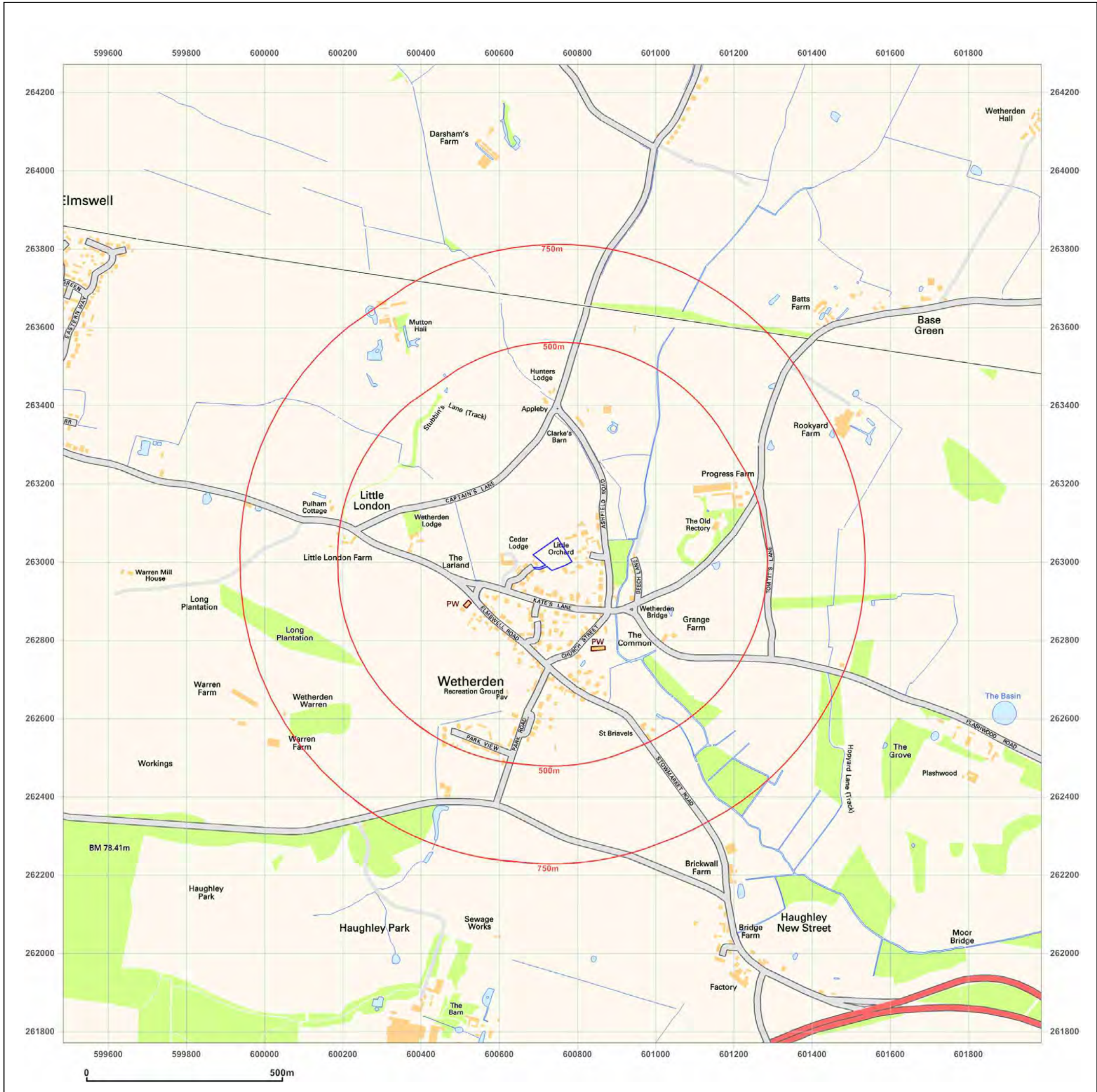


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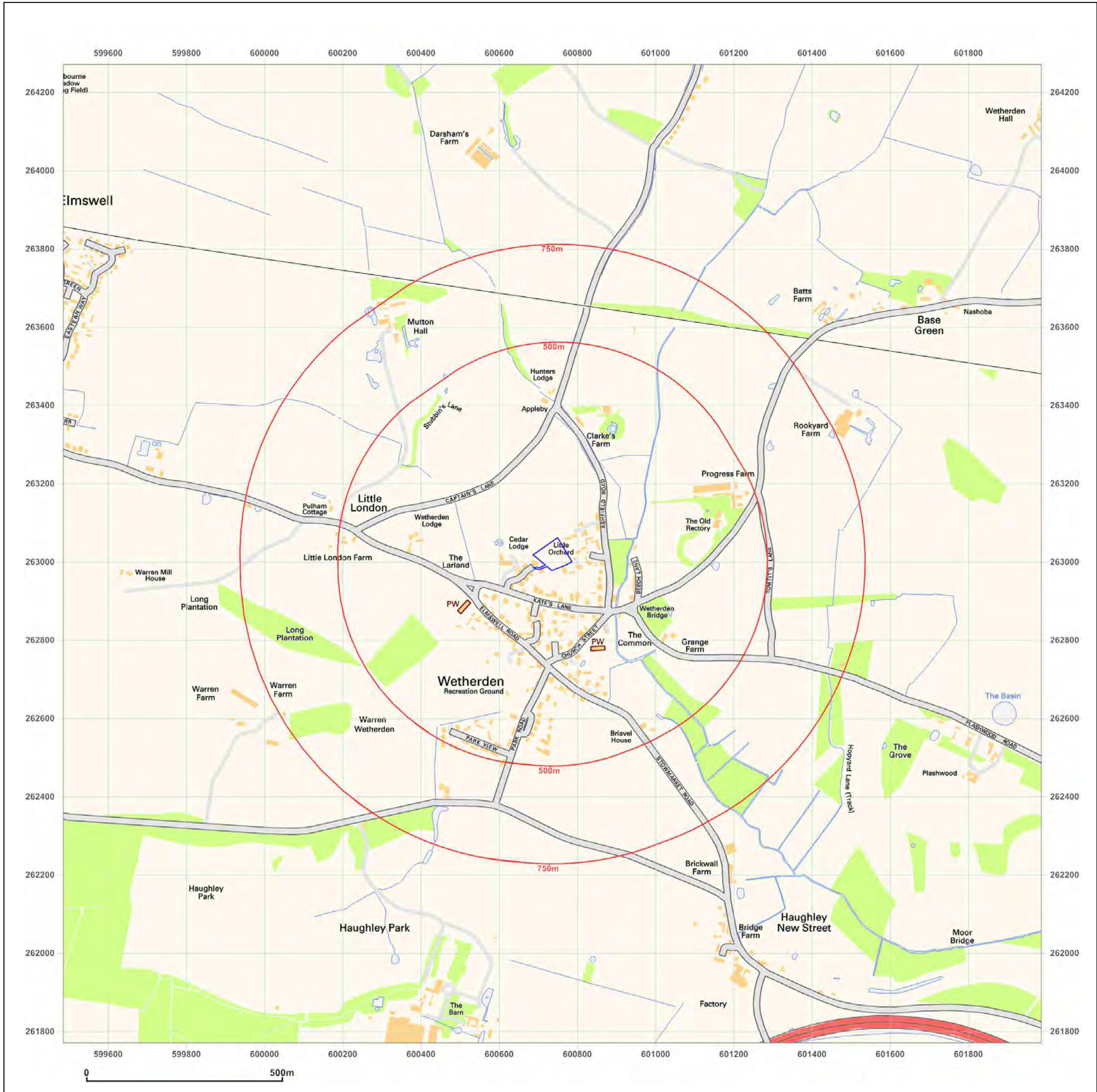
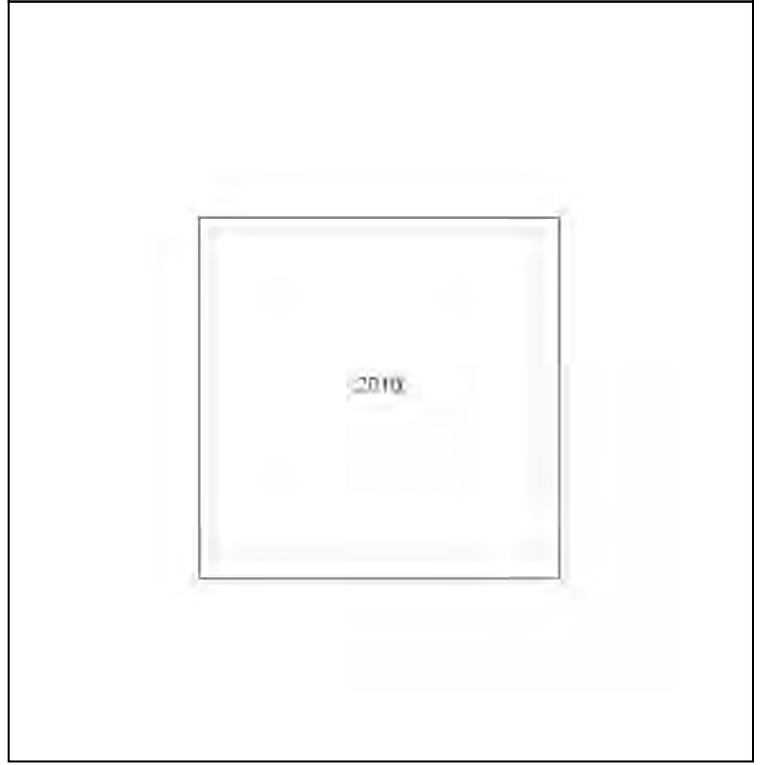
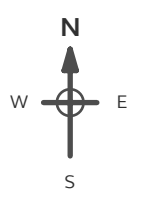
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Site Details:
 WINDMILL RISE, WETHERDEN,
 IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: National Grid
Map date: 2010
Scale: 1:10,000
Printed at: 1:10,000



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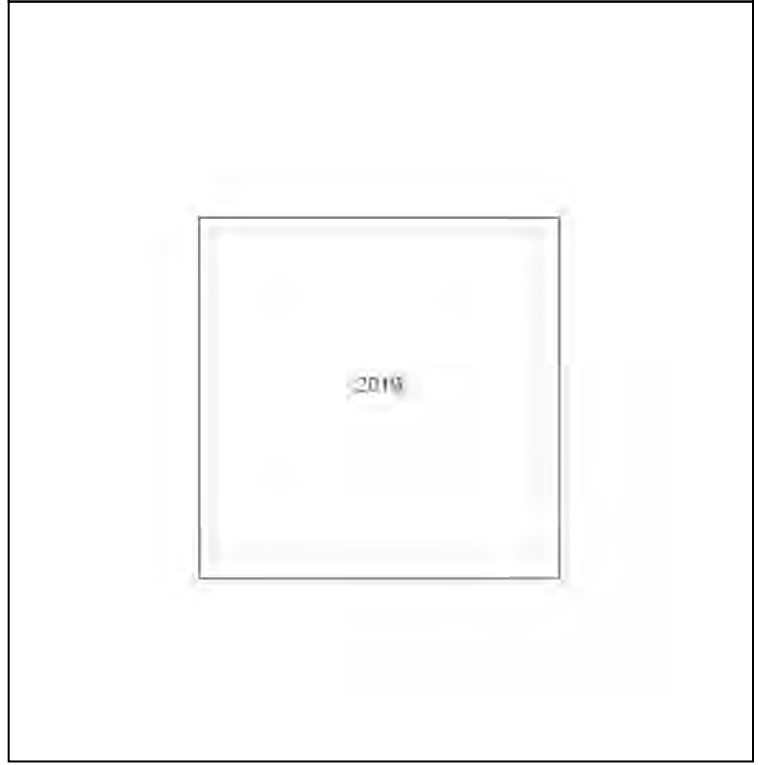
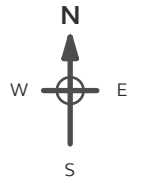
Production date: 09 December 2019

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

Site Details:
 WINDMILL RISE, WETHERDEN,
 IP14 3LE

Client Ref: DJM-19-414
Report Ref: GS-6506760
Grid Ref: 600735, 263020

Map Name: National Grid
Map date: 2019
Scale: 1:10,000
Printed at: 1:10,000



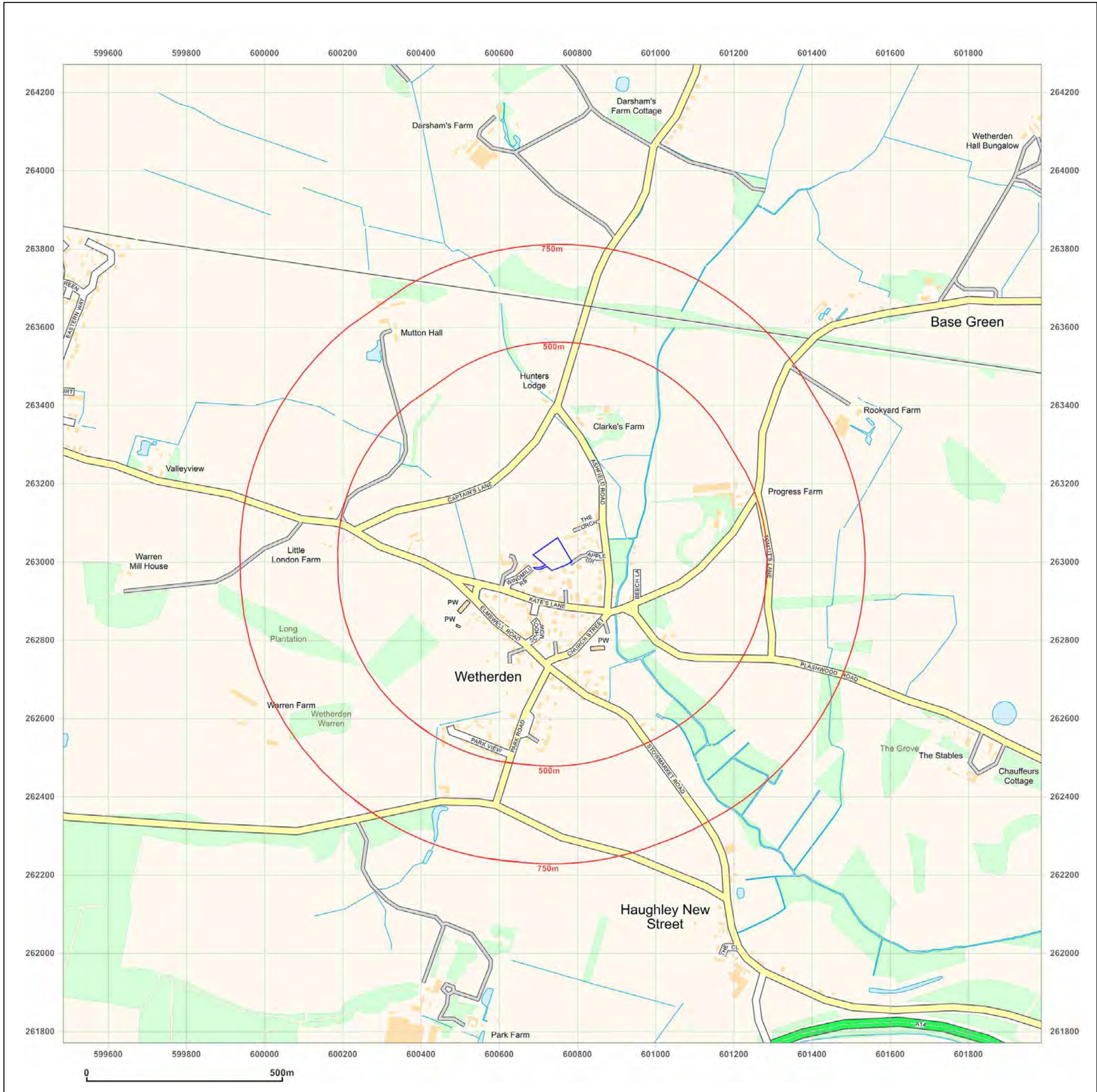
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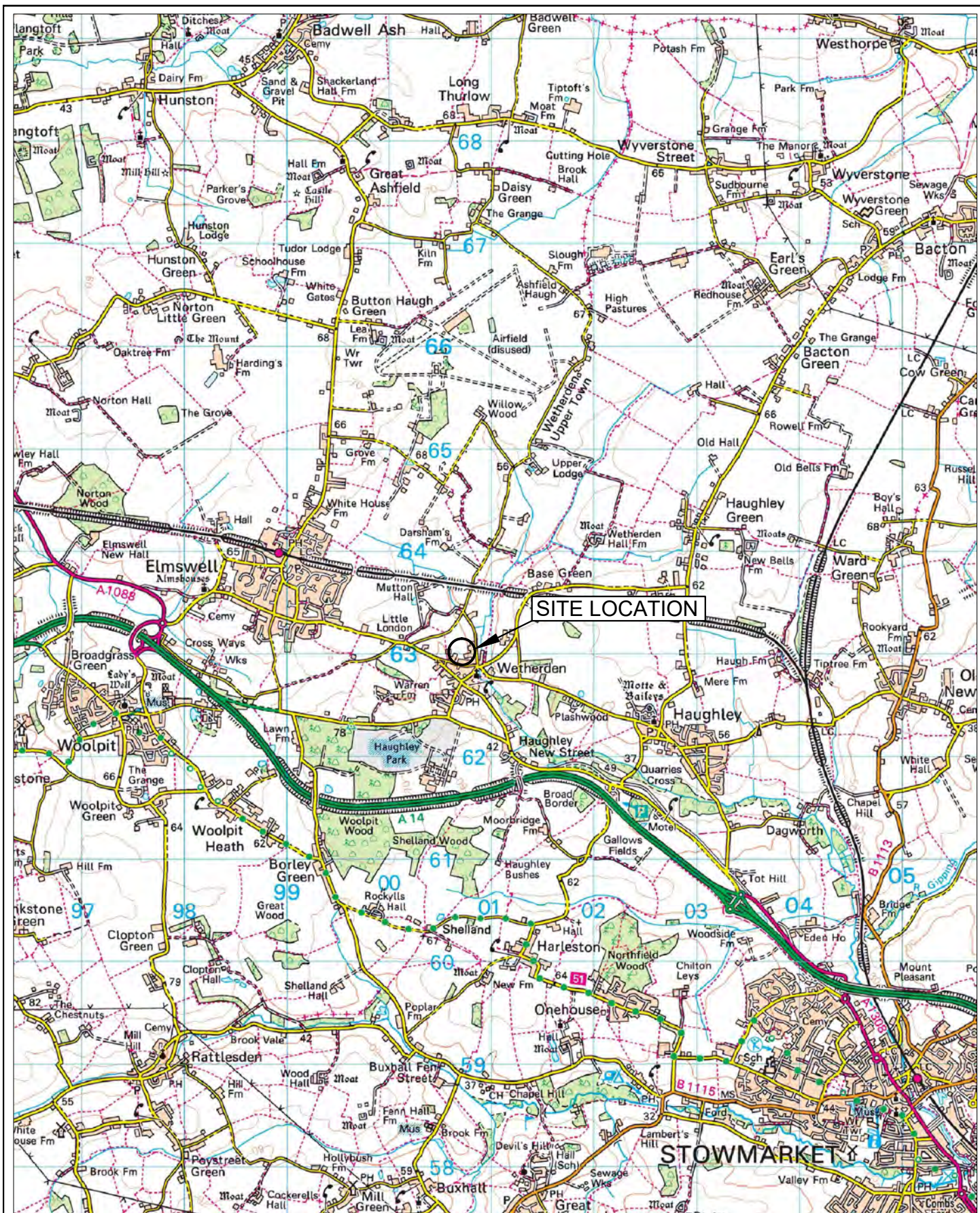
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APPENDIX D: DRAWINGS

Drawing 19.414/Phase1/01	Site Location Plan
Drawing 19.414/Phase1/02	BGS Geology and Borehole Location Plan
Drawing 19.414/Phase1/03	Relevant Feature Plan
Drawing 303224 20-002	Indicative Site Layout Plan (Dated September 2019 and prepared by Durrants Building Consultancy)
Drawing PLS-NP-FT-TS-00	Topographical Survey (Dated September 2019 and prepared by Parish Land Surveys)





North



Circle indicates approximate location of site



A F Howland Associates
Geotechnical Engineers

Site: Windmill Rise, Wetherden, IP14 3LE

SITE LOCATION PLAN

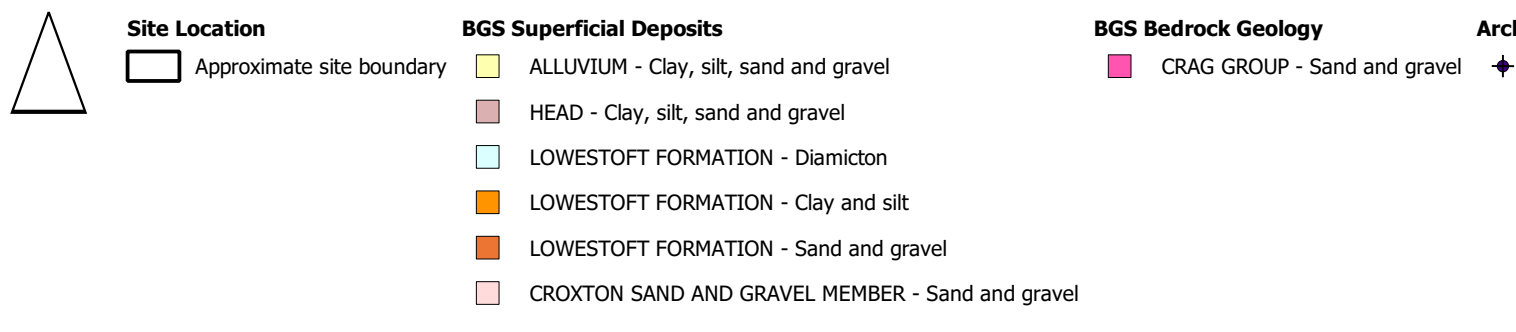
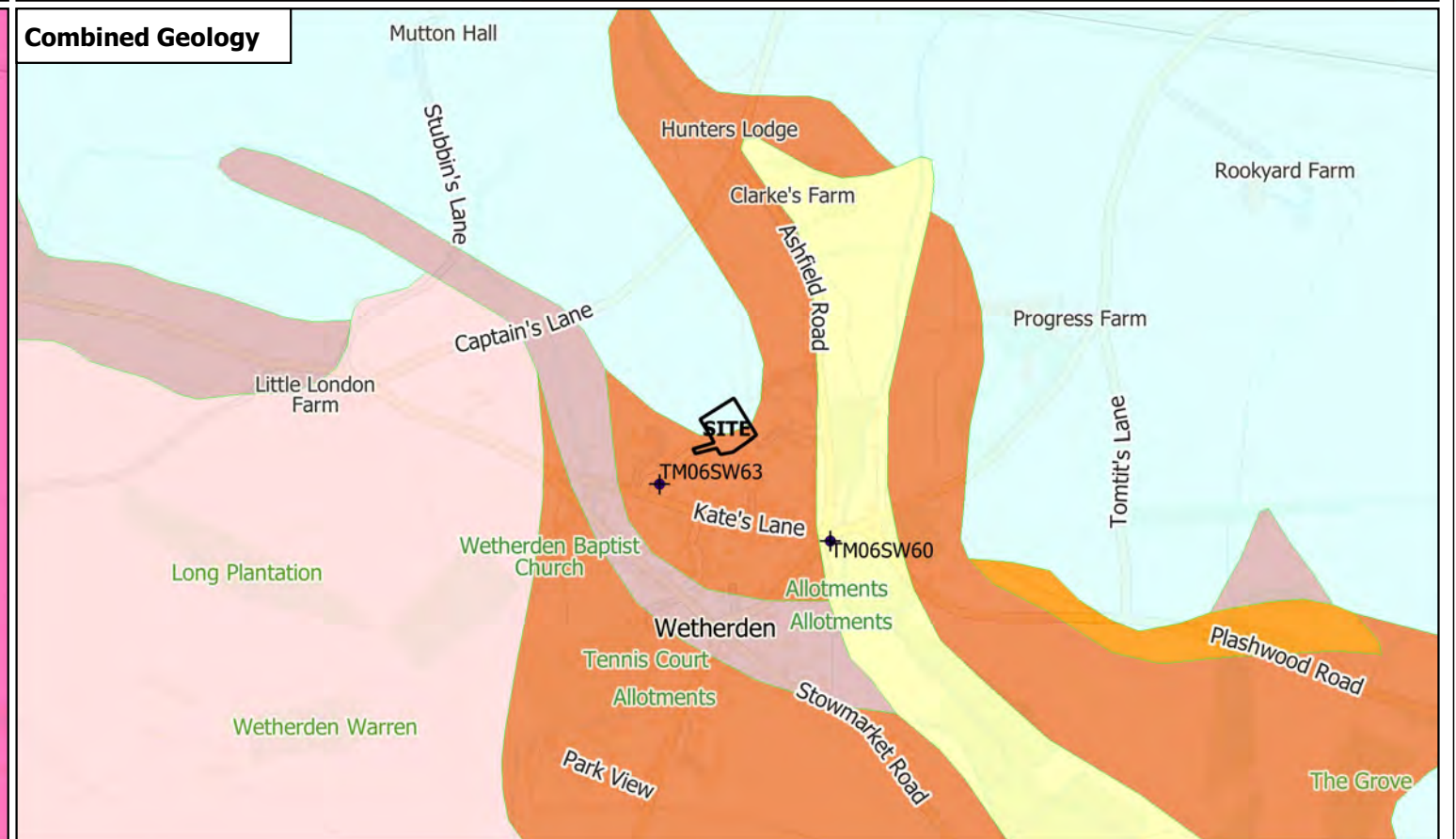
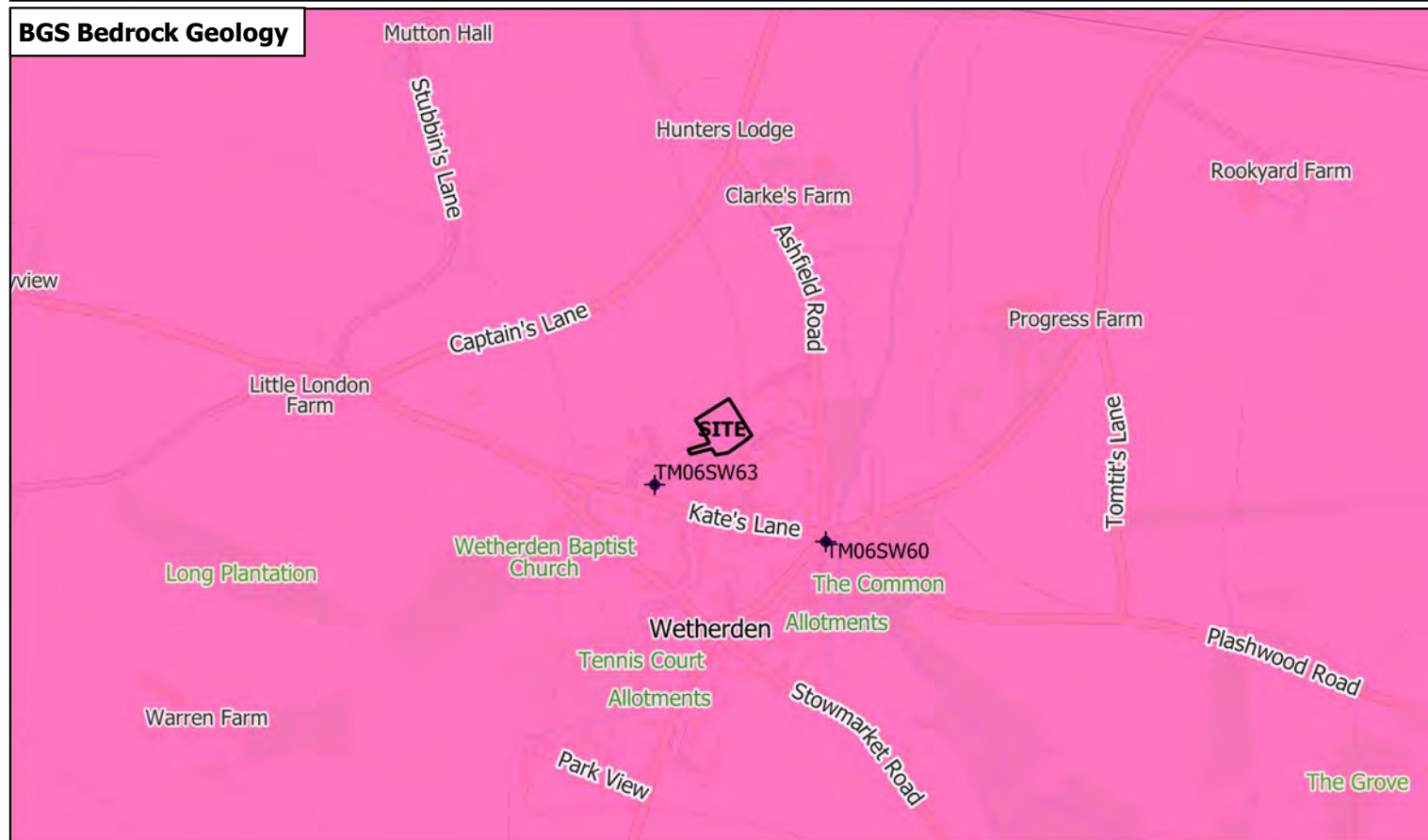
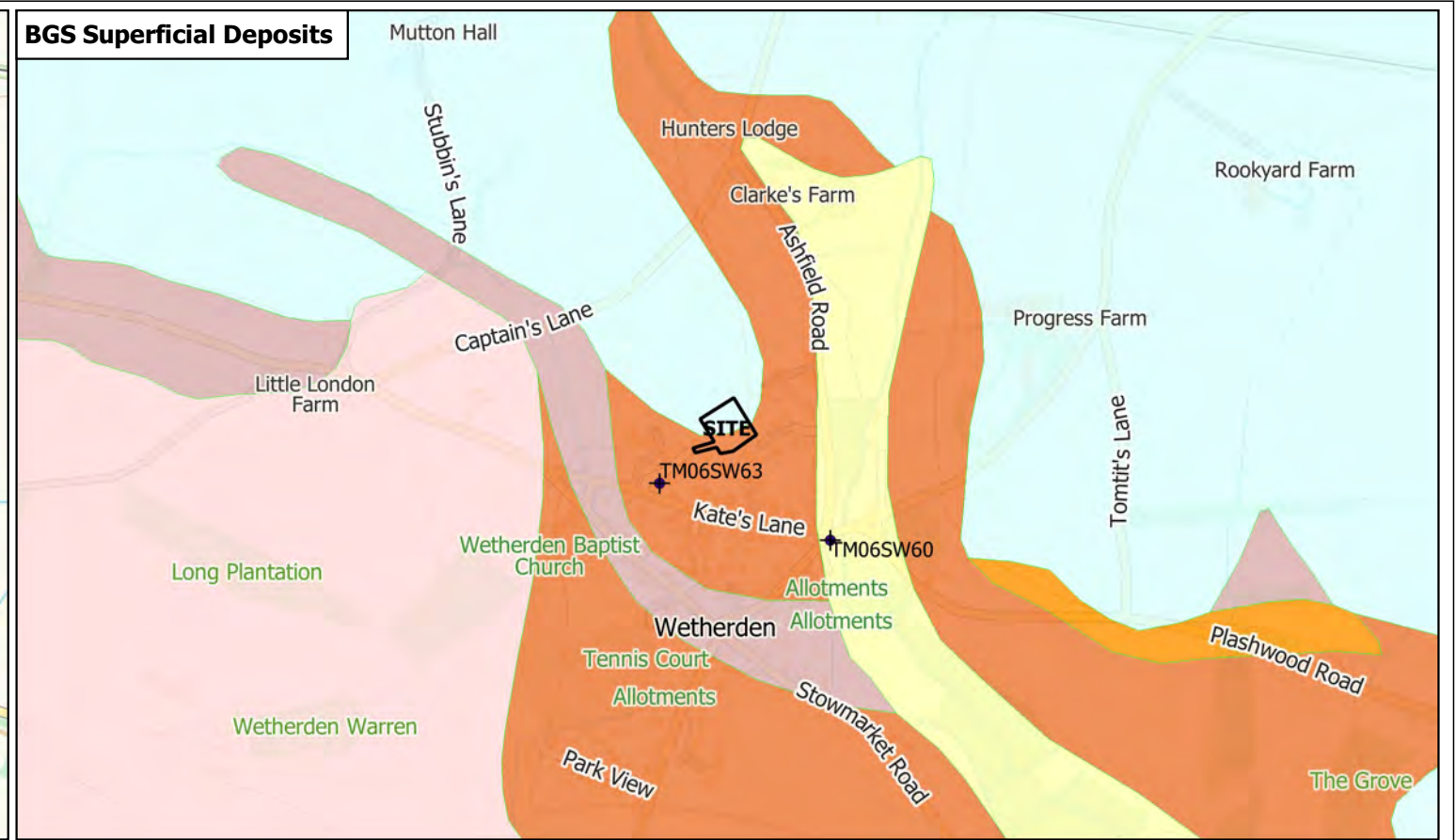
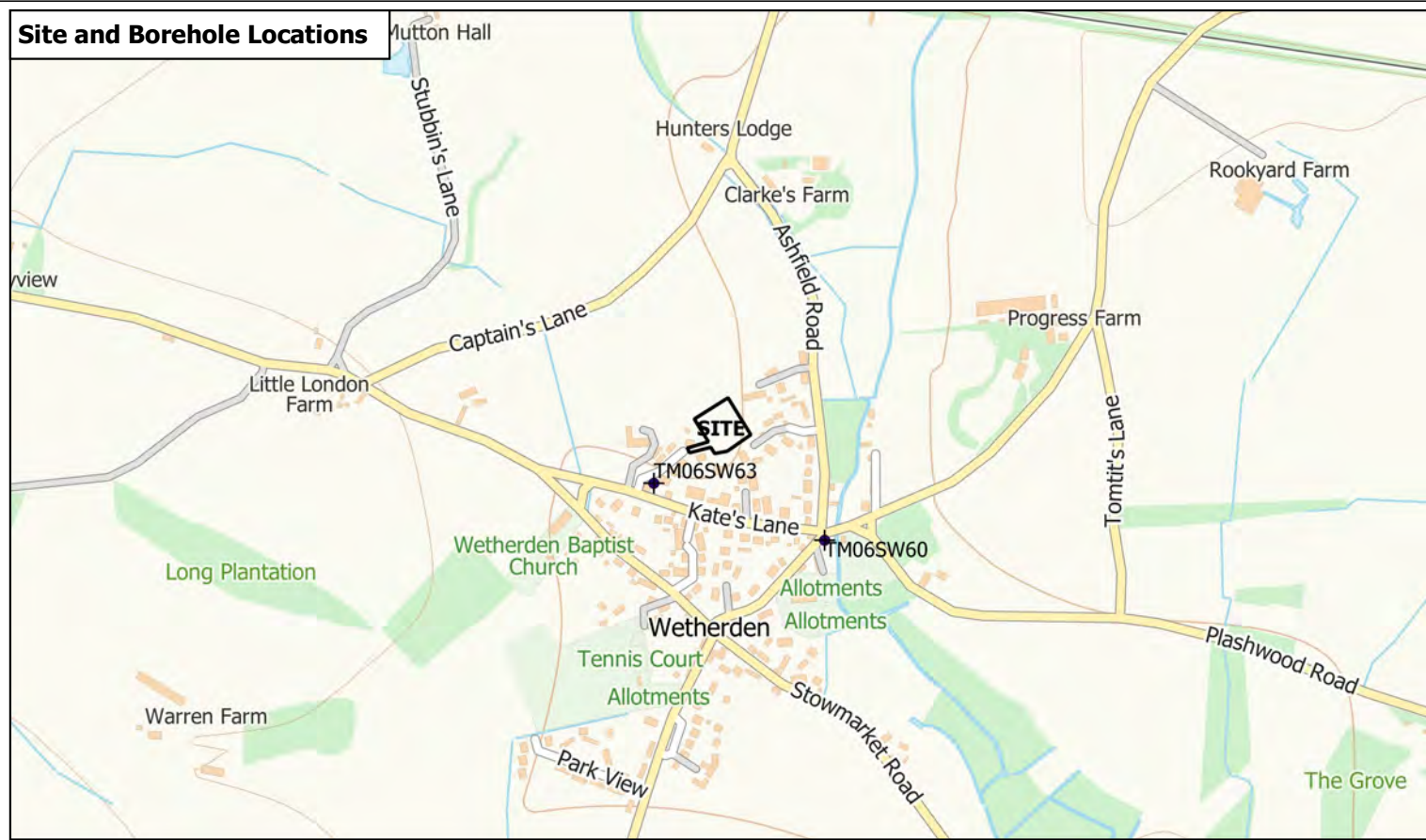
Client : Mr Geoff Rand

Date : December 2019

Dwg : 19.414/Phase1/01

Scale 1: 50,000 @ A4

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A F Howland Associates
Geotechnical Engineers

Site: Land off Windmill Rise, Wetherden, Suffolk

BGS GEOLOGY AND BOREHOLE LOCATION PLAN

Client: Mr Geoff Rand

Date: December 2019

Dwg: 19.414/Phase1/02

Scale 1:10000
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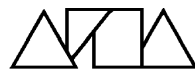


Photo 1: Site access from Windmill Rise



Photo 2: Short gravelled access track to site



Photo 3: Site access track onto paddock area



Photo 4: Looking north west across the paddock

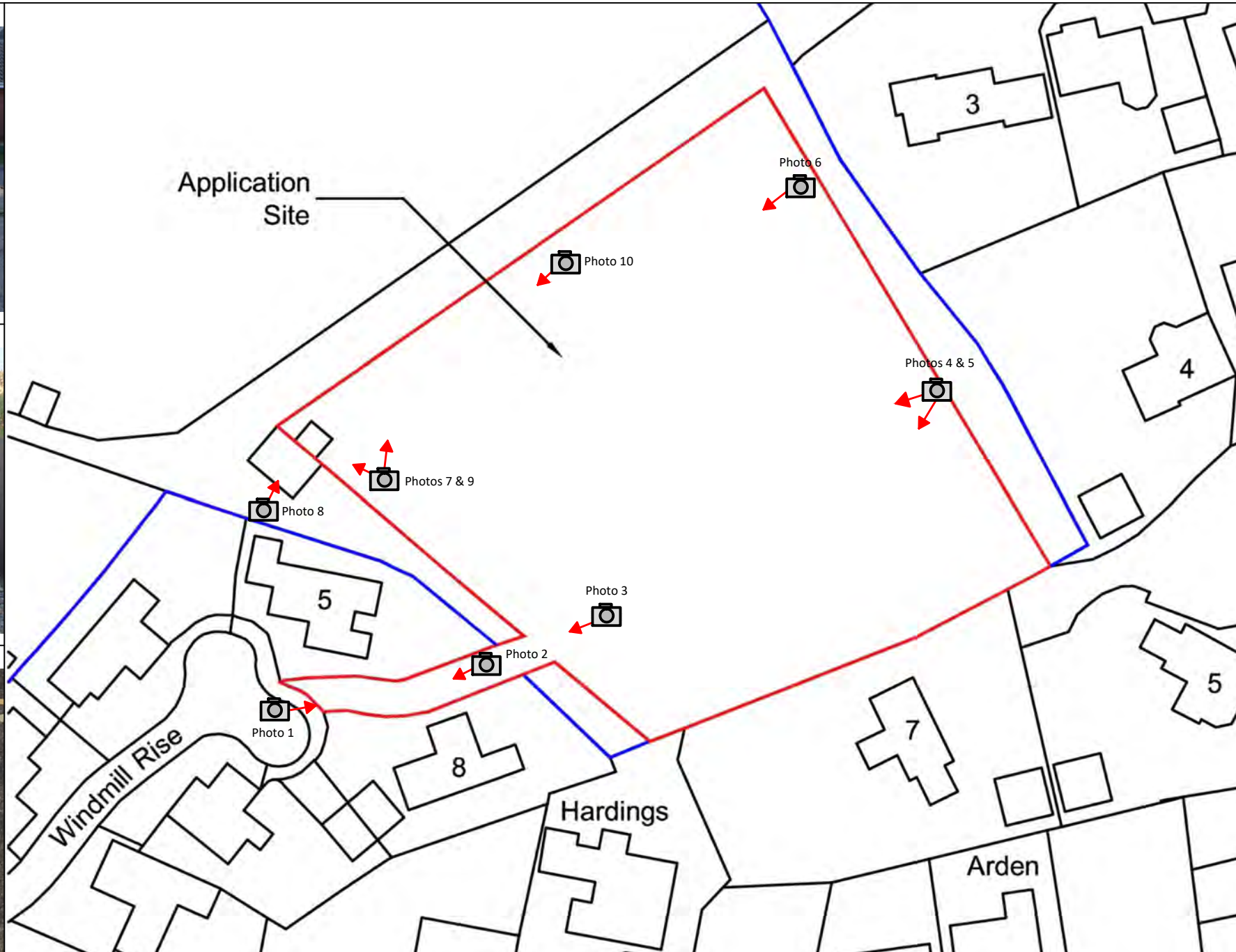


Photo 5: Looking south west across the paddock



Photo 6: Looking west across northern part of site



Photo 7: Stable straddling north western corner of the site




Photo 8: Stable in north western corner, majority of which is considered off site



Photo 9: Tractor and trailer near stable, in use to muck away manure



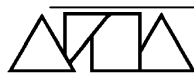
Photo 10: Empty bowser by northern boundary of the site



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Geotechnical Engineers

A F Howland Associates Ltd.
The Old Exchange
Newmarket Road
Cringford
Norwich
NR4 6UF
Tel: 01603 250754
Website: www.howland.co.uk Email: admin@howland.co.uk

Client: Mr Geoff Rand
Site: Land off Windmill Rise, Wetherden, IP14 3LE
Job No.: 19.414
Drawing title: Relevant Feature Plan
Drawing No.: 19.414/Phase/03
Date: December 2019



DRAWING NOTE
 - This drawing must not be reissued, loaned or copied without the written consent of Durrants.
 - All errors, omissions, discrepancies should be reported to Durrants immediately.
 - All dimensions to be checked before site fabrication by the contractor, his sub-contractor or supplier.
 - Any deviation from the drawing to be reported to Durrants immediately.
 - **This drawing is only to be used for the purpose identified in the boxes below.**
DO NOT SCALE FROM DRAWING

CDM 2015 DESIGNER RISK INFORMATION
 In addition to the hazards/risks normally associated with the type of construction work detailed on this drawing which a competent contractor should be able to control using normal good practice and procedures.
NOTE THE FOLLOWING UNUSUAL AND EXTRAORDINARY RISKS TO HEALTH AND SAFETY:-

CONSTRUCTION

MAINTENANCE/CLEANING

DECOMMISSIONING/DEMOLITION

Further information can be found on designer risk assessment number / document ref:-

It is assumed that all works will be carried out by a contractor competent under CDM 2015 working to an approved method statement and that unless otherwise advised a principle designer has been appointed

ACCOMMODATION SCHEDULE						
PLOT No	CONFIG	BED No	TENURE	HOUSE GIA (sqm)	PARKING	
					No. SPACES (inc. within garage)	GARAGE GIA. (sqm)
Plot 1	1 storey	3 b	private sale	97m ²	3	17m ²
Plot 2	1 storey	3 b	private sale	97m ²	3	17m ²
Plot 3	1.5 storey	5 b	private sale	200m ²	4	34m ²
Plot 4	1 storey	4 b	private sale	117m ²	4	34m ²
Plot 5	1.5 storey	5 b	private sale	240m ²	4	34m ²

DRAWING LEGEND

- Existing Vegetation (Locations subject to survey)
- Proposed Vegetation



- Site boundary
- Other land ownership of client



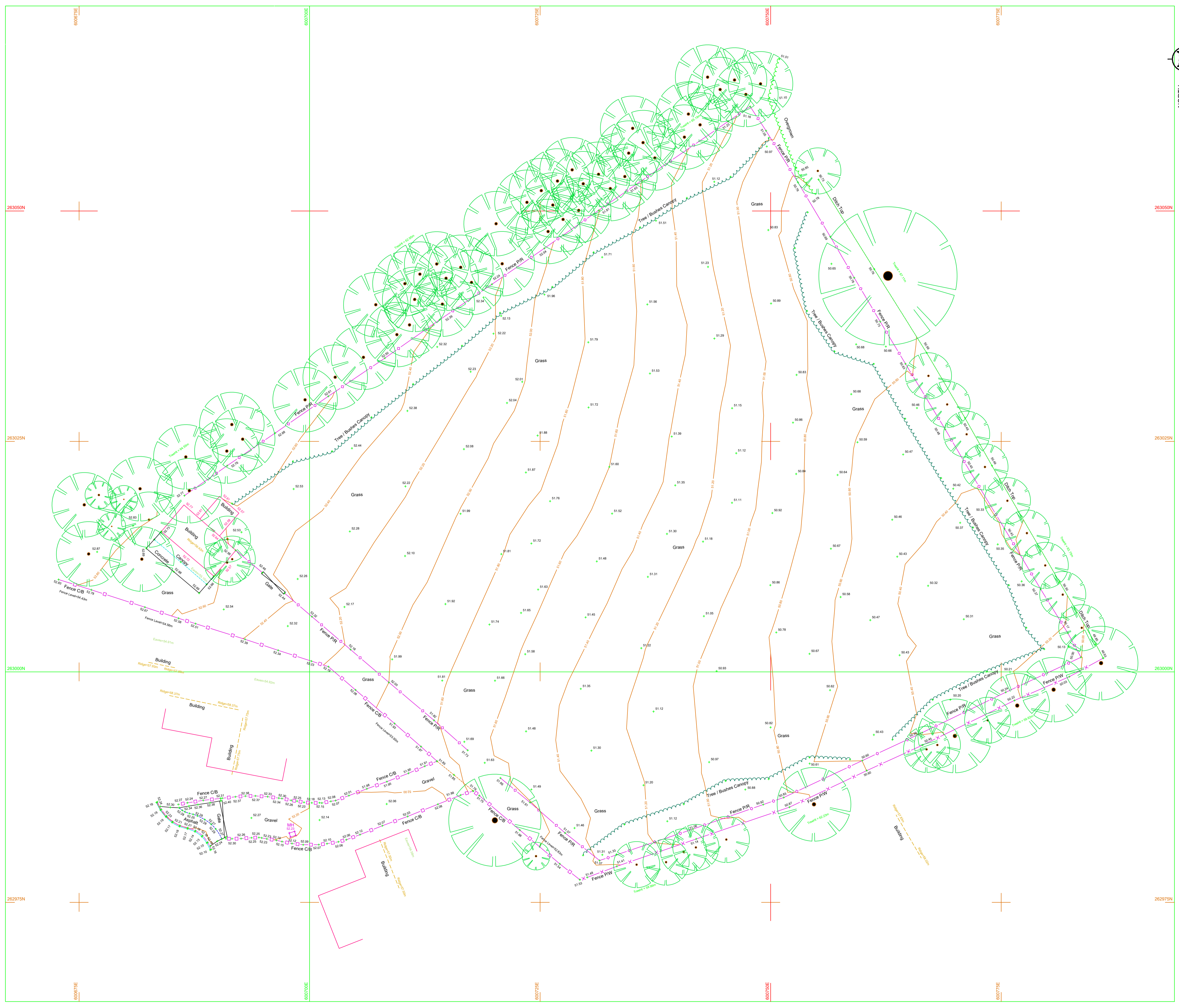
INDICATIVE SITE LAYOUT PLAN
 Site Area - 0.44 Hectares
 Scale 1:500

Rev.	Date	Details	Drawn	Checked
Issued for: OUTLINE PLANNING				
Client/Project: MR G RAND, MR J RAND & MS C NEALE, LAND NORTH OF WINDMILL RISE, WETHERDEN, IP14 3LE				
Drawing Title: INDICATIVE SITE LAYOUT PLAN				
Drawn: DM	Checked: TM	Size: A3	Scale: 1:500	Date: SEP 19
Project No. 303224	Drawing No. 20-002	Revision: -		

DURRANTS BUILDING CONSULTANCY
 Pump Hill House,
 2b Market Hill,
 Diss, Norfolk, IP22 4JZ

Tel: 01379 646603
 Mail: buildingconsultancy@durrants.com
 Website: www.durrantsbuildingconsultancy.com





ABBREVIATIONS

AV	Air Valve	Tree	Tree - Scaled With Canopy and Girth - Category is Agreed and Girth is Taken at 1.5m Above Ground - Level is Ground Level at Trunk
BCN X	Basin (No. if known)	Individual Bushes	Scaled for Size Ground Level at Centre
BL X	Li Bush (No. if Known)	Safety Fence FF@SL	
B	Bulb	Safety Fences are Shown at Front Face FF at Ground Level GL	
BMP	Boundary Marker		
BS	Bus Stop		
BT	Small Telecoms		
CATV	Small Cable TV		
CCTV	Small CCTV		
MH	Small Electrical Manhole		
EP	Electric Pole		
ER	Earth Rod		
FEED X	Feeder Pillar (No. if Known)		
FH	Fire Hydrant		
FL P	Flag Pole		
I	Pipe Invert Level		
KI	Kerb Inlet (Water onto Rd)		
KO	Kerb Outlet (Water off Rd)		
LP X	Lampost (No. if Known)		
Mast	Telecoms Mast		
MH	Manhole		
MP	Marker Post		
POB	Post Box		

DRAWING NOTES

This survey has been carried out using a Trimble S7 Total Station and fixed to OSTN15 / OSGM15 using Trimble R10 GPS.

All control stations have been fixed to a Scale Factor of 1.

All Dimensions are in metres.

Trees are not drawn to scale. Trunk size diameter and spread are estimated and should be used as a guide only.

All building descriptions and construction type are indicative only and taken externally from ground level.

Drainage runs between inspection covers have not been investigated. Any shown are estimated and not confirmed. All pipe sizes and connections should also be confirmed with your local drainage authority before commencing any design work.

There may be inspection covers on site which were not visible at the time of survey. It is possible that they are buried or covered by dense vegetation. Please consult your local drainage authority if you have any doubts.

All below ground details have been identified from above ground and therefore all details relating to these features including: sizes, depth, description etc. will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

General Notes

Please check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Parish Land Surveys.

The accuracy of the digital data is the same as the plotting scale implies.

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Do not scale from this drawing.



REV	Survey Date	Created By	First Issue	Comments
-	03.09.19	PLS	09.09.19	Full Topographical Survey

Scale at A1	Project Number
1:200	PLS - 313

<input checked="" type="checkbox"/> Topographical Survey
<input type="checkbox"/> Revised Survey
<input type="checkbox"/> Drainage Survey

36 St Peters Way, Spixworth, Norwich, NR10 3NS

office: 01603 898950
 mob: 07810 726138
 email: nick@parishlandsurveys.co.uk
 web: www.parishlandsurveys.co.uk

Client
**Durrants
 Mr Geoff Rand**

Project
Land Off Windmill Rise, Wetherden

Title
**Topographical Survey
 OVERVIEW**

APPENDIX E: RISK ASSESSMENT CLASSIFICATION

Classification	Definition	Examples
High Likelihood	There is a pollution linkage and an event which would either appear very likely in the short term and almost inevitable over the long term, or, there is evidence at the receptor of harm or pollution.	Free product visible on surface of sensitive water body or in the soil. On site or adjacent gassing 'landfill site'.
Likely	There is a pollution linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	Potentially contaminative land use i.e. 'Brownfield' site, fuel storage depot, factory, petrol station etc. Sensitive receptors to be introduced as part of site redevelopment. Potentially infilled land identified on site or off-site with credible migration pathway.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.	Potential source of contamination identified i.e. historical land use as allotments or domestic above ground fuel storage tanks, areas of burning garden waste. Possible off-site infilled land.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.	No significant potential sources of contamination identified e.g. 'Greenfield' site. No potential sources of ground gas.

TABLE E1: CLASSIFICATION OF PROBABILITY

Classification	Definition	Examples
Severe	Short term (acute) risk to human health. Short term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short term risk to a particular ecosystem.	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Credible source of ground gas.
Medium	Chronic damage to Human Health. Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of a contaminant from site exceeds the generic, or site specific assessment criteria. Leaching of contaminants from a site to a Secondary or Principal aquifer.
Mild	Pollution of non-sensitive water resources. Significant damage to buildings/structures and crops ("significant harm" as defined in the Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures or the environment.	Concentrations of a contaminant do not exceed the generic, or site specific assessment criteria. Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as Personal Protective Equipment, etc).	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme.

TABLE E2: CLASSIFICATION OF CONSEQUENCE



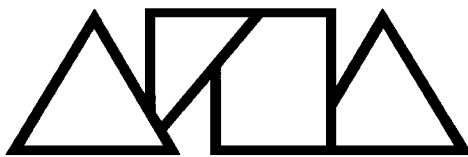
Classification	Definition
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is occurring. The risk, if realised, is likely to result in a substantial liability. Urgent investigation and remediation will be required.
High Risk	Harm or chronic damage is likely to arise to a designated receptor from an identified hazard. Investigation is required and remediation is likely to be required to ensure the site is suitable for a proposed use.
Moderate Risk	It is possible that harm or chronic damage could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe. Investigation and remediation are likely to be required to ensure the site is suitable for a proposed use.
Low/Moderate Risk	It is possible that harm or chronic damage could arise to a designated receptor from an identified hazard. Investigation is likely to be required. However, circumstances are such that investigation may prove the consequence to be mild and the site suitable for use without remediation.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that this harm, if realised, would at worst be mild. Investigation is unlikely to be required.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe. Investigation is not required.

TABLE E3: DESCRIPTION OF RISK

		CONSEQUENCE			
		Severe	Medium	Mild	Minor
PROBABILITY	High likelihood	Very High	High	Moderate	Low/Moderate
	Likely	High	Moderate	Low/Moderate	Low
	Low likelihood	Moderate	Low/Moderate	Low	Very Low
	Unlikely	Low/Moderate	Low	Very Low	Very Low

TABLE E4: DETERMINATION OF RISK





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NR4 6UF

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Fax: 01603 250749

Email: admin@howland.co.uk

www: <http://www.howland.co.uk>