



PHASE 1 DESK STUDY

1628 – Millbrook Manor, Knowsley
Brendan Cain

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	Site Boundary Plan
	Proposed Development Plan
	Proposed Site Investigation Layout Plan
APPENDIX II	Groundsure Report
APPENDIX III	Historical Mapping

Limitations

This report was produced by Soilutions Ltd for Brendan Cain as the Phase 1 Geo-Environmental Desk Study Report for the Land at Millbrook Manor, Knowsley to provide a preliminary assessment of potential ground related development constraints and to support a planning application.

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All parties to this report do not intend any of the terms of the Contracts (Rights of Third Party Act 1999) to apply to this report. Please note that this report does not purport to provide definitive legal advice.

The findings of the desk study are based on the available published information at the time of the production of the report.



EXECUTIVE SUMMARY

1. EXECUTIVE SUMMARY

Soilutions has been commissioned by Brendan Cain to provide a Phase 1 Geo-environmental Desk Study report. The purpose of the report is to collate background historical and geo-environmental data to address where possible land contamination within Planning Policy Guidance and geo-environmental constraints for development.

The site is located to the east of Knowsley Lane, approximately 0.40 km north of Knowsley village centre. The approximate National Grid Reference for the centre of the site is (NGR) 343480, 396000. It is proposed to develop the site from the construction of a new residential dwelling and associated gardens.

The site is shown as vacant woodland from the earliest mapping (1893). The site remains vacant woodland up to its development to a car park associated with Millbrook Manor in the 1990s. Historically the area around the site has been a mix of residential and farmland, with a school to the immediate south. An unspecified tank is indicated on the historical mapping from 1977 up to 1993 after which it is no longer shown. This is thought to have contained heating oil.

Made ground is likely to be present on site associated with the development of the carpark and landscaping of the site, likely limited to localised cut and fill operations to level the site. Offsite sources have been identified comprising the historical tank associated with Millbrook Manor approximately 20m south of the site.

The site is underlain by sandstone bedrock of the Chester formation. Superficial deposits comprising both Devensian Till and the Shirdley Hill Sand formation are expected across the site.

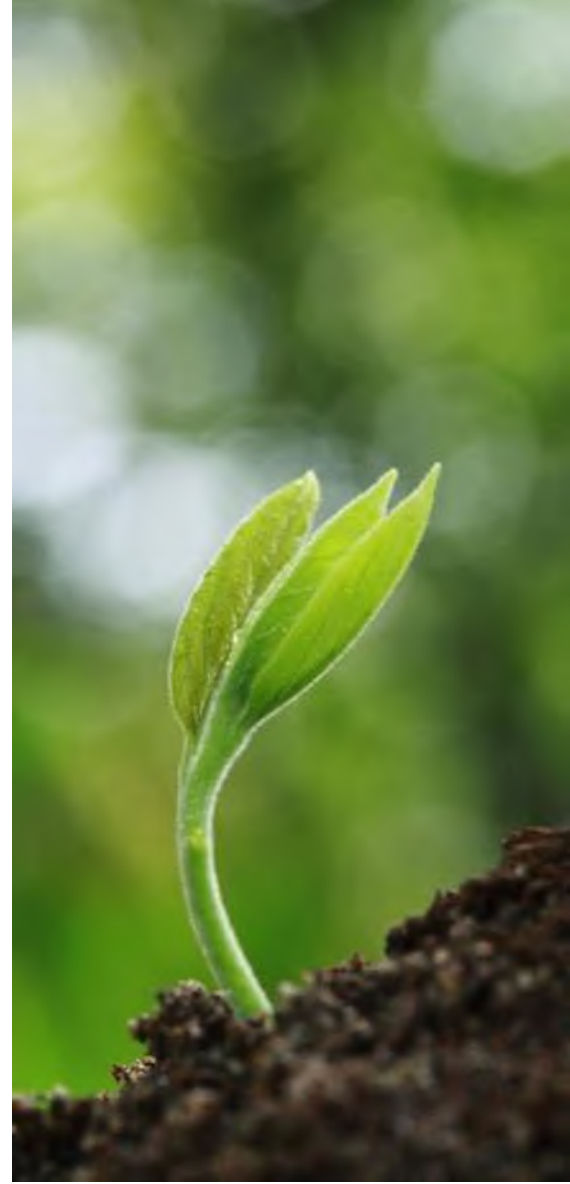
The bedrock geology is designated as Principal aquifer. The superficial deposits are both classified as Secondary A aquifers. The site is within a Groundwater Source Protection Zone.

The Shirdley Hill Sand formation is indicated to be of high leaching potential in the Groundsure Report.

The Preliminary Conceptual Site Model indicates a possibility that harm could arise to a designated receptor from identified hazards.

A ground investigation is recommended to assess the geo-environmental constraints identified on site by this desk study.

The executive summary contains an overview of key findings and conclusions. However, no reliance should be placed on the executive summary until the whole of the report has been read. Other sections of the report may contain information which puts into context the findings noted within the executive summary.



INTRODUCTION

2. INTRODUCTION

2.1 Background

Soilutions were commissioned by Brendan Cain (the Client) to conduct a Phase 1 Environmental Desk Study for their site at Millbrook Manor, Knowsley Lane, Knowsley (the site).

The Phase 1 Desk Study report has been prepared in general accordance with the Environment Agency's Land Contamination Risk Management (LCRM) guidance and BS10175 (Code of Practice for the Investigation of Potentially Contaminated Sites).

BS10175 recommends that a Preliminary Investigation includes data collection, qualitative interpretation and reporting. Data collection includes documentary research to:

- Formulate an initial conceptual site model
- Assess need for, and scope of, further investigation; and
- Provide a preliminary risk assessment in a final report.

If the Phase 1 Desk Study identifies potentially significant risks to human health and/or the environment, a subsurface ground investigation may be required to characterise ground conditions at the Site. The investigation would determine if contaminative substances are indeed present at or around the Site and help quantify the risk to human health and/or the environment.

2.2 Objectives and Scope of Work

The scope and aims of the Phase 1 report, in accordance with BS10175, are to:

- Review historic information and the environmental setting of the site;
- Identify the geology and hydrogeology beneath the site, and within a buffer zone of 250m around the site, using information from the BGS and other sources;
- Review an environmental data report, online and published sources to determine if site specific geoenvironmental and geotechnical risks to the site pose a potentially significant risk to development;
- Formulate an initial conceptual site model and preliminary risk assessment (PRA) which identifies possible pollution linkages between contamination sources and receptors via plausible migration and exposure pathways;
- Design an intrusive investigation if the PRA concludes potentially significant risks may be present.

2.3 Proposed Development

It is proposed to construct a new residential dwelling and associated gardens on the site, with a blockwork driveway providing access on the eastern boundary off Old Meadow. A proposed development plan is included in **APPENDIX I**.

2.4 References

A full reference list is included in **section 8**. Key sources of information used in the production of this report include:

- Groundsure Historical Mapping ref. GS-3XO-1DB-OPR-456
- Groundsure Enviro and Geo Insight Report ref. GS-S11-2IJ-CEJ-1TX
- British Geological Survey. (BGS) Geology of Britain Map Viewer www.bgs.ac.uk
- Department of the Environment Industry Profiles.



SETTING

3. SETTING

3.1 Location

The site is located off Knowsley Lane, 400m north of Knowsley village. The site is irregular in shape and approximately 0.093 ha in area. The approximate national grid reference is 343480, 396000. A site location plan is included in **APPENDIX I**.

3.2 Site Description

The site is currently a vacant disused carpark north of Millbrook Manor and is overgrown with shrubs and weeds. It is understood that the site has been used for storage of building rubble.

The site is understood to be bound by temporary site fencing around the east, west and northern boundaries with the mature trees and hedging around the northern and western boundaries, to the south it is currently open to the wider Millbrook Manor property.

Vegetation at the site comprises mature deciduous trees along the northern and western boundaries with a further evergreen hedge in the southeast portion of the site.

A specialist ecologist should be consulted if required to confirm the presence or absence of invasive species.

The topography of the site is generally flat lying. Levels on the Ordnance Survey maps are between 34 and 35 metres above Ordnance Datum (mAOD).

Vehicle access at the site is off Old Meadow in the northeast corner of the site.

The client has not provided details of services in the area of the site.

3.3 Site Vicinity

The area around the site is occupied by:

North	Mill Lane, with fields beyond
East	Woodland and residential houses with gardens
South	Millbrook Manor and houses with St Mary's Church beyond
West	Knowsley Lane with residential houses and fields beyond

3.4 Planning History

The local authority's planning portal has been consulted.

Table 1: Table summarising planning history of the site.

Planning Number	Date	Proposal	Decision
21/00972/FUL	2022	Erection of a dwelling and associated works	Awaiting decision
16/00328/FUL	2016	Partial demolition, change of use and external alterations and erection of first floor extension, provision of mezzanine floor in roof space of former restaurant / function room to create 1 No. residential dwelling (use class 3) with existing first floor residential annexe to be retained together with external works including reinstatement of vehicular access off Knowsley Lane and associated landscaping and parking provision	Granted
74/14428/HIST	1974/1993	Infilling of rear courtyard area to provide restaurant extension - Historic Application Type	Granted
74/08741/HIST	1974/1985	Erection of floodlighting to front elevation and lighting to car park	Granted

3.5 Investigation History

The following reports have been produced for the site:

Table 2: Table summarising previous investigations on-site.

Company	Date	Site Name	Report Title
Your Environment Rep: YE2863	2017	Millbrook Manor, Knowsley Lane	Stage 1: Desktop Study and Risk Assessment Report at Millbrook Lane, Knowsley Village, Liverpool, L34 0JN

Having reviewed this report, it is thought to be a reliable assessment of the site as the investigation has been undertaken relatively recently, covers the site and the wider Millbrook Manor piece of land and is undertaken in general accordance with the relevant standards and requirements.

3.6 Geology

3.6.1 Strata

The BGS mapping for the site (Ref 1) indicates that the geology at the site comprises:

Table 3: Table summarising geology on-site.

	Unit Name	BGS Description
Anthropogenic	N/A	Not shown
Superficial	Devensian Till / Shirdley Hill Sand Formation	Till - Clay, sandy, gravelly, cobbly Shirdley Hill Sand formation - sand.
Bedrock	Chester Formation	Red-brown, yellow, or yellow mottled, very fine-coarse grained sandstones

The superficial lithologies on the site are split between the northernmost quarter of the site being the Devensian Till with the remaining site area being the Shirdley Hill Sand Formation.

While no artificial or made ground is recorded by the BGS, the previous investigation notes the possibility of made ground resulting from the development of the site.

3.6.2 Faulting

No faults have been identified in the vicinity of the site.

3.6.3 Borehole Records

The following BGS borehole records have been reviewed (Ref 15):

Table 4: Table summarising borehole records from the site and surrounding area.

BGS Reference	Drilled By	Method	Strata		Distance (m)	Direction
			Depth (m)	Description		
165564	Strata Surveys Ltd	Cable percussion	0 - 0.1	Topsoil	171m	North
			0.1 - 1.3	Fine grained sand		
			1.3 - 1.4	Silty sand		
			1.4 - 3.0	Silty sand		
			3.0 - 3.4	sand		
			3.4 - 4.5	Sand and gravel		
17561706	CoDa Structures	Cable percussion	4.5 - 10.0	sand	183m	North
			0 - 0.3	Silty clay - made ground		
			0.3 - 0.8	Silty sand - made ground		
			0.8 - 1.7	Sand and clay - made ground		
			1.7 - 1.9	Sandy clay and gravel		
			1.9 - 2.95	Sandy clay		
165131	Holst & Co Ltd	Unknown	2.95 - 6.15	Weathered sandstone	196	North
			0 - 0.6	Bricks - made ground		

BGS Reference	Drilled By	Method	Strata		Distance (m)	Direction
			Depth (m)	Description		
17561821	CoDa Structures	Cable percussion	0.6 - 1.2	Sand	205	North
			1.2 - 2.7	Boulder clay		
			2.7 - 6.0	Sand		
			0 - 0.25	Clay - made ground		
			0.25 - 1.4	Sandy clay - made ground		
			1.4 - 2.1	Gravelly clay		
			2.1 - 2.4	Clay		
			2.4 - 3.0	Sand		



SITE HISTORY

4. SITE HISTORY

4.1 Map Review

A summary of the information obtained from the available historical maps and aerial photographs are presented in the table below. Copies of the historic maps are provided in **APPENDIX III**.

Table 5: Table summarising site history from historical mapping.

Date	Scale	Map	Observations
1893	1:2,500		On Site Historic mapping indicates that the site is fully encompassed by the Dumbrees Wood. The site is bound to the west and north by a roadway.
			Off Site (within 250m) To the immediate south of the site is a school while the wider area to the north, east and south are open farmland and woodland. 100m southeast is a vicarage with St Mary's Church and associated graveyard approximately 150m south, while further unmarked buildings are located immediately to the west with open farmland beyond. 250m to the southeast there is the Vicarage Plantation.
1908	1:2,500		On Site No significant change observed.
			Off Site (within 250m) Approximately 100m to the southwest, a village hall is now identified, while a smithy is now noted 100m to the northwest.
1927-1960	1:2,500		On Site No significant changes observed
			Off Site (within 250m) The 1927 map no longer shows the smithy to the northwest of the site. The area to the immediate southeast is noted as a recreation ground while approximately 60m to the southwest a triangular area between two roadways is noted to be the May Pole War Memorial Green. In the wider area there has been further residential development around the village.

1977-1993	1:2,500		On Site While the map does not show the full extent of the site there does not appear to be any significant change observed on site. Immediately to the east, a square area has been fenced off within the woods. Off Site (within 250m) To the immediate south there is a tank noted associated with the school. In the wider area, further residential development is noted across the village, specifically to the east of the site.
1995-2003	1:2,500 - 1:1,250		On Site The 1995 map shows the northern half of the site, the map shows that some landscaping / development has been undertaken. This is confirmed by the 2003 map which shows the site having been developed into its current configuration as a car park associated with the building south of the site. Off Site (within 250m) By 2003, the school to the south has been renamed Millbrook Manor / The Knowsley Arms and the tank associated with the school is no longer shown.
2010	1:10,000		On Site No significant changes are noted; however, the most recent large-scale mapping available was from 2003. Off Site (within 250m) No significant changes observed.
2023	1:10,000		On Site No significant changes are noted; however, the most recent large scale mapping available was from 2003, the map scale does not show sufficient detail to show the site. Off Site (within 250m) No significant changes observed.



ENVIRONMENTAL SENSITIVITY

5. ENVIRONMENTAL SENSITIVITY

5.1 Radon

The site is not recorded to be within a radon affected area as <1 % of properties are above the action level. Radon protection measures are not required in any new buildings at the site.

5.2 Geological Hazards

The following ground stability hazard ratings for the site are detailed in the Groundsure report:

Table 6: Table summarising geological hazards on and off-site.

Hazard	Direction	Hazard Rating
Potential for Shrinking or Swelling Clay Ground Stability Hazards	On-site	Very Low
Potential for Running Sand Ground Stability Hazards	On-site	Low
Potential for Compressible Ground Stability Hazards	On-site	Negligible
Potential for Collapsible Rocks Stability Hazards	On-site	Very low
Potential for Landslide Ground Stability Hazards	On-site	Very low
Potential for Ground Dissolution Stability Hazards	On-site	Negligible

5.3 Mining

5.3.1 Non-Coal Extractions

No records of non-coal mining activity are recorded within 250m of the site.

5.3.2 Coal Mining

The site does not lie within a Coal Authority Reporting Area.

5.4 Contaminated Land

No sites in the vicinity are identified as Contaminated Land under Part 2A of the Environmental Protection Act 1990 (Ref 11).

5.5 Water Environment

5.5.1 Hydrogeology

The following aquifer classifications have been identified for the site:

Table 7: Table summarising the hydrogeology on-site.

	Unit Name	Aquifer Classification
Superficial	Shirdley Hill Sand / Devensian Till	Secondary A ^a
Bedrock	Chester Formation Sandstone	Principal

^aEnvironment Agency Classification (Ref 18)

The site is located in a Source Protection Zone.

The Groundsure report notes that the soils at the site are of both high and low soil leaching potential, split across the two superficial lithologies on the site. The till horizon in the northernmost portion of the site is listed as low leaching potential, while the Shirdley Hill Sand is listed as high leaching potential.

Low Leaching Potential is defined by the Environment Agency as “areas that provide the greatest protection to groundwater from pollution. They are likely to be characterised by low-leaching potential soils and/or the presence of low permeability superficial deposits”.

High Leaching Potential is defined by the Environment Agency as “areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits”.

5.5.2 Hydrology

The closest surface water features to the site are detailed below:

Table 8: Table summarising nearby surface water features.

Name	Orientation	Classification	Depth (m)	Distance (m)	Direction
Unnamed stream	SE-NW	Unknown	Unknown	8	NE

Environment Agency Classification

The site also lies in a Water Framework Directive (WFD) surface water body catchment for the Croxeth/Knowsley Brook.

5.5.3 Flooding

The site does not lie within an area at risk from coastal, river or surface flooding.

Although the report provides information on flood risk this does not constitute a flood risk assessment for the site. The flood risk information does not account for flooding from sources such as blockages in drainage systems, artificial water features and overland flow. A separate Flood Risk Assessment may be required for the site.

5.5.4 Water Abstractions

The following groundwater abstraction licenses are listed in the Groundsure report within 2km of the site.

Table 9: Table summarising groundwater abstractions within 2km.

Site Name	Water Use	Potable?	Distance (m)	Direction
United Utilities Water Ltd	Potable water supply	Yes	1,192	NE
Dairy Crest Ltd	Process water	No	1,447	NW
United utilities Water Ltd	Potable water supply	Yes	1,703	S

No surface water abstraction licenses are listed in the Groundsure report within 250m of the site.

5.5.5 Discharge Consents

The following surface water discharge consents are listed in the Groundsure report within 250m of the site.

Table 10: Table showing discharge consents within 250m.

Site Name	Receptor	Type	Active?	Distance (m)	Direction
Mersey Systems	Knowsley Brook	Sewage	No	110	NW

5.5.6 Pollution Incidents

No Environment Agency Recorded Pollution Incidents to Controlled Water are listed in the Groundsure report within 250m of the site.

5.6 Waste Sites

No records of historic or current landfills or other waste sites are listed in the Groundsure report within 250m of the site.

5.7 Licensed Industrial Activity

5.7.1 Licensed Sites

No Integrated Pollution Prevention and Controls, Environment Agency or Local Authority Integrated Pollution Controls, Environmental Permits or Enforcements are listed in the Groundsure report within 250m of the site.

No Radioactive Substance Licenses are listed in the Groundsure report within 250m of the site.

No Part A(2) or Part B activities are listed in the Groundsure report within 250m of the site.

5.7.2 Current Industrial Activities

Eight records of industrial activity are recorded within 250m of the site. The closest industrial activities to the site are:

Table 11: Table showing current industrial activities within 250m.

Site Name	Activities	Active?	Distance (m)	Direction
Sub-station	Electrical activities	Unknown	84	SW
Fagan Electrical Ltd	Electrical and Electronic engineers	Yes	169	W
C B Transport Refrigeration	Distribution and haulage	Yes	203	N
M J Quin	Electrical and electronic engineers	Yes	247	NW
Sub-station	Electrical activities	Yes	248-249	N

5.7.3 Fuel Stations and Tanks

No petrol filling station records are listed in the Groundsure report within 250m of the site.

The following records of tanks are listed in the Groundsure report within 250m of the site.

Table 12: Table showing tanks listed within 250m.

Site Name	Tank Type	Date	Distance (m)	Direction
Millbrook Manor	Tank	1972-1993	20	S

The purpose of the tank at Millbrook Manor is not clear. It was present while the building was in use as a school and the surrounding area was more rural and so the tank may have been used for heating oil.

5.8 Sensitive Land Uses

The following records of sensitive land use (nitrate vulnerable zones, ancient woodland, Sites of Special Scientific Interest, greenbelt etc.) are listed in the Groundsure report within 250m of the site.

Table 13: Table showing sensitive land uses within 250m.

Site Name	Sensitive Land Use	Distance (m)	Direction
On-site	Nitrate vulnerable zone	On-site	On-site
Merseyside and Greater Manchester	Green Belt	On-site	On-site

5.9 Data Integrity Assessment

The data has been collated from information supplied by third parties. While the data is understood to be contemporary, some changes to land-use may have occurred since the time of data collection. However, it is considered that any changes in land-use will not have any detrimental impact to the property on the basis that potentially contaminating land-uses are regulated in a manner that reduces potential for impact.

No evidence has been presented during this study that indicates that historic or contemporary data is inaccurate and as such may be relied upon to provide reasonable evidence of potential risk as it relates to the proposed development.



CONCEPTUAL SITE MODEL

6. CONCEPTUAL SITE MODEL

6.1 Site Setting

The geo-environmental setting of the site, determined by the information detailed in sections 2, 3 and 4, is summarised below.

Table 14: Table summarising the geo-environmental setting of the site.

Site Description	The site is a vacant piece of land formerly used as a car park associated with Millbrook Manor, located to the south. The land is now in a state of disrepair and overgrown with weeds.
Site History	The site was vacant woodland for much of its discernible history until developed into its current configuration in the 1990s and has remained unchanged to the time of writing.
Geology	Made Ground Made ground is not shown on the BGS mapping. Made ground may be present associated with the development of the site.
	Superficial Superficial deposits comprising sand of the Shirdley Hill Sand Formation and Devensian Till are expected at the site.
	Bedrock Bedrock deposits comprising sandstone of the Chester Formation are expected at the site.
Water Environment	Aquifers The bedrock deposits are classified as a Principal aquifer.
	Surface Water The superficial deposits are a Secondary A aquifer. The closest surface water feature is an unnamed stream to the immediate northeast of the site forming a tributary of the Knowsley Brook.

At this stage, the following uncertainties exist due to gaps in the available data:

- The presence of and composition of potential made ground across the site.
- Records of the use of, site investigation or decommissioning of the historical tank 20m to the south of the site.
- No data on groundwater levels is available.

6.2 Preliminary Conceptual Site Model (PCSM)

A preliminary conceptual site model has been prepared for the site based on the guidance given Environment Agency's Land Contamination Risk Management (LCRM) guidance (Ref 19). The basis of this approach is the development of a conceptual site model (CSM) to represent the source-pathway-receptor pollutant linkages which form the basis of the assessment of risk.

The production of the risk assessment follows the principles given in LCRM, using a tiered assessment hierarchy.

Table 15: Table summarising tiered assessment hierarchy.

Tier 1	Identification of possible pollutant linkages and creation of PCSM
Tier 2	Non site-specific assessment of chemical data using generic assessment criteria (GAC)
Tier 3	Site-specific assessment of chemical data using site specific assessment criteria (SSAC) where GAC are not available or applicable.

This report comprises a Tier 1 assessment. No site investigation has taken place and so the source-path-receptor linkage has been identified using the information included in the Groundsure report, Department of the Environment Industry Profiles (Ref 3) and other sources detailed in the reference list.

6.3 Potential Contamination Sources

6.3.1 On-site

Table 16: Sources identified on-site.

Source	Contaminants
S1: Made ground associated with development of site	Organic and inorganic contaminants including heavy metals, metalloids, phenols and asbestos. Source of TPHs, PAHs.

6.3.2 Off-site

Table 17: Sources identified off-site.

Source	Contaminants
S2: Historical tank	TPH, PAH
S3: Building rubble	Asbestos, metals, TPH, PAHs.

6.4 Pathways

Table 18: Pathways identified.

Pathway
P1: Human Uptake
• Dermal contact with soils and dust • Ingestion of soils and dust • Inhalation of soils, dust and vapour • Ingestion of vegetables grown in soil and soil attached to them
P2: Migration in solution through groundwater
P3: Migration along preferential pathways via underground services and drainage runs (pipes, culverts and granular material)
P4: Migration by surface run off
P5: Root uptake

6.5 Receptors

Table 19: Receptors identified.

Source	Details
R1: End Users	Residential occupants of the proposed dwelling
R2: Controlled Water: Groundwater	The bedrock deposits are classified as a Principal aquifer.
R3: Controlled Water: Surface Water	The superficial deposits are a Secondary A aquifer. The closest surface water feature is an unnamed stream immediately to the north of the site.
R4: Property	Services (e.g. drinking water supply pipes) and structures/buildings (concrete used in foundations)
R5: Adjacent Property	Residential properties to the south and east
R6: Proposed Flora and Fauna	Gardens proposed, which may include potential for vegetable gardens and fruit planting.

The conceptual site model is present in the table below. The risk assessment has been produced using the risk model in **Table 20** and **Table 21**, adapted from CIRIA C552, "Contaminated Land Risk Assessment- A Guide to Good Practice" (Ref 9):

Table 20: Table summarising severity and probability for risk assessment model.

	Category	Definition
Potential Severity	Severe	Acute risks to human health, catastrophic damage to buildings/property, major pollution of controlled waters
	Medium	Chronic risk to human health, pollution of sensitive ecosystems or species, significant damage to buildings or structures.
	Mild	Pollution of non-sensitive waters, minor damage to buildings/property.
	Minor	Requirement for protective equipment during site works to mitigate health effects, damage to non-sensitive ecosystems or species.

	Category	Definition
Probability of Risk	High Likelihood	Pollutant linkage may be present and risk is almost certain to occur in long term, or there is evidence of harm to the receptor.
	Likely	Pollutant linkage may be present and it is probable that the risk will occur over the long term.
	Low Likelihood	Pollutant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do.
	Unlikely	Pollutant linkage may be present but the circumstances under which harm would occur are improbable.

Table 21: Table summarising overall risk for assessment model.

		Potential Severity			
Probability of Risk		Severe	Medium	Mild	Minor
	High Likelihood	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/Low	Low
	Low Likelihood	Moderate	Moderate/Low	Low	Negligible
	Unlikely	Moderate/Low	Low	Negligible	Negligible

The preliminary conceptual site model is produced on the following page (**Table 22**).

Preliminary Conceptual Site Model

Table 22: Table summarising preliminary conceptual site model.

Source		Pathway		Receptor		Severity	Probability	Risk	Comments	Proposed Investigation					
On-Site	S1	Made ground associated with development of site	P1	Human uptake	R1	End Users	Medium	Likely	Moderate	End users may interact with the soils through leisure or maintenance activities. Contamination associated with the neighbouring tank and made ground may be present at the site and may contain asbestos fibres released during demolition of historical structures or imported to site to level the car park. The risk to human health is Moderate .	The extent and composition of potential made ground is unknown and should be determined through ground investigation.				
													Soil samples should be collected from across the site to determine the risk to human health.		
													Soil samples should be analysed for a range of metals, PAHs, TPHs, asbestos and TOC		
Off-Site	S2	Historical tank	P2	Migration in solution through groundwater	R2	Groundwater	Medium	Likely	Moderate	The site is underlain by bedrock of the Chester Formation Sandstone, which is classified as a Principal aquifer. Superficial deposits at the site are a Secondary A aquifer. Contamination associated with Made ground may be present at the site, however, while the made ground is not expected to be extensive, the Shirdley Hill Sand formation is listed as having High Leaching Potential. Groundwater may have contamination associated with the former off-site tank, assumed to have contained heating oil. Based on the information available, the risk to groundwater is considered to be Moderate .	Soil samples collected from the site should be subjected to leachate testing to determine if contamination is present and potential risks to groundwater.				
			P3	Migration through preferential pathways									Testing of natural soils should be carried out to determine if contaminants have historically leached to the Shirdley Hill Sand.		
			P4	Migration by surface run off											
Off-Site	S3	Building rubble	P2	Migration in solution through groundwater	R3	Surface Water	Mild	Low	Low	The nearest surface water feature is an unnamed stream to the north of the site. Contamination associated with made ground may be present at the site. Due to the nature of the surfaces currently on site (hardstanding / well vegetated) and proposed for the future (building footprint, large driveway and gardens), it is considered less likely that contamination will reach the surface water feature by overland flow, with transport via groundwater more likely. Based on the information available, the risk to surface water is considered to be Low .	No further investigation required				
			P3	Migration through preferential pathways											
			P4	Migration by surface run off											
Off-Site	S2	Historical tank	P2	Migration in solution through groundwater	R1	End Users	Medium	Low	Moderate/Low	Historic off-site storage of fuels/oils may have resulted in spills and leaks of product that could migrate along preferential natural structures as well as man-made pathways. The historical tank in the vicinity of the site is deemed to be a potential source of TPHs / PAHs. Groundwater is assumed to be in continuity with the unnamed watercourse north of the site. The site is located between the former tank location and the watercourse so free phase or dissolved TPH/PAH may be transported via groundwater beneath the site - the only viable exposure pathway is vapour inhalation. The risk presented by the former tank is Moderate/Low .	The ground investigation noted above should include one sampling location in the closest proximity possible to the historic tank to establish any potential migration of TPH/PAH across the site boundary.				
			P3	Migration through preferential pathways											
			P5	Ground gas and vapour migration											
Off-Site	S3	Building rubble	P2	Migration in solution through groundwater	R4	Property	Medium	Low	Moderate/Low	Made ground and the underlying natural geology may contain contaminants that could migrate along preferential natural structures as well as man-made pathways. It is possible that made ground and natural deposits may contain sulphates and therefore present a risk to buried concrete and water pipes. At this stage, the risk to buried structures is considered to be Moderate/Low .	The water supplier may require full UKWIR testing which should be carried out in the construction phase.				
			P3	Migration through preferential pathways											
			P4	Migration by surface run off						R5	Adjacent Property				Foundation specification should utilise soil testing results to ensure correct concrete resistance.
			P5	Ground gas and vapour migration											
Off-Site	S3	Building rubble	P6	Root uptake	R6	Proposed Flora and Fauna	Minor	Low	Negligible	The plans indicate gardens which may include vegetable planting or fruit bearing trees in soft landscaping. The sources, if present, are unlikely to present a significant risk to flora and fauna on site. Provided this remains the case the risk of uptake to proposed flora and fauna is Negligible .	No further action required.				



CONCLUSIONS

7. CONCLUSIONS

7.1 Conclusions

Based on the information obtained and reviewed as part of this investigation and the Conceptual Site Model and Pollutant Linkage Assessment, it is concluded that the soils at the site may present a potentially significant risk to site users, contractors or the wider environment and that a potentially significant risk from off-site contamination is present at the site associated with the former tank at Millbrook Manor approximately 20m to the south of the site. The tank is assumed to be a fuel oil tank.

The constraints to the development include:

- Variable superficial geology across the site. The Shirdley Hill Sand Formation and Devensian Till deposits are expected at the site – if the building footprint crosses the geological boundary, a risk of differential settlement of the foundations exists.
- Contamination associated with made ground may be present at the site which poses a potentially significant risk to human health.
- Potential contamination associated with a historical tank location 20m to the south of the site presents a potential risk for cross boundary migration of contaminants to the site.
- Contamination associated with made ground may be present at the site which poses a potentially significant risk to groundwater.

7.2 Recommendations

A ground investigation is recommended at the site to address the constraints identified by this desk study. A proposed investigation has been designed. The scope is detailed in **Table 23**.

The ground investigation should be carried out in accordance with BS5930:2015, “Code of Practice for Site Investigations” (Ref 5). Locations may need to be relocated based on the location of services – service plans have not been consulted in the design of this investigation and should be reviewed before any intrusive investigation is carried out.

The locations of the trial pits are both targeted on areas of likely contamination and untargeted to provide general site coverage. Chemical samples should be taken at every location, with a minimum of two samples per location – these will generally consist of shallow soils/made ground and a deeper sample around the groundwater smear-zone (if groundwater is encountered).

The client may wish to gain valuable data to assist with the building foundation design during the site investigation. With the expected sandy nature of at least some of the soils at the site, trial pits should be substituted with windowless sample boreholes.

Table 23: Table summarising proposed site investigation.

Hole Ref	Type	Depth (m begl)	Location	Well	Specifics
TP01	TP	3	SE corner of site, as close as practicable to former off-site tank	no	Targeted
TP02	TP	3	SW quadrant of site	no	Untargeted, beneath proposed building footprint
TP03	TP	3	NW quadrant of site	no	Untargeted, proposed garden area
TP04	TP	3	NE quadrant of site	no	Untargeted
TP05	TP	3	Central site	no	Untargeted, beneath proposed building footprint

TP: Trial Pit

The exact specification of the laboratory testing should be determined following the site investigation. As a minimum, the environmental testing should test for those detailed in

Table 24.

Table 24: Table detailing contaminants tested for during laboratory testing.

Material	Contaminants			
Soil	Metals		Inorganics/Other	
	Arsenic	Lead	pH	
	Aluminium	Manganese	Asbestos Identification	
	Boron (Water Soluble)	Mercury	Cyanide, total and free	
	Cadmium	Nickel	Total Organic Carbon	
	Chromium (III and VI)	Selenium	Organic Matter	
	Copper	Zinc	Sulphide and Sulphate as SO ₄	
	Total Phenol	Speciated and Total Petroleum Hydrocarbons (TPHs)	Speciated Polycyclic Aromatic Hydrocarbons (PAHs)	
Leachate	Metals		Inorganics/Other	
	Arsenic	Lead	pH	Soluble Sulphate
	Boron	Mercury	Cyanide, total	DO
	Cadmium	Nickel	Sulphide	COD/BOD
	Chromium (III and VI)	Selenium	Hardness	EC
	Copper	Zinc	Chloride	
	Total Phenol	Speciated and Total Petroleum Hydrocarbons (TPHs)	Speciated Polycyclic Aromatic Hydrocarbons (PAHs)	



REFERENCES

8. REFERENCES

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<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>, 8 October 2021



APPENDIX I

Figures

Site Location Plan

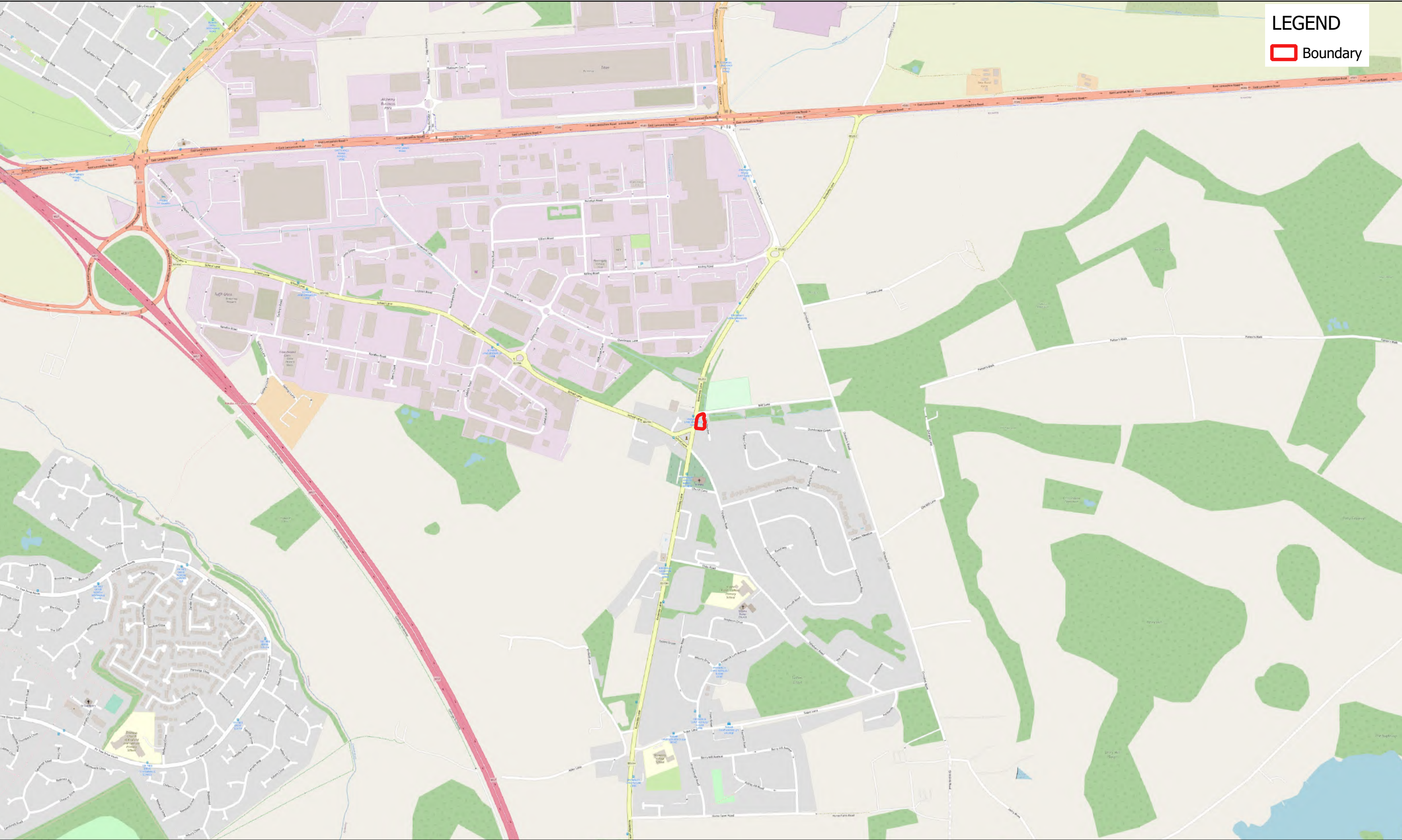
Site Boundary Plan

Proposed Development Plan

Proposed Site Investigation Layout Plan

LEGEND

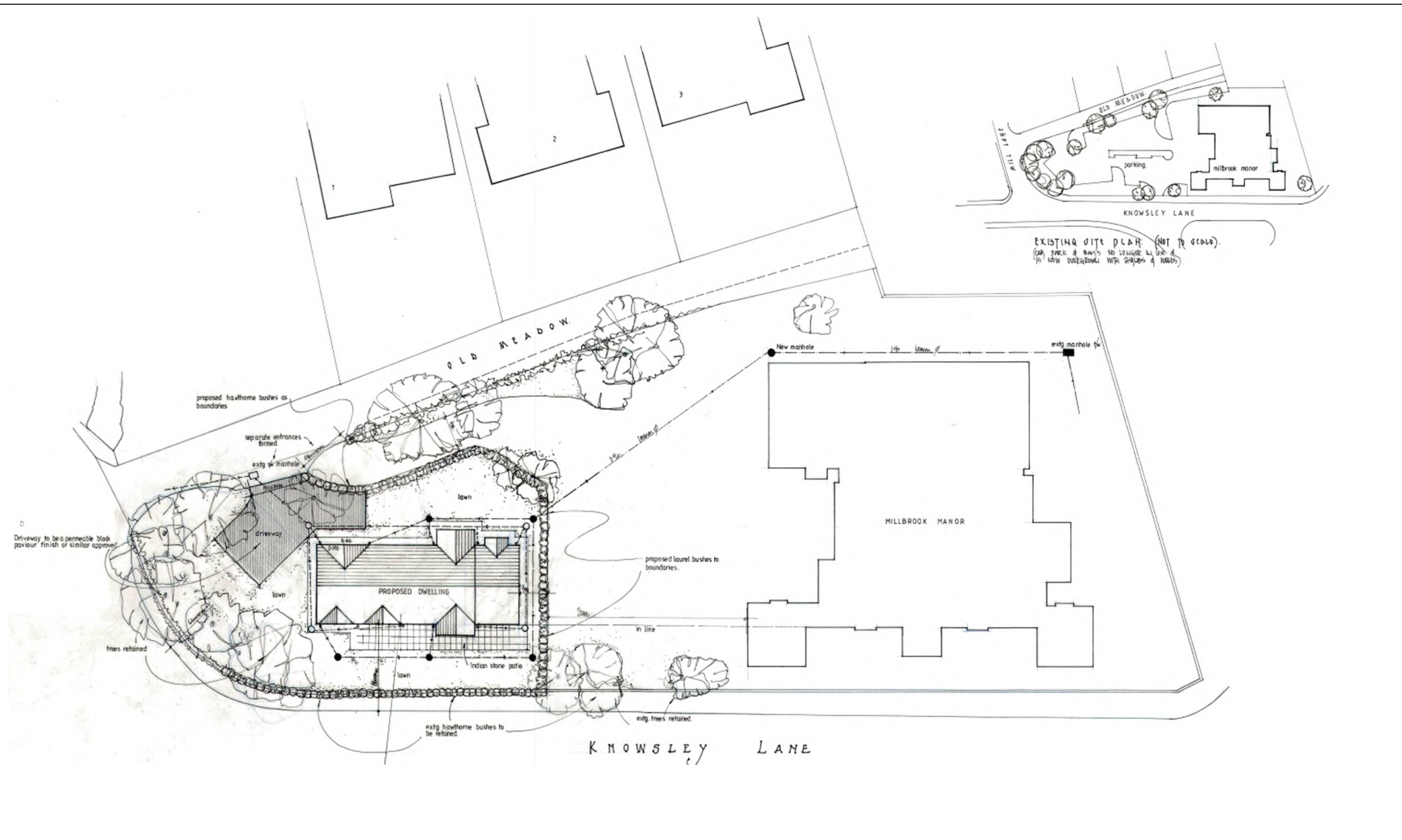
 Boundary



SITE: MILLBROOK MANOR, KNOWLSEY		DRAWING NO: 1628/001		PROJECT NO: 1628	DATE: 11.4.23		soilutions.co.uk 0800 0209 307 info@soilutions.co.uk
TITLE: SITE LOCATION PLAN		SCALE (A3) 1:10000	DRAWN DW	CHECKED MF	REVISION 0		



SITE: MILBROOK MANOR, KNOWSLEY	DRAWING NO: 1628/002		PROJECT NO: 1628	DATE: 11.4.23	soilutions soilutions.co.uk 0800 0209 307 info@soilutions.co.uk
	SCALE (A3) 1:500	DRAWN DW	CHECKED MF	REVISION 0	



SITE: MILLBROOK MANOR, KNOWSLEY	DRAWING NO: 1628/003	PROJECT NO: 1628	DATE: 11.4.23	 soilutions soilutions.co.uk 0800 0209 307 info@soilutions.co.uk
TITLE: PROPOSED DEVELOPMENT PLAN	SCALE (A3) Not to Scale	DRAWN DW	CHECKED MF	REVISION 0

LEGEND

Site Boundary

Proposed Trial Pit Locations



SITE: MILLBROOK MANOR, KNOWSLEY	DRAWING NO: 1628/004		PROJECT NO: 1628	DATE: 17.4.23	soilutions soilutions.co.uk 0800 0209 307 info@soilutions.co.uk
	TITLE: Proposed Site Investigation Layout Plan	SCALE (A3) 1:250	DRAWN DW	CHECKED MF	REVISION 0



APPENDIX II

Groundsure Report

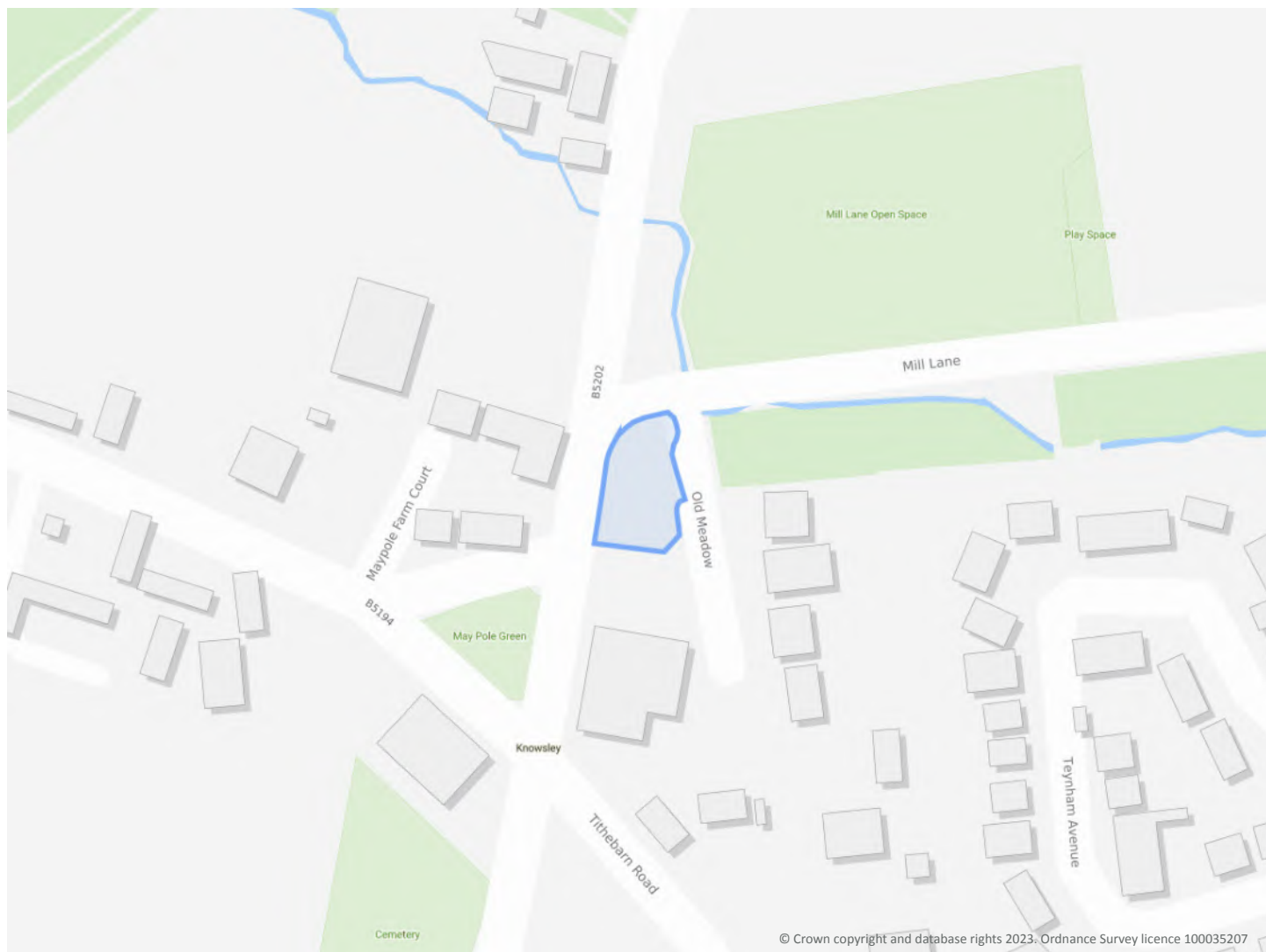
MILLBROOK MANOR, KNOWSLEY LANE, KNOWSLEY, L34 0JN

Order Details

Date: 06/04/2023
Your ref: 1628_Millbrook_Manor_-N-
Our Ref: GS-S11-2IJ-CEJ-1TX

Site Details

Location: 343480 396000
Area: 0.09 ha
Authority: [Knowsley Metropolitan Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.12

groundsure.com/insightuserguide

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>13</u>	<u>1.1</u>	<u>Historical industrial land uses</u>	0	0	3	8	-
<u>14</u>	<u>1.2</u>	<u>Historical tanks</u>	0	1	0	4	-
<u>15</u>	<u>1.3</u>	<u>Historical energy features</u>	0	0	1	1	-
15	1.4	Historical petrol stations	0	0	0	0	-
15	1.5	Historical garages	0	0	0	0	-
16	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
<u>17</u>	<u>2.1</u>	<u>Historical industrial land uses</u>	0	0	3	11	-
<u>18</u>	<u>2.2</u>	<u>Historical tanks</u>	0	2	0	12	-
<u>19</u>	<u>2.3</u>	<u>Historical energy features</u>	0	0	2	2	-
19	2.4	Historical petrol stations	0	0	0	0	-
20	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
21	3.1	Active or recent landfill	0	0	0	0	-
21	3.2	Historical landfill (BGS records)	0	0	0	0	-
22	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
22	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
22	3.5	Historical waste sites	0	0	0	0	-
<u>22</u>	<u>3.6</u>	<u>Licensed waste sites</u>	0	0	0	3	-
<u>23</u>	<u>3.7</u>	<u>Waste exemptions</u>	0	0	2	11	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>25</u>	<u>4.1</u>	<u>Recent industrial land uses</u>	0	0	8	-	-
26	4.2	Current or recent petrol stations	0	0	0	0	-
<u>26</u>	<u>4.3</u>	<u>Electricity cables</u>	0	1	4	3	-
27	4.4	Gas pipelines	0	0	0	0	-
27	4.5	Sites determined as Contaminated Land	0	0	0	0	-



28	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
28	4.7	Regulated explosive sites	0	0	0	0	-
28	4.8	Hazardous substance storage/usage	0	0	0	0	-
28	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
28	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
29	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
29	4.12	Radioactive Substance Authorisations	0	0	0	0	-
29	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	5	0	-
30	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
30	4.15	Pollutant release to public sewer	0	0	0	0	-
30	4.16	List 1 Dangerous Substances	0	0	0	0	-
31	4.17	List 2 Dangerous Substances	0	0	0	0	-
31	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	0	2	-
31	4.19	Pollution inventory substances	0	0	0	0	-
32	4.20	Pollution inventory waste transfers	0	0	0	0	-
32	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
33	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
35	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
36	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
37	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
37	5.5	Groundwater vulnerability- local information	None (within 0m)				
38	5.6	<u>Groundwater abstractions</u>	0	0	0	0	9
41	5.7	Surface water abstractions	0	0	0	0	0
41	5.8	<u>Potable abstractions</u>	0	0	0	0	5
42	5.9	<u>Source Protection Zones</u>	1	0	0	0	-
43	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
44	6.1	<u>Water Network (OS MasterMap)</u>	0	3	0	-	-



45	6.2	Surface water features	0	2	4	-	-
45	6.3	WFD Surface water body catchments	1	-	-	-	-
46	6.4	WFD Surface water bodies	0	0	0	-	-
46	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
47	7.1	Risk of flooding from rivers and the sea	High (within 50m)				
48	7.2	Historical Flood Events	0	0	0	-	-
48	7.3	Flood Defences	0	0	0	-	-
48	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
48	7.5	Flood Storage Areas	0	0	0	-	-
49	7.6	Flood Zone 2	Identified (within 50m)				
50	7.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
51	8.1	Surface water flooding	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
53	9.1	Groundwater flooding	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
54	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
55	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
55	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
55	10.4	Special Protection Areas (SPA)	0	0	0	0	0
55	10.5	National Nature Reserves (NNR)	0	0	0	0	0
56	10.6	Local Nature Reserves (LNR)	0	0	0	0	3
56	10.7	Designated Ancient Woodland	0	0	0	0	0
56	10.8	Biosphere Reserves	0	0	0	0	0
57	10.9	Forest Parks	0	0	0	0	0
57	10.10	Marine Conservation Zones	0	0	0	0	0
57	10.11	Green Belt	1	0	0	0	2
57	10.12	Proposed Ramsar sites	0	0	0	0	0



58	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
58	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
58	10.15	Nitrate Sensitive Areas	0	0	0	0	0
58	10.16	<u>Nitrate Vulnerable Zones</u>	2	0	0	0	3
60	10.17	SSSI Impact Risk Zones	0	-	-	-	-
60	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
61	11.1	World Heritage Sites	0	0	0	-	-
62	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
62	11.3	National Parks	0	0	0	-	-
62	11.4	<u>Listed Buildings</u>	0	1	2	-	-
63	11.5	<u>Conservation Areas</u>	1	0	0	-	-
63	11.6	Scheduled Ancient Monuments	0	0	0	-	-
63	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
64	12.1	<u>Agricultural Land Classification</u>	Grade 2 (within 250m)				
65	12.2	Open Access Land	0	0	0	-	-
65	12.3	<u>Tree Felling Licences</u>	0	1	1	-	-
66	12.4	<u>Environmental Stewardship Schemes</u>	0	0	1	-	-
66	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
67	13.1	<u>Priority Habitat Inventory</u>	0	1	2	-	-
68	13.2	Habitat Networks	0	0	0	-	-
68	13.3	Open Mosaic Habitat	0	0	0	-	-
68	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
69	14.1	<u>10k Availability</u>	Identified (within 500m)				
70	14.2	Artificial and made ground (10k)	0	0	0	0	-
71	14.3	Superficial geology (10k)	0	0	0	0	-



71	14.4	Landslip (10k)	0	0	0	0	-
72	14.5	Bedrock geology (10k)	0	0	0	0	-
72	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
73	15.1	<u>50k Availability</u>	Identified (within 500m)				
74	15.2	<u>Artificial and made ground (50k)</u>	0	0	0	2	-
75	15.3	Artificial ground permeability (50k)	0	0	-	-	-
76	15.4	<u>Superficial geology (50k)</u>	2	0	0	1	-
77	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
77	15.6	Landslip (50k)	0	0	0	0	-
77	15.7	Landslip permeability (50k)	None (within 50m)				
78	15.8	<u>Bedrock geology (50k)</u>	1	0	0	0	-
79	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
79	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
80	16.1	<u>BGS Boreholes</u>	0	0	8	-	-
Page	Section	Natural ground subsidence					
82	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
83	17.2	<u>Running sands</u>	Low (within 50m)				
85	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
86	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
87	17.5	<u>Landslides</u>	Very low (within 50m)				
88	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
89	18.1	Natural cavities	0	0	0	0	-
90	18.2	BritPits	0	0	0	0	-
90	18.3	<u>Surface ground workings</u>	0	0	9	-	-
90	18.4	Underground workings	0	0	0	0	0
91	18.5	<u>Historical Mineral Planning Areas</u>	0	1	0	0	-



91	18.6	Non-coal mining	0	0	0	0	0
91	18.7	Mining cavities	0	0	0	0	0
91	18.8	JPB mining areas	None (within 0m)				
92	18.9	Coal mining	None (within 0m)				
92	18.10	Brine areas	None (within 0m)				
92	18.11	Gypsum areas	None (within 0m)				
92	18.12	Tin mining	None (within 0m)				
92	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
93	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
95	20.1	<u>BGS Estimated Background Soil Chemistry</u>	3	7	-	-	-
96	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
96	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
97	21.1	Underground railways (London)	0	0	0	-	-
97	21.2	Underground railways (Non-London)	0	0	0	-	-
97	21.3	Railway tunnels	0	0	0	-	-
97	21.4	Historical railway and tunnel features	0	0	0	-	-
97	21.5	Royal Mail tunnels	0	0	0	-	-
98	21.6	Historical railways	0	0	0	-	-
98	21.7	Railways	0	0	0	-	-
98	21.8	Crossrail 1	0	0	0	0	-
98	21.9	Crossrail 2	0	0	0	0	-
98	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 22/04/2019

Site Area: 0.09ha



Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 0.09ha



Recent site history - 2001 aerial photograph



Capture Date: 01/05/2001

Site Area: 0.09ha



Recent site history - 2000 aerial photograph

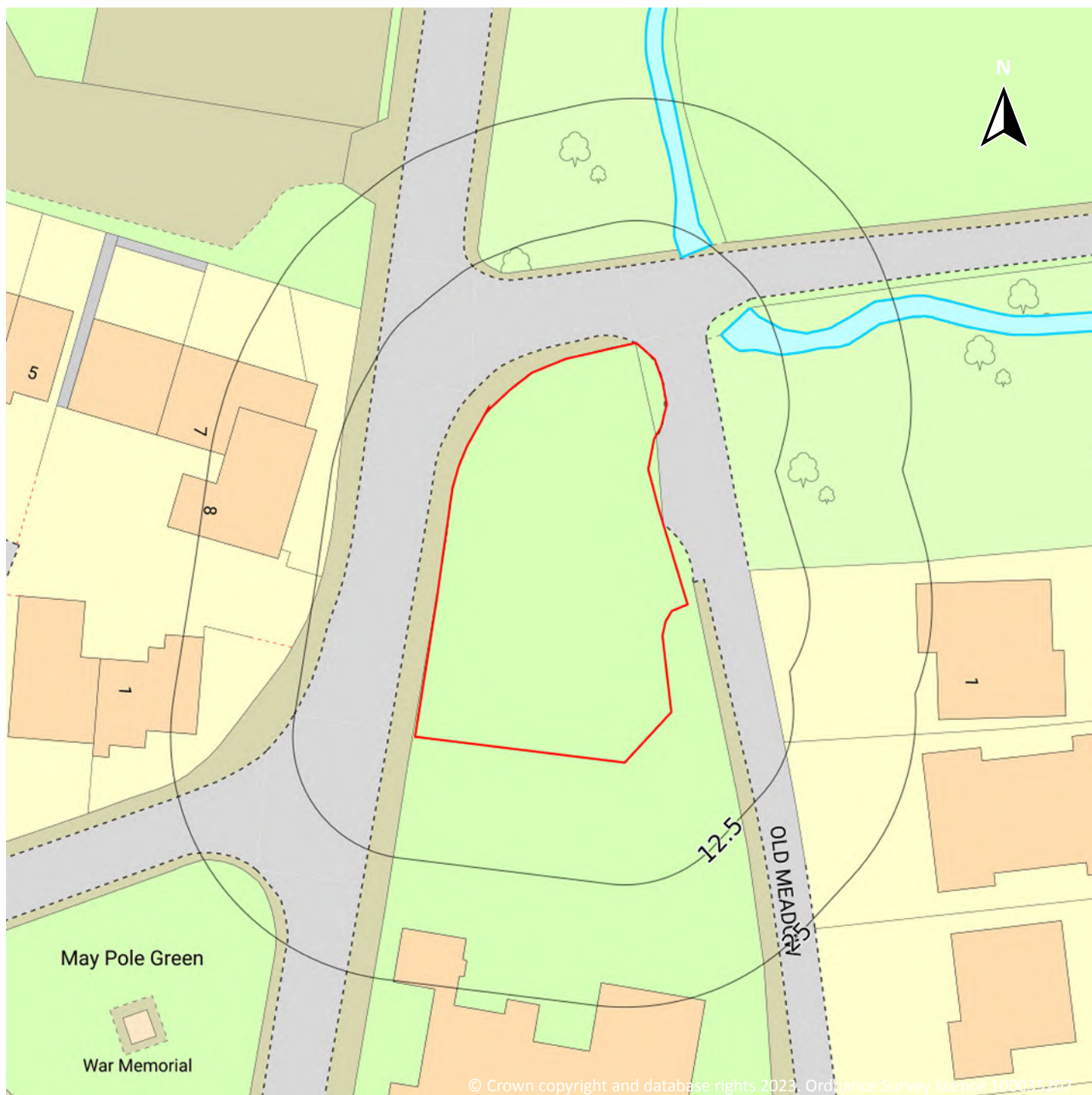


Capture Date: 21/07/2000

Site Area: 0.09ha



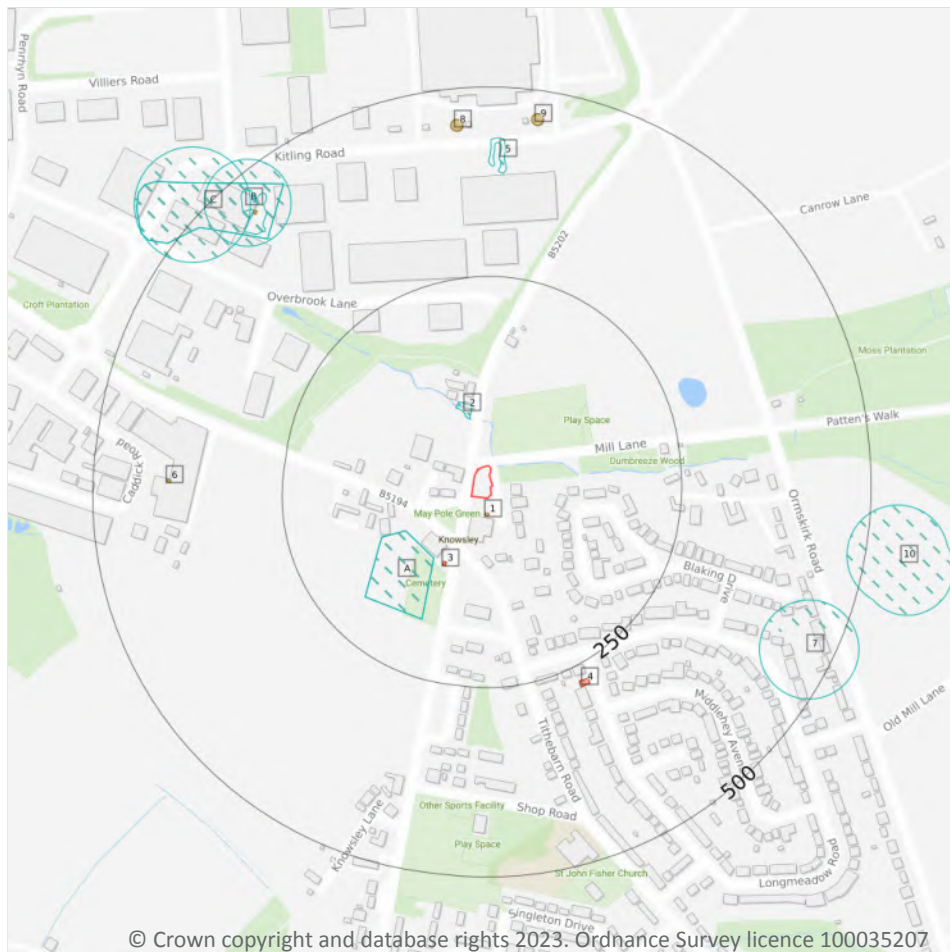
OS MasterMap site plan



Site Area: 0.09ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

1.1 Historical industrial land uses

Records within 500m

11

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
2	66m N	Smithy	1907	843185



ID	Location	Land use	Dates present	Group ID
A	93m SW	Grave Yard	1976	871983
A	93m SW	Grave Yard	1988	981336
5	386m N	Unspecified Ground Workings	1892	799879
7	401m SE	Unspecified Pits	1892	811201
B	408m NW	Unspecified Pits	1966	924081
C	413m NW	Unspecified Pits	1925	878471
C	413m NW	Unspecified Pits	1925	968505
B	422m NW	Unspecified Pits	1907 - 1938	862020
C	438m NW	Unspecified Pits	1938	885796
10	476m E	Unspecified Pits	1938 - 1955	973147

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	5
----------------------------	----------

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
1	20m S	Unspecified Tank	1972 - 1993	148204
6	397m W	Unspecified Tank	1978 - 1997	129817
8	444m N	Unspecified Tank	1978 - 1997	128580
B	447m NW	Unspecified Tank	1978 - 1997	136708
9	454m N	Unspecified Tank	1991	113158

This data is sourced from Ordnance Survey / Groundsure.



1.3 Historical energy features

Records within 500m

2

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
3	93m SW	Electricity Substation	1972 - 1993	71086
4	270m SE	Electricity Substation	1972 - 1993	72252

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

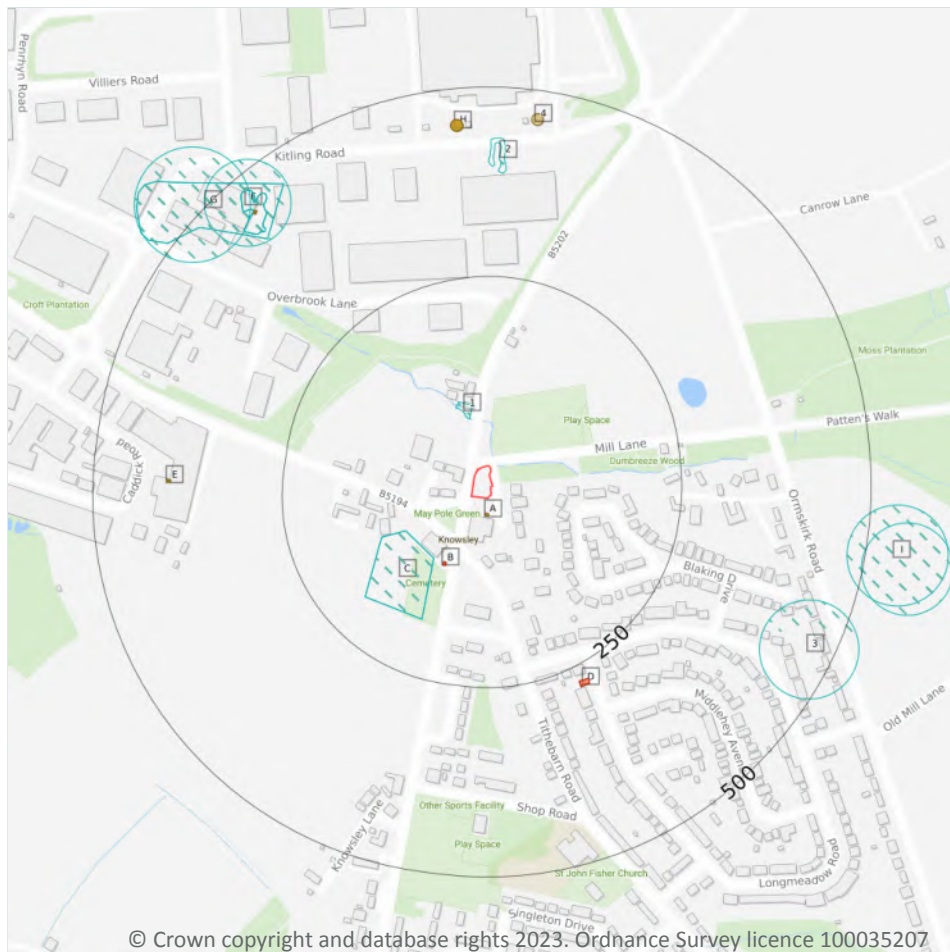
0

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

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



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

2.1 Historical industrial land uses

Records within 500m

14

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 17**

ID	Location	Land Use	Date	Group ID
1	66m N	Smithy	1907	843185
C	93m SW	Grave Yard	1976	871983
C	93m SW	Grave Yard	1988	981336



ID	Location	Land Use	Date	Group ID
2	386m N	Unspecified Ground Workings	1892	799879
3	401m SE	Unspecified Pits	1892	811201
F	408m NW	Unspecified Pits	1966	924081
G	413m NW	Unspecified Pits	1925	878471
G	413m NW	Unspecified Pits	1925	968505
F	422m NW	Unspecified Pits	1938	862020
F	422m NW	Unspecified Pits	1925	862020
F	422m NW	Unspecified Pits	1907	862020
G	438m NW	Unspecified Pits	1938	885796
I	476m E	Unspecified Pits	1938	973147
I	497m E	Unspecified Pits	1955	973147

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

14

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

Features are displayed on the Past land use - un-grouped map on **page 17**

ID	Location	Land Use	Date	Group ID
A	20m S	Unspecified Tank	1972	148204
A	20m S	Unspecified Tank	1993	148204
E	397m W	Unspecified Tank	1978	129817
E	398m W	Unspecified Tank	1997	129817
E	398m W	Unspecified Tank	1995	129817
H	444m N	Unspecified Tank	1997	128580
H	444m N	Unspecified Tank	1997	128580
H	444m N	Unspecified Tank	1995	128580
H	444m N	Unspecified Tank	1978	128580



ID	Location	Land Use	Date	Group ID
F	447m NW	Unspecified Tank	1978	136708
F	448m NW	Unspecified Tank	1997	136708
F	448m NW	Unspecified Tank	1997	136708
F	448m NW	Unspecified Tank	1995	136708
4	454m N	Unspecified Tank	1991	113158

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

4

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

Features are displayed on the Past land use - un-grouped map on **page 17**

ID	Location	Land Use	Date	Group ID
B	93m SW	Electricity Substation	1972	71086
B	94m SW	Electricity Substation	1993	71086
D	270m SE	Electricity Substation	1972	72252
D	270m SE	Electricity Substation	1993	72252

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.



2.5 Historical garages

Records within 500m

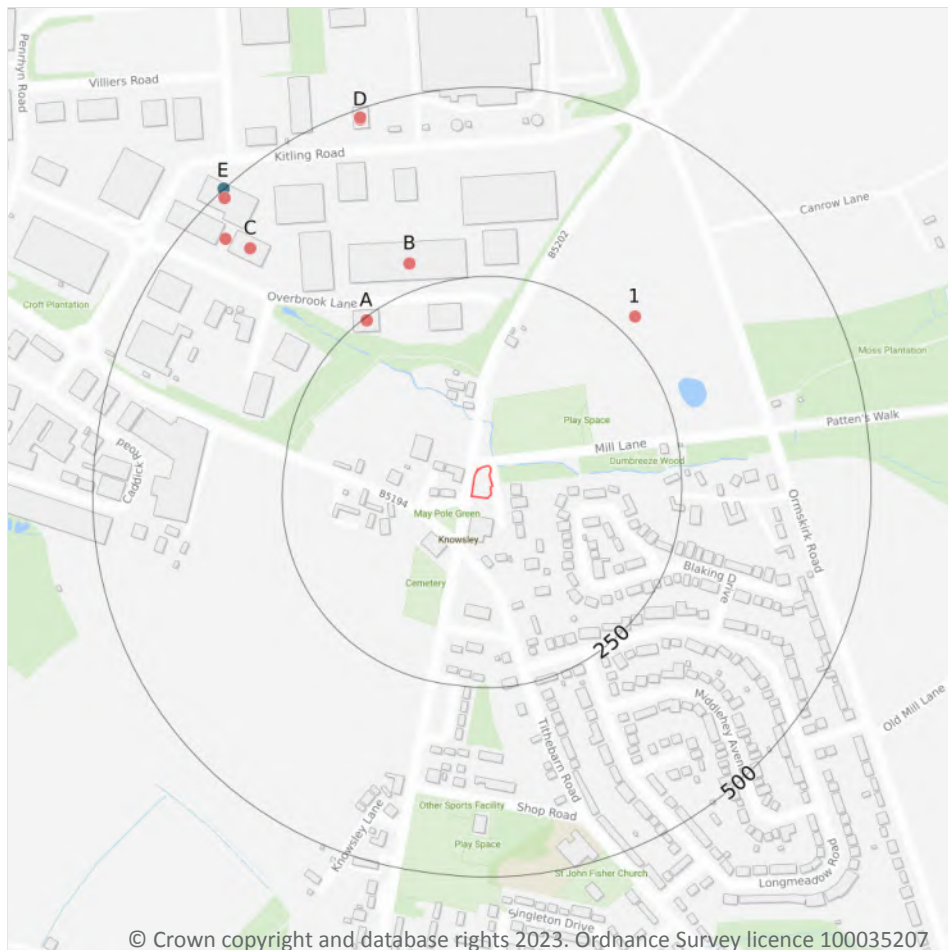
0

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

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Licensed waste sites
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

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

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m

0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

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

3.5 Historical waste sites

Records within 500m

0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m

3

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 21**

ID	Location	Details		
E	499m NW	Site Name: Laurel House M R F Site Address: Laurel House, Kitling Road, Knowsley Business Park, Prescot, Merseyside, L34 9JA Correspondence Address: -	Type of Site: 75kte Materials Recycling Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EWC028 EPR reference: EA/EPR/CP3793SX/V003 Operator: Environmental Waste Controls Limited Waste Management licence No: 100684 Annual Tonnage: 24999	Issue Date: 30/10/2008 Effective Date: - Modified: 05/04/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified

ID	Location	Details		
E	499m NW	Site Name: Laurel House M R F Site Address: Laurel House, Kitling Road, Knowsley Business Park, Prescott, Merseyside, L34 9JA Correspondence Address: -	Type of Site: 75kte Materials Recycling Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EWC028 EPR reference: EA/EPR/CP3793SX/A001 Operator: Environmental Waste Controls Ltd Waste Management licence No: 100684 Annual Tonnage: 24999	Issue Date: 30/10/2008 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
E	499m NW	Site Name: Laurel House M R F Site Address: Laurel House, Kitling Road, Knowsley Business Park, Prescott, Merseyside, L34 9JA Correspondence Address: -	Type of Site: 75kte Materials Recycling Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EWC028 EPR reference: EA/EPR/CP3793SX/V002 Operator: Environmental Waste Controls Plc Waste Management licence No: 100684 Annual Tonnage: 24999	Issue Date: 30/10/2008 Effective Date: - Modified: 20/07/2011 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified

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

3.7 Waste exemptions

Records within 500m	13
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Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 21**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	247m NW	OAK HOUSE, OVERBROOK LANE, KNOWSLEY, PRESCOT, L34 9FB	WEX283318	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	247m NW	OAK HOUSE, OVERBROOK LANE, KNOWSLEY, PRESCOT, L34 9FB	WEX283318	Storing waste exemption	Not on a farm	Storage of waste in secure containers

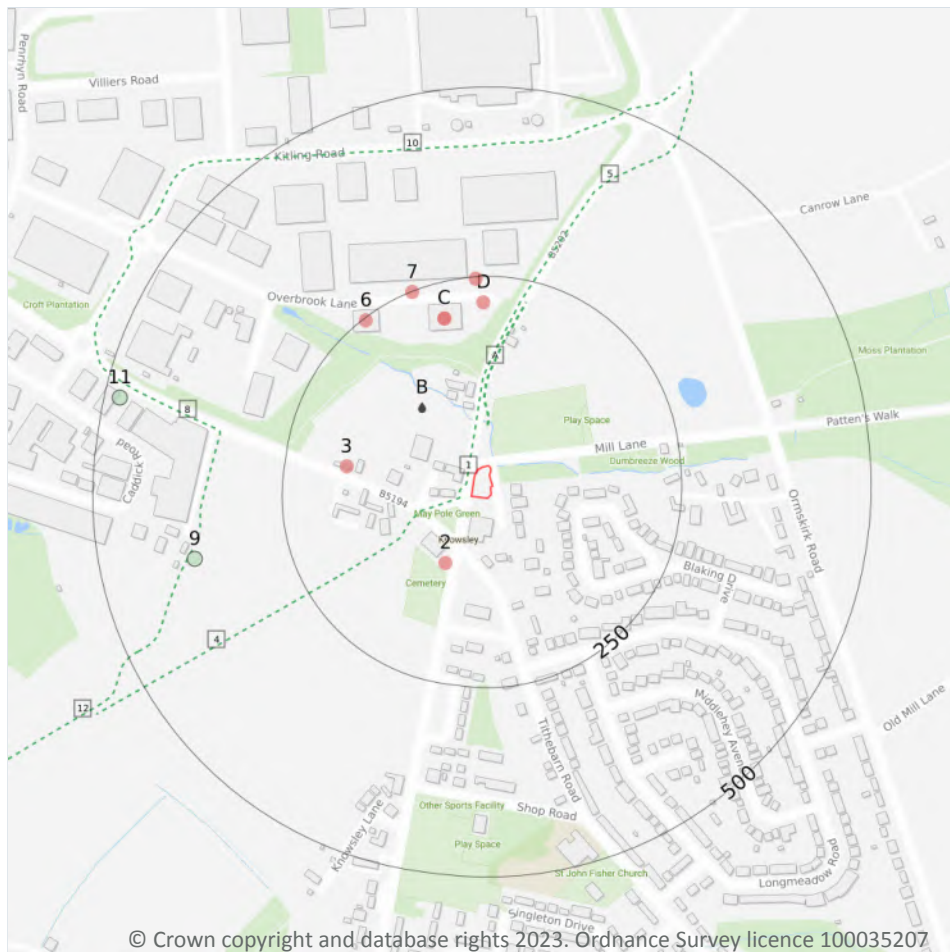


ID	Location	Site	Reference	Category	Sub-Category	Description
1	275m NE	-	WEX031314	Storing waste exemption	On a farm	Storage of sludge
B	286m N	The Total Complex Overbrook Lane Prescott Merseyside L34 9FB	EPR/QH0978U E/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
B	286m N	The Total Complex Overbrook Lane Prescott Merseyside L34 9FB	EPR/QH0978U E/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
C	420m NW	Overbrook Court Overbrook Lane Prescott Knowsley L34 9FB	EA/EPR/VP375 5FC/A001	Treating waste exemption	Non-Agricultural Waste Only	Repair or refurbishment of WEEE
C	452m NW	Overbrook Court, Overbrook Lane, Prescott, Knowsley, L34 9FB	EA/EPR/VP388 0LZ/A001	Treating waste exemption	Not on a farm	Repair or refurbishment of WEEE
D	487m N	G Collier & Sons Ltd Kitling Road PRESCOT Merseyside L34 9JA	EPR/TF0136SC /A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
D	488m N	KITLING ROAD, KNOWSLEY BUSINESS PARK, PRESCOT, L34 9JA	WEX318147	Storing waste exemption	Not on a Farm	Storage of waste in secure containers
D	488m N	KITLING ROAD, KNOWSLEY BUSINESS PARK, PRESCOT, L34 9JA	WEX193859	Storing waste exemption	Not on a Farm	Storage of waste in secure containers
D	488m N	KITLING ROAD, KNOWSLEY BUSINESS PARK, PRESCOT, L34 9JA	WEX040999	Storing waste exemption	Not on a farm	Storage of waste in secure containers
E	491m NW	-	WEX254482	Storing waste exemption	Not on a farm	Storage of waste in a secure place
E	491m NW	LAUREL HOUSE, KITLING ROAD, KNOWSLEY BUSINESS PARK, PRESCOT, L34 9JA	WEX107347	Storing waste exemption	Not on a farm	Storage of waste in a secure place

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- Electricity cables
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

8

Current potentially contaminative industrial sites.

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

ID	Location	Company	Address	Activity	Category
2	94m SW	Electricity Sub Station	Merseyside, L34	Electrical Features	Infrastructure and Facilities
3	169m W	Fagan Electrical Ltd	Fagan Electrical Highfield, School Lane, Knowsley Business Park, Knowsley, Merseyside, L34 9ER	Electrical and Electronic Engineers	Engineering Services



ID	Location	Company	Address	Activity	Category
C	203m N	C B Transport Refrigeration Ltd	Overbrook Lane, Knowsley Business Park, Kirkby, Merseyside, L34 9FB	Electrical Equipment Repair and Servicing	Repair and Servicing
C	203m N	C B Refrigeration	Overbrook Lane, Knowsley Business Park, Kirkby, Merseyside, L34 9FB	Distribution and Haulage	Transport, Storage and Delivery
D	216m N	Electricity Sub Station	Merseyside, L34	Electrical Features	Infrastructure and Facilities
6	247m NW	M J Quinn	Mj Quinn, Overbrook Lane, Knowsley Business Park, Kirkby, Merseyside, L34 9FB	Electrical and Electronic Engineers	Engineering Services
D	248m N	Electricity Sub Station	Merseyside, L34	Electrical Features	Infrastructure and Facilities
7	249m N	Electricity Sub Station	Merseyside, L34	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0
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Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	8
----------------------------	----------

High voltage underground electricity transmission cables.

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

ID	Location	Cable Set	Cable Route	Details	
1	9m NW	CABLE SECT 04	KIRKBY - LISTER DRIVE 2	Cable Make: BICC 275KV (OI) Cable Type: A/C Operating Voltage (kV): 275	Year of installation: 2000 Cable in tunnel? No
A	53m N	-	-	Cable Make: - Cable Type: PILOT Operating Voltage (kV): -	Year of installation: Not specified Cable in tunnel? Not specified



ID	Location	Cable Set	Cable Route	Details	
A	53m N	-	-	Cable Make: - Cable Type: PILOT Operating Voltage (kV): -	Year of installation: Not specified Cable in tunnel? Not specified
4	206m SW	CABLE SECT 05	KIRKBY - LISTER DRIVE 2	Cable Make: BICC 275KV (OI) Cable Type: A/C Operating Voltage (kV): 275	Year of installation: 2000 Cable in tunnel? No
5	220m N	CABLE SECT 03	KIRKBY - LISTER DRIVE 2	Cable Make: BICC 275KV (OI) Cable Type: A/C Operating Voltage (kV): 275	Year of installation: 2000 Cable in tunnel? No
8	340m W	CABLE SECT 03	KIRKBY - LISTER DRIVE 1	Cable Make: SUDKABEL XLPE Cable Type: A/C Operating Voltage (kV): 275	Year of installation: 2009 Cable in tunnel? No
10	422m N	CABLE SECT 02	KIRKBY - LISTER DRIVE 1	Cable Make: SUDKABEL XLPE Cable Type: A/C Operating Voltage (kV): 275	Year of installation: 2009 Cable in tunnel? No
12	485m SW	CABLE SECT 04	KIRKBY - LISTER DRIVE 1	Cable Make: SUDKABEL XLPE Cable Type: A/C Operating Voltage (kV): 275	Year of installation: 2009 Cable in tunnel? No

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0
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High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0
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Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.



4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m**0**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m**0**

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m**0**

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

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



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

Records within 500m

0

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

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m

5

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

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

ID	Location	Address	Details	
B	110m NW	MERSEY SYSTEMS KNOWSLEY, 765 KNOWSLEY LANE, KNOWSLEY, MERSEYSIDE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016991396 Permit Version: 2 Receiving Water: KNOWSLEY BROOK	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: - Effective Date: 24/06/1991 Revocation Date: 01/10/1996
B	110m NW	MERSEY SYSTEMS KNOWSLEY, 765 KNOWSLEY LANE, KNOWSLEY, MERSEYSIDE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016991396 Permit Version: 2 Receiving Water: KNOWSLEY BROOK	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: - Effective Date: 24/06/1991 Revocation Date: 01/10/1996
B	110m NW	MERSEY SYSTEMS KNOWSLEY, 765 KNOWSLEY LANE, KNOWSLEY, MERSEYSIDE	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991396 Permit Version: 1 Receiving Water: KNOWSLEY BROOK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 13/04/1989 Revocation Date: 23/06/1991

ID	Location	Address	Details	
B	110m NW	MERSEY SYSTEMS KNOWSLEY, 765 KNOWSLEY LANE, KNOWSLEY, MERSEYSIDE	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991396 Permit Version: 2 Receiving Water: KNOWSLEY BROOK	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: - Effective Date: 24/06/1991 Revocation Date: 01/10/1996
B	110m NW	MERSEY SYSTEMS KNOWSLEY, 765 KNOWSLEY LANE, KNOWSLEY, MERSEYSIDE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016991396 Permit Version: 1 Receiving Water: KNOWSLEY BROOK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 13/04/1989 Revocation Date: 23/06/1991

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

4.14 Pollutant release to surface waters (Red List)

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

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

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

4.15 Pollutant release to public sewer

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

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

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

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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



4.17 List 2 Dangerous Substances

Records within 500m

0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m

2

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

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

ID	Location	Details	
9	374m W	Incident Date: 03/05/2001 Incident Identification: 4286 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
11	479m W	Incident Date: 02/10/2001 Incident Identification: 34270 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m

0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m

0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

Records within 500m

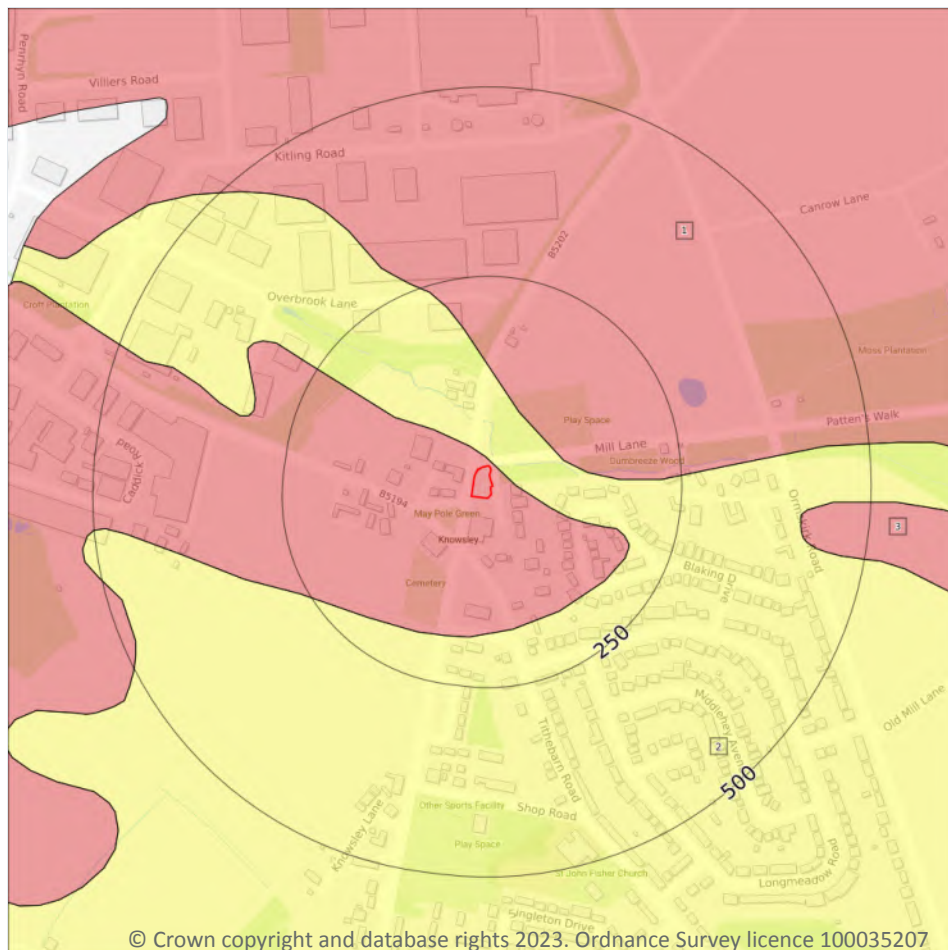
0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.



5 Hydrogeology - Superficial aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

3

Aquifer status of groundwater held within superficial geology.

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

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	6m NE	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

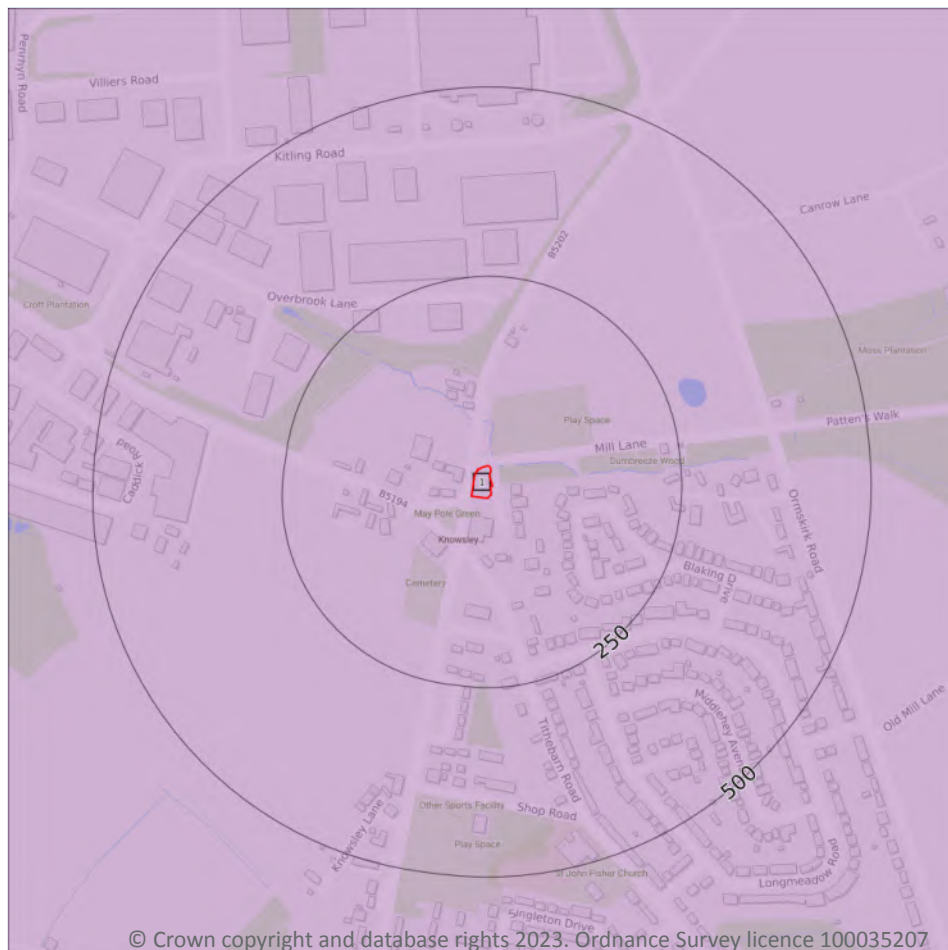


ID	Location	Designation	Description
3	409m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

1

Aquifer status of groundwater held within bedrock geology.

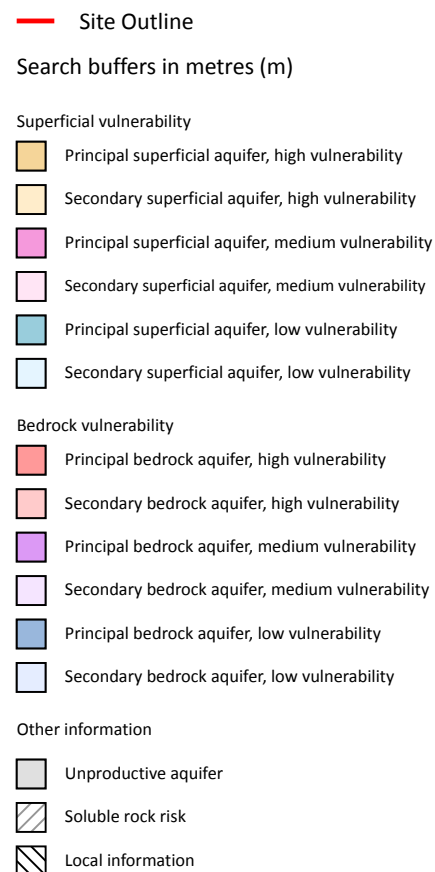
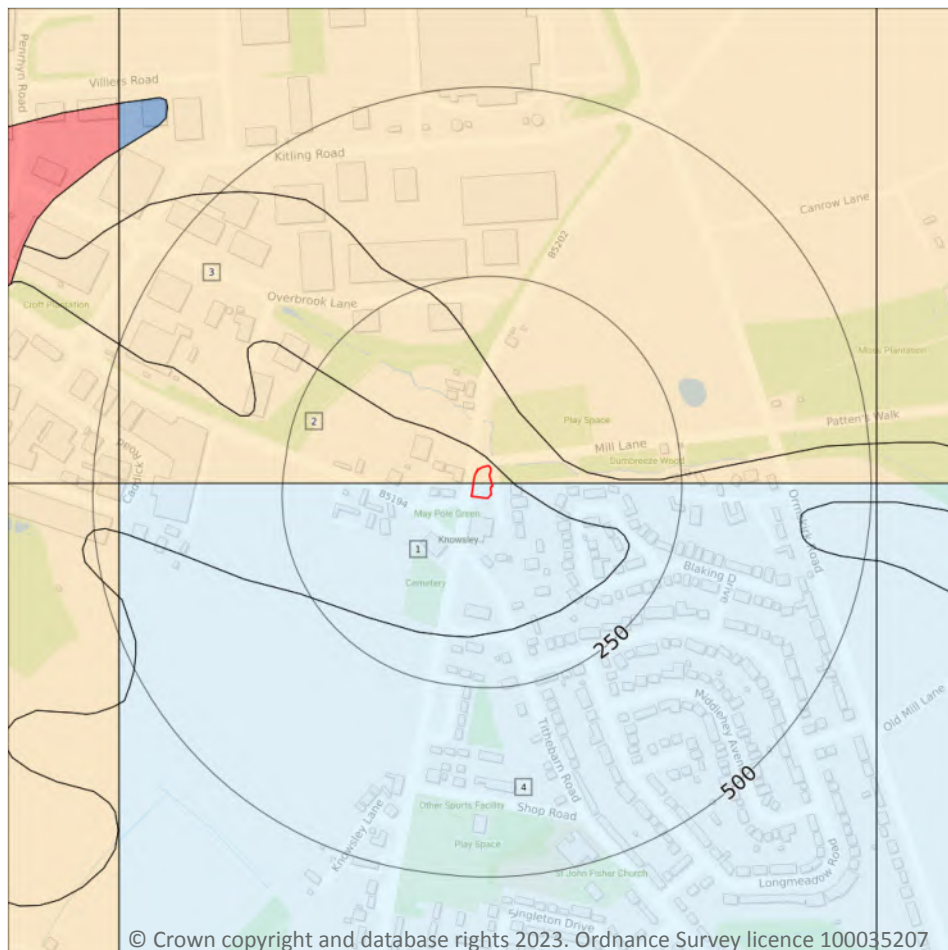
Features are displayed on the Bedrock aquifer map on **page 35**

ID	Location	Designation	Description
1	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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

4

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

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

Features are displayed on the Groundwater vulnerability map on **page 36**



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed
2	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed
3	5m NE	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed
4	28m E	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site

0

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

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

5.5 Groundwater vulnerability- local information

Records on site

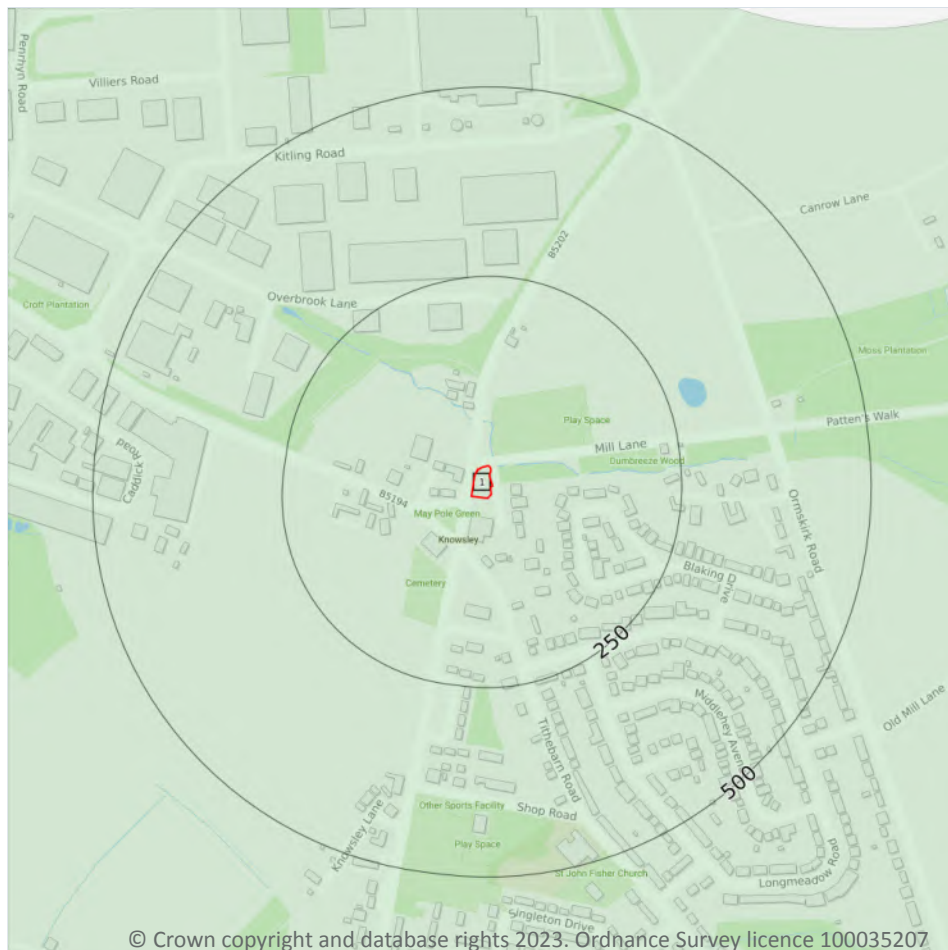
0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

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



Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

9

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 38**

ID	Location	Details	
-	1192m NE	Status: Historical Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "WELL, BOREHOLE AND WELLS AND BOREHOLES (2) AT KNOWSLEY" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 344000 Northing: 397100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -
-	1192m NE	Status: Historical Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL, BOREHOLE AND WELLS AND BOREHOLES (2) AT KNOWSLEY Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 344000 Northing: 397100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -
-	1192m NE	Status: Active Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL BOREHOLE AND WELLS AND BOREHOLES X 2 AT KNOWSLEY Data Type: Point Name: United Utilities Water Ltd Easting: 344000 Northing: 397100	Annual Volume (m ³): 2,074,000 Max Daily Volume (m ³): 7,500 Original Application No: NPS/WR/026423 Original Start Date: 16/03/1966 Expiry Date: - Issue No: 102 Version Start Date: 26/11/2018 Version End Date: -
-	1447m NW	Status: Historical Licence No: 2569031142 Details: Evaporative Cooling Direct Source: Ground Water - North West Region Point: LAND @ DAIRY CREST, KIRKBY Data Type: Point Name: DAIRY CREST LTD Easting: 342350 Northing: 396930	Annual Volume (m ³): 219000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 11/08/2004 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 11/08/2004 Version End Date: -
-	1447m NW	Status: Historical Licence No: 2569031142 Details: Process Water Direct Source: Ground Water - North West Region Point: LAND @ DAIRY CREST, KIRKBY Data Type: Point Name: DAIRY CREST LTD Easting: 342350 Northing: 396930	Annual Volume (m ³): 219000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 11/08/2004 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 11/08/2004 Version End Date: -



ID	Location	Details	
-	1447m NW	Status: Historical Licence No: 2569031142R01 Details: Evaporative Cooling Direct Source: Ground Water - North West Region Point: LAND @ DAIRY CREST, KIRKBY Data Type: Point Name: DAIRY CREST LTD Easting: 342350 Northing: 396930	Annual Volume (m ³): 219000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2028 Issue No: 2 Version Start Date: 13/06/2019 Version End Date: -
-	1447m NW	Status: Historical Licence No: 2569031142R01 Details: Process Water Direct Source: Ground Water - North West Region Point: LAND @ DAIRY CREST, KIRKBY Data Type: Point Name: DAIRY CREST LTD Easting: 342350 Northing: 396930	Annual Volume (m ³): 219000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2028 Issue No: 2 Version Start Date: 13/06/2019 Version End Date: -
-	1703m S	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "B/HOLES, WELLS, ADITS AND HEADINGS@ KNOWSLEY,RANGLES BRIDGE" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 343200 Northing: 394300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -
-	1703m S	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES, WELLS, ADITS AND HEADINGS@ KNOWSLEY,RANGLES BRIDGE Data Type: Point Name: UNITED UTILITIES WATER LTD Easting: 343200 Northing: 394300	Annual Volume (m ³): - Max Daily Volume (m ³): 9092.2 Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -

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



5.7 Surface water abstractions

Records within 2000m

0

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

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

5.8 Potable abstractions

Records within 2000m

5

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 38**

ID	Location	Details	
-	1192m NE	Status: Historical Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "WELL, BOREHOLE AND WELLS AND BOREHOLES (2) AT KNOWSLEY" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 344000 Northing: 397100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -
-	1192m NE	Status: Historical Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL, BOREHOLE AND WELLS AND BOREHOLES (2) AT KNOWSLEY Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 344000 Northing: 397100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -

ID	Location	Details	
-	1192m NE	Status: Active Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL BOREHOLE AND WELLS AND BOREHOLES X 2 AT KNOWSLEY Data Type: Point Name: United Utilities Water Ltd Easting: 344000 Northing: 397100	Annual Volume (m ³): 2,074,000 Max Daily Volume (m ³): 7,500 Original Application No: NPS/WR/026423 Original Start Date: 16/03/1966 Expiry Date: - Issue No: 102 Version Start Date: 26/11/2018 Version End Date: -
-	1703m S	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "B/HOLES, WELLS, ADITS AND HEADINGS@ KNOWSLEY,RANGLES BRIDGE" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 343200 Northing: 394300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -
-	1703m S	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES, WELLS, ADITS AND HEADINGS@ KNOWSLEY,RANGLES BRIDGE Data Type: Point Name: UNITED UTILITIES WATER LTD Easting: 343200 Northing: 394300	Annual Volume (m ³): - Max Daily Volume (m ³): 9092.2 Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	1
----------------------------	----------

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on **page 38**

ID	Location	Type	Description
1	On site	3	Total catchment

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



5.10 Source Protection Zones (confined aquifer)

Records within 500m

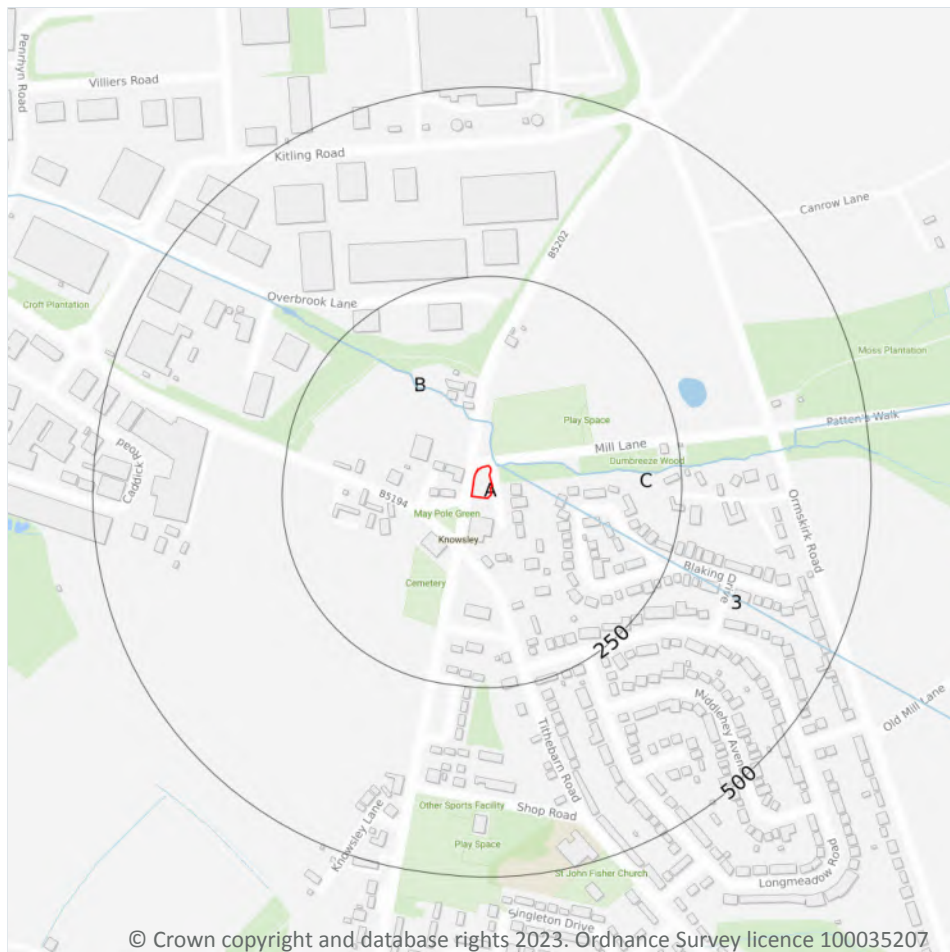
0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

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



6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

3

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

Features are displayed on the Hydrology map on **page 44**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	8m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
3	15m NE	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
C	15m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	6
----------------------------	----------

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 44**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1
------------------------	----------

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

Features are displayed on the Hydrology map on **page 44**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	River	Croxteth/Knowsley Brook	GB112069060610	Alt	Alt and Crossens

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

6.4 WFD Surface water bodies

Records identified

1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 44**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	802m N	River	Croxteth/Knowsley Brook	GB112069060610	Moderate	Fail	Moderate	2019

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

6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 44**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	GB41201G101700	Poor	Poor	Poor	2019

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



7 River and coastal flooding



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

7.1 Risk of flooding from rivers and the sea

Records within 50m

2

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 47**

Distance	Flood risk category
On site	N/A
0 - 50m	High

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

7.2 Historical Flood Events

Records within 250m	0
----------------------------	----------

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

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

7.3 Flood Defences

Records within 250m	0
----------------------------	----------

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0
----------------------------	----------

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

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

7.5 Flood Storage Areas

Records within 250m	0
----------------------------	----------

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

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

River and coastal flooding - Flood Zones



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

7.6 Flood Zone 2

Records within 50m

1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 47**

Location	Type
8m NE	Zone 2 - (Fluvial /Tidal Models)

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

7.7 Flood Zone 3

Records within 50m

1

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

Features are displayed on the River and coastal flooding map on **page 47**

Location	Type
8m NE	Zone 3 - (Fluvial /Tidal Models)

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



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

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

1 in 250 return period

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

1 in 100 return period

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

1 in 30 return period

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

8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 51**

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

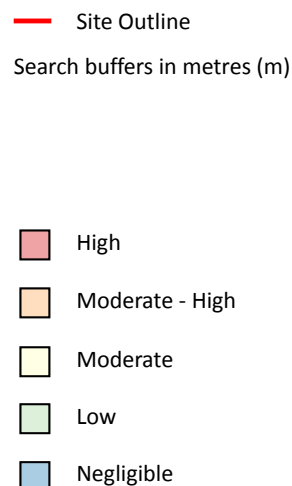
The table below shows the maximum flood depths for a range of return periods for the site.

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

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Moderate-High

Highest risk within 50m

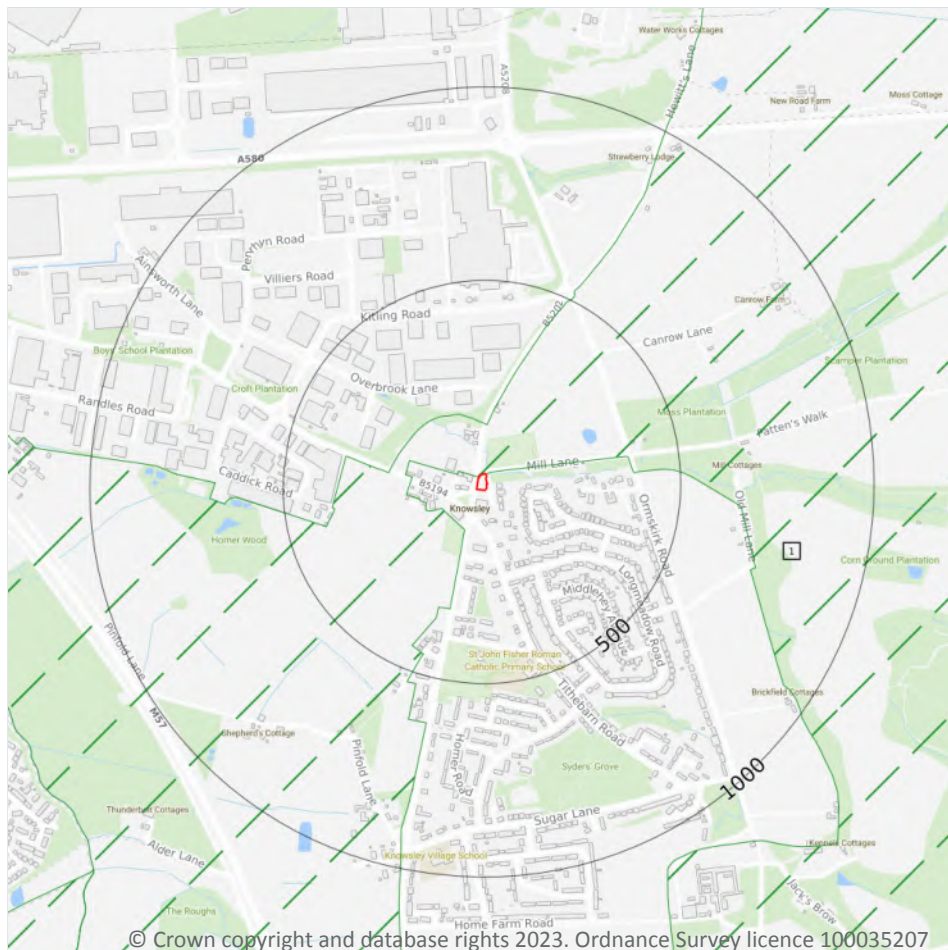
High

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

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

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- + Local Nature Reserves (LNR)
- ▨ Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m

3

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 54**

ID	Location	Name	Data source
-	1550m N	Acornfield Plantation	Natural England
-	1769m W	Croxteth	Natural England
-	1937m SW	Croxteth	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m

0

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m

0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m**0**

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m**0**

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m**3**

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

Features are displayed on the Environmental designations map on **page 54**

ID	Location	Name	Local Authority name
1	On site	Merseyside and Greater Manchester	Knowsley
2	1396m SW	Merseyside and Greater Manchester	Liverpool
-	1769m W	Merseyside and Greater Manchester	Liverpool

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m**0**

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

5

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

Location	Name	Type	NVZ ID	Status
On site	ALT NVZ	Surface Water	642	Existing



Location	Name	Type	NVZ ID	Status
On site	ALT NVZ	Surface Water	642	Existing
599m E	ALT NVZ	Surface Water	642	Existing
599m E	ALT NVZ	Surface Water	642	Existing
1982m E	Sankey Brook (Black Bk to Mersey) NVZ	Surface Water	639	Existing

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



SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0
-----------------	---

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

This data is sourced from Natural England.

10.18 SSSI Units

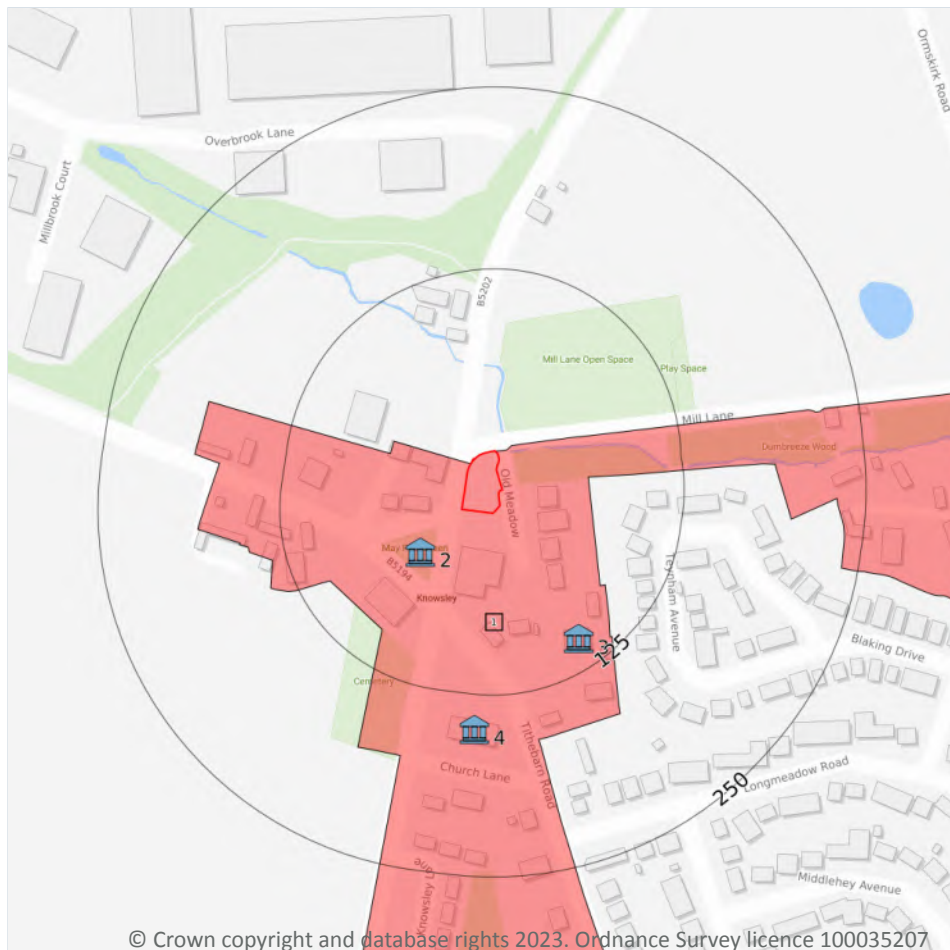
Records within 2000m	0
----------------------	---

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

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



11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

3

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 61**

ID	Location	Name	Grade	Reference Number	Listed date
2	41m SW	Knowsley War Memorial, Knowsley, L34	II	1463967	12/06/2019
3	104m SE	Knowsley Old Vicarage, Knowsley, L34	II	1261765	11/03/1992
4	149m S	Church of St Mary, Knowsley, L34	II*	1253329	28/01/1971

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



11.5 Conservation Areas

Records within 250m

1

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

Features are displayed on the Visual and cultural designations map on **page 61**

ID	Location	Name	District	Date of designation
1	On site	Knowsley Village, Knowsley	Knowsley	1978

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m

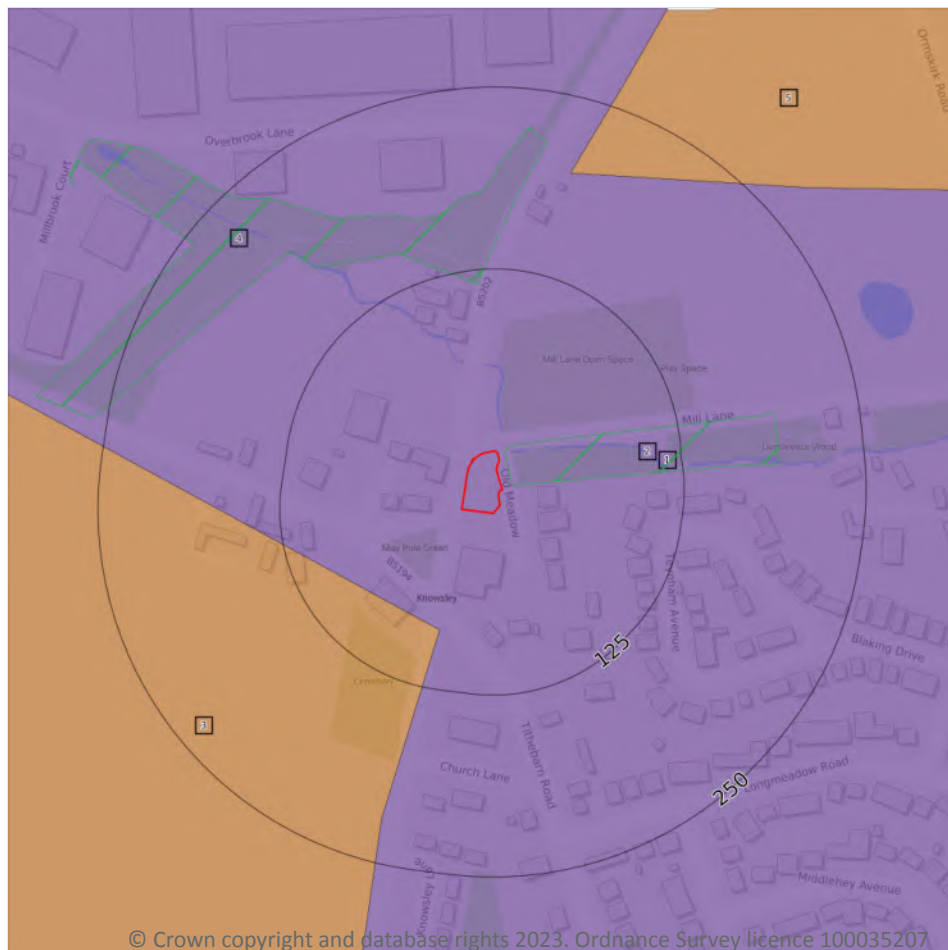
0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

3

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 64**

ID	Location	Classification	Description
1	On site	Urban	-

ID	Location	Classification	Description
3	80m SW	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
5	198m N	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m

0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

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

12.3 Tree Felling Licences

Records within 250m

2

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

Features are displayed on the Agricultural designations map on **page 64**

ID	Location	Description	Reference	Application date
2	5m NE	Selective Fell/Thin (Conditional)	010/118/09-10	08/03/2010
4	115m N	Selective Fell/Thin (Conditional)	010/118/09-10	08/03/2010

This data is sourced from the Forestry Commission.



12.4 Environmental Stewardship Schemes

Records within 250m**1**

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

Location	Reference	Scheme	Start Date	End date
88m N	AG00304735	Entry Level plus Higher Level Stewardship	01/01/2011	31/12/2020

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m**0**

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.



13 Habitat designations



- Site Outline
- Search buffers in metres (m)
- Priority Habitat Inventory
- Open Mosaic Habitat
- Limestone Pavement Orders
- Habitat Networks
- Primary Habitat
- Restorable Habitat
- Associated Habitats
- Habitat Restoration-Creation
- Network Enhancement Zone 1
- Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

3

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 67**

ID	Location	Main Habitat	Other habitats
1	5m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	115m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	234m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.



13.2 Habitat Networks

Records within 250m

0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



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Full coverage
 Partial coverage
 No coverage

69

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

14.2 Artificial and made ground (10k)

Records within 500m

0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

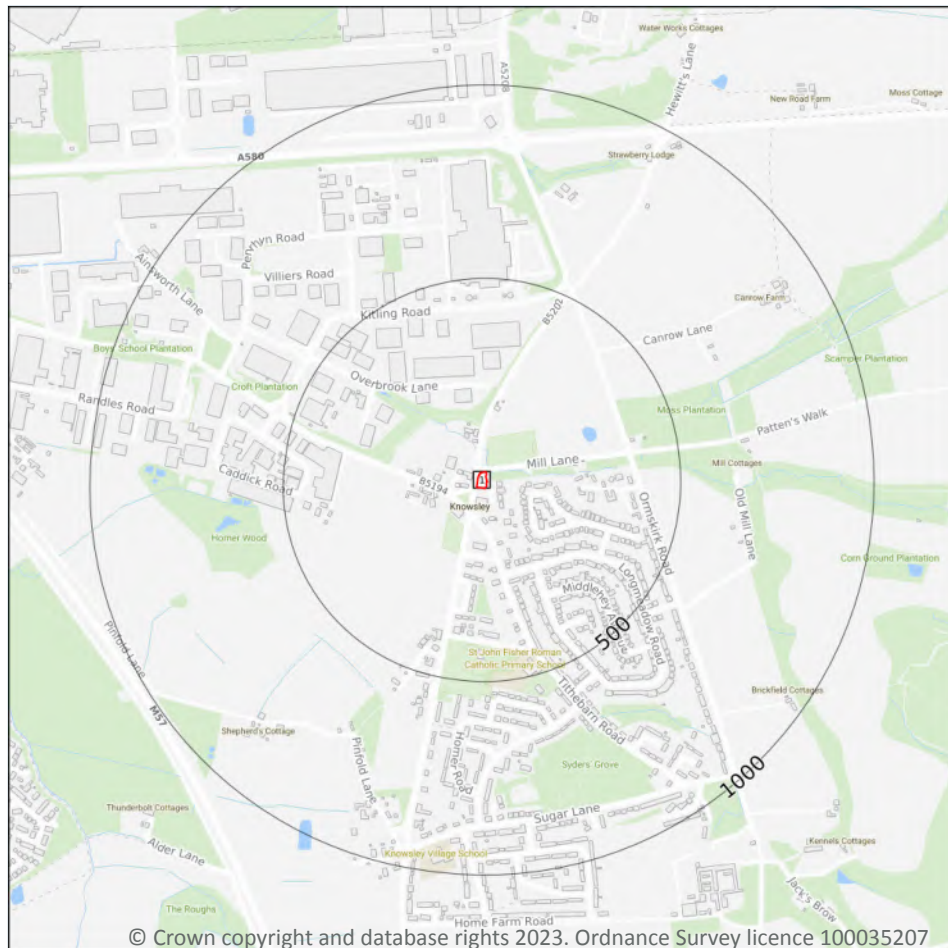
0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

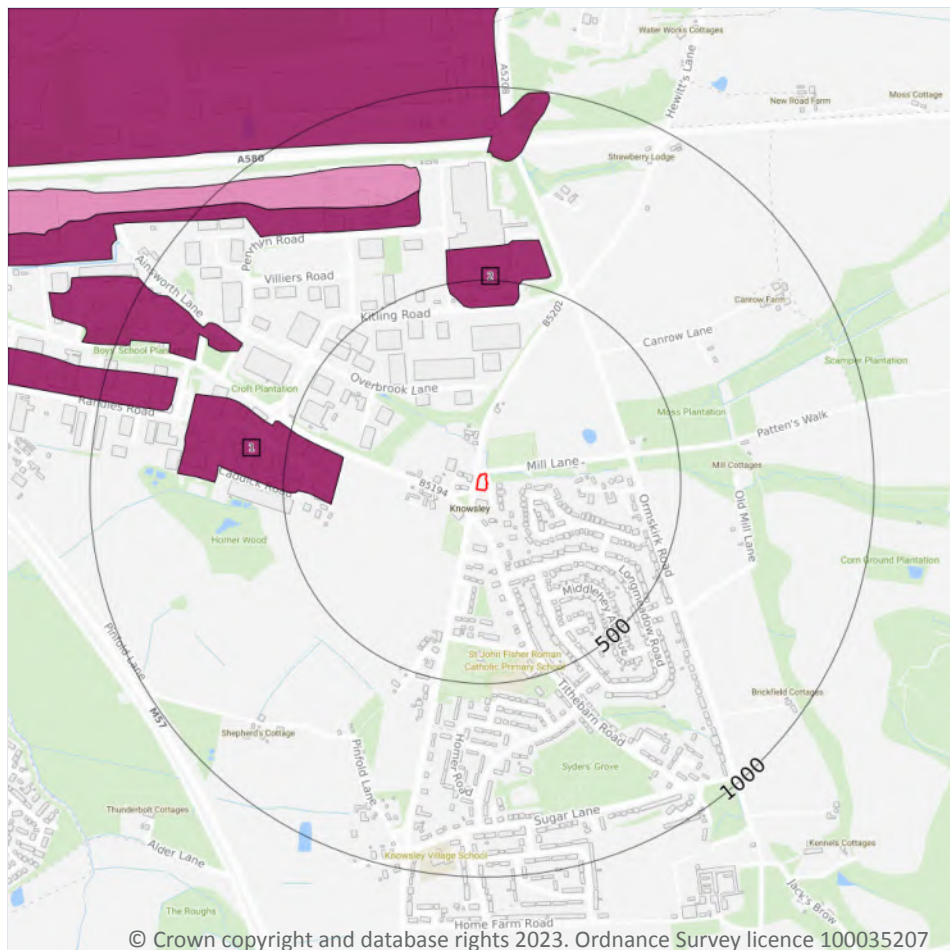
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 73**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW084_wigan_v4

This data is sourced from the British Geological Survey.



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



- Site Outline
- Search buffers in metres (m)
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

2

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 74**

ID	Location	LEX Code	Description	Rock description
1	353m W	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	430m N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.



15.3 Artificial ground permeability (50k)

Records within 50m

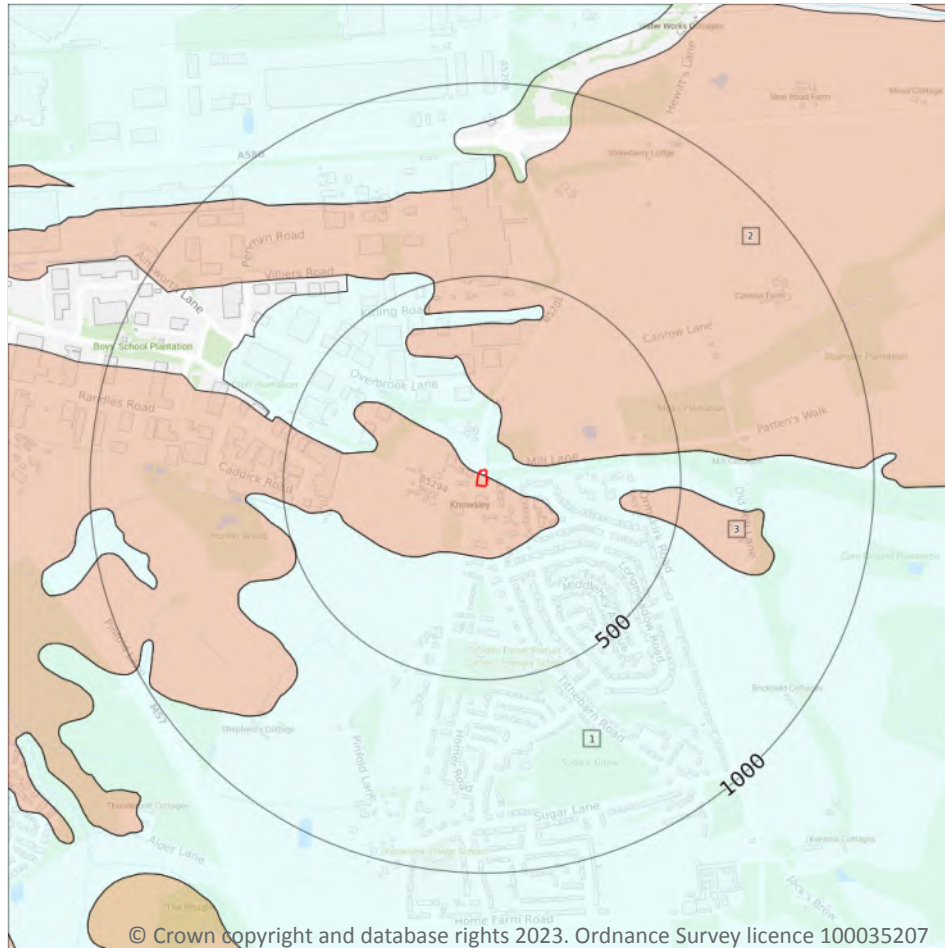
0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m

3

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 76**

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-CSVL	TILL, DEVANSIAN	CLAY, SANDY, GRAVELLY, COBBLY
2	On site	SSA-S	SHIRDLEY HILL SAND FORMATION	SAND
3	346m E	SSA-S	SHIRDLEY HILL SAND FORMATION	SAND

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m**2**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	High	High
On site	Mixed	High	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m**0**

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

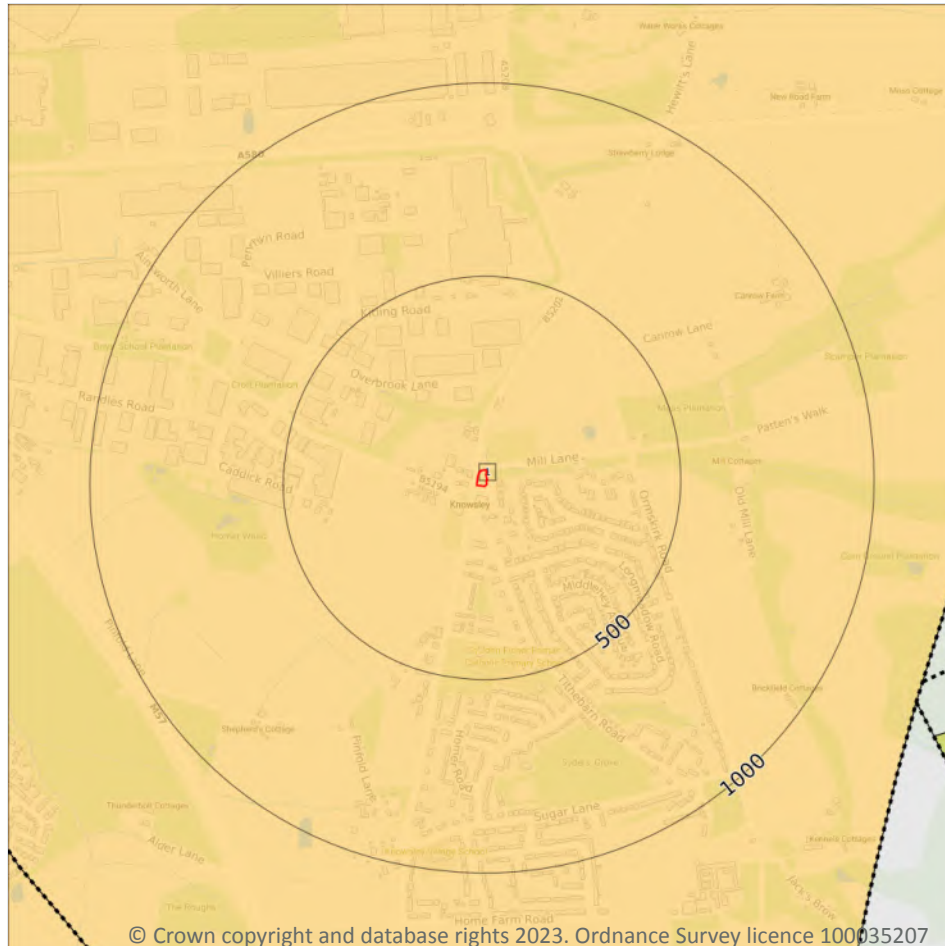
Records within 50m**0**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m

1

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 78**

ID	Location	LEX Code	Description	Rock age
1	On site	CHES-SDST	CHESTER FORMATION - SANDSTONE	OLENEKIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m**1**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

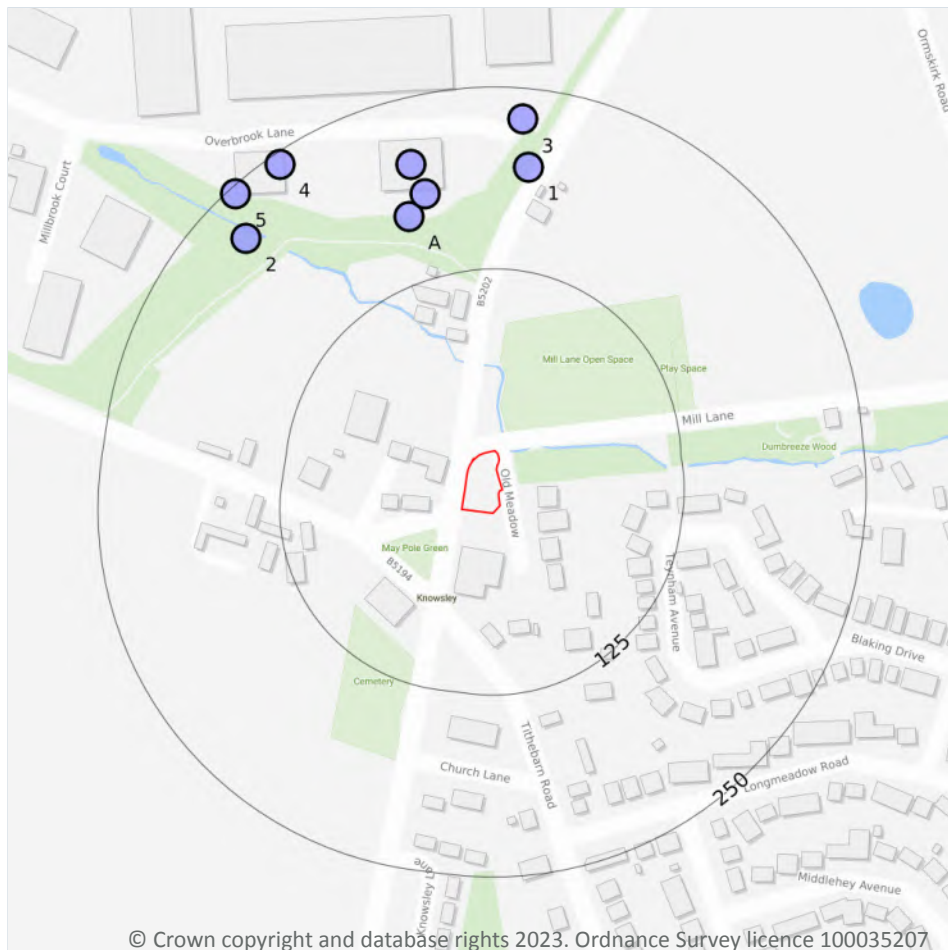
Records within 500m**0**

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m

8

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

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

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	171m N	343429 396184	KNOWSLEY BUSINESS PARK 5A	10.0	N	165564
A	183m N	343440 396200	OVERBROOK LANE KNOWSLEY 2	6.15	N	17561706
1	196m N	343511 396218	KNOWSLEY IND ESTATE 36	6.1	N	165131

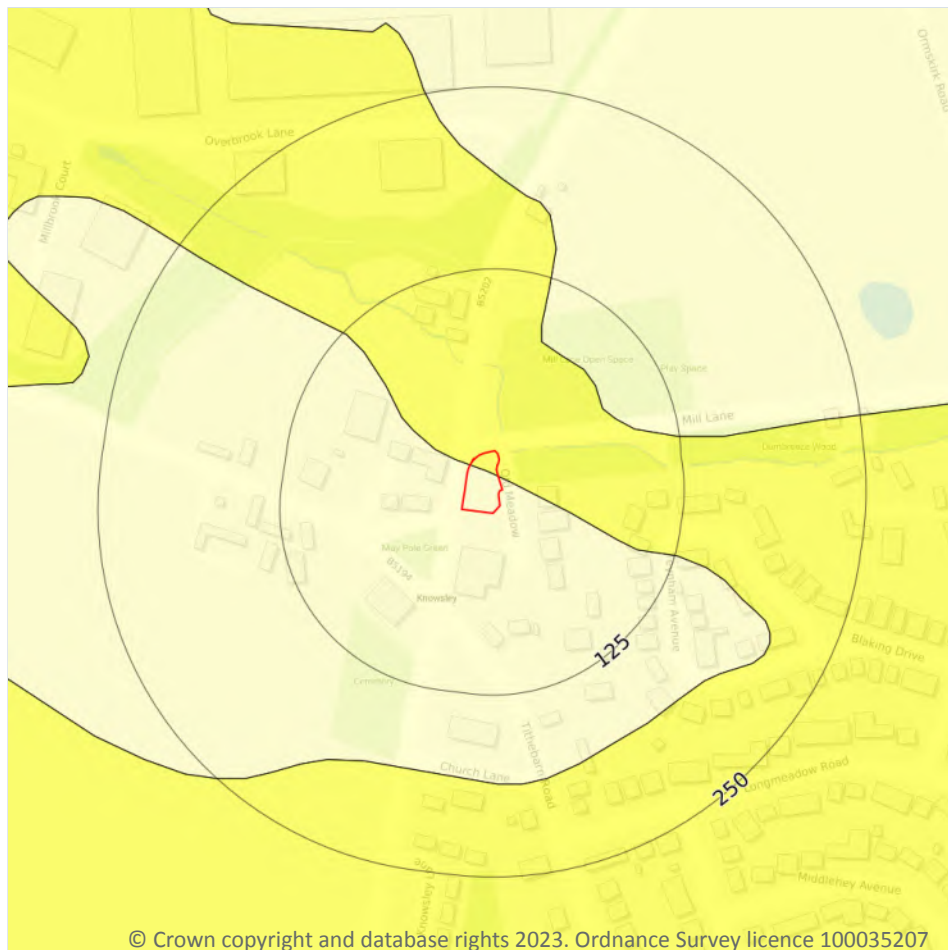


ID	Location	Grid reference	Name	Length	Confidential	Web link
A	205m N	343430 396220	OVERBROOK LANE KNOWSLEY G5	3.0	N	17561821
2	218m NW	343317 396169	KNOWSLEY IND ESTATE 34	6.1	N	165130
3	229m N	343507 396251	KNOWSLEY BUSINESS PARK TP 7	3.8	N	165571
4	242m NW	343340 396220	OVERBROOK LANE KNOWSLEY G4	3.0	N	17561764
5	245m NW	343310 396200	OVERBROOK LANE KNOWSLEY 5	6.15	N	17561755

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



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

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17.1 Shrink swell clays

Records within 50m

2

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

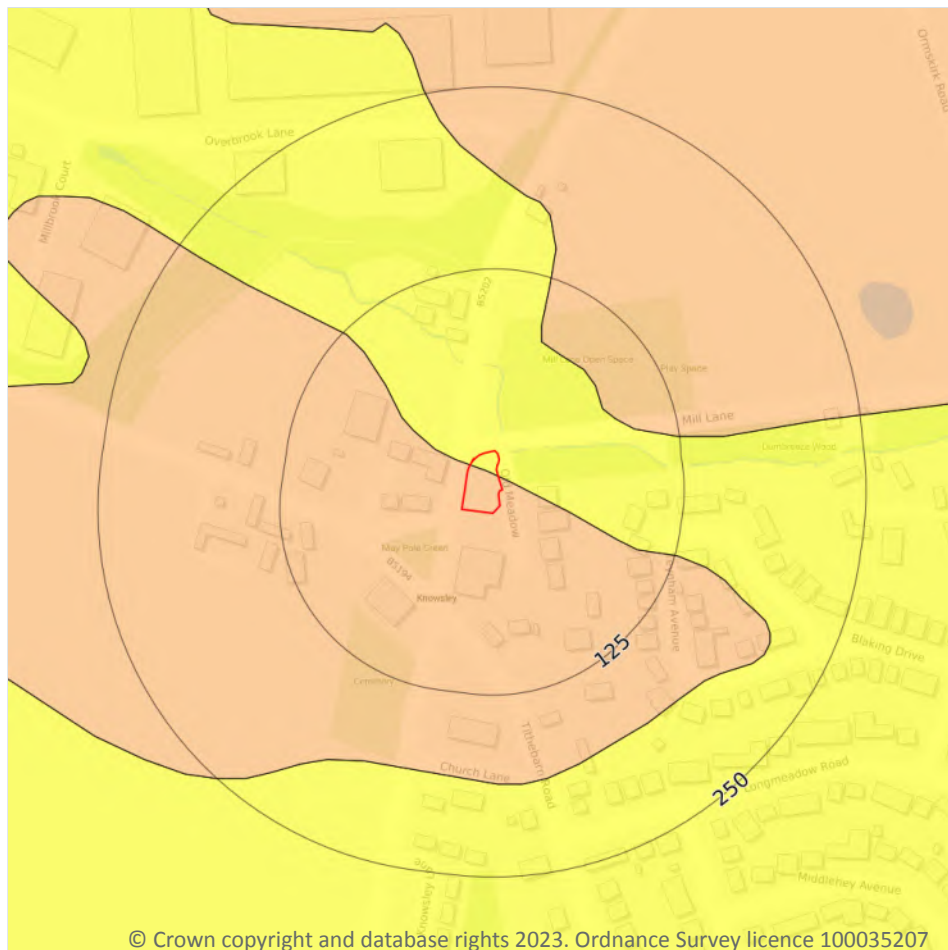
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 82**

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
On site	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



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

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17.2 Running sands

Records within 50m

2

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

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

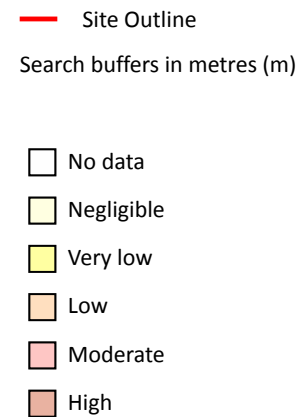
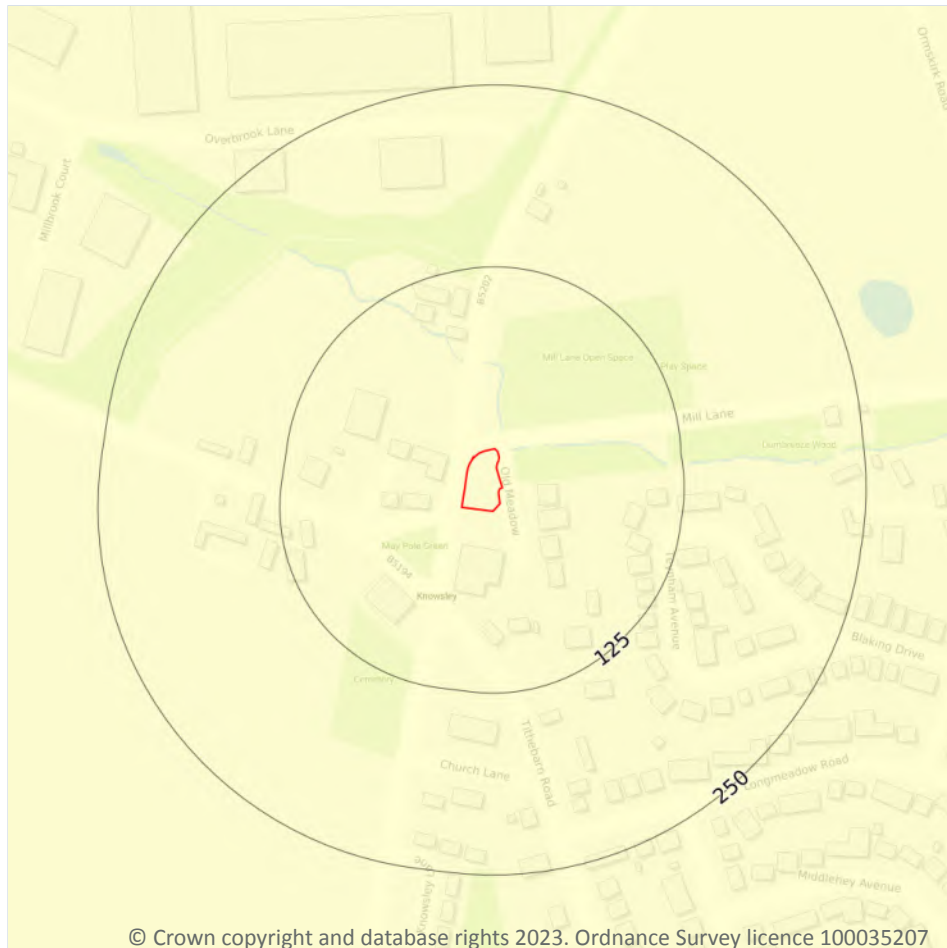
Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



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17.3 Compressible deposits

Records within 50m

1

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

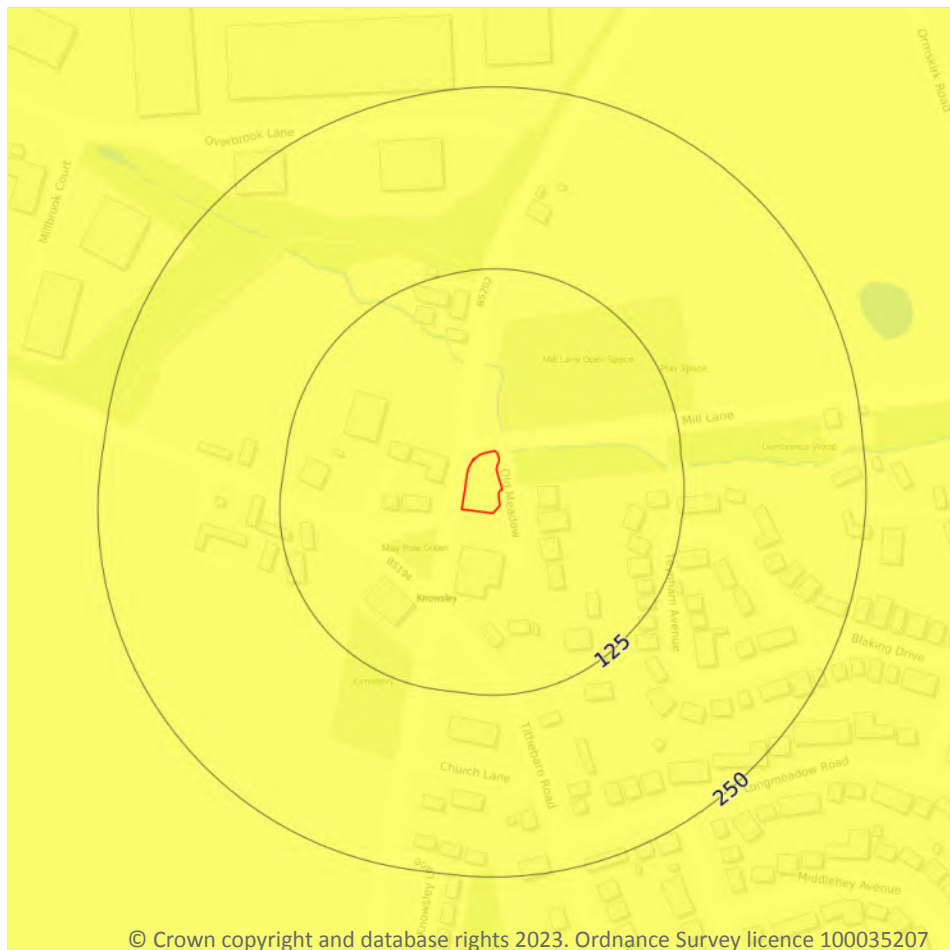
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 85**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



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

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17.4 Collapsible deposits

Records within 50m

1

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

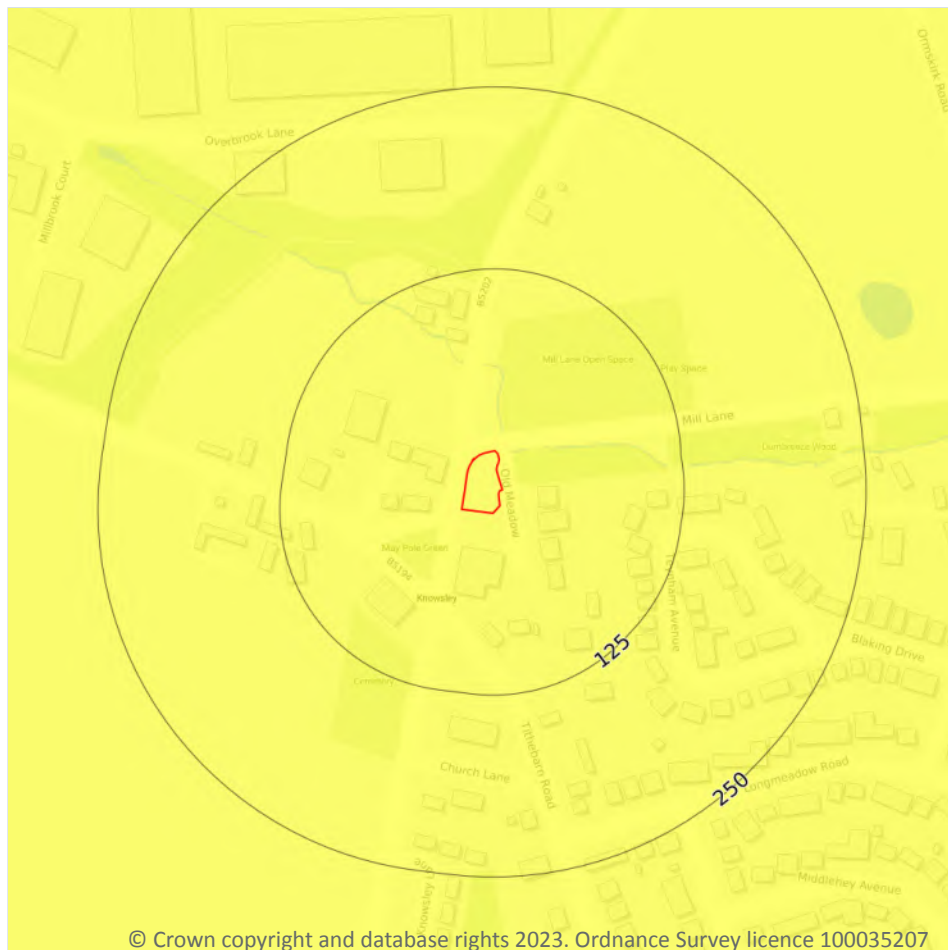
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 86**

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



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

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17.5 Landslides

Records within 50m

1

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

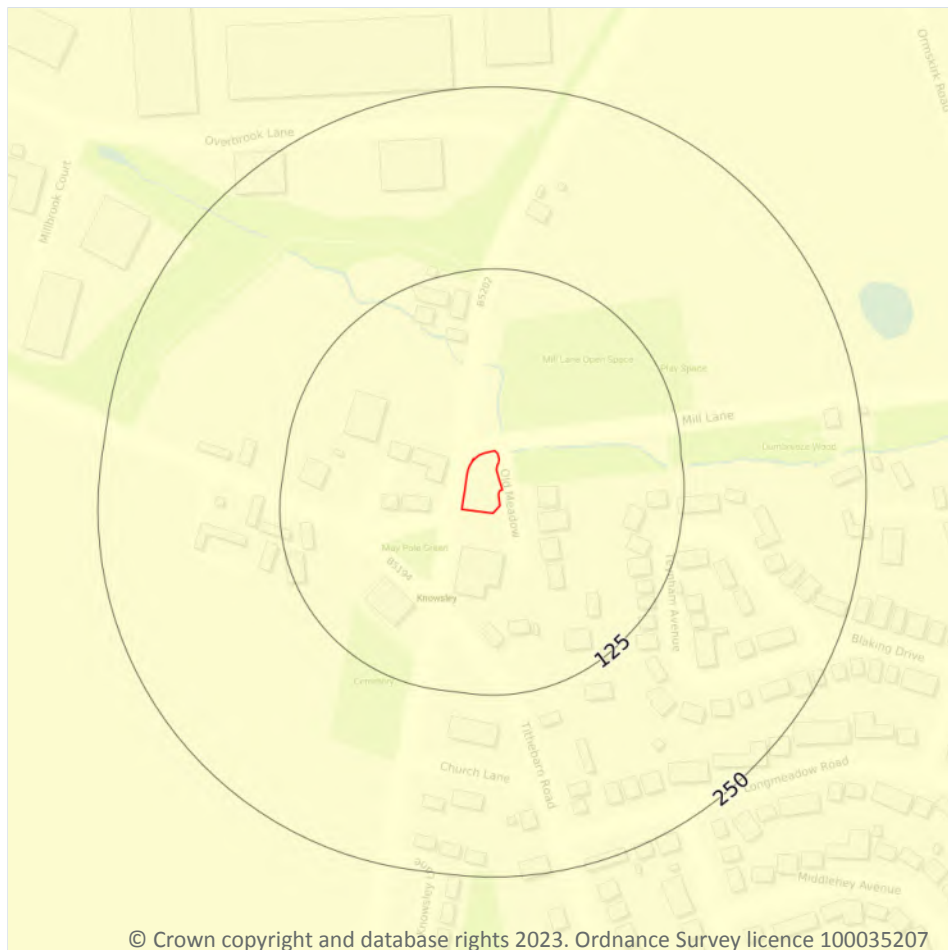
Features are displayed on the Natural ground subsidence - Landslides map on **page 87**

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



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

17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

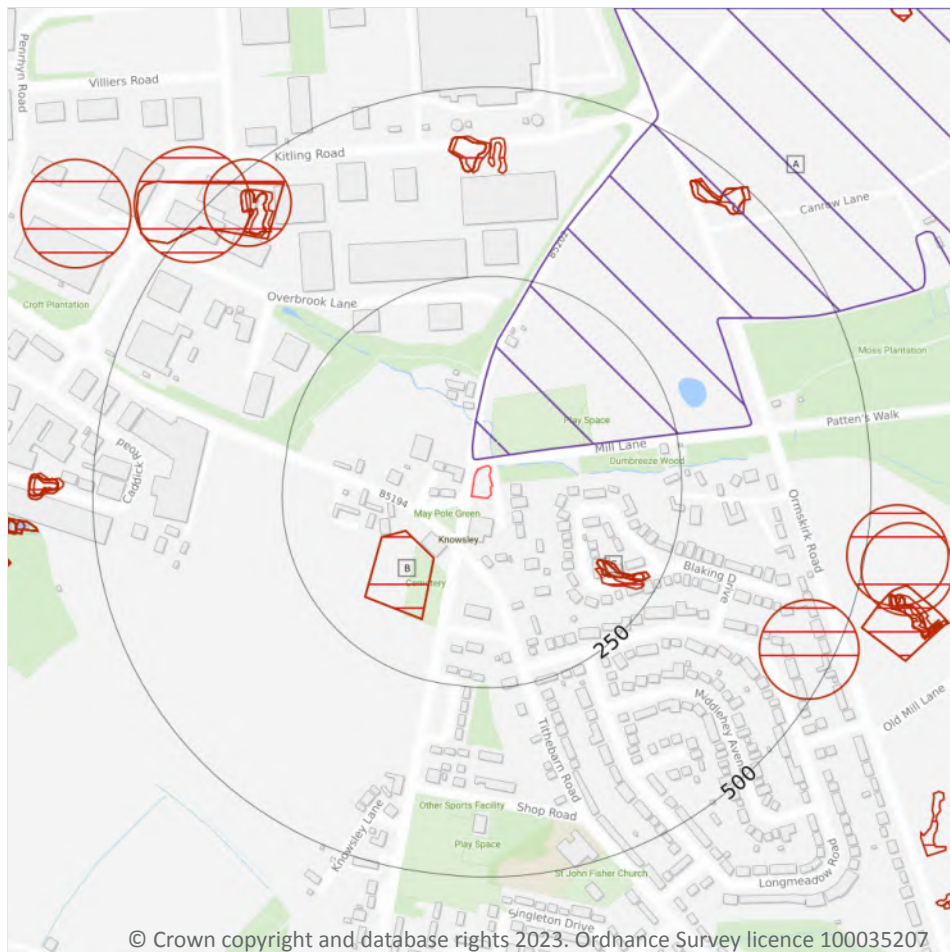
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 88**

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

This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

9

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 89**

ID	Location	Land Use	Year of mapping	Mapping scale
B	93m SW	Grave Yard	1976	1:10000
B	93m SW	Grave Yard	1988	1:10000
C	166m SE	Ponds	1938	1:10560
C	166m SE	Ponds	1892	1:10560
C	166m SE	Ponds	1938	1:10560
C	166m SE	Ponds	1907	1:10560
C	170m SE	Ponds	1925	1:10560
C	170m SE	Ponds	1966	1:10560
C	170m SE	Ponds	1955	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

0

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

This data is sourced from Ordnance Survey/Groundsure.



18.5 Historical Mineral Planning Areas

Records within 500m

1

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

Features are displayed on the Mining, ground workings and natural cavities map on **page 89**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
A	10m N	Rainford Road	Sand	Surface mineral working	Valid	11/64

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m

0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site

0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.



18.9 Coal mining

Records on site	0
-----------------	---

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0
-----------------	---

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.13 Clay mining

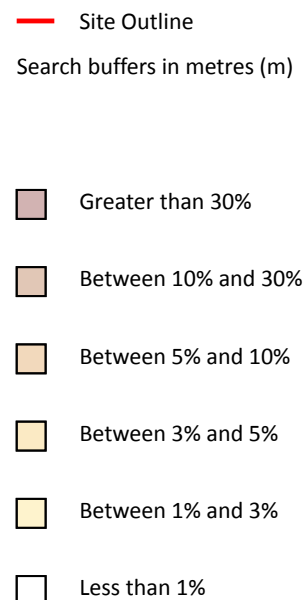
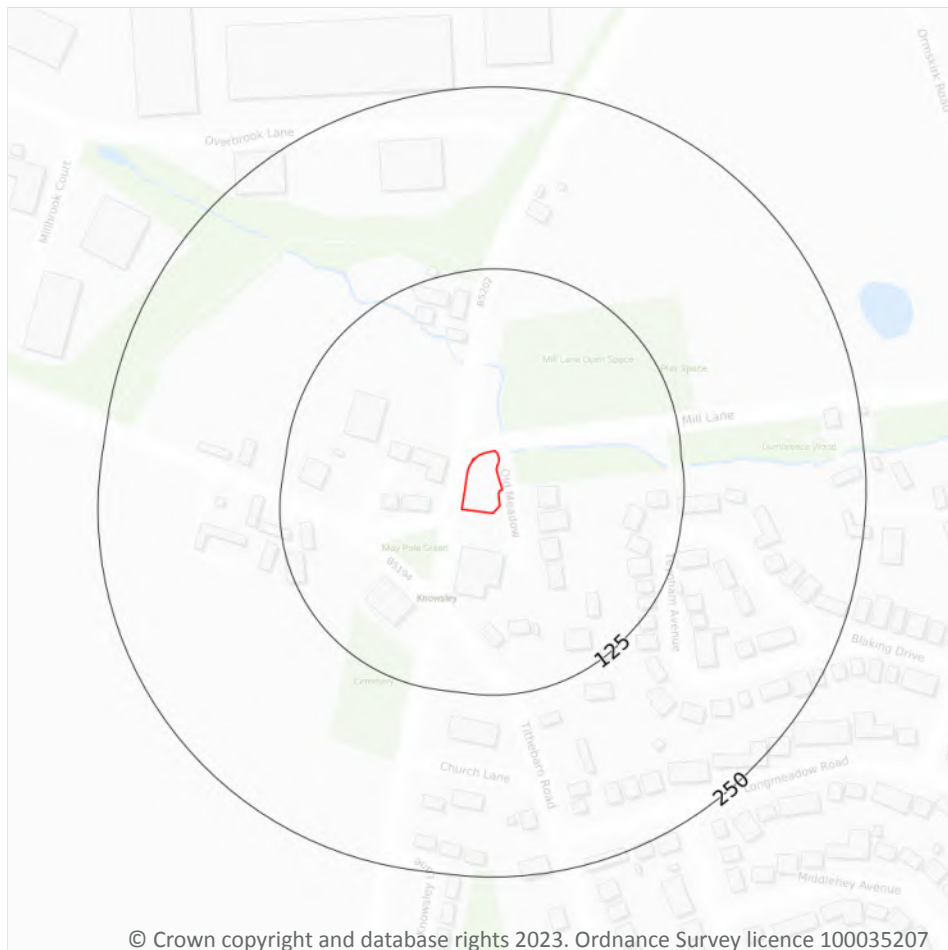
Records on site	0
-----------------	---

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).



19 Radon



19.1 Radon

Records on site

1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 93**

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



This data is sourced from the British Geological Survey and UK Health Security Agency.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

10

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 mg/kg
6m NE	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg
7m E	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 mg/kg
8m E	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 mg/kg
8m E	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 mg/kg
9m NE	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg
28m E	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg
28m E	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.



20.2 BGS Estimated Urban Soil Chemistry

Records within 50m**0**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m**0**

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m**0**

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m**0**

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m**0**

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m**0**

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

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m**0**

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.



This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m

0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m

0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m

0

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m

0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m

0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.



Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference>.

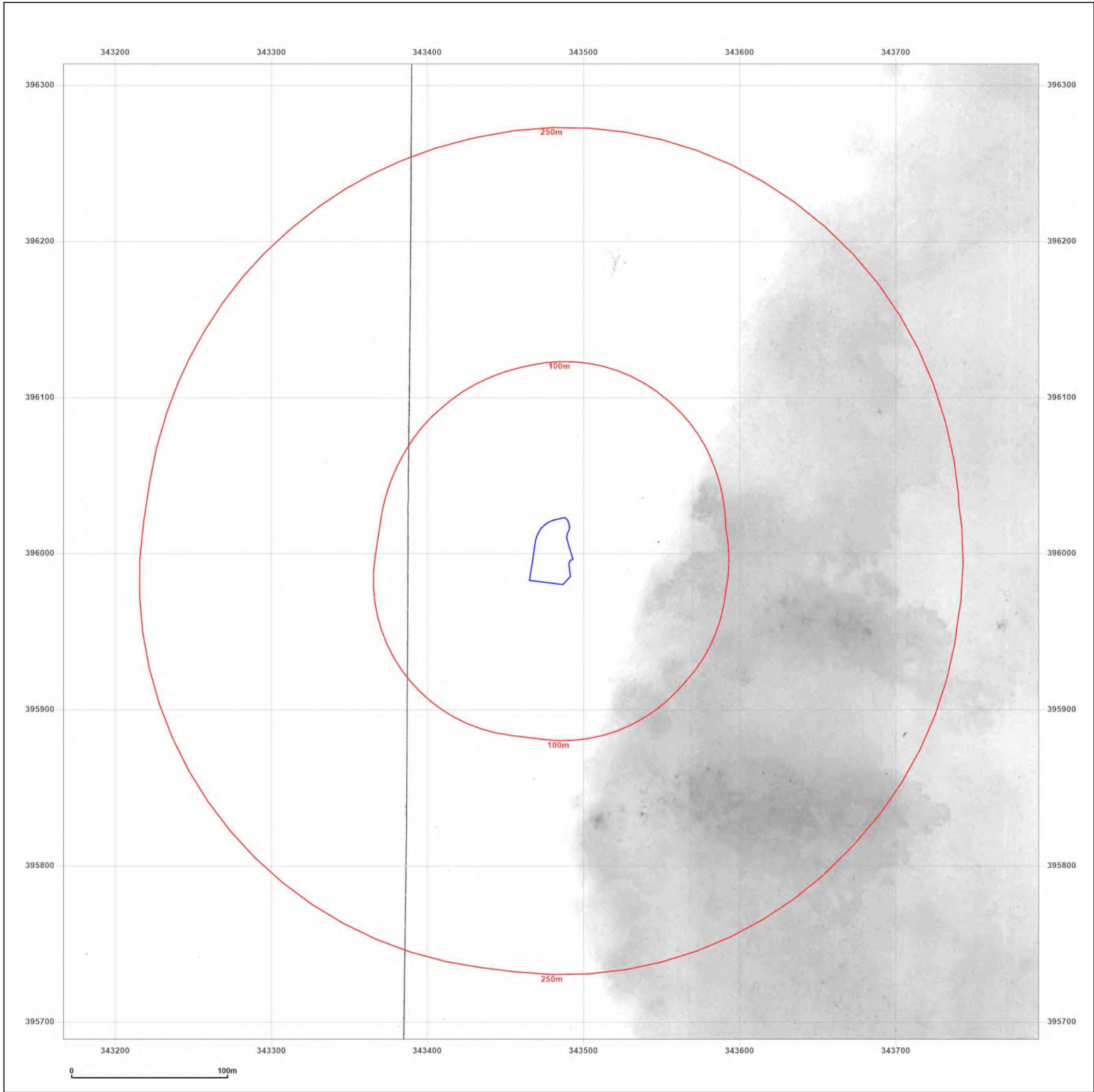
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APPENDIX III **Historical Mapping**



Site Details:

MILLBROOK MANOR,
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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

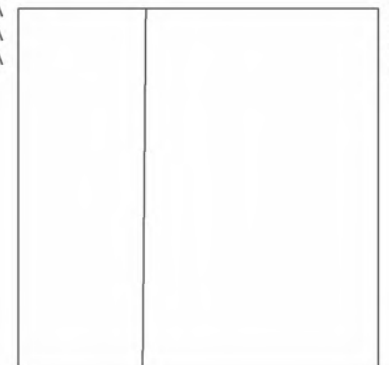
Map date: 1867

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1867
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Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1893

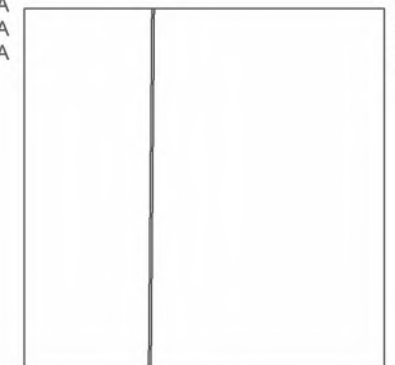
Scale: 1:2,500

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Revised 1893
Edition N/A
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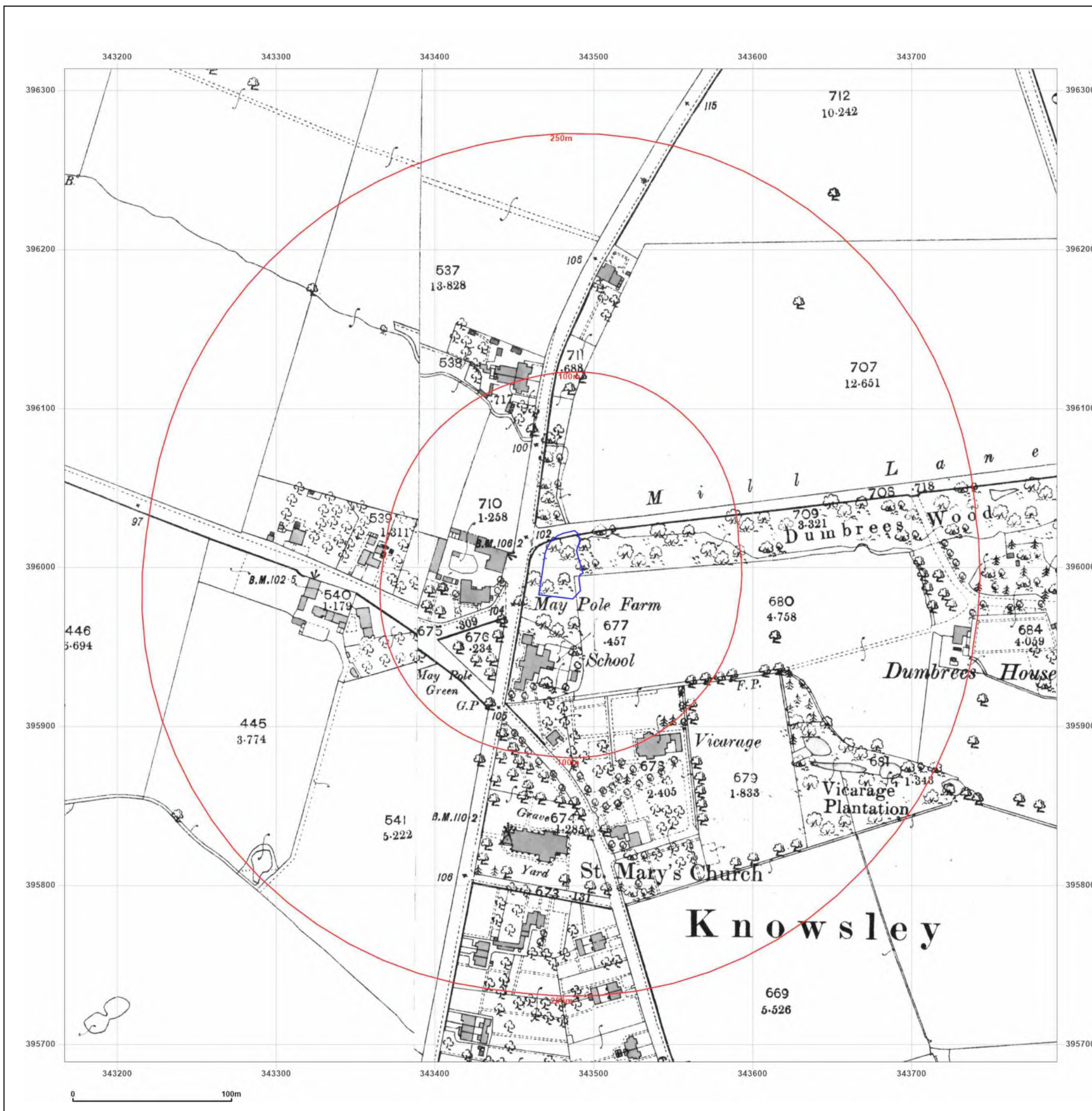


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Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1908

Scale: 1:2,500

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Revised 1908
Edition N/A
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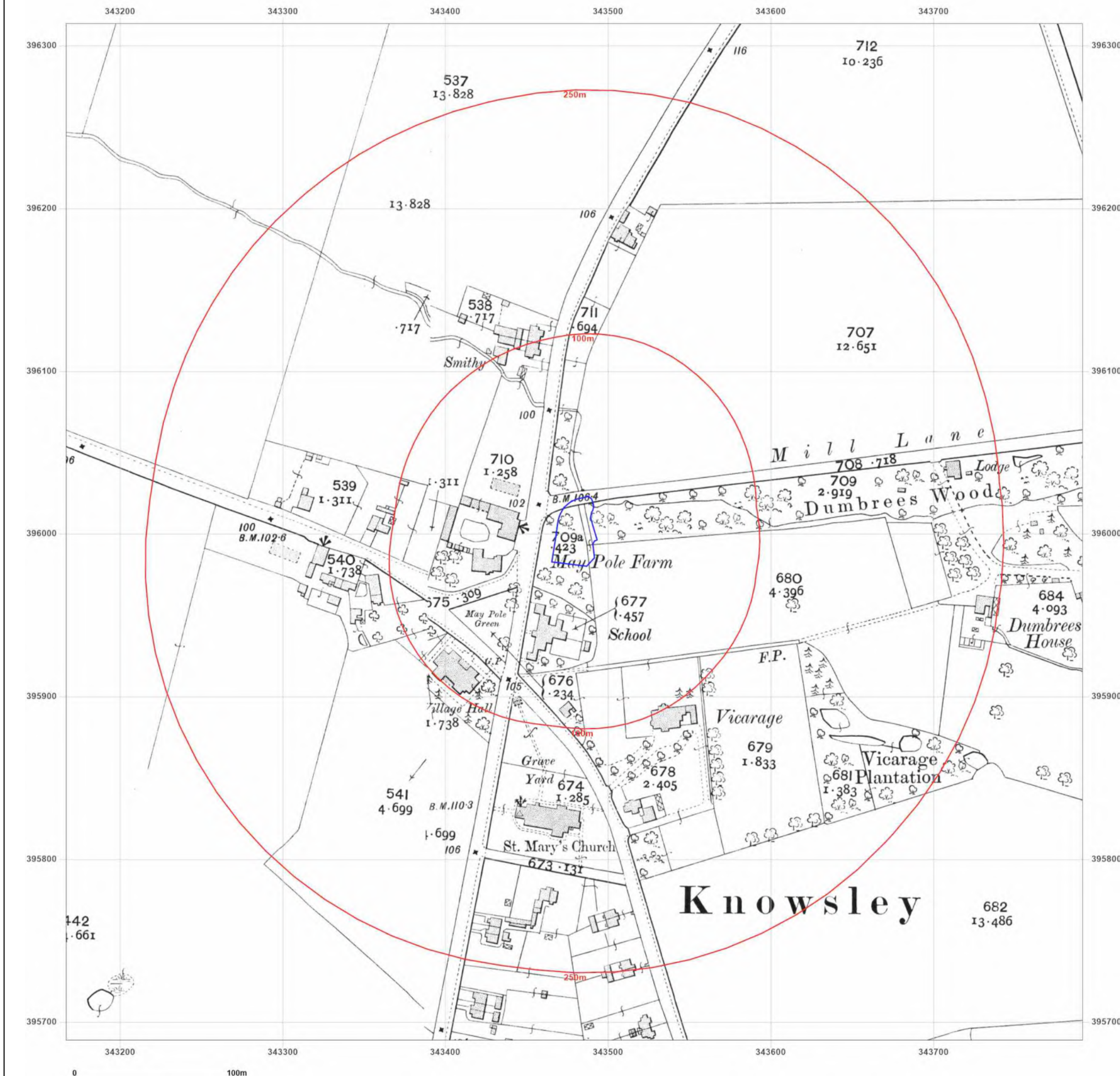


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Report Ref: GS-3XO-1DB-OPR-456
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Map Name: County Series

Map date: 1927

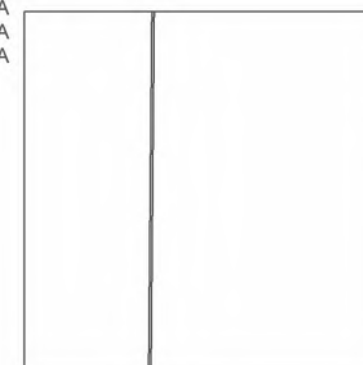
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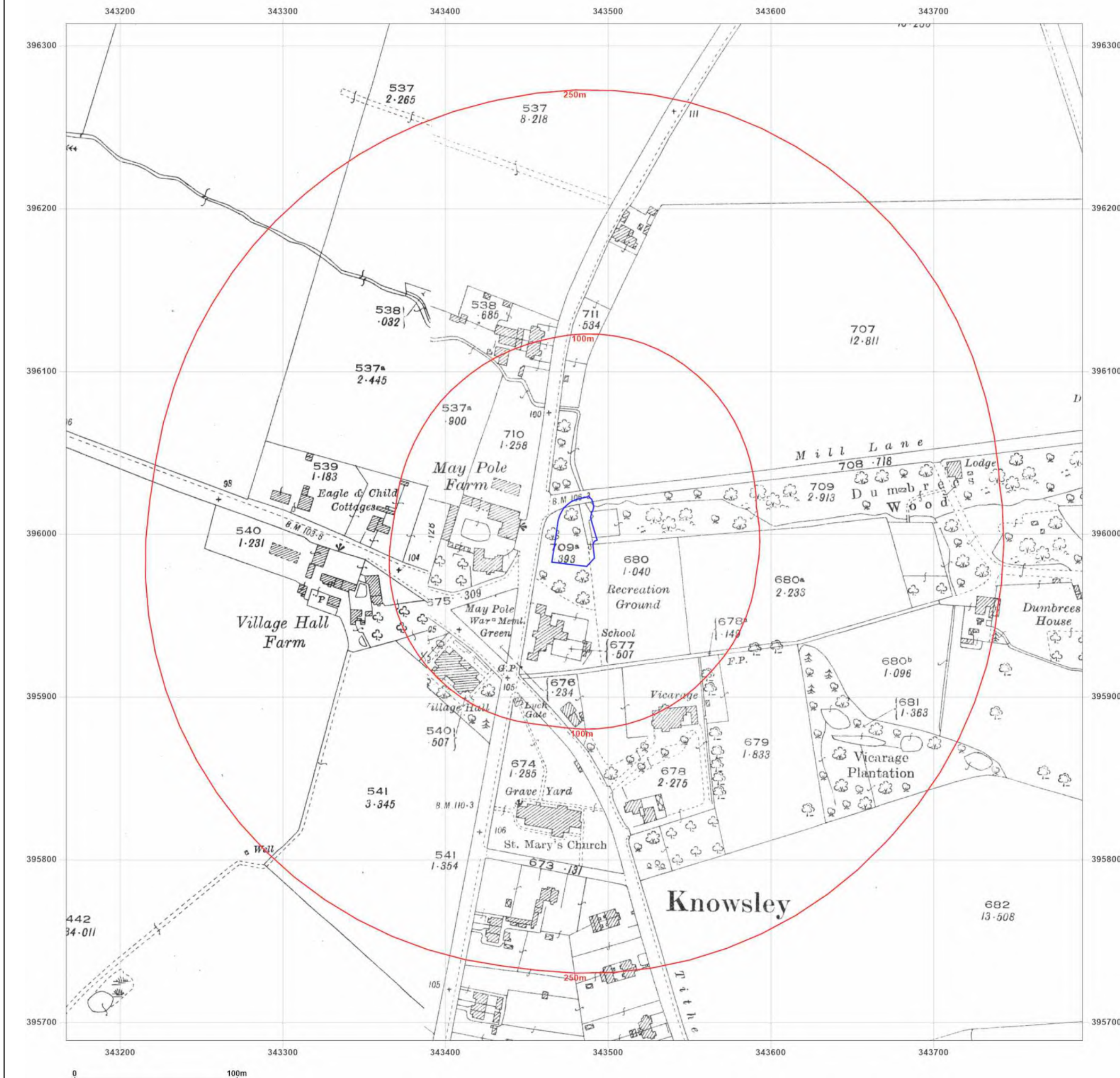


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Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1937

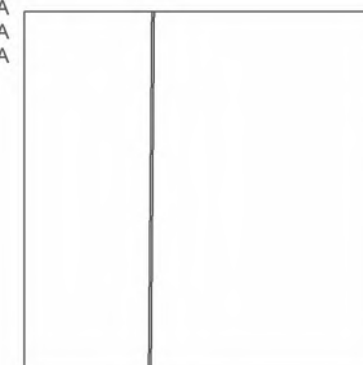
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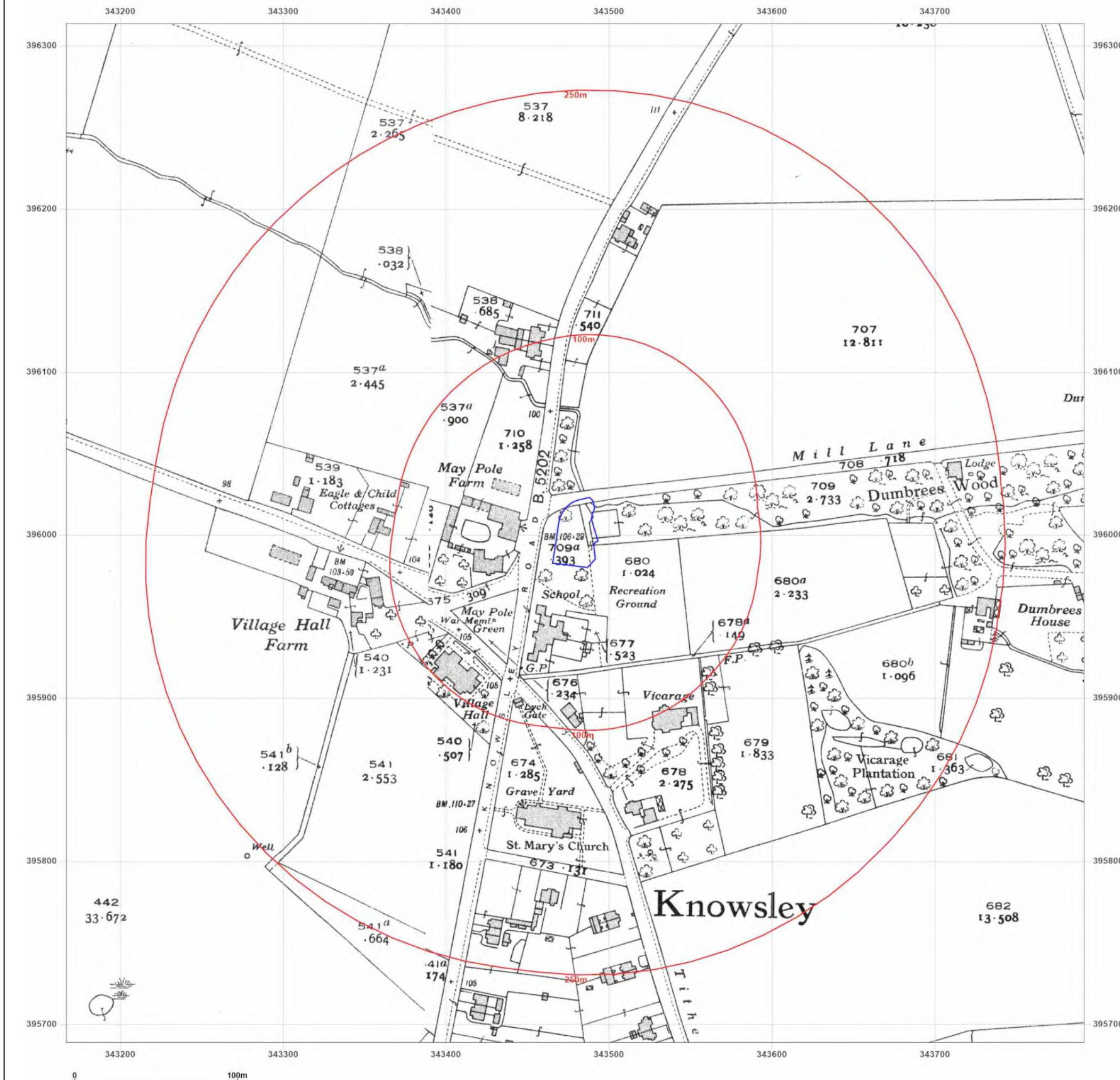


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Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 1959

Scale: 1:1,250

Printed at: 1:2,000



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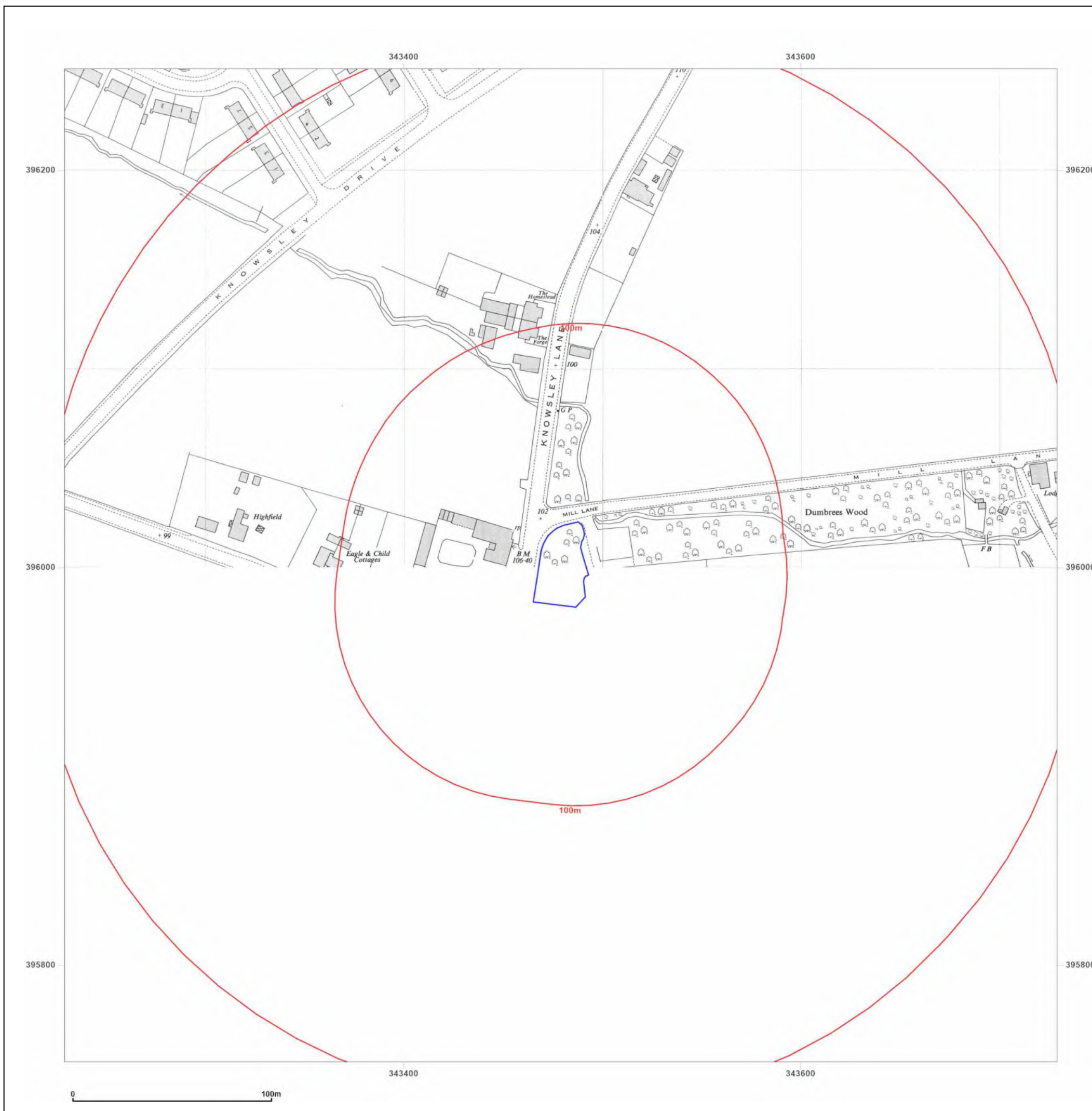


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Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 1960

Scale: 1:2,500

Printed at: 1:2,500



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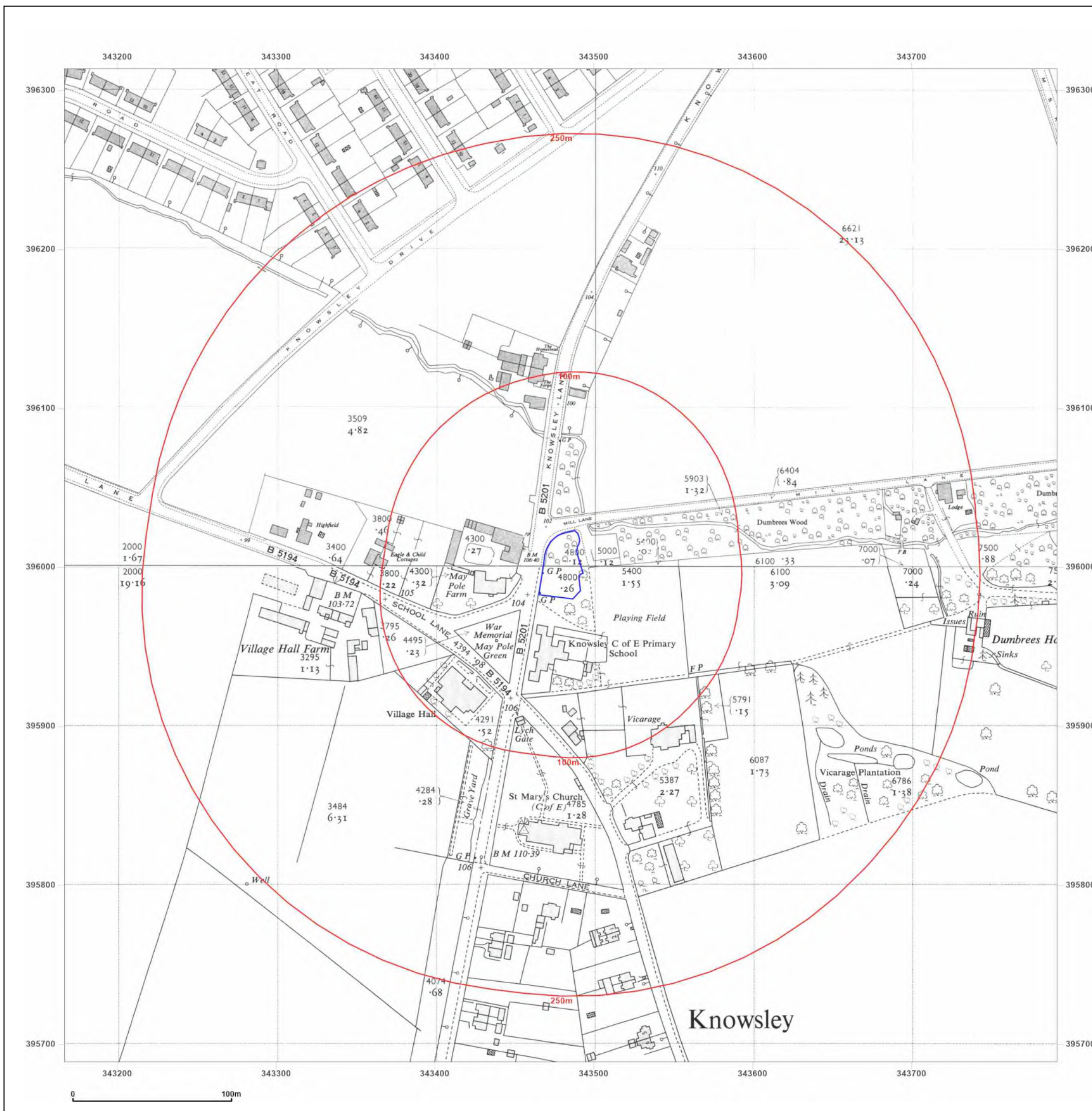


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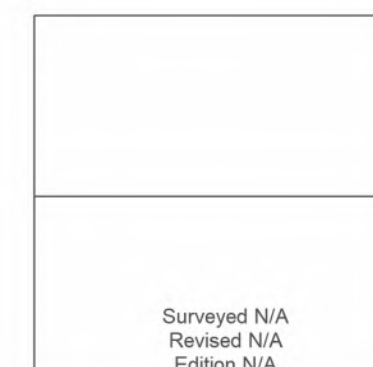
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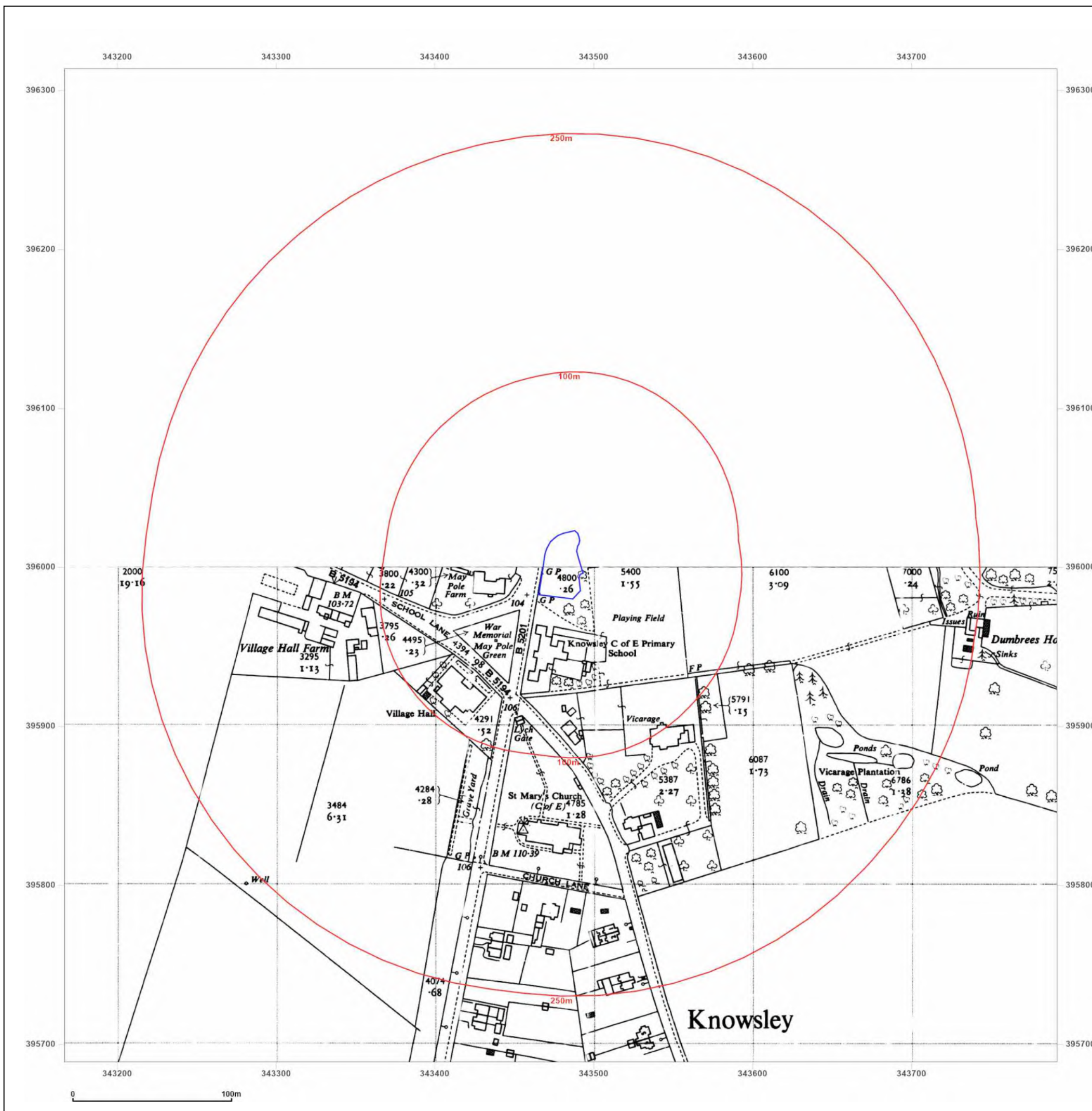


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Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 1972-1977

Scale: 1:1,250

Printed at: 1:2,000



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Edition N/A
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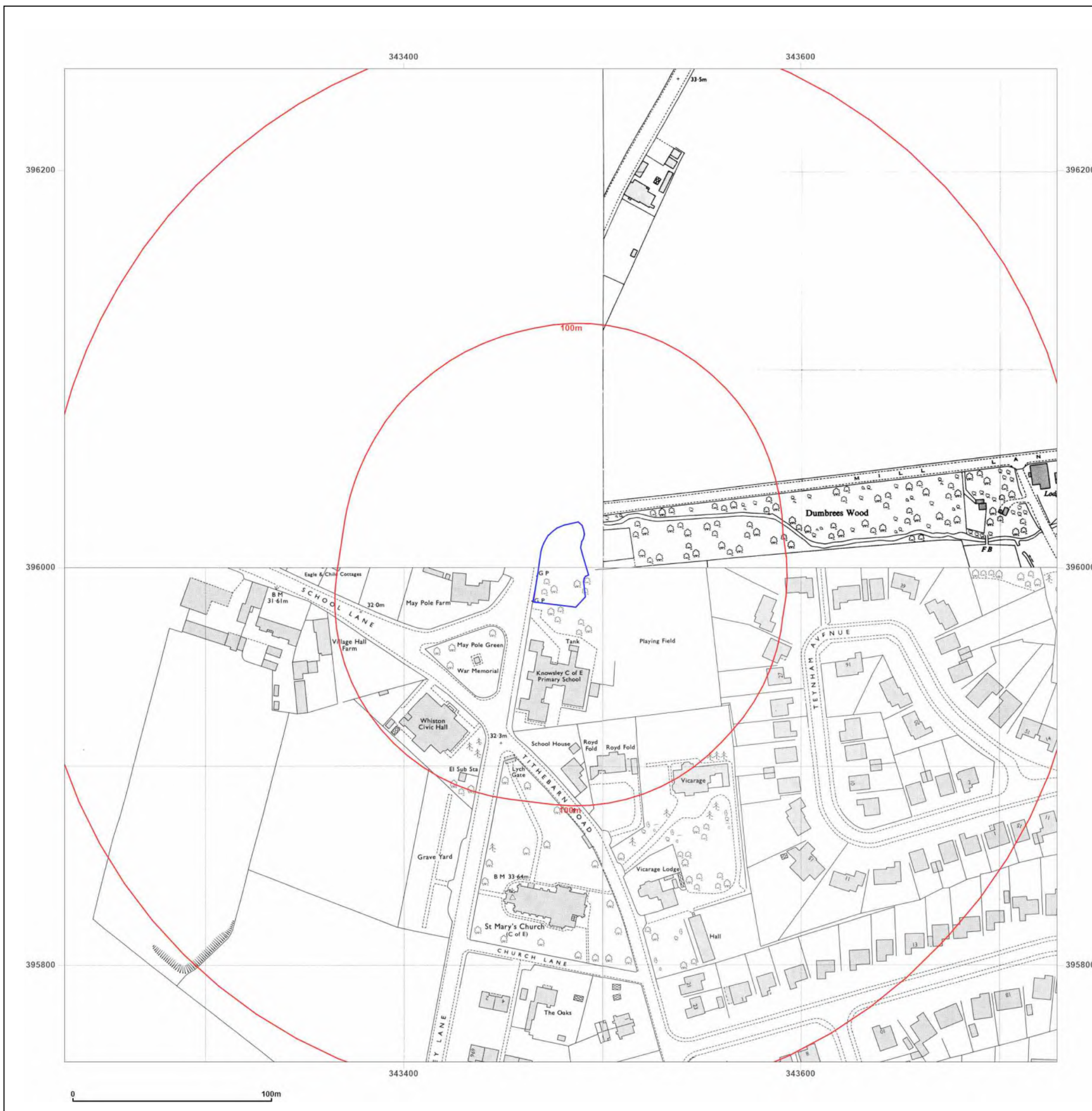


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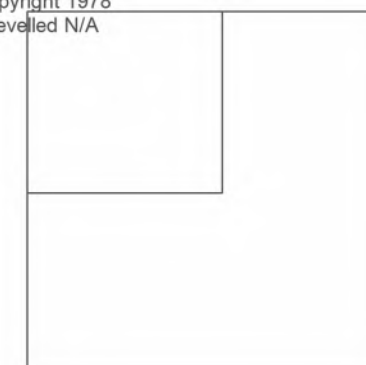
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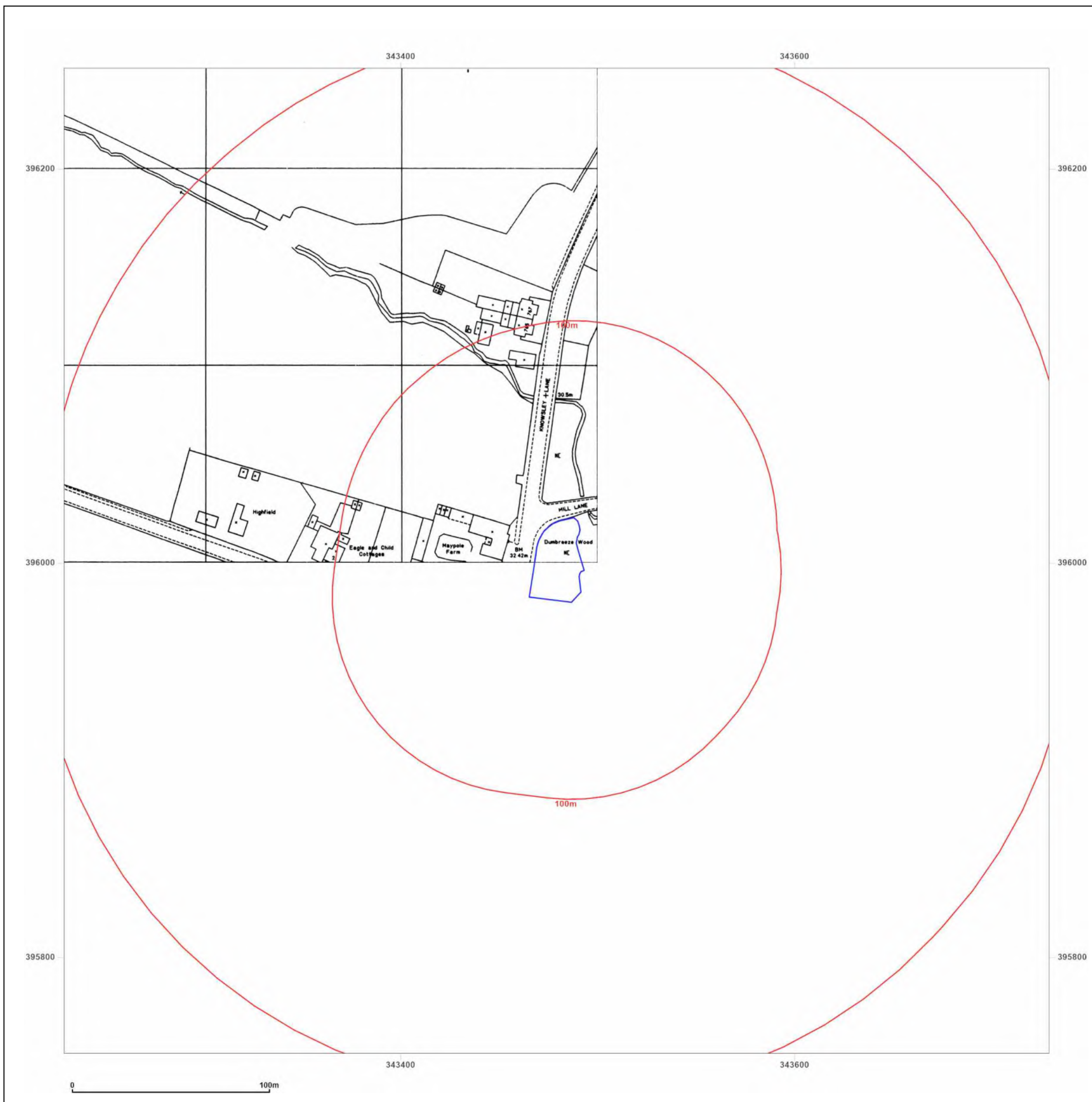


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Site Details:

MILLBROOK MANOR,
KNOWSLEY LANE, KNOWSLEY,
L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 1991-1993

Scale: 1:1,250

Printed at: 1:2,000



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

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

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

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

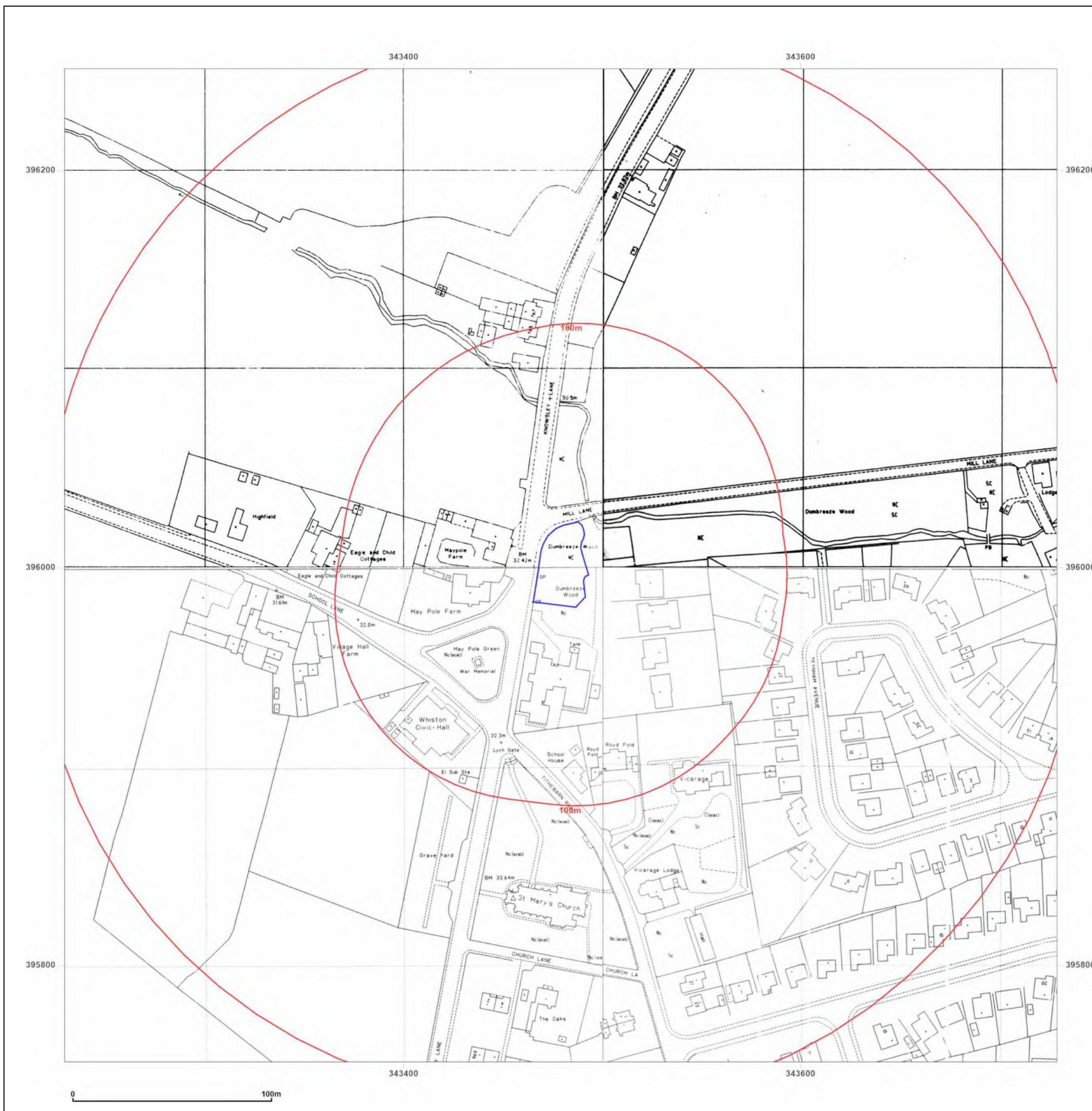


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Site Details:

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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

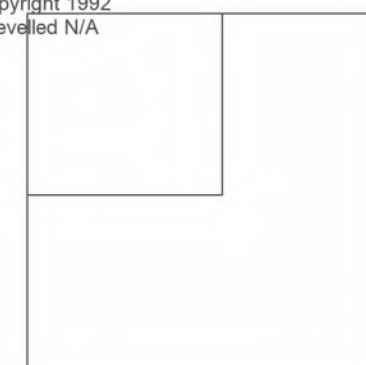
Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1995
Revised 1995
Edition N/A
Copyright 1992
Levelled N/A

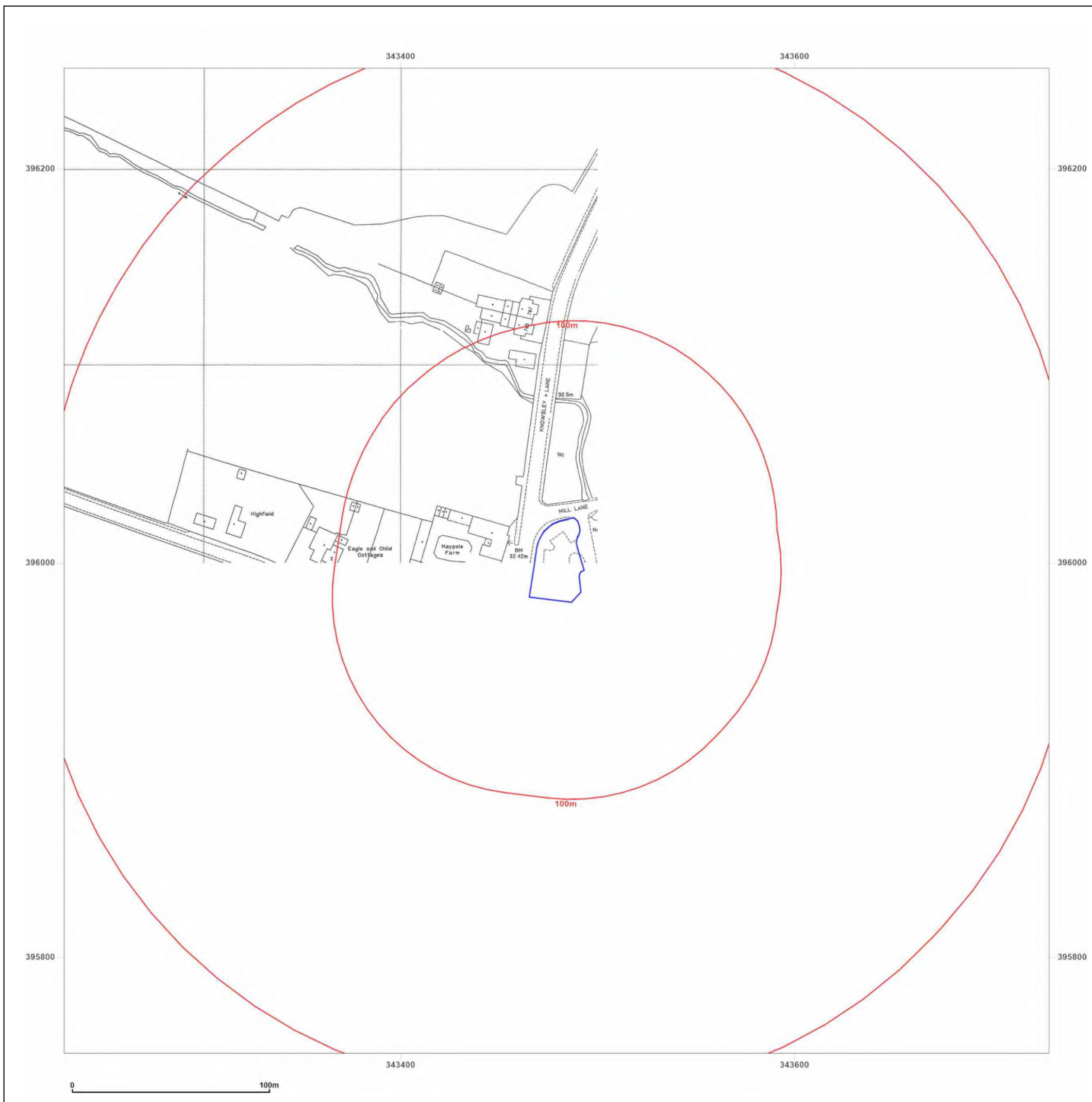


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Site Details:

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L34 0JN

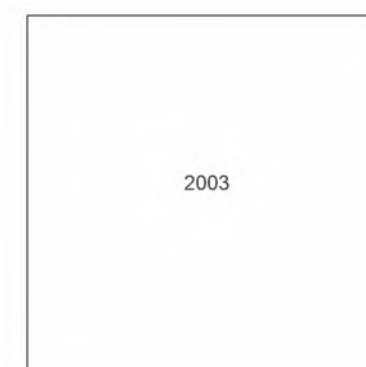
Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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Site Details:

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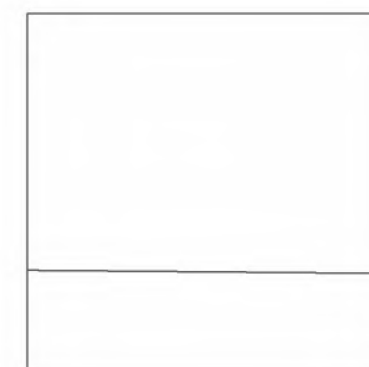
Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1850

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A

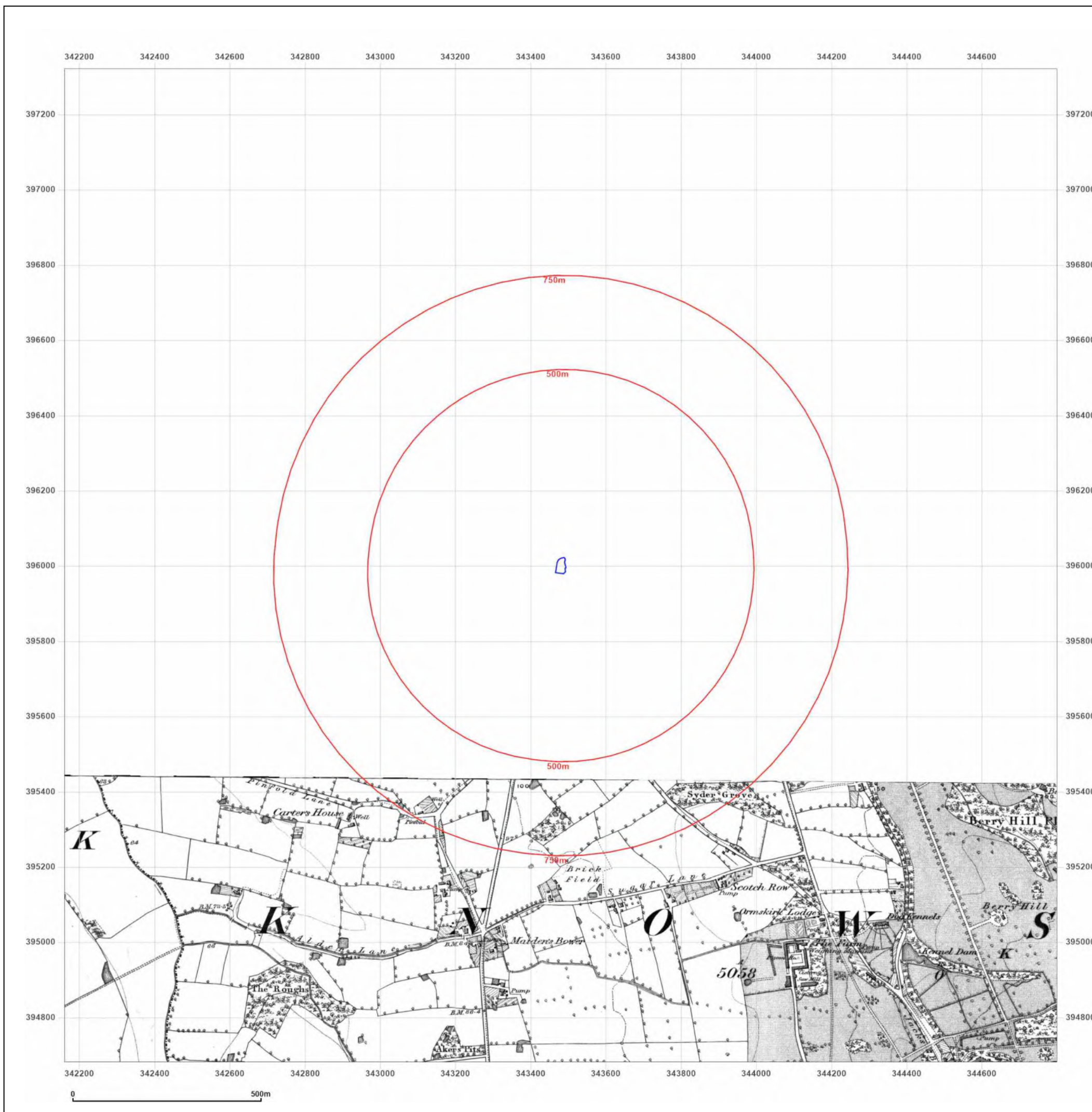


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Site Details:

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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1891-1892

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

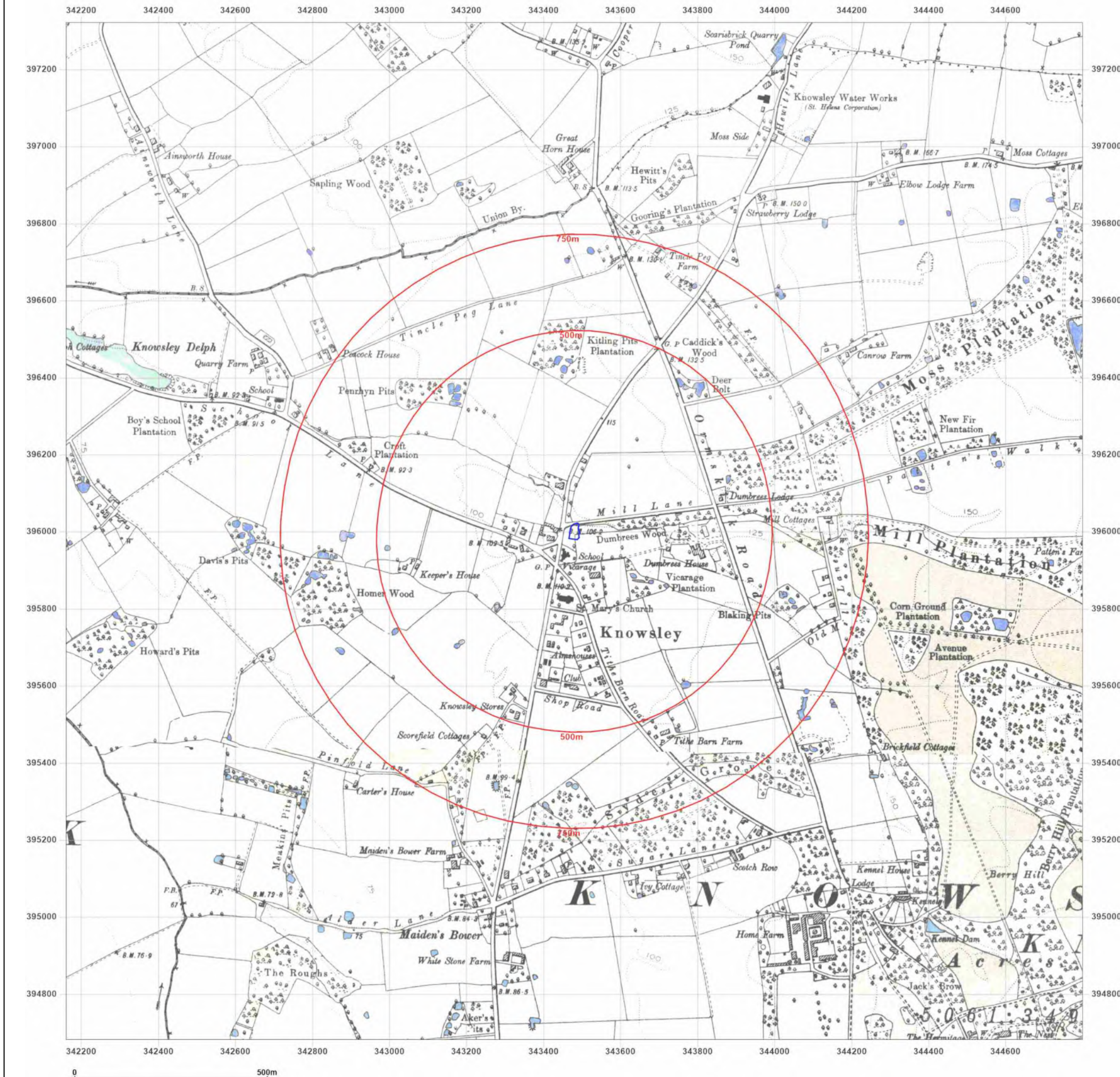


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Site Details:

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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1906-1907

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1892
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

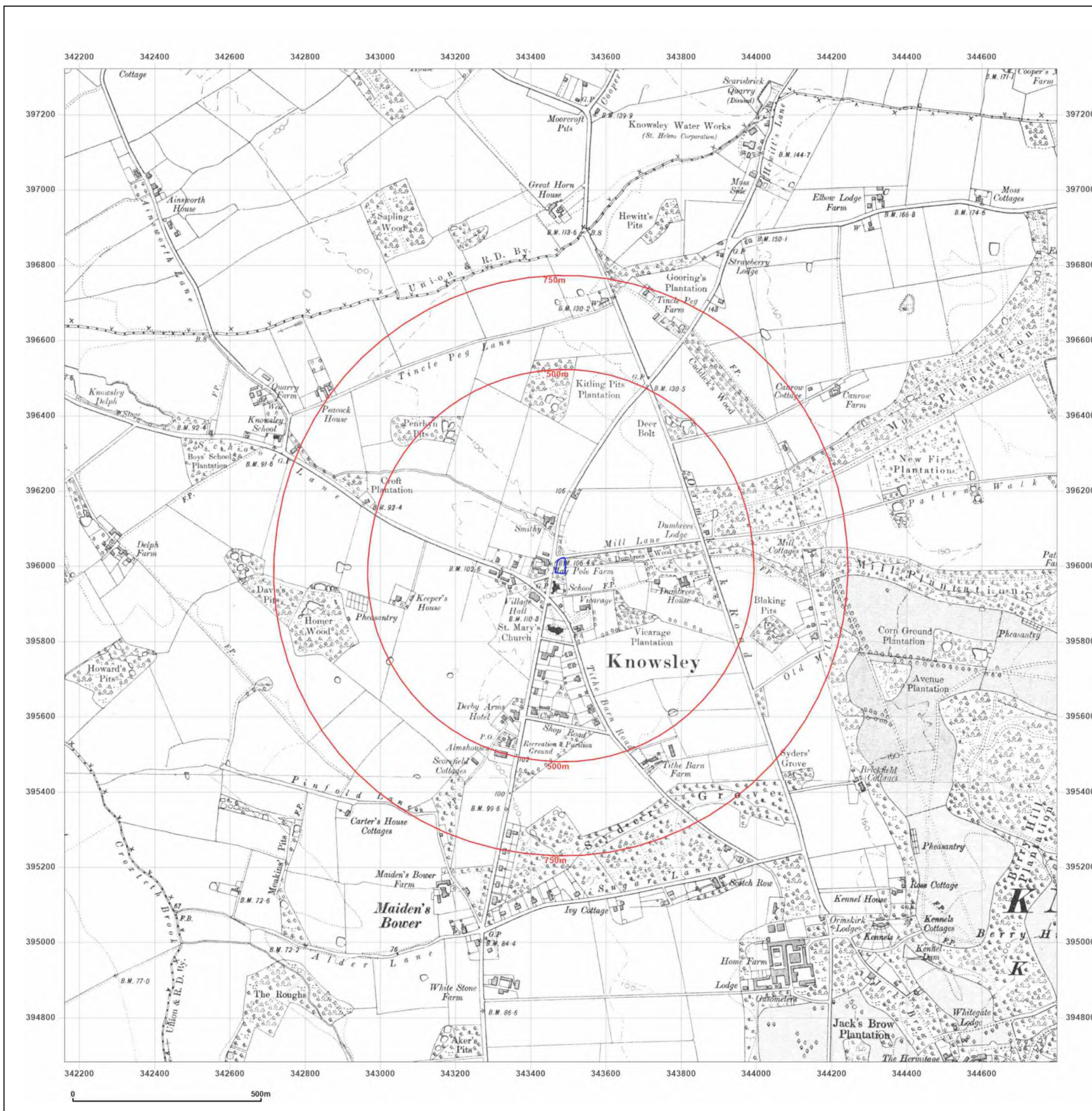


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Site Details:

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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1925

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A

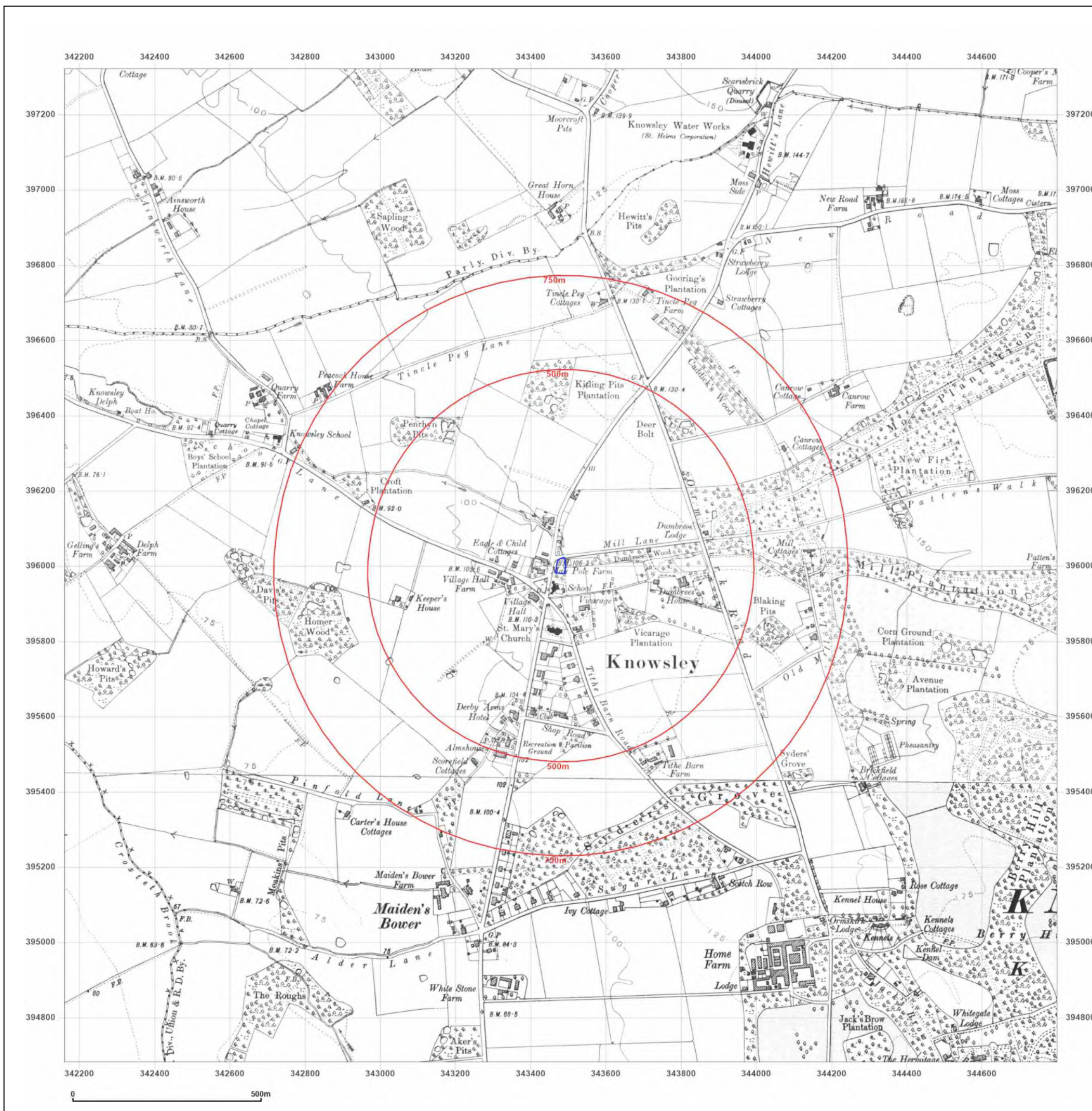


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Site Details:

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KNOWSLEY LANE, KNOWSLEY,
L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1925

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A

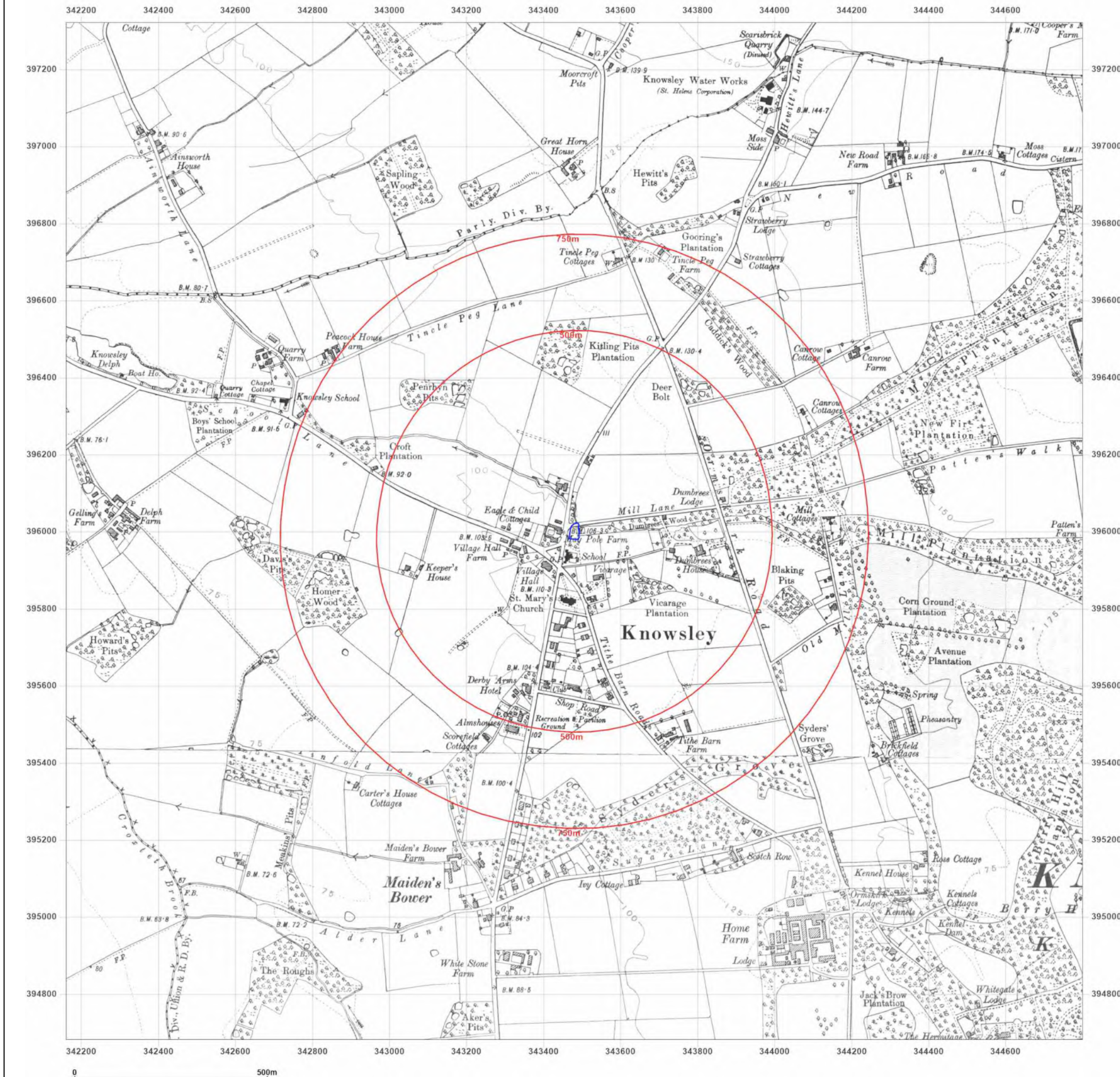


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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1925

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A

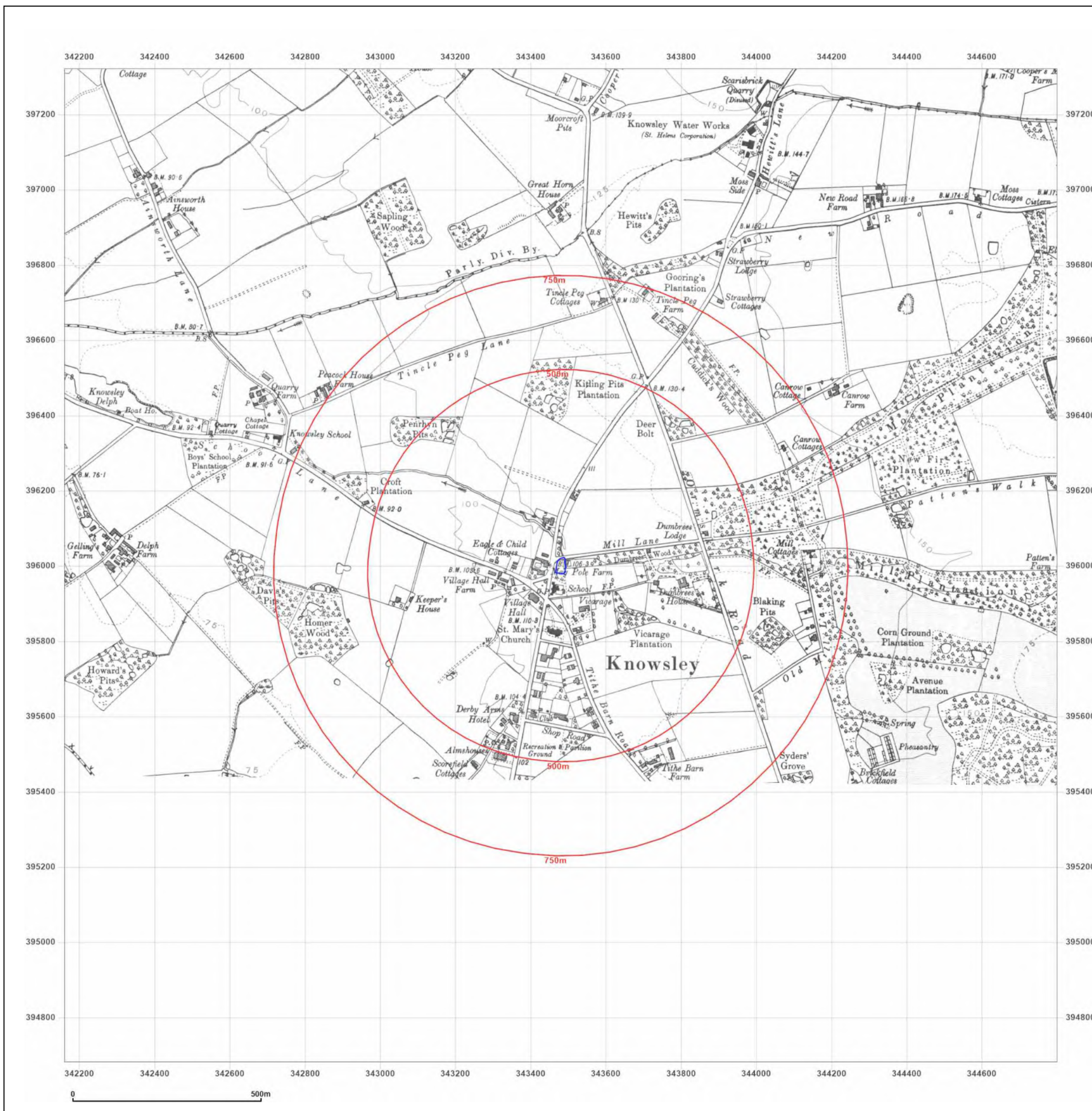


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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised 1938
Edition N/A
Copyright N/A
Levelled 1926

Surveyed 1849
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

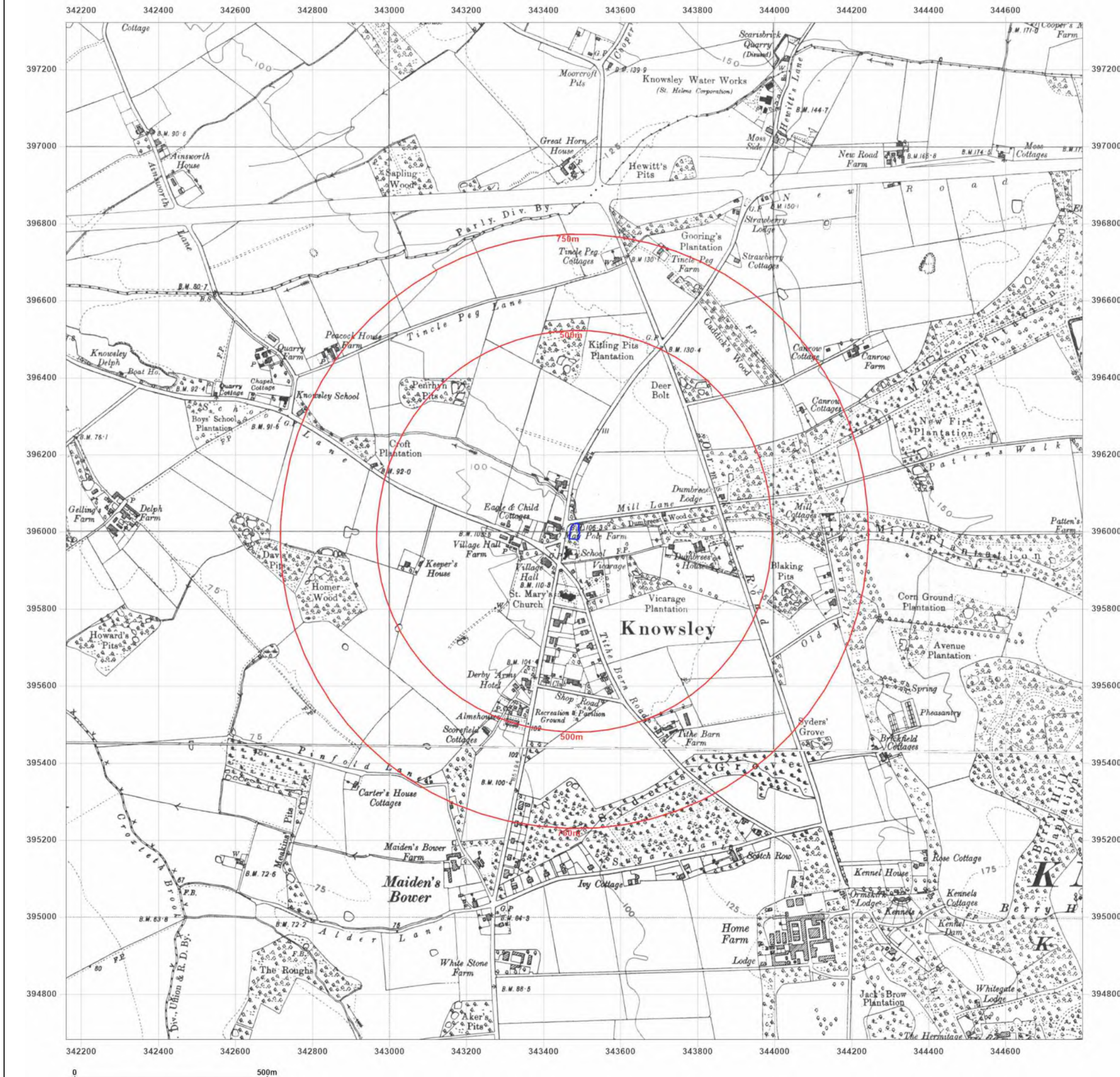


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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

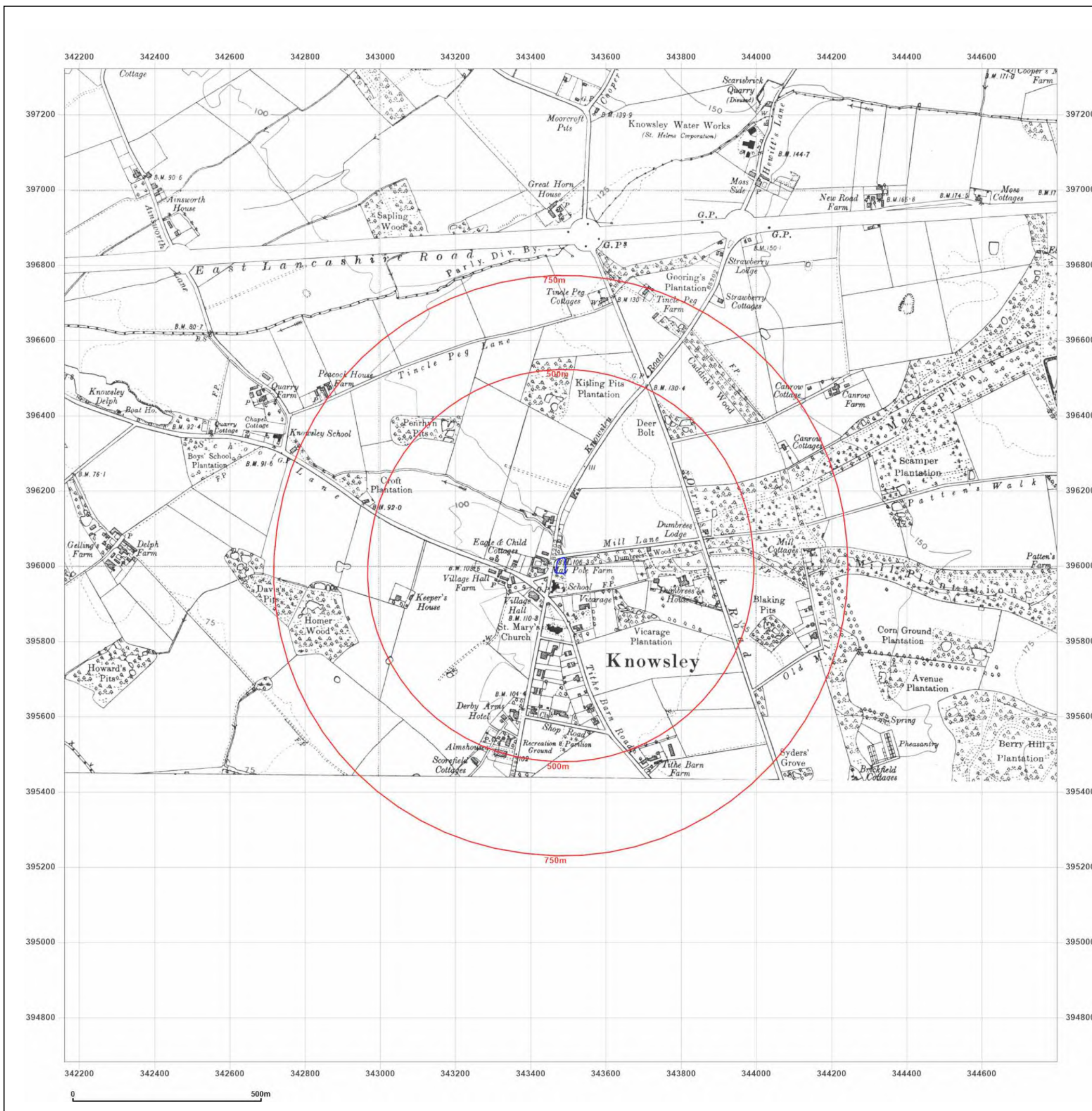


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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: Provisional

Map date: 1956

Scale: 1:10,560

Printed at: 1:10,560



Surveyed N/A
Revised 1955
Edition N/A
Copyright 1956
Levelled N/A

Surveyed 1954
Revised 1955
Edition N/A
Copyright 1956
Levelled N/A

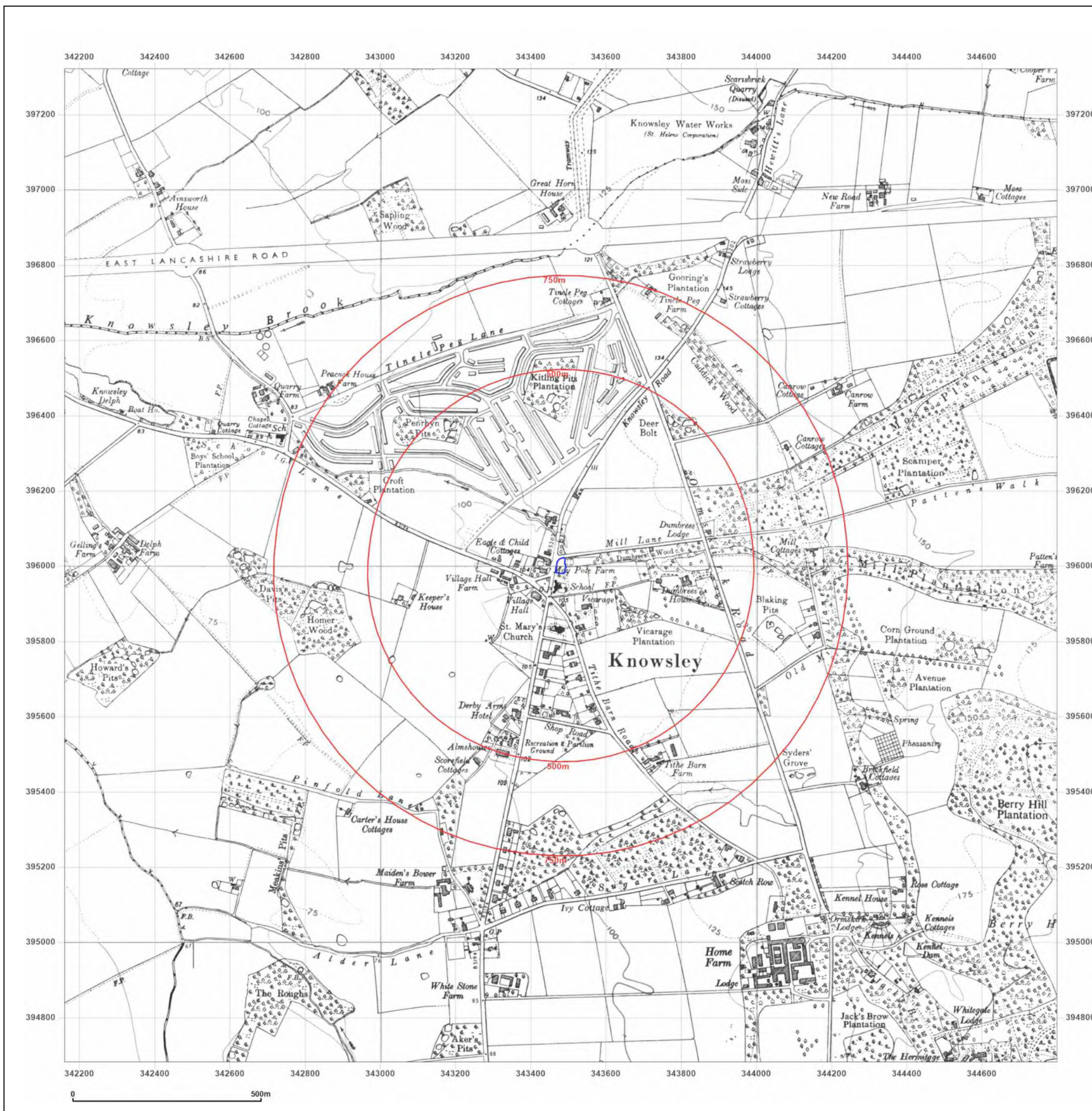


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Site Details:

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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: Provisional

Map date: 1965-1966

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1966
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

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

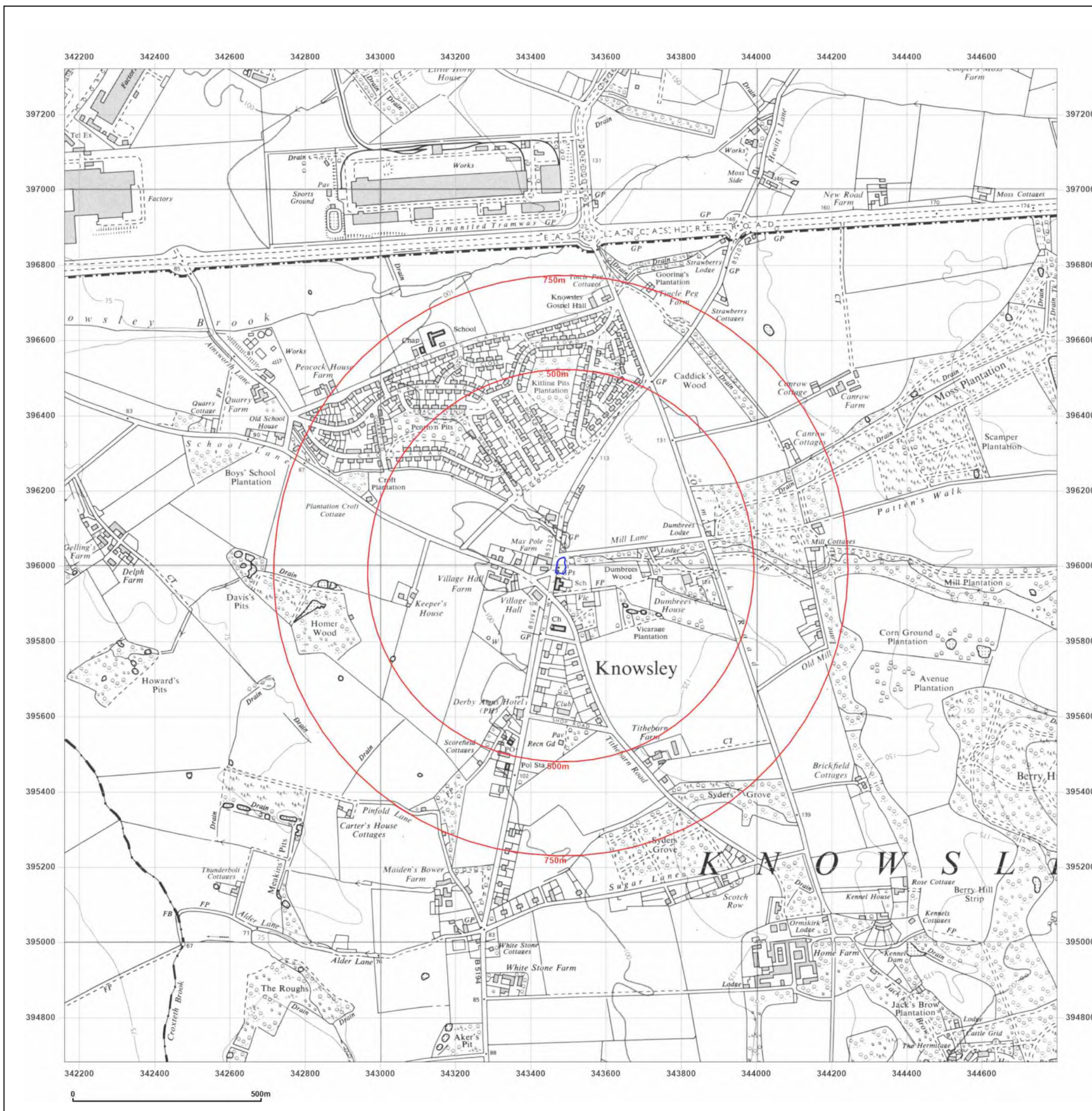


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Site Details:

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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 1978

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1975
Revised 1977
Edition N/A
Copyright 1978
Levelled 1964

Surveyed 1975
Revised 1977
Edition N/A
Copyright 1978
Levelled 1955

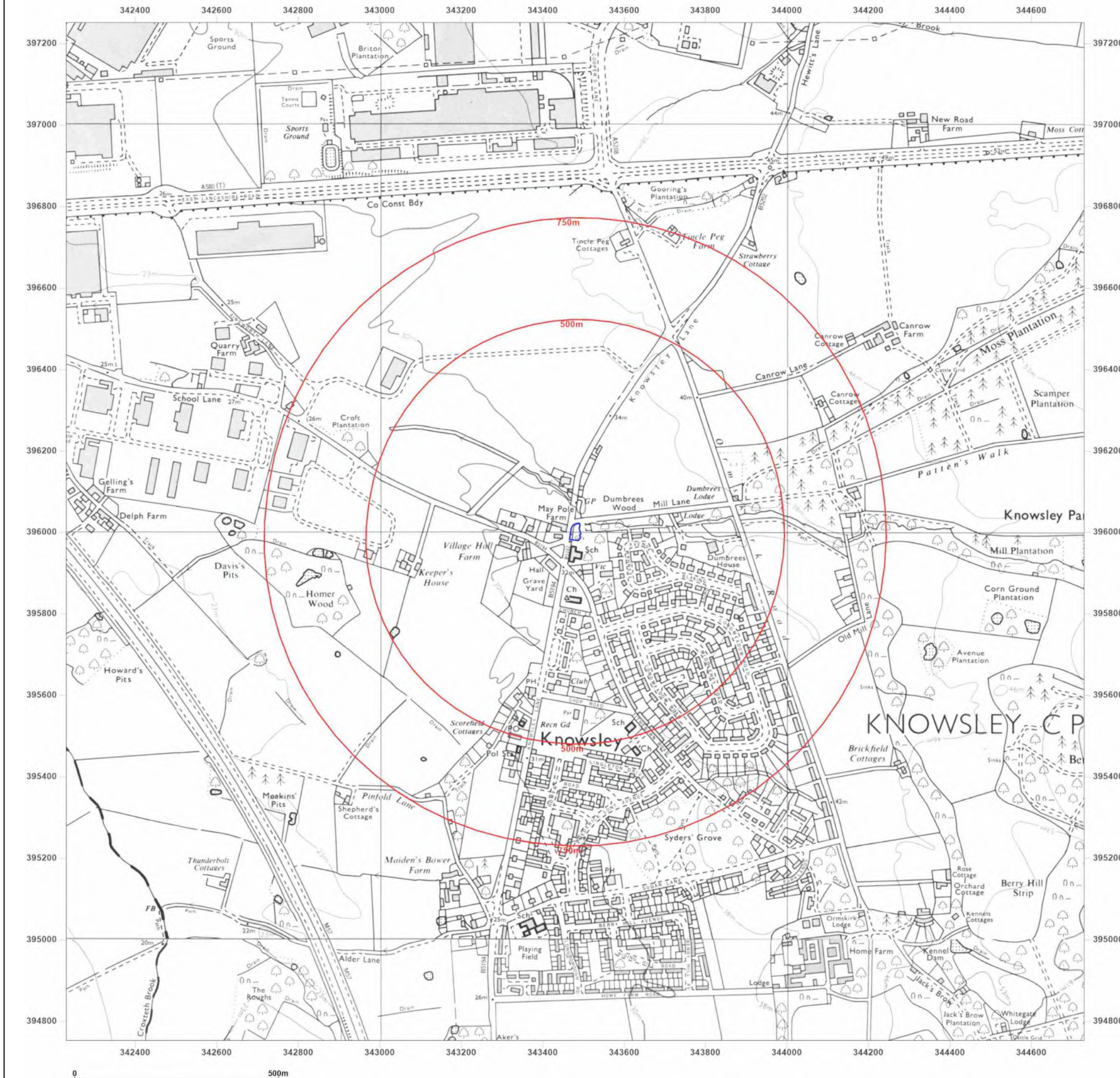


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Site Details:

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KNOWSLEY LANE, KNOWSLEY,
L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 1988-1989

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1987
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1987
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

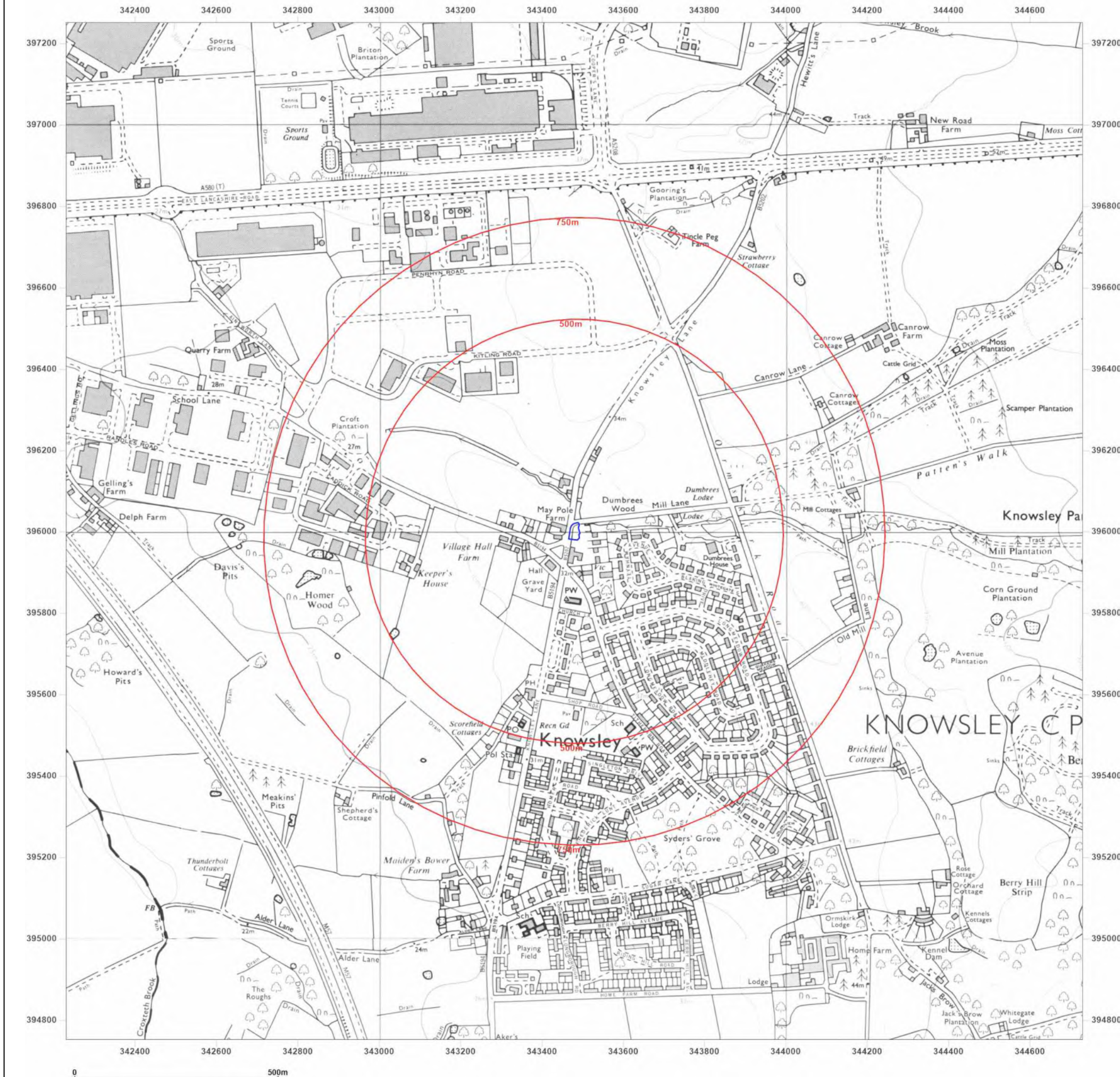


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Site Details:

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KNOWSLEY LANE, KNOWSLEY,
L34 0JN

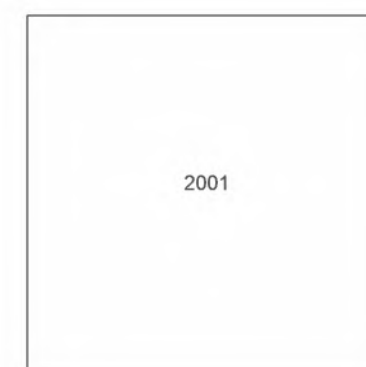
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Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 2001

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Printed at: 1:10,000

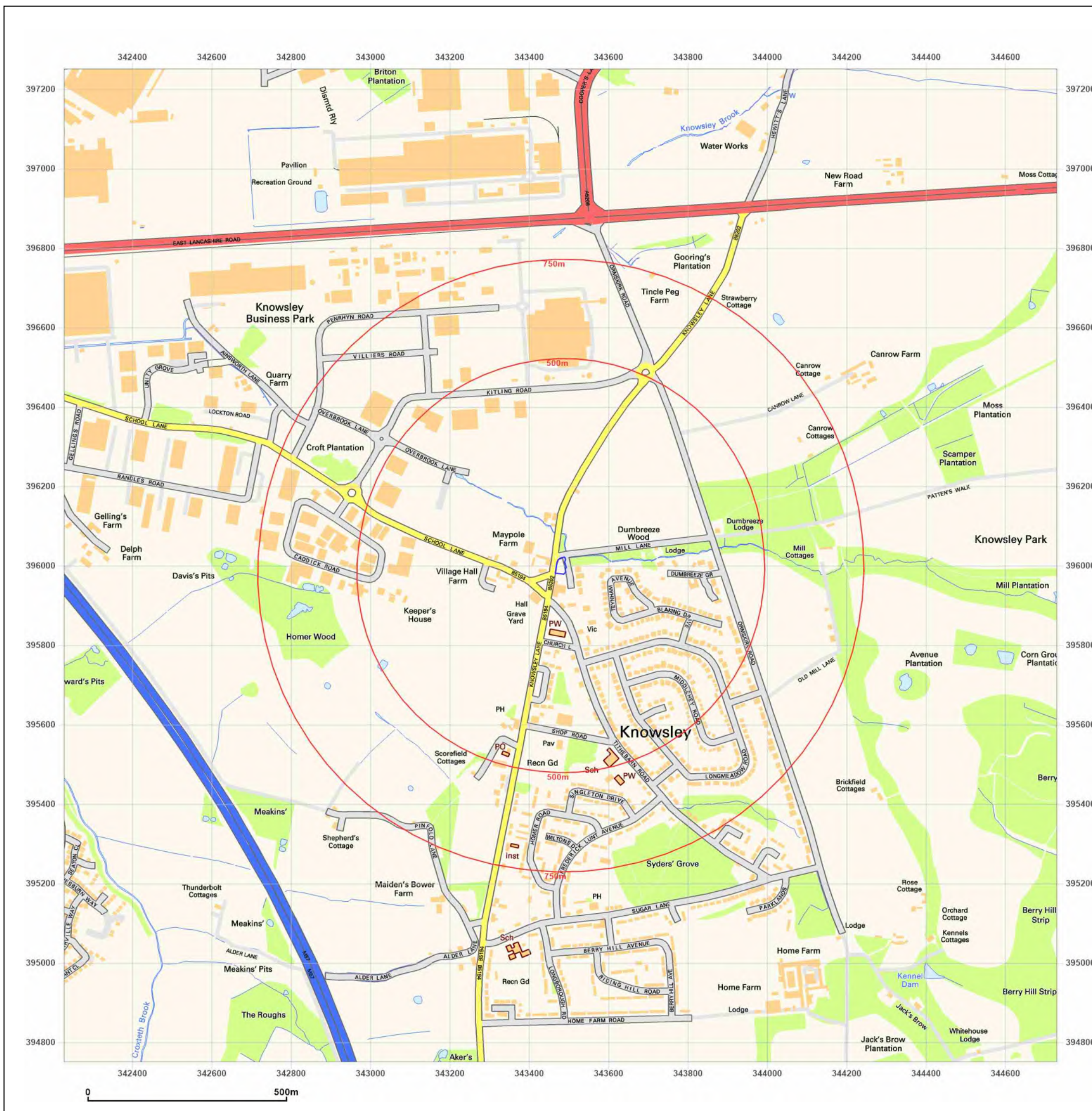


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Site Details:

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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

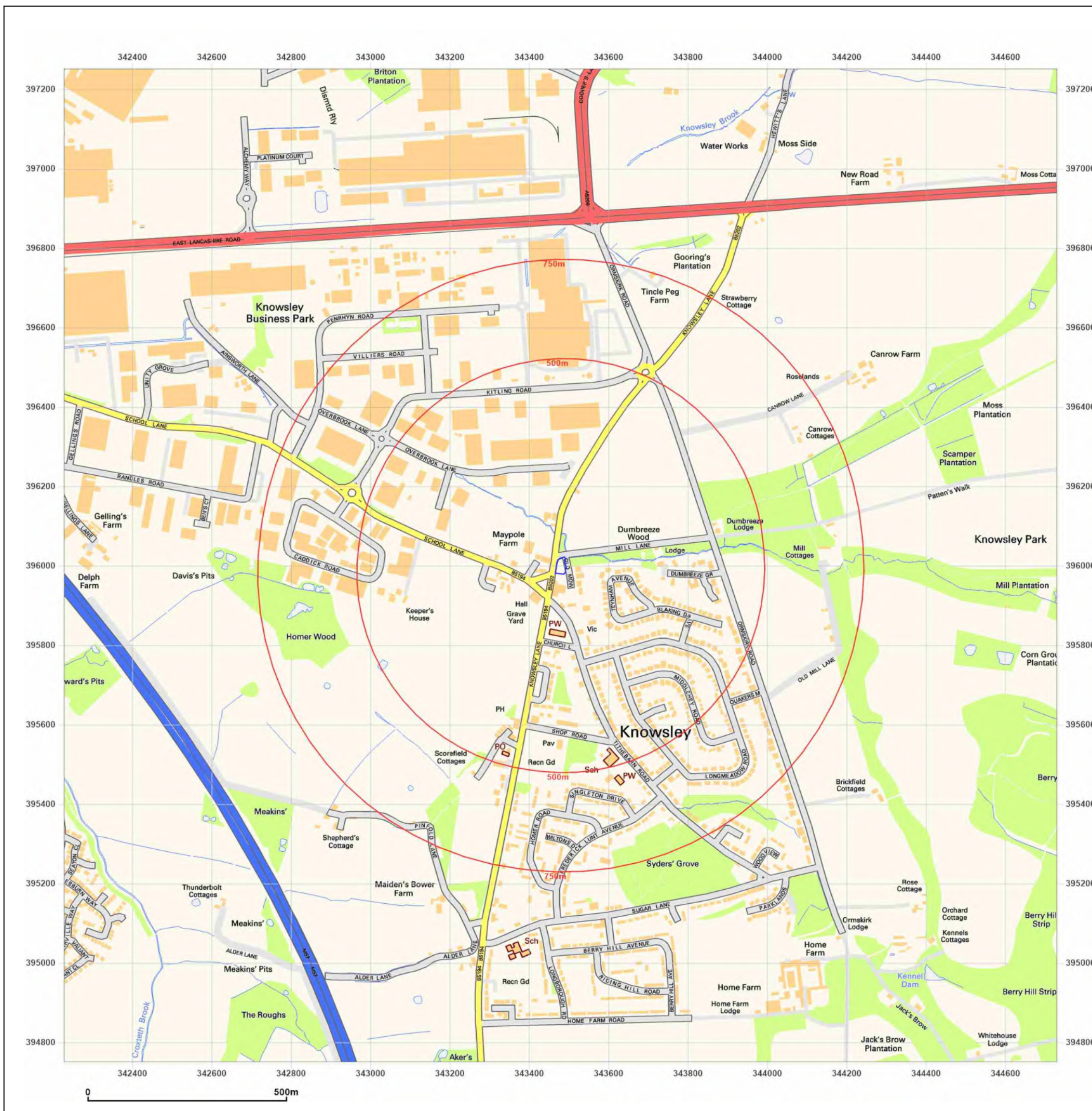


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Site Details:

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L34 0JN

Client Ref: 1628_Millbrook_Manor_-N-
Report Ref: GS-3XO-1DB-OPR-456
Grid Ref: 343479, 396001

Map Name: National Grid

Map date: 2023

Scale: 1:10,000

Printed at: 1:10,000



2023

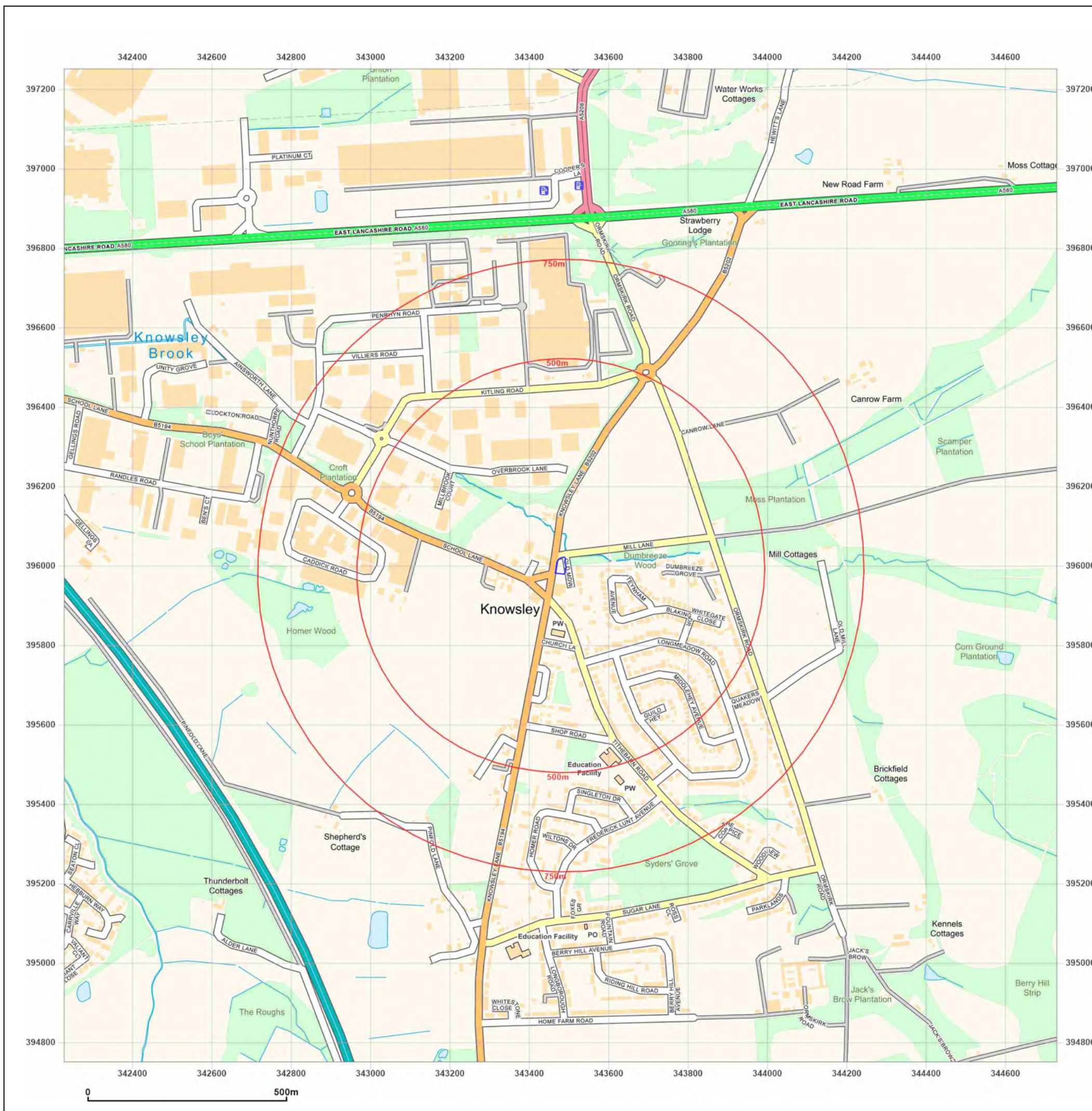


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Report Limitations

The comments given in the report and the opinion expressed herein are based on the information sourced by the desk study and other published information. Third party information was therefore used in the preparation of this report and Soilutions Limited cannot guarantee the accuracy or completeness of this information.

There may be other sources of information not included in those listed that hold data relevant to the Desk Study undertaken at the site that could materially affect the conclusions made in this report. The interpretation of the maps and/or other data commented on in this report is subjective.

During site clearance works where previously unidentified contaminated materials are encountered, this must be noted by the contractor and reported to Soilutions in order to determine whether the risk assessment and remediation strategies for the site require amendment.

Groundwater levels can vary significantly from those observed during this investigation and the range of potential variation has not been defined by ongoing monitoring via installed observation wells.

The conclusions in this report represent our professional opinion, these conclusions have been drawn up with the greatest care to ensure that all apparent issues were addressed properly in accordance with applicable UK guidance and accepted practice.

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