Site Condition Report – Horse Close AD Plant, Courteenhall, Northamptonshire, NN7 2QF

On Behalf of:

Acorn Bioenergy Operations Limited

ETL747/2025

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V1.0 Issue 0	06/02/2025	First Issue	A Becvar	A Trelawny
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Abbreviations

ABL	Acorn Bioenergy Operations Limited
AD	Anaerobic Digestion/er
BGS	British Geological Survey
BUU	Biogas upgrade unit
CHP	Combined heat and power
CO_2	Carbon dioxide
COMAH	The Control of Major Accident Hazards (COMAH) Regulations 2015
DSEAR	The Dangerous Substances and Explosive Atmospheres Regulations 2002
EVCS	Electric Vehicle Charging Station
EA	Environment Agency
EPR	Environmental Permitting Regulations
HAZOP	Hazard and Operability Study
m AOD	metres above Ordnance Datum
NVZ	Nitrate Vulnerable Zone
PHI	Priority Habitat Inventory
PVRV	Pressure and vacuum relief valve
SCR	Site Condition Report
TPA	Tonnes per annum
UV	Ultra violet

1 Introduction

This document prepared by Earthcare Technical Ltd on behalf of Acorn Bioenergy Operations Ltd, comprises a Site Condition Report (SCR) based upon the Environment Agency H5 Site Condition Report template and guidance[1] and includes an assessment as to whether a Baseline Report is required, prior to site activities taking place, in line with European Commission Guidance[2] given site activity involves the use, production or release of relevant hazardous substances, having regard to the possibility of soil and groundwater contamination.

The SCR is produced in support of an application for a new bespoke Installation Environmental Permit for an anaerobic digestion (AD) plant including the use of resultant biogas for Horse Close AD Plant, located on agricultural land at Courteenhall, Northamptonshire, NN7 2QF (the site), centred on National Grid Reference (NGR): SP 77438 52588, herein termed 'the Site'.

The permit application, which this SCR supports, is for a bespoke permit based upon Standard Rules Permit SR2021 No 6: Anaerobic digestion facility, including use of the resultant biogas – installations[3]. For a Part A installation with an anaerobic digestion capacity of over 100 tonnes of waste, or a combination of waste and non-waste each day and accepting no more than 100,000 tonnes per year.

The AD Plant will treat around 94,900 tonnes per annum (TPA) of liquid and solid feedstocks comprising livestock waste (poultry litter, farmyard manures and slurry), energy crops and crop residues; and as well as dirty water several non-hazardous liquid wastes to supplement process water use. The 6.2ha of site area was previously arable land and is adjacent to a poultry unit to the east, the manures from which will be treated within the AD Plant. To the south are further arable fields and a windfarm, to the west arable fields and small areas of woodland. North of the site are further arable fields and a small light industrial estate and farm buildings.

The site will produce 20,286 Nm^3/y of biogas which will be used on site to generate heat and power and upgraded to biomethane for injection to the National Gas Grid via virtual pipeline and carbon dioxide captured for use or sequestration. In addition, around 26,182 TPA of solid fibre digestate and 67, 454 TPA of liquid digestate will be produced to be used as a biofertiliser on local farms.

The Environmental Permitting Regulations Site Condition Report guidance for applicants H5,[4] defines a SCR as a document that describes and records the condition of the land and groundwater at a site at a point in time. When an operator applies to the Environment Agency (EA) to vary, surrender the environmental permit or decommission the Site the SCR can be used to demonstrate that the land and water within the vicinity have been protected during the lifetime of the regulated facility and that the land is in a satisfactory state.

[1] H5, Site condition report – guidance and templates, LIT8001 Version 3.0 April 2013. https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report

[2] European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions (2014/C 136/03) https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0506(01)

[3] Standard Rules Permit SR2021 No 6: Anaerobic digestion facility, including use of the resultant biogas – installations https://www.gov.uk/government/publications/sr2021-no-6-anaerobic-digestion-facility-including-use-of-the-resultant-biogas-installations

This report describes the site condition at the time of the permit application. It is designed to be updated and retained throughout the operational phase of the regulated facility, for use as a reference at the end of the operational phase, when the operator makes an application to surrender the Environmental Permit.

The SCR comprises information gathered during a site walkover conducted 17 April 2024, prior to commencement of any groundworks onsite, by Earthcare Technical Limited and a desk top study utilising:

- Publicly available information (accessed 04-06 February 2025).
  - Magic Map Application[5]
  - British Geological Viewer[6]
  - Soilscape Viewer[7]
  - Public Registers Online[8]
- Enviro Geo Insight Report, Groundsure (obtained 11 March 2024).
- Preliminary Land Quality Risk Assessment, SLR (November 2022)
- Geophysical Survey Report of Horse Close Green Power, Magnitude Surveys MSSP1277 (October 2022)

[5]Magic https://magic.defra.gov.uk/MagicMap.html, accessed 06 February 2024
[6] British Geological Viewer, https://geologyviewer.bgs.ac.uk/ accessed 04 February 2025
[7] Soilscapes Viewer https://www.landis.org.uk/soilscapes, accessed 04 February 2025
[8] Public Registers Online https://environment.data.gov.uk/public-register/view/index accessed 06 February 2025

2 Site Details

<table>
<tr><td>Name of applicant</td><td>Acorn Bioenergy Operations Limited</td></tr>
<tr><td>Activity address</td><td>Horse Close AD Plant, Courteenhall, Northamptonshire, NN7 2QF</td></tr>
<tr><td>National grid reference</td><td>SP 77438 52588</td></tr>
<tr><td>Document reference at permit application</td><td>ETL747_HRCL_SCR_V1.1
11 June 2025</td></tr>
<tr><td>Document reference for site plans</td><td>Figure 1 : Site Location Plan (ETL747_/HRCL/SiteLocation/EPR01)
Figure 2: Site Emissions Plan (Plan (HRCL-LAY-ABE-010 Rev C Site Emissions Plan)
Figure 3: Site Layout & Permit Plan (HRCL-LAY-ABE-011 Rev CSite Layout and Permit Plan)
Figure 4: Proposed Drainage Layout (GGP-29384-C1-105-C18-Proposed Site Drainage Layout-Main)
Figure 5: Drainage Catchment Plan (GGP-29384-C1-103-C06-Drainage Catchment Plan)
Figure 6: Human Receptor Plan, Earthcare Technical (ETL747_HRCL_HumanReceptors /EPR02)
(See Figures)</td></tr>
<tr><td>Site footprint</td><td>Site proposed permitted area is 6.2 hectares (15.3 acres) across area of two fields.</td></tr>
<tr><td>Current infrastructure</td><td>Agricultural land with no infrastructure. At time of writing construction work has commenced.</td></tr>
<tr><td>Proposed infrastructure</td><td>
<table>
<tr><th>Item.</th><th>Working capacity</th></tr>
<tr><td rowspan="4">3 No. Silage clamps</td><td>Clamp 1: 11,760 m^3</td></tr>
<tr><td>Clamp 2: 17,000 m^3</td></tr>
<tr><td>Clamp 3: 19,900 m^3</td></tr>
<tr><td>Total: 48,660 m^3</td></tr>
<tr><td>1 No. Silage effluent Tank</td><td>54 m^3</td></tr>
<tr><td>1 No. Manure reception building</td><td></td></tr>
<tr><td>Centriair abatement plant to manure building</td><td></td></tr>
<tr><td>1 No. Straw processing building</td><td></td></tr>
<tr><td>1 No. Straw set down bay</td><td></td></tr>
<tr><td>2 No. Silage feed hoppers</td><td>120 m^3 each</td></tr>
<tr><td>2 No. Pre-treatment Hammer Mills</td><td>75 kW each</td></tr>
<tr><td>1 No. Solid Manure Feed System</td><td>65 m^3</td></tr>
</table>
</td></tr>
</table>

	1 No. Straw Feed System	65 m^3
	1 No. Liquid Feedstock Tank	402 m^3
	2 No. Water Tanks (Dirty)	402 m^3
	Primary Digester-I	9000 m^3
	Secondary Digester-I	4512 m^3
	Primary Digester-II	9000 m^3
	Secondary Digester-II	4512 m^3
	Tertiary Digester	7444 m^3
	1 No. Gas Dome above tertiary digester	3,800 m^3
	2 No. Desulphurisation plant with oxygen injection	
	Supervisory Control and Data Acquisition (SCADA) System	
	3 No. Pasteurisation Tanks	25 m^3 each
	1 No. Hygienized Digestate Tank	80m^3
	1 No. Digestate separation fully enclosed bunker	
	2 No. Borger RC75	Up to 75m^3/hr
	1 No. Digestate Buffer Tank	402 m^3
	1 No. Fire Water Tank	250 m^3
	1 No. Digestate Lagoon (750mm freeboard)	12,350 m^3
	2 No. Digestate offtake points	5.1m^3 (sump for secondary off-take point located outside of bund)
	1 No. Clean Water lagoon (300m freeboard)	511.57 m^3
	1 No. Dirty Water Lagoon (300mm freeboard)	510 m^3
	2 No. Gas Valve/ Condensate Chambers (Condensate sump 1 & 2)	
	Gas Booster and carbon filter	
	2 No. Quanto Dual fuel CHPs with heat exchangers	2 No. 1200 kW each
	1 No. Emergency boiler	560 kW
	1 No. Emergency Flare	50-2,600 Nm^3/hr
	1 No. Emergency Generator (Back up)	616 kW (770 KVA)
	Biogas upgrade unit (BUU)	Capacity: 2,200 Nm^3/hr
	Chiller(s) on BUU	
	Biogas booster skid	
	Compressors	
	3 No. CO_2 recovery unit and CO_2 tanks	CO_2 tanks: 50 m^3
	4 No. Biomethane (CNG) trailer bays /CO_2 off-take bays	

	Secondary containment bund	
	Parking area	
	Access road	
	Pump containers	
	Site boundary fence	
	2 No. Weighbridges	
	Site office, Welfare (including Wastewater package treatment plant (Klargester) and Workshop	
	Technical Building, including site laboratory (within containment bund)	
	Clean water break tank	10 m^3
	2 No. Clean water tanks	30 m^3 each
	Additional booster pumps	

3 Condition of the Land at Permit Issue

Environmental setting including: • **Topography** • **Geology** • **Hydrogeology** • **Surface waters** • **Groundwater** • **Flood risk**	**Topography** The topography of the site varies between the two fields. The northern field is generally gently sloping downwards to the northwest, from an elevation of 127.67m AOD in the east to approximately 112.27m AOD in the north west corner. **Geology** Site soils are classified as lime-rich loamy and clayey soils with slightly impeded drainage. The site has an Agricultural Land Classification of Grade 3. Superficial geology is Oadby Member, Diamicton of Low to moderate permeability. Underlying bedrock geology is Blisworth Limestone Formation of Bathonian age. Bedrock permeability is very high. **Hydrogeology** The site is within the Anglian River Basin. The superficial deposits are designated a secondary undifferentiated aquifer. The bedrock deposits are designated a principal aquifer. The Secondary Superficial Aquifer is of Medium vulnerability and the bedrock geology Principal Aquifer of Low vulnerability but of Soluble Rock Risk. The combined classification is of Productive Bedrock Aquifer and Productive Superficial Aquifer. The closest Abstraction is a groundwater abstraction for general farming and domestic use at Qinton Green (Licence No. 5/32/04/*G/0013). This is located 1067m north east of the site. There is a historical surface water abstraction at Lower Farm 1867m north of the site which is not actively used. There are two investigative borehole records on the farm itself. Additional borehole records relate to widening works to the M1 road junction nearby. **Surface Water** The site is within the Nene Catchment and there is a watercourse 28m northwest of the site boundary which feeds into a small inline pond (approximately 50m^2 in area) and then into a tributary of the Wootton Brook (2.9km north of the site), which was classified as having a 'Poor' overall rating in terms of water quality under the Water Framework Directive. The site is within a Drinking Water Safeguard Zone for Surface Water (Anglian_SWSGZ1006,1007,1008,1009,1010_River Nene) There is a new pond, a biodiversity enhancement feature, to be built and landscaped to the northeastern corner of the site.

	Groundwater The Site is over a Principal Aquifer, but risk is mitigated due to significant thickness of low permeable superficial deposits overlying the bedrock and is therefore designated as a secondary superficial aquifer of Medium Vulnerability. The site is over Productive Bedrock Aquifer and Productive Superficial Aquifer. Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally but may be possible in adverse conditions such as high surface or subsurface water flow. The Site overlies the Northampton Sands Groundwater body but is not within a Groundwater Source Protection Zone or Drinking Water Safeguard Zone (Groundwater) (England). The Site is within the River Nene Nitrate Vulnerable Zone (NVZ), designated for surface water sensitivity and the Thrapston lake Eutrophic NVZ. There are no licenced groundwater or surface water abstractions within 1km of the site. **Flood Risk** The Site is situated within a Flood Risk Zone 1, which means it has low probability of flooding from rivers and the sea. There is a negligible risk of flooding on site from surface waters and Low risk from groundwaters.

Pollution history including:
 	
• Pollution incidents that may have affected land.
• Historical land uses and associated contaminants
• Any visual/ olfactory evidence of existing contamination
• Evidence of damage to pollution prevention measures
	Pollution incidents that may have affected land.
	
	There are no reported pollution incidents that may have affected the land.
	
	Permitted activities that may have affected land.
	
	Given the agricultural history of use of the Site previously there is not significant risk of activities that may have affected the land.
	
	Historical land uses
	
	From 1883 onwards mapping depicts the land as undeveloped fields.
	
	An existing farm track was upgraded to an access track between the two fields to service the windfarm development to the south.
	
	Inclusive of and within 500m of the 6.44ha site boundary selected for the Groundsure Geo Insight Report there are:
	
	• No historical industrial land use identified.
	• No historical landfill identified.
	• No historical or licensed waste sites identified.
	• Waste exemptions registered on the farm holding, (not on the Site itself), include:
	  ○ S2 Storage of waste in a secure place
	  ○ U8 Use of waste in construction

	○ T32 Treatment of waste in a biobed or biofilter • No visual and cultural designations on site. **Current land uses** Inclusive of and within 500m of the 6.44ha site boundary selected for the Groundsure Geo Insight Report there are: • A Telecommunications mast 166m east of the Site. • A licensed industrial activity (Part A (1)): The Courteenhall Poultry Farm (EPR/TP3109BY) an intensive poultry unit >40,000 Poultry. The manures from which will be treated within the AD Plant. **Potential contaminants associated with previous site use** No potential sources of contamination have been found within the Site area within the Groundsure report. **Any visual / olfactory evidence of existing contamination** At the time of the site walkover carried out by Earthcare Technical Limited (17 April 2024), there was no visual evidence of land contamination within the proposed permitted area. **Evidence of damage to pollution prevention measures** At the time of the site walkover carried out by Earthcare Technical Limited 17 April 2024), the site remained in agricultural use. There was no evidence of any usage other than agricultural and there was no evidence of contamination of any sort.
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports	There is no evidence indicating potential historical contamination of the site. A conceptual model and preliminary qualitative risk assessment is included within the Preliminary Land Quality Risk Assessment, SLR 2022 Appendix B which states: "*The adjacent poultry farm and nearby building materials storage site are not considered a significant potential source of contamination given recent construction; the farm is managed under an environmental permit and the pre-construction environmental statement concluded the development will not produce significant environmental impacts. The bund associated with the adjacent surface water storage lagoon is most likely constructed from natural material excavated to create the lagoon*."
Baseline soil and groundwater reference data	Please refer to section 20 of the Enviro Geo Insight Report (Appendix A), which contains information on BGS Estimated Background Soil Chemistry. The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. No ground investigation and analysis of soils for potential contaminants has been carried out.
Supporting information	Appendix A - Enviro Geo Insight Report, Groundsure (obtained 11 March 2024).

	Appendix B - Preliminary Land Quality Risk Assessment, SLR (November 2022) Appendix C – Site Photographs (17 April 2024) AppendixD - Google Earth Images

4 Permitted Activities

Proposed Permitted activities	Schedule 1 5.4 A(1)(b)(i) - Biological Treatment (Anaerobic digestion / more than 100 tonnes per day treatment capacity) of the Environmental Permitting Regulations 2016 (as amended). Directly Associated Activities (DAAs): • Storage of waste pending recovery or disposal • Physical and chemical treatment of waste • Gas combustion to produce heat and power • Treating biogas and biomethane • Recovering, treating and storing cardon dioxide • Using an emergency flare • Storage of raw material and waste generated on site • Surface water collection, storage and discharge • Dirty water collection and storage • Air treatment and release
Non – permitted activities	Site welfare facilities served by wastewater treatment plant.
Document references: • Plan showing activity layout; and • Environmental risk assessment	• Figure 3: Site Layout & Permit Plan (HRCL-LAY-ABE-011 Rev C Site Layout and Permit Plan) • Environmental Risk Assessment (HRCL-ENV-Environmental Risk Assessment AQD34-R1)

5 Baseline Report Assessment

This section comprises an assessment of whether a Baseline Report is required before permitted activities commence on site. The guidance[2] states that a Baseline Report should include:

- *'Information on the present use and, where available, on past uses of the site; and*
- *where available, existing information on soil and groundwater measurements that reflect the state at the time the report is drawn up or, alternatively, new soil and groundwater measurements having regard to the possibility of soil and groundwater contamination by those hazardous substances to be used, produced or released by the installation concerned.'*

The stages of the Baseline Report assessment are replicated below followed by the assessment of the proposed site and activities in line with the guidance.

Stage 1

Activity - Identify which hazardous substances are used, produced or released at the installation and produce a list of these hazardous substances.

Objective - Determine whether or not hazardous substances are used, produced or released in view of deciding on the need to prepare and submit a baseline report.

A Hazardous Substances Consent for the Site has been requested but has not yet been issued. The quantities provided in Table 1 below reflect those provided within the request.

Table 1 below show the hazardous substances that may be stored on site, their use and storage arrangements including the maximum amount that may be stored at any one time.

Table 1 – Hazardous Substances

Hazardous Substance	Form	Where present / used	Storage arrangements	Maximum amount stored at any one time
Sulphuric acid	Liquid	Emissions abatement plant (CentriAir)	Within bunded chemical store	4,000 litres
Ferric hydroxide	Powder	Control of hydrogen sulphide in digesters	Within bunded chemical store	2 tonnes
Diesel	Liquid	Emergency generator	Bunded integral tank with locked valves	950 litres
Diesel	Liquid	On-site vehicles	Bunded on-site store	5,000 litres
Diesel exhaust fluid (AdBlue)	Liquid	On-site vehicles	Bunded on-site store	1,000 litres
Glycol	Liquid	Prevention of freezing in water filled equipment	Within bunded chemical store	210 litres
Fresh oil	Liquid	Combined heat and power engine (CHP) lubricant	Bunded tanks within containers	2,000 litres
Waste oil	Liquid	Waste CHP lubricant	Bunded tanks within containers	2,000 litres
Anti-foam e.g. biodegradable oil	Liquid	Stored and used as preventative anti-foam treatment	Within bunded chemical store	1,000 litres
Activated carbon	Solid	Biogas clean-up / abatement systems	Planned to be exchanged and taken off site simultaneously	N/A

Hazardous Substance	Form	Where present / used	Storage arrangements	Maximum amount stored at any one time
Natural gas	Gas	• Used in CHPs and boilers • Biomethane compressed and transported off-site	Within gas storage systems designed in accordance with site HAZOP, Lower Tier COMAH controls and DSEAR	29.2 tonnes
Raw biogas mixture	Gas	• Produced in digesters • Stored in gas collection and storage system • Prior to treatment in biogas upgrade unit	As above	7.79 tonnes (assumes 1.27 kg/m^3)

Stage 2

Activity - Identify which of the hazardous substances from Stage 1 are 'relevant hazardous substances'. Discard those hazardous substances that are incapable of contaminating soil or groundwater. Justify and record the decisions taken to exclude certain hazardous substances.

Objective - To restrict further consideration to only the relevant hazardous substances in view of deciding on the need to prepare and submit a baseline report.

'Relevant hazardous substances' (Article 3(18) and Article 22(2), first subparagraph) are those substances or mixtures defined within Article 3 of Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) which, as a result of their hazardousness, mobility, persistence and biodegradability (as well as other characteristics), are capable of contaminating soil or groundwater and are used, produced and/or released by the installation.

An assessment of each substance in Table 1 has been made using the Classification and Labelling (C&L) Inventory Database [9] and the following substances in Table 2 are relevant hazardous substances.

[9] https://echa.europa.eu/information-on-chemicals/cl-inventory-database Accessed 26 June 2024

Table 2 – Assessment of Relevant Hazardous Substances

Hazardous Substance	**EC: European Community number/ List no.: List number assigned by ECHA.**	**Chemical Abstract Service (CAS) Registry number**	**Classification**	**Relevant hazardous substance (Yes / No)**
Sulphuric acid	231-639-5	7664-93-9	Skin Corrosive – sub-category 1A	Yes
Ferric hydroxide	Not applicable	Not applicable	Not classified	No
Diesel	269-822-7	68334-30-5	Carcinogenic – sub-category 2	Yes
Diesel exhaust fluid (AdBlue) – 32.2% urea and 67.5% deionised water	200-315-5	CAS Registry Number for urea 57-13-6	Not classified	No
Ethylene glycol	609-475-4	3775-85-7	Not classified	No
Fresh oil comprising: • distillates (petroleum), hydrotreated heavy paraffinic • distillates (petroleum), solvent dewaxed heavy paraffinic	265-157-1 265-169-7	64742-54-7 64742-65-0	Not classified Not classified	No No
Lubricating oils, used	274-635-9	70514-12-4	Aspiration Toxicity – sub-category 1	Yes
Anti-foam e.g. biodegradable oil	Not applicable	Not applicable	Not classified	No
Activated carbon / High Density Skeleton	931-328-0	7440-44-0	Not classified	No

Hazardous Substance	EC: European Community number/ List no.: List number assigned by ECHA.	Chemical Abstract Service (CAS) Registry number	Classification	Relevant hazardous substance (Yes / No)
Natural gas	270-085-9	68410-63-9	Flammable Gas – sub-category 1	Assessment terminated as substance not capable of contaminating soil or groundwater.
Raw biogas mixture*	938-355-7	Not listed	• Flammable Gas – subcategory 1 • Gases under pressure: Compressed gas.	Assessment terminated as substance not capable of contaminating soil or groundwater.

* The only entry on the CL Inventory for biogas 'Biogas product of anaerobic degradation of sewage sludge in the dairy industry' which can be equated in terms of hazardous properties.

Stage 3

Activity - For each relevant hazardous substance brought forward from Stage 2, identify the actual possibility for soil or groundwater contamination at the site of the installation, including the probability of releases and their consequences, and taking particular account of:

- *the quantities of each hazardous substance or groups of similar hazardous substances concerned;*
- *how and where hazardous substances are stored, used and to be transported around the installation;*
- *where they pose a risk to be released;*

In case of existing installations also the measures that have been adopted to ensure that it is impossible in practice that contamination of soil or groundwater takes place.

Objective - To identify which of the relevant hazardous substances represent a potential pollution risk at the site based on the likelihood of releases of such substances occurring. For these substances, information must be included in the baseline report.

Table 3 below lists the relevant hazardous substances identified through Stage 2 and provides a risk assessment regarding the potential for causing soil or groundwater contamination on the site.

Table 3- Soil and Groundwater Risk Assessment with Respect to Relevant Hazardous Substances

Relevant Hazardous Substance	Classification	Form	Maximum stored at any one time	Potential risk to soil or groundwater	Use and storage arrangements	Further control measures	Residual risk to soil or groundwater
Sulphuric acid	Skin Corrosive – sub-category 1A	Liquid	4,000 litres	Yes	Stored within bunded chemical store and used within CentriAir odour abatement plant (vehicle impact protected)	• The CentriAir emissions abatement system is within the secondary containment area. • Stored in bunded chemical store within the main secondary containment bund. • Use in accordance with safe working procedures. • Chemical spill kits will be in place. • Staff trained in Spill Control Procedure **(HRCL-QUAL-SPILL CONTROL/USE OF SPILL KITS-WI24-P1)**, including refresher training.	Low

Diesel	Carcinogenic – sub- category 2	Liquid	5,000 litres	Yes	• Emergency generator (Bunded integral tank with locked valves)
					• On-site vehicles (Bunded on-site store)
						• In accordance with the drainage strategy, surface water from hardstanding areas is discharged into a Klargester Full Retention Separator to ensure oils are removed.
						• There are 3 No. penstocks in place for the clean water drainage system such that any spillages can be contained on site if required:
						  ○ Before the full retention interceptor.
						  ○ Downstream of the full retention interceptor; and
						  ○ On the Hydro-Brake
						• Filling and off-take from diesel stores are carried out in accordance with safe working procedures.
						• Provision of spill kits.
							Low

Relevant Hazardous Substance	Classification	Form	Maximum stored at any one time	Potential risk to soil or groundwater	Use and storage arrangements	Further control measures	Residual risk to soil or groundwater
						• Staff trained in Spill Control Procedure **(HRCL-QUAL-SPILL CONTROL/USE OF SPILL KITS-WI24-P1),** including refresher training.	

Lubricating oils, used	Aspiration Toxicity – sub-category 1	Liquid	2,000 litres	Yes	Bunded waste oil tanks within CHP containers.	• In accordance with the drainage strategy, surface water from hardstanding areas is discharged into a Klargester Full Retention Separator to ensure oils are removed.
						• There are 3 No. penstocks in place for the clean water drainage system such that any spillages can be contained on site if required:
						  ○ Before the full retention interceptor.
						  ○ Downstream of the full retention interceptor; and
						  ○ On the Hydro-Brake
						• Waste oil is removed by specialist contractors.
						• Provision of spill kits.
						• Collections are overseen by site operatives who have training in Spill Control Procedure **(HRCL-QUAL-SPILL CONTROL/USE OF SPILL KITS-WI24-P1),** including refresher training.
							Low

Conclusion of Baseline Report Assessment

The site hydrogeology is of medium vulnerable to pollutants released at ground level across the entire site for the following reasons:

- The Site is over a Principal Aquifer, but risk is mitigated due to significant thickness of low permeable superficial deposits overlying the bedrock and is therefore designated as a secondary superficial aquifer of Medium Vulnerability.
- The Site overlies the Northampton Sands Groundwater body but is not within a Groundwater Source Protection Zone or Drinking Water Safeguard Zone (Groundwater) (England).
- The closest Abstraction is a groundwater abstraction for general farming and domestic use at Qinton Green (Licence No. 5/32/04/*G/0013). This is located 1067m north east of the site.
- There is a historical surface water abstraction at Lower Farm 1867m north of the site which is not actively used.
- There are two local private boreholes for East Lodge No 1 (223m north west) and East Lodge No 2 (142m south west) within proximity to the site. Additional borehole records relate to widening works to the M1 road junction nearby.

However, it is apparent that there is no significant possibility for contamination of soil or groundwater due to:

- The relatively low quantities of the hazardous substances used and produced at the installation.
- The robust site engineering and drainage design; and
- The management control measures in place.

Therefore, it is deemed that a baseline report is not required for this installation.

Figures

Figure 1: Site Location Plan (ETL747_/HRCL/SiteLocation/EPR01)

Figure 2: Site Emissions Plan (Plan (HRCL-LAY-ABE-010 Rev C Site Emissions Plan)

Figure 3: Site Layout & Permit Plan (HRCL-LAY-ABE-011 Rev C Site Layout and Permit Plan)

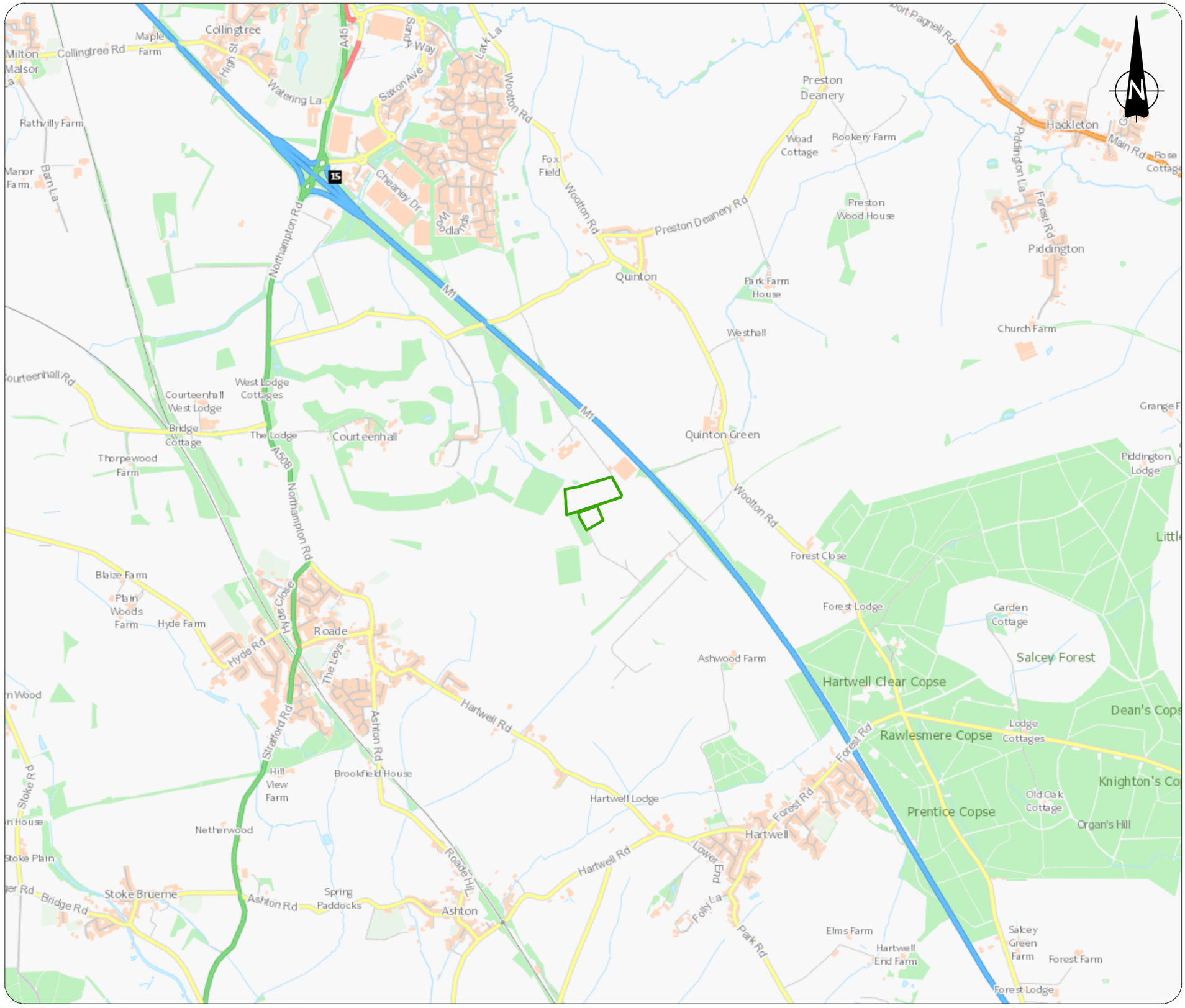
Figure 4: Proposed Drainage Layout (GGP-29384-C1-105-C18-Proposed Site Drainage Layout-Main)

Figure 5: Drainage Catchment Plan (GGP-29384-C1-103-C06-Drainage Catchment Plan)

Figure 6: Human Receptor Plan, Earthcare Technical (ETL747_HRCL_HumanReceptors /EPR02)

Figure 1: Site Location Plan

(ETL747_/HRCL/SiteLocation/EPR01)



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REVISIONS

REV	DATE	DESCRIPTION	DWN	CHK	APP
-	04/02 2025	First Issue	JJ	MF	MF

LEGEND

Permitted Boundary

0 250 500 750 1,000 1,250 1,500 m

Scale at A3: 1:25,000

Client
Acorn Bioenergy Operations Limited

Project
Permit Application

Title
Site Location Plan

Earthcare TECHNICAL
Manor Farm
Chalton
Waterlooville
Hants PO8 0BG
Tel: 02392 290488
enquiries@earthcaretechnical.co.uk
www.earthcaretechnical.co.uk

Drawn	Checked	Approved	Revision
JJ	MF	MF	

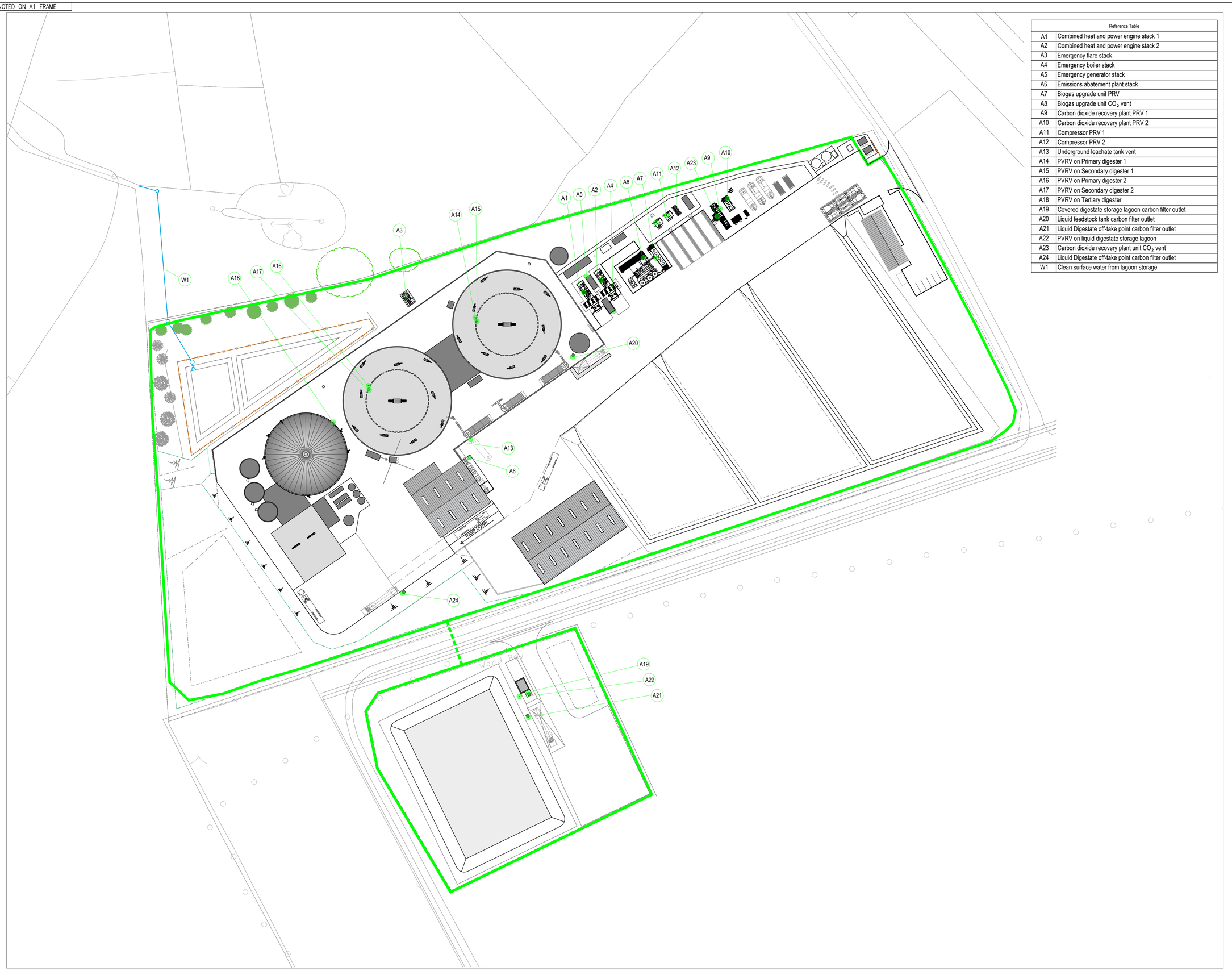
Date	Scale	Sheet Size
February 2025	1:25,000	A3

Drawing Number	File Reference
ETL747_/HRCL/SiteLocation/EPR01	ETL747.mxd

Figure 2: Site Emissions Plan

(Plan (HRCL-LAY-ABE-010 Rev C Site Emissions Plan)

AS NOTED ON A1 FRAME



Reference Table	
A1	Combined heat and power engine stack 1
A2	Combined heat and power engine stack 2
A3	Emergency flare stack
A4	Emergency boiler stack
A5	Emergency generator stack
A6	Emissions abatement plant stack
A7	Biogas upgrade unit PRV
A8	Biogas upgrade unit CO_2 vent
A9	Carbon dioxide recovery plant PRV 1
A10	Carbon dioxide recovery plant PRV 2
A11	Compressor PRV 1
A12	Compressor PRV 2
A13	Underground leachate tank vent
A14	PVRV on Primary digester 1
A15	PVRV on Secondary digester 1
A16	PVRV on Primary digester 2
A17	PVRV on Secondary digester 2
A18	PVRV on Tertiary digester
A19	Covered digestate storage lagoon carbon filter outlet
A20	Liquid feedstock tank carbon filter outlet
A21	Liquid Digestate off-take point carbon filter outlet
A22	PVRV on liquid digestate storage lagoon
A23	Carbon dioxide recovery plant unit CO_2 vent
A24	Liquid Digestate off-take point carbon filter outlet
W1	Clean surface water from lagoon storage

SITE PLAN
Scale: 1:750 @ A1

NOT FOR CONSTRUCTION

NOTES:-

Permitted Area Boundary (5.89ha)

Emission Release Location

Underground pipe conduit with leak detection

Rev	Date	Description	DR	CH
C	15/05/25	Issued For Approval	SJC	-
B	27/01/25	Issued For Approval	SJC	-
A	21/11/24	Issued For Approval	SJC	-

acorn BIOENERGY

Job Title
AD Plant.
Horse Close

Drawing Title
Site Emissions Plan.

Status
Approval

Scale
As Shown

Date
Nov '24

Drawn By
SJC

Checked
–

Approved
–

Drg. No.
HRCL-LAY-ABE-010

Rev
C

Figure 3: Site Layout & Permit Plan

(HRCL-LAY-ABE-011 Rev C Site Layout and Permit Plan)

AS NOTED ON A1 FRAME

Reference Table	
1	Site Office / Staff Welfare and Workshop
2	Weighbridges (in and out)
3	Site Parking
4	CHP No2
5	CHP No1
6	Emergency Boiler
7	Switch Room
8	Biogas Upgrade Unit
9	CO2 Recovery Unit and CO2 tanks
10	Emergency Generator
11	CNG Unit
12	CNG Trailer Bays - 4 Nos.
13	Covered lagoon - Volume 12,350m³ plus 750m freeboard
14	Gas Flare
15	Digestate Separator Building
16	3 No. Pasteurisation tanks (25m³ each)
17	Manure Reception Building
18	Abatement Plant
19	Straw Process Building
20	Tertiary Digester - Volume 7444m³
21	Secondary Digester 1 - Volume 4512m³
22	Secondary Digester 2 - Volume 4512m³
23	Primary Digester 1 - Volume 9000m³
24	Primary Digester 2 - Volume 9000m³
25	Digestate Buffer Tank - Volume 402m³
26	Water Tank 1- Volume 402m³
27	Water Tank 2 - Volume 402m³
28	Fire Water Tank - Volume 250m³
29	Liquid Feedstock Tank - Volume 402m³
30	Feed Hoppers - Volume 2No 120m³ & 1No 65m³
31	Covered Storage Clamp 1 - Volume 19900m³
32	Covered Storage Clamp 2 - Volume 17000m³
33	Covered Storage Clamp 3 - Volume 11760m³
34	Silage Leachate Tank - Volume 54m³
35	Condensate sump 1
36	Condensate sump 2
37	Wastewater treatment plant
38	Digestate offtake bay with sump (5.1m³)
39	Liquid Feedstock loading point
40	Straw set down bay
41	Site Boundary Fence
42	Dirty water lagoon 511m³
43	Attenuation lagoon (clean) 510m³
44	Hygienized tank 80m³
45	Clean water break tank 10m³
46	Oxygen Generator
47	Biogas desulpherisation
48	Heat distribution container
49	Machinery Hall
50	Pump building
51	Clean Water Tanks, each 30m³

NOTES:-

Permitted Area Boundary (5.89ha)

Underground pipe conduit with leakage detection

N

Rev	Date	Description	DR	CH
C	15/05/25	Issued For Approval	SJC	-
B	25/02/25	Issued For Approval	SJC	-
A	21/11/24	Issued For Approval	SJC	-

acorn BIOENERGY

Job Title
AD Plant.
Horse Close

Drawing Title
Site Layout & Permit Plan

Status
Approval

Scale	Date
As Shown	Nov '24

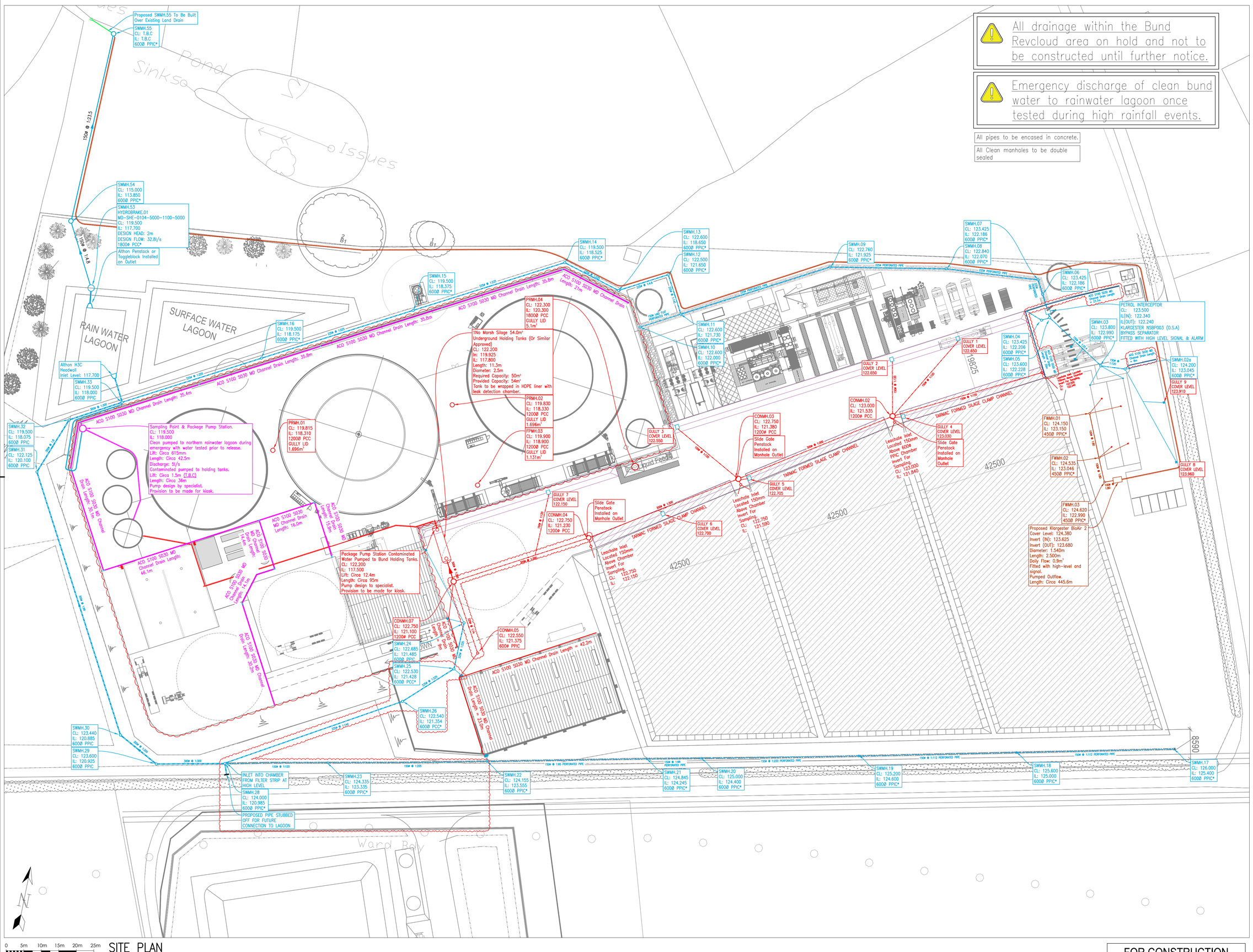
Drawn By	Checked	Approved
SJC	–	–

Drg. No.	Rev
HRCL-LAY-ABE-011	C

PERMIT PLAN
Scale: 1:750 @ A1

Figure 4: Proposed Drainage Layout

(GGP-29384-C1-105-C18-Proposed Site Drainage Layout-Main)



0 5m 10m 15m 20m 25m

Scale 1:500 @ A1

SITE PLAN

Scale: 1:500 @ A1

FOR CONSTRUCTION

NOTES:-

1. All dimensions must be checked on site and not scaled from this drawing.
2. The Contractor shall make a survey of the site and shall be responsible for obtaining all dimensions and levels necessary for the proper fabrication of the structure as indicated.
3. All levels shown on this drawing are relative to Agreed Topographic survey
4. This drawing is to be read in conjunction with 29384/100 Series Drawings.
5. All existing invert levels are to be confirmed by contractor prior to construction. Connection subject to approval.

Site Red Line Boundary
Clean Surface Water Sewer
Clean Surface Water Chamber
Clean Surface Water Headwall
Clean Surface Water Drainage Channel
Clean Surface Water Rainwater Pipe
Clean Surface Water Rising Main
Contaminated Surface Water Sewer
Contaminated Surface Water Chamber
Contaminated Surface Water Drainage Channel
Contaminated Surface Water Rising Main
Bund Surface Water Sewer
Bund Surface Water Chamber
Bund Surface Water Channel Drain
Foul Water Sewer
Foul Water Chamber
Foul Water Rising Main
Soil Vent Pipe
Leak Detection Chamber

Rev	Date	Description	DR	CH
C18	09/01/25	Issued For Construction	JT	JHC
C17	18/12/24	Issued For Construction	JT	JHC
C16	05/12/24	Issued For Construction	WD	JHC
C15	14/11/24	Issued For Construction	WD	JHC
C14	11/11/24	Issued For Construction	WD	JHC
C13	25/10/24	Issued For Construction	WD	JHC
C12	15/10/24	Issued For Construction	WD	JHC
C11	20/09/24	Issued For Construction	WD	JHC
C10	11/09/24	Issued For Construction	WD	JHC
C9	09/09/24	Issued For Construction	WD	JHC
C8	06/09/24	Issued For Final Approval	WD	JHC
C7	03/09/24	Issued For Final Approval	WD	JHC
C6	29/08/24	Issued For Final Approval	WD	JHC
C5	28/08/24	Issued For Final Approval	WD	JHC
C4	21/08/24	Issued For Final Approval	WD	JHC
C3	16/08/24	Issued For Final Approval	WD	JHC
C2	15/08/24	Issued For Final Approval	WD	JHC

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Client: acorn

Job Title: AD Plant
Horse Close Green Power

Drawing Title: Proposed Drainage Layout

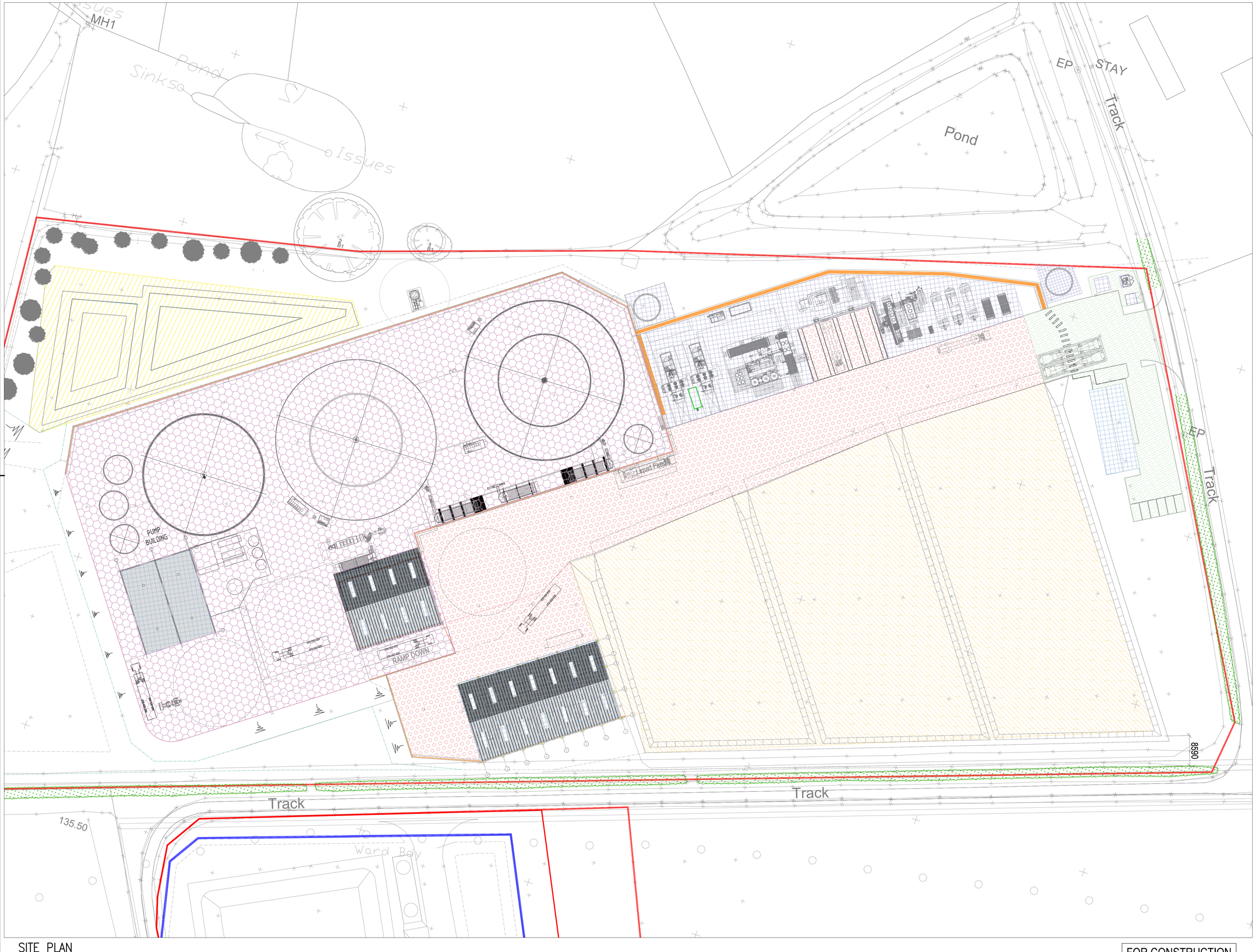
Status: CONSTRUCTION

Scale: As Noted @ A1
Date: JUN' 2024
Drawn By: MK
Checked: JHC
Approved: JHC

Drg. No.: 29384/C1/105
Rev: C18

Figure 5: Drainage Catchment Plan

(GGP-29384-C1-103-C06-Drainage Catchment Plan)



NOTES:-

1. All dimensions must be checked on site and not scaled from this drawing.
2. The Contractor shall make a survey of the site and shall be responsible for obtaining all dimensions and levels necessary for the proper fabrication of the structure as indicated.
3. All levels shown on this drawing are relative to Agreed Topographic survey
4. This drawing is to be read in conjunction with 29384/100 Series Drawings.
5. All existing invert levels are to be confirmed by contractor prior to construction. Connection subject to approval.

Denotes Site Boundary

Denotes Clean Surface Water Swale Area – 2,548m²

Denotes Clean w/Petrochemicals Hardstanding Runoff Area – 1,304m²

Denotes Clean Equipment Runoff Area – 2,450m²

Denotes Clean/Contaminated Bund Runoff Area – 11,664m²

Denotes Dirty Silage Clamp Runoff Area – 11,714m²

Denotes Contaminated Hardstanding Runoff Area – 5,630m²

Denotes Clean Roof Runoff Area – 2,258m²

Rev	Date	Description	DR	CH
C06	09/01/24	Layout amended	JT	JHC
C05	18/12/24	Layout amended	KW	JHC
C04	12/11/24	Layout amended	MK	JHC
C03	10/09/24	Issued For Construction	WD	JHC
C02	21/08/24	Issued For Final Approval	WD	JHC
C01	16/08/24	Issued For Final Approval	WD	JHC
C1	07/06/24	Issued For Contract	MK	JHC
T2	05/03/24	Layout amended	MK	JHC
T1	03/02/24	Issued For Tender	MK	JHC

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Email info@ggpconsult.co.uk

Client: acorn

Job Title: AD Plant
Horse Close Green Power

Drawing Title: Proposed Catchment Plan

Status: FINAL CONSTRUCTION

Scale: As Noted @ A1 | Date: JUN' 2024

Drawn By: WB | Checked: JHC | Approved: JHC

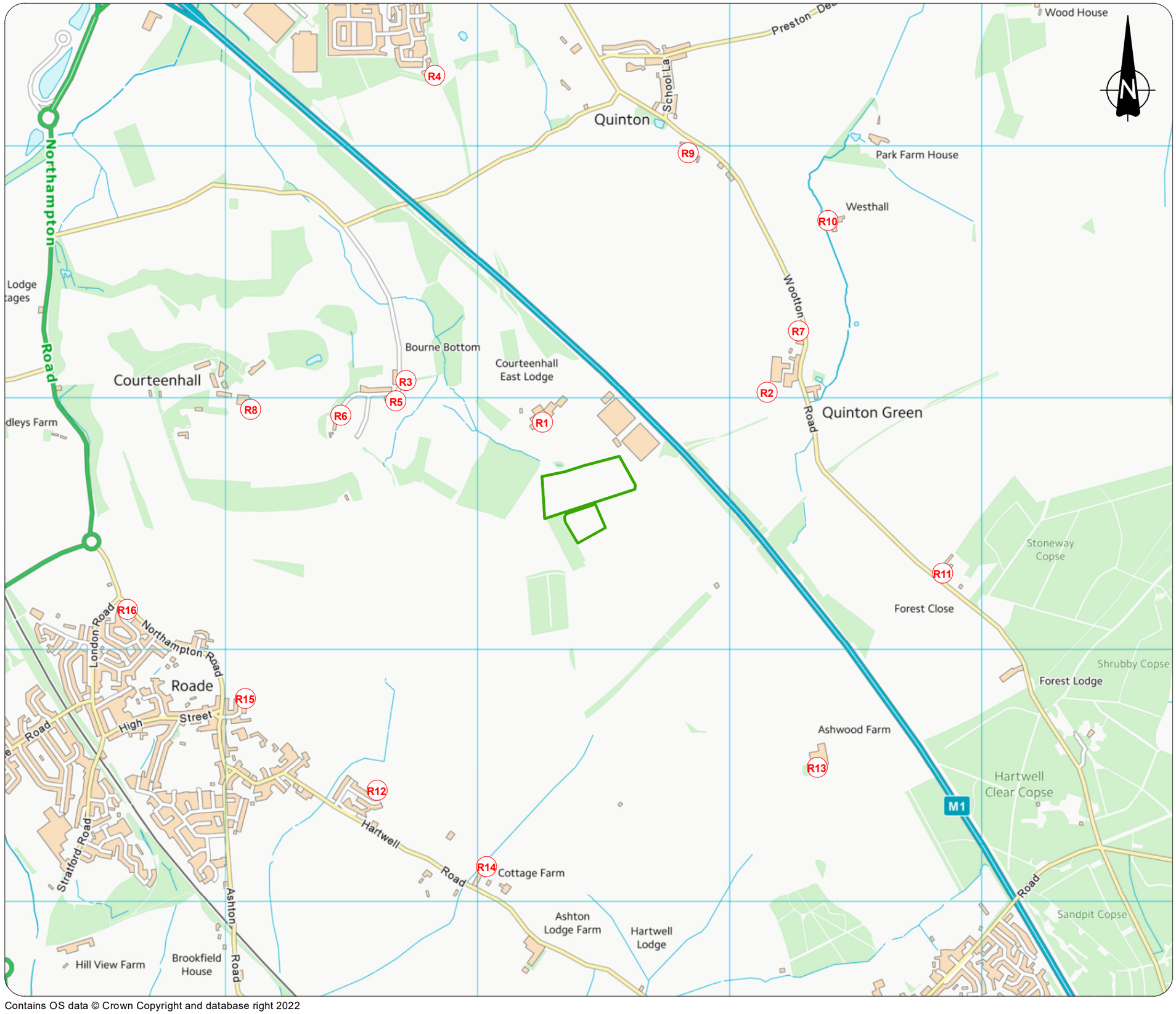
Drg. No.: 29384/C1/103 | Rev: C06

SITE PLAN
Scale: 1:500 @ A1

FOR CONSTRUCTION

Figure 6: Human Receptor Plan, Earthcare Technical

(ETL747_HRCL_HumanReceptors /EPR02)



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REVISIONS

REV	DATE	DESCRIPTION	DWN	CHK	APP
-	05/02 2025	First Issue	JJ	MF	MF

LEGEND

Permitted Boundary

Receptor location

0 250 500 750 m

Scale at A3: 1:15,000

Client: Acorn Bioenergy Operations Limited

Project: Permit Application

Title: Human Receptor Plan

Earthcare TECHNICAL

Manor Farm
Chalton
Waterlooville
Hants PO8 0BG

Tel: 02392 290488

enquiries@earthcaretechnical.co.uk
www.earthcaretechnical.co.uk

Drawn	Checked	Approved	Revision
JJ	MF	MF	

Date	Scale	Sheet Size
February 2025	1:15,000	A3

Drawing Number	File Reference
ETL747_HRCL_HumanReceptors /EPR02	ETL747.mxd

Appendix A: Enviro Geo Insight Report (2024)

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

Horseclose Anaerobic Digestion Facility, Courteenhall, West Northamptonshire, NN7 2QF

Order Details

Date: 11/03/2024

Your ref: ETL747 Horseclose (Courteeen Hall)

Our Ref: GS-KOL-IHW-ML4-YFH

Site Details

Location: 477430 252627

Area: 6.44 ha

Authority: West Northamptonshire Council (South Northamptonshire Area) ↗

Summary of findings p. 2 >

OS MasterMap site plan p.14 >

Aerial image p. 9 >

groundsure.com/insightuserguide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	0	0	3	-
16	1.2	Historical tanks	0	0	0	0	-
16	1.3	Historical energy features	0	0	0	0	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
18 >	2.1 >	Historical industrial land uses >	0	0	0	4	-
19	2.2	Historical tanks	0	0	0	0	-
19	2.3	Historical energy features	0	0	0	0	-
19	2.4	Historical petrol stations	0	0	0	0	-
19	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
20	3.1	Active or recent landfill	0	0	0	0	-
20	3.2	Historical landfill (BGS records)	0	0	0	0	-
21	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
21	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
21	3.5	Historical waste sites	0	0	0	0	-
21	3.6	Licensed waste sites	0	0	0	0	-
21 >	3.7 >	Waste exemptions >	0	2	3	10	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
24 >	4.1 >	Recent industrial land uses >	0	0	1	-	-
25	4.2	Current or recent petrol stations	0	0	0	0	-
25	4.3	Electricity cables	0	0	0	0	-
25	4.4	Gas pipelines	0	0	0	0	-
25	4.5	Sites determined as Contaminated Land	0	0	0	0	-

25	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
26	4.7	Regulated explosive sites	0	0	0	0	-
26	4.8	Hazardous substance storage/usage	0	0	0	0	-
26	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
26 >	4.10 >	Licensed industrial activities (Part A(1)) >	0	0	2	0	-
27	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
27	4.12	Radioactive Substance Authorisations	0	0	0	0	-
27	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
27	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
28	4.15	Pollutant release to public sewer	0	0	0	0	-
28	4.16	List 1 Dangerous Substances	0	0	0	0	-
28	4.17	List 2 Dangerous Substances	0	0	0	0	-
28	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
28 >	4.19 >	Pollution inventory substances >	0	0	3	0	-
29 >	4.20 >	Pollution inventory waste transfers >	0	0	1	0	-
30	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology >	On site	0-50m	50-250m	250-500m	500-2000m
31 >	5.1 >	Superficial aquifer >	Identified (within 500m)				
32 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
34 >	5.3 >	Groundwater vulnerability >	Identified (within 50m)				
35 >	5.4 >	Groundwater vulnerability- soluble rock risk >	Identified (within 0m)				
35	5.5	Groundwater vulnerability- local information	None (within 0m)				
36 >	5.6 >	Groundwater abstractions >	0	0	0	0	1
37 >	5.7 >	Surface water abstractions >	0	0	0	0	1
37	5.8	Potable abstractions	0	0	0	0	0
38	5.9	Source Protection Zones	0	0	0	0	-
38	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m
39 >	6.1 >	Water Network (OS MasterMap) >	0	3	0	-	-

40 >	6.2 >	Surface water features >	0	1	1	-	-
40 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
41 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
41 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
42	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
42	7.2	Historical Flood Events	0	0	0	-	-
42	7.3	Flood Defences	0	0	0	-	-
43	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
43	7.5	Flood Storage Areas	0	0	0	-	-
44	7.6	Flood Zone 2	None (within 50m)				
44	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding >					
45 >	8.1 >	Surface water flooding >	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding >					
47 >	9.1 >	Groundwater flooding >	Low (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
48	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
49	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
49	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
49	10.4	Special Protection Areas (SPA)	0	0	0	0	0
49	10.5	National Nature Reserves (NNR)	0	0	0	0	0
50	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
50 >	10.7 >	Designated Ancient Woodland >	0	0	0	0	12
51	10.8	Biosphere Reserves	0	0	0	0	0
51	10.9	Forest Parks	0	0	0	0	0
51	10.10	Marine Conservation Zones	0	0	0	0	0
51	10.11	Green Belt	0	0	0	0	0
51	10.12	Proposed Ramsar sites	0	0	0	0	0

52	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
52	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
52	10.15	Nitrate Sensitive Areas	0	0	0	0	0
52 >	10.16 >	Nitrate Vulnerable Zones >	2	0	1	0	0
54 >	10.17 >	SSSI Impact Risk Zones >	2	-	-	-	-
55	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
56	11.1	World Heritage Sites	0	0	0	-	-
56	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
56	11.3	National Parks	0	0	0	-	-
56	11.4	Listed Buildings	0	0	0	-	-
57	11.5	Conservation Areas	0	0	0	-	-
57	11.6	Scheduled Ancient Monuments	0	0	0	-	-
57	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
58 >	12.1 >	Agricultural Land Classification >	Grade 3 (within 250m)				
59	12.2	Open Access Land	0	0	0	-	-
59 >	12.3 >	Tree Felling Licences >	0	1	5	-	-
59	12.4	Environmental Stewardship Schemes	0	0	0	-	-
60 >	12.5 >	Countryside Stewardship Schemes >	1	0	2	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
61 >	13.1 >	Priority Habitat Inventory >	0	1	6	-	-
62	13.2	Habitat Networks	0	0	0	-	-
62	13.3	Open Mosaic Habitat	0	0	0	-	-
62	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
63 >	14.1 >	10k Availability >	Identified (within 500m)				
64	14.2	Artificial and made ground (10k)	0	0	0	0	-
65 >	14.3 >	Superficial geology (10k) >	1	0	0	0	-

66	14.4	Landslip (10k)	0	0	0	0	-
67 >	14.5 >	Bedrock geology (10k) >	1	0	1	3	-
68	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
69 >	15.1 >	50k Availability >	Identified (within 500m)				
70	15.2	Artificial and made ground (50k)	0	0	0	0	-
70	15.3	Artificial ground permeability (50k)	0	0	-	-	-
71 >	15.4 >	Superficial geology (50k) >	1	0	0	0	-
72 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
72	15.6	Landslip (50k)	0	0	0	0	-
72	15.7	Landslip permeability (50k)	None (within 50m)				
73 >	15.8 >	Bedrock geology (50k) >	1	0	1	3	-
74 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
74	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
75 >	16.1 >	BGS Boreholes >	0	0	5	-	-
Page	Section	Natural ground subsidence >					
77 >	17.1 >	Shrink swell clays >	Low (within 50m)				
78 >	17.2 >	Running sands >	Very low (within 50m)				
79 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
80 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
81 >	17.5 >	Landslides >	Very low (within 50m)				
82 >	17.6 >	Ground dissolution of soluble rocks >	Very low (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
84	18.1	BritPits	0	0	0	0	-
85 >	18.2 >	Surface ground workings >	0	4	1	-	-
85	18.3	Underground workings	0	0	0	0	0
85	18.4	Underground mining extents	0	0	0	0	-
85	18.5	Historical Mineral Planning Areas	0	0	0	0	-

86	18.6	Non-coal mining	0	0	0	0	0
86	18.7	JPB mining areas	None (within 0m)				
86	18.8	The Coal Authority non-coal mining	0	0	0	0	-
86	18.9	Researched mining	0	0	0	0	-
87	18.10	Mining record office plans	0	0	0	0	-
87	18.11	BGS mine plans	0	0	0	0	-
87	18.12	Coal mining	None (within 0m)				
87	18.13	Brine areas	None (within 0m)				
87	18.14	Gypsum areas	None (within 0m)				
88	18.15	Tin mining	None (within 0m)				
88	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
89	19.1	Natural cavities	0	0	0	0	-
89	19.2	Mining cavities	0	0	0	0	0
89	19.3	Reported recent incidents	0	0	0	0	-
89	19.4	Historical incidents	0	0	0	0	-
90	19.5	National karst database	0	0	0	0	-
Page	Section	**Radon** >					
91 >	**20.1** >	**Radon** >	Less than 1% (within 0m)				
Page	Section	**Soil chemistry** >	On site	0-50m	50-250m	250-500m	500-2000m
93 >	**21.1** >	**BGS Estimated Background Soil Chemistry** >	3	1	-	-	-
93	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
94	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
95	22.1	Underground railways (London)	0	0	0	-	-
95	22.2	Underground railways (Non-London)	0	0	0	-	-
95	22.3	Railway tunnels	0	0	0	-	-
95	22.4	Historical railway and tunnel features	0	0	0	-	-
95	22.5	Royal Mail tunnels	0	0	0	-	-

96	22.6	Historical railways	0	0	0	-	-
96	22.7	Railways	0	0	0	-	-
96	22.8	Crossrail 1	0	0	0	0	-
96	22.9	Crossrail 2	0	0	0	0	-
96	22.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 17/04/2021

Site Area: 6.44ha

Recent site history - 2018 aerial photograph

Capture Date: 02/09/2018

Site Area: 6.44ha

Recent site history - 2012 aerial photograph

Capture Date: 24/07/2012

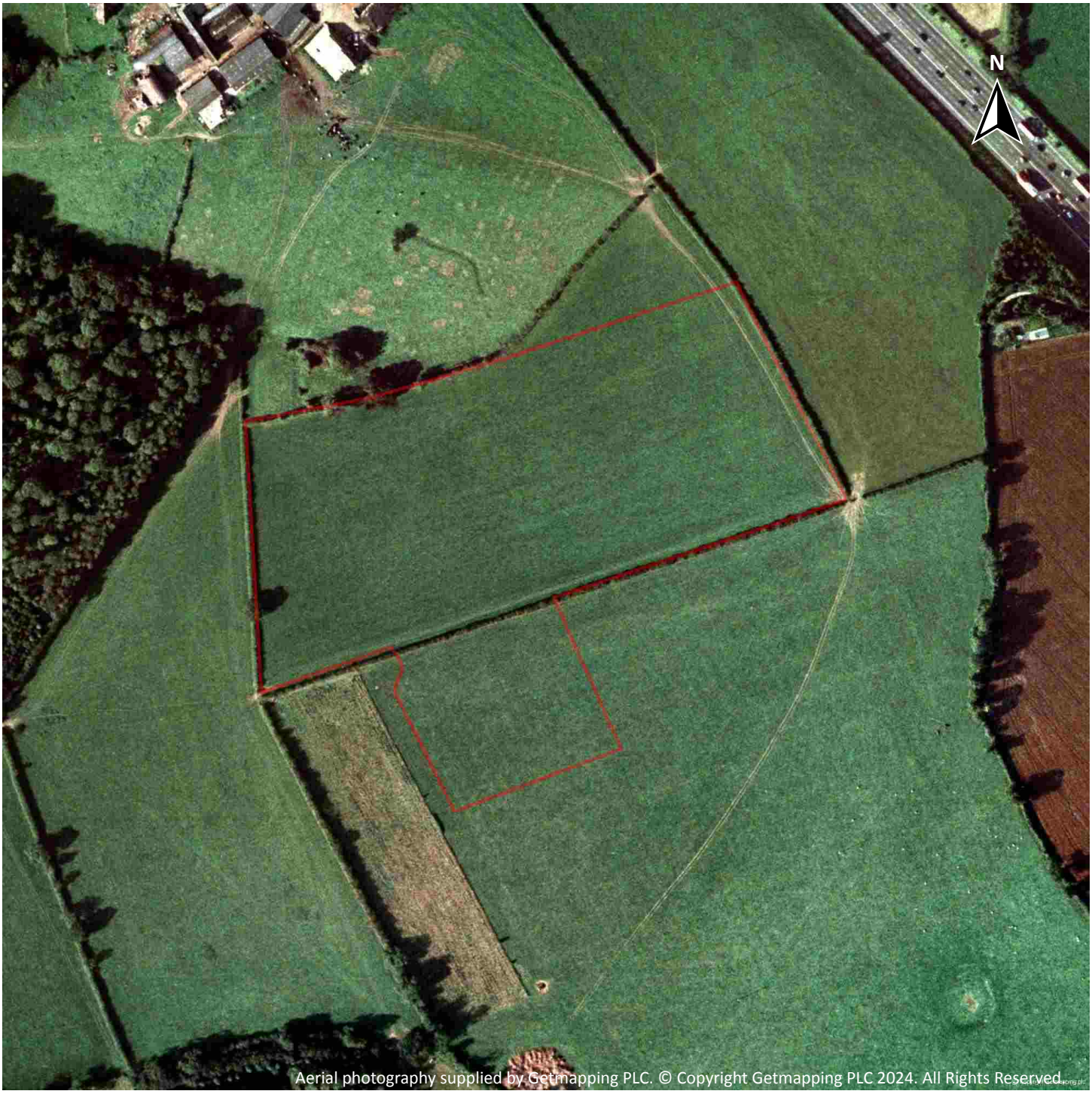
Site Area: 6.44ha

Recent site history - 2006 aerial photograph

Capture Date: 04/11/2006

Site Area: 6.44ha

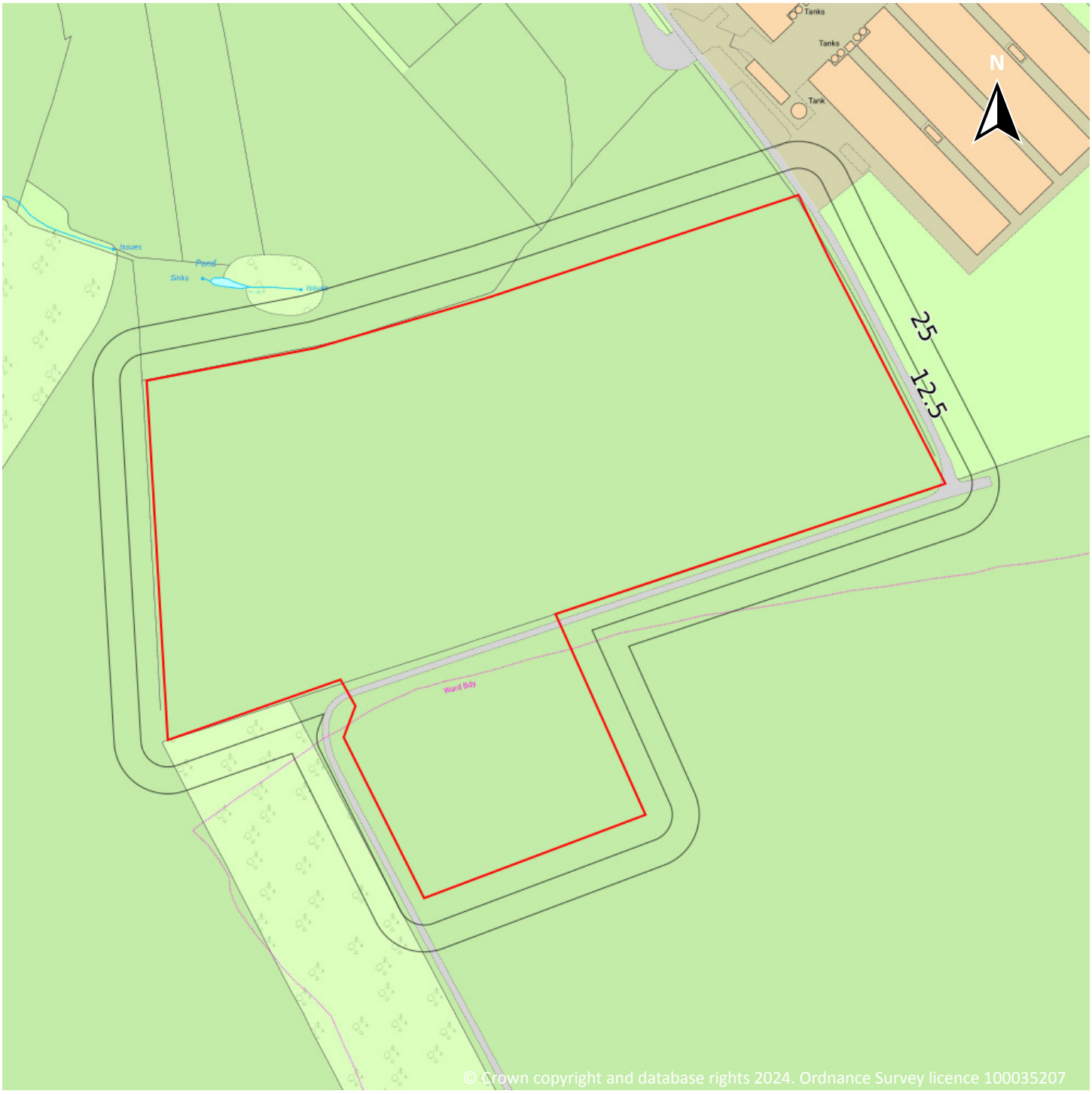
Recent site history - 1999 aerial photograph



Capture Date: 02/09/1999

Site Area: 6.44ha

OS MasterMap site plan



Site Area: 6.44ha

1 Past land use

Site Outline

Search buffers in metres (m)

Historical industrial land uses

1.1 Historical industrial land uses

Records within 500m	3

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 15 >**

ID	Location	Land use	Dates present	Group ID
A	482m SE	Cuttings	1900	1784919

ID	Location	Land use	Dates present	Group ID
A	484m SE	Cuttings	1950 - 1957	1808811
A	486m SE	Cuttings	1981	1832657

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	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 un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.6 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

2.1 Historical industrial land uses

Records within 500m	4

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

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

ID	Location	Land Use	Date	Group ID
A	482m SE	Cuttings	1900	1784919
A	484m SE	Cuttings	1957	1808811
A	485m SE	Cuttings	1950	1808811

ID	Location	Land Use	Date	Group ID
A	486m SE	Cuttings	1981	1832657

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	0

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'.

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)

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	0

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

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

3.7 Waste exemptions

Records within 500m	15

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 20 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	7m SE	-	WEX108196	Storing waste exemption	On a farm	Storage of sludge

ID	Location	Site	Reference	Category	Sub-Category	Description
A	7m SE	Land at NGR: SP7747052560 Courteenhalls Farms Northampton NN7 2QD	EPR/RE5147TW/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of sludge
B	149m N	-	WEX376884	Storing waste exemption	On a farm	Storage of waste in a secure place
B	149m N	-	WEX248266	Storing waste exemption	On a farm	Storage of waste in a secure place
1	219m N	-	WEX282098	Using waste exemption	On a Farm	Use of waste in construction
C	272m NW	EAST LODGE FARM, COURTEENHALL, NORTHAMPTON, NN7 2QF	WEX352089	Storing waste exemption	On a farm	Storage of waste in a secure place
C	272m NW	EAST LODGE FARM, COURTEENHALL, NORTHAMPTON, NN7 2QF	WEX355392	Treating waste exemption	On a farm	Treatment of waste in a biobed or biofilter
C	272m NW	EAST LODGE FARM, COURTEENHALL, NORTHAMPTON, NN7 2QF	WEX226632	Storing waste exemption	On a Farm	Storage of waste in a secure place
C	272m NW	EAST LODGE FARM, COURTEENHALL, NORTHAMPTON, NN7 2QF	WEX109767	Using waste exemption	On a farm	Use of waste in construction
C	272m NW	EAST LODGE FARM, COURTEENHALL, NORTHAMPTON, NN7 2QF	WEX228664	Treating waste exemption	On a Farm	Treatment of waste in a biobed or biofilter
C	272m NW	EAST LODGE FARM, COURTEENHALL, NORTHAMPTON, NN7 2QF	WEX083243	Treating waste exemption	On a farm	Treatment of waste in a biobed or biofilter
D	275m NW	-	WEX303560	Using waste exemption	On a Farm	Use of waste in construction
D	275m NW	East Lodge farm, Courteenhall, Courteenhall, Northampton, NN7 2QF	WEX127714	Using waste exemption	On a farm	Pig and poultry ash
E	391m N	-	WEX108194	Storing waste exemption	On a farm	Storage of sludge
E	391m N	Land at NGR:SP7733053110 Courteenhall Farms Northampton NN7 2QD	EPR/NE5047TF/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of sludge

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

4 Current industrial land use

Site Outline

Search buffers in metres (m)

Recent industrial land uses

Part A(1) industrial activities

Pollution inventory substances

Pollution inventory waste transfers

4.1 Recent industrial land uses

Records within 250m	1

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 24 >**

ID	Location	Company	Address	Activity	Category
1	166m E	Mast	Northamptonshire, NN7	Telecommunications Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	2

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

Features are displayed on the Current industrial land use map on **page 24 >**

ID	Location	Details	
A	115m NE	Operator: COURTEENHALL FARM PARTNERSHIP Installation Name: Courteenhall Poultry Farm - EPR/TP3109BY Process: INTENSIVE FARMING; > 40,000 POULTRY Permit Number: TP3109BY Original Permit Number: TP3109BY	EPR Reference: EPR/TP3109BY Issue Date: 09/08/2021 Effective Date: 09/08/2021 Last date noted as effective: 23/11/2023 Status: Effective

ID	Location	Details	
A	115m NE	Operator: OHEKA SERVICES LIMITED Installation Name: Courteenhall Poultry Farm EPR/RP3236DD Process: INTENSIVE FARMING; > 40,000 POULTRY Permit Number: RP3236DD Original Permit Number: RP3236DD	EPR Reference: EPR/RP3236DD Issue Date: 11/06/2018 Effective Date: 11/06/2018 Last date noted as effective: 23/11/2023 Status: Superseded

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	0

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 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	0

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

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

4.19 Pollution inventory substances

Records within 500m	3

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.

Features are displayed on the Current industrial land use map on **page 24 >**

ID: A, Location: 115m NE, Permit: TP3109BY
Operator: Courteenhall Farm Partnership
Activity: INTENSIVE FARMING; > 40,000 POULTRY
Address: Courteenhall Poultry Farm The Estate Office Northamptonshire NN7 2QD
Sector Agriculture, Sub-sector: Intensive Farming
Releases:

Route	Substance	Reporting threshold (kg)	Quantity (kg)
Air	Particulate matter - PM10	1000kg	7560kg

ID: A, Location: 115m NE, Permit: TP3109BY
Operator: Courteenhall Farm Partnership
Activity: INTENSIVE FARMING; > 40,000 POULTRY
Address: Courteenhall Poultry Farm The Estate Office Northamptonshire NN7 2QD
Sector Agriculture, Sub-sector: Intensive Farming
Releases:

Route	Substance	Reporting threshold (kg)	Quantity (kg)
Air	Nitrogen oxides (NO and NO2) as NO2	100000kg	Below Reporting Threshold

ID: A, Location: 115m NE, Permit: TP3109BY
Operator: Courteenhall Farm Partnership
Activity: INTENSIVE FARMING; > 40,000 POULTRY
Address: Courteenhall Poultry Farm The Estate Office Northamptonshire NN7 2QD
Sector Agriculture, Sub-sector: Intensive Farming
Releases:

Route	Substance	Reporting threshold (kg)	Quantity (kg)
Air	Ammonia	1000kg	7711.2kg

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

4.20 Pollution inventory waste transfers

Records within 500m	**1**

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.

Features are displayed on the Current industrial land use map on **page 24 >**

ID: A, Location: 115m NE, Permit: TP3109BY
Operator: Courteenhall Farm Partnership
Activity: INTENSIVE FARMING; > 40,000 POULTRY
Address: Courteenhall Poultry Farm The Estate Office Northamptonshire NN7 2QD
Sector Agriculture, Sub-sector: Intensive Farming
Releases:

Route	Route description	Quantity (tonnes)	Release level	EWC code	EWC description	Hazardous waste
R5	Recycling/reclamation of other inorganic materials	-	brt	15 01 01	paper and cardboard packaging	No
D1	Deposit into or onto land (eg landfill, etc.)	-	brt	15 01 06	mixed packaging	No
D1	Deposit into or onto land (eg landfill, etc.)	-	brt	19 01 12	bottom ash and slag other than those mentioned in 19 01 11	No

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

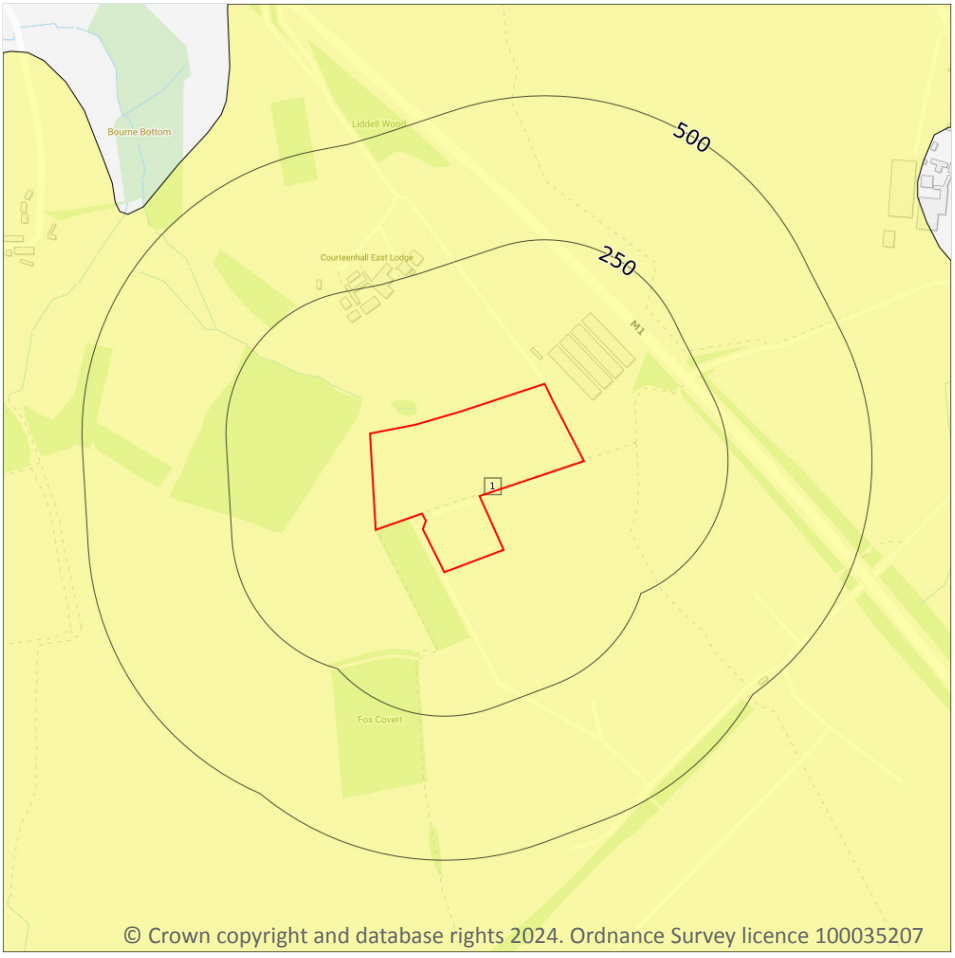
4.21 Pollution inventory radioactive waste

Records within 500m	**0**

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

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

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	1

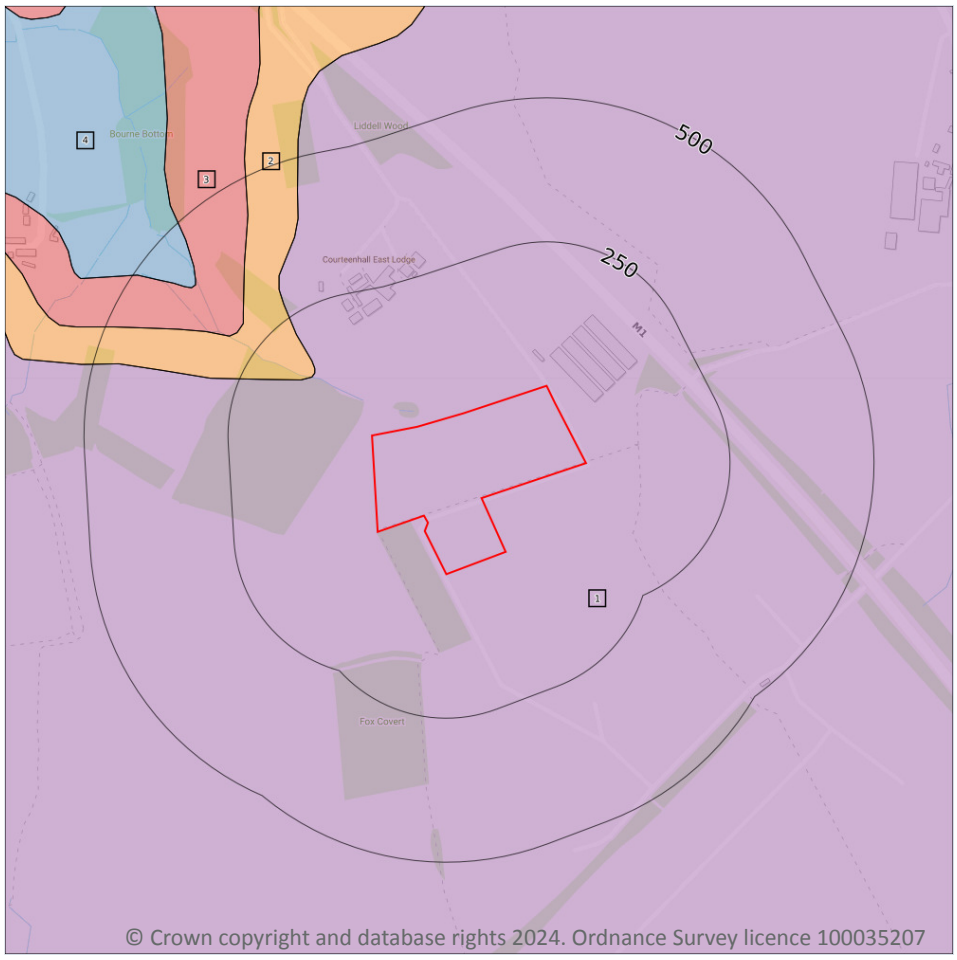
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 31 >**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**

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	4

Aquifer status of groundwater held within bedrock geology.

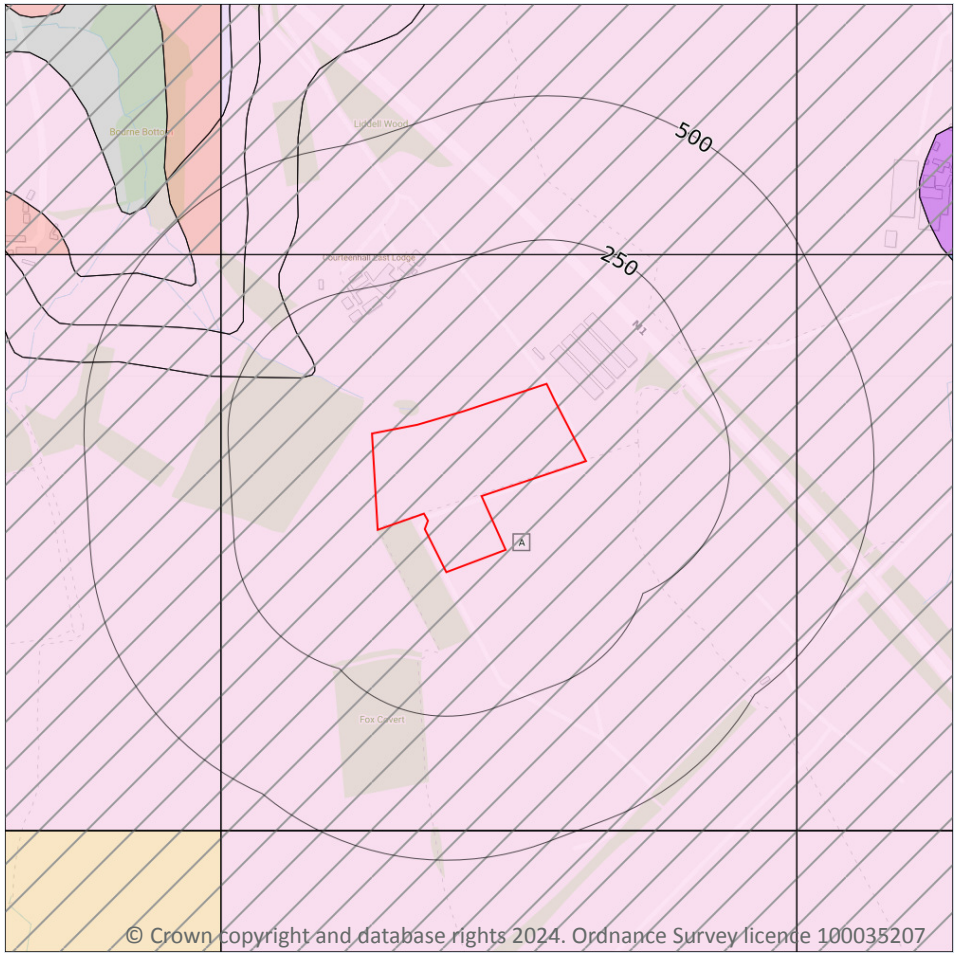
Features are displayed on the Bedrock aquifer map on **page 32 >**

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**
2	146m NW	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

ID	Location	Designation	Description
3	295m NW	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
4	403m NW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

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

Bedrock vulnerability

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

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

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 34 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
A	**On site**	**Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: 40-70% Dilution value: <300mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures**

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**1**

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

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
A	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**0.0%**

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

5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones

Site Outline

Search buffers in metres (m)

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

5.6 Groundwater abstractions

Records within 2000m	1

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 36 >**

ID	Location	Details	
-	1067m NE	Status: Active Licence No: 5/32/04/*G/0013 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: WELL AT QUINTON GREEN Data Type: Point Name: Turney Partners Easting: 478300 Northing: 253550	Annual Volume (m^3): 10001 Max Daily Volume (m^3): 25 Original Application No: NPS/WR/023298 Original Start Date: 01/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 02/09/2016 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**1**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 36 >**

ID	Location	Details	
-	1867m N	Status: Historical Licence No: 5/32/04/*S/0037 Details: General Farming & Domestic Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: UNDERGROUND SPRING-LOWER FARM Data Type: Point Name: PANG (WEST INDIES) LTD Easting: 477680 Northing: 254640	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1973 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	**0**

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

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

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	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 39 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	28m NW	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
A	33m NW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	39m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	2

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 39 >**

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 39 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River**	**Wootton Brook**	**GB105032045550**	**Nene Upper**	**Nene**

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

6.4 WFD Surface water bodies

Records identified	1

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

Features are displayed on the Hydrology map on **page 39 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2987m N	River	Wootton Brook	GB105032045550 ↗	Poor	Fail	Poor	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 39 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	**On site**	**Northampton Sands**	**GB40501G445500 ↗**	**Good**	**Good**	**Good**	**2019**

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

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

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).

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

7.6 Flood Zone 2

Records within 50m	0

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.

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

7.7 Flood Zone 3

Records within 50m	0

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.

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	**Negligible**
Highest risk within 50m	**1 in 30 year, 0.1m - 0.3m**

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 45 >**

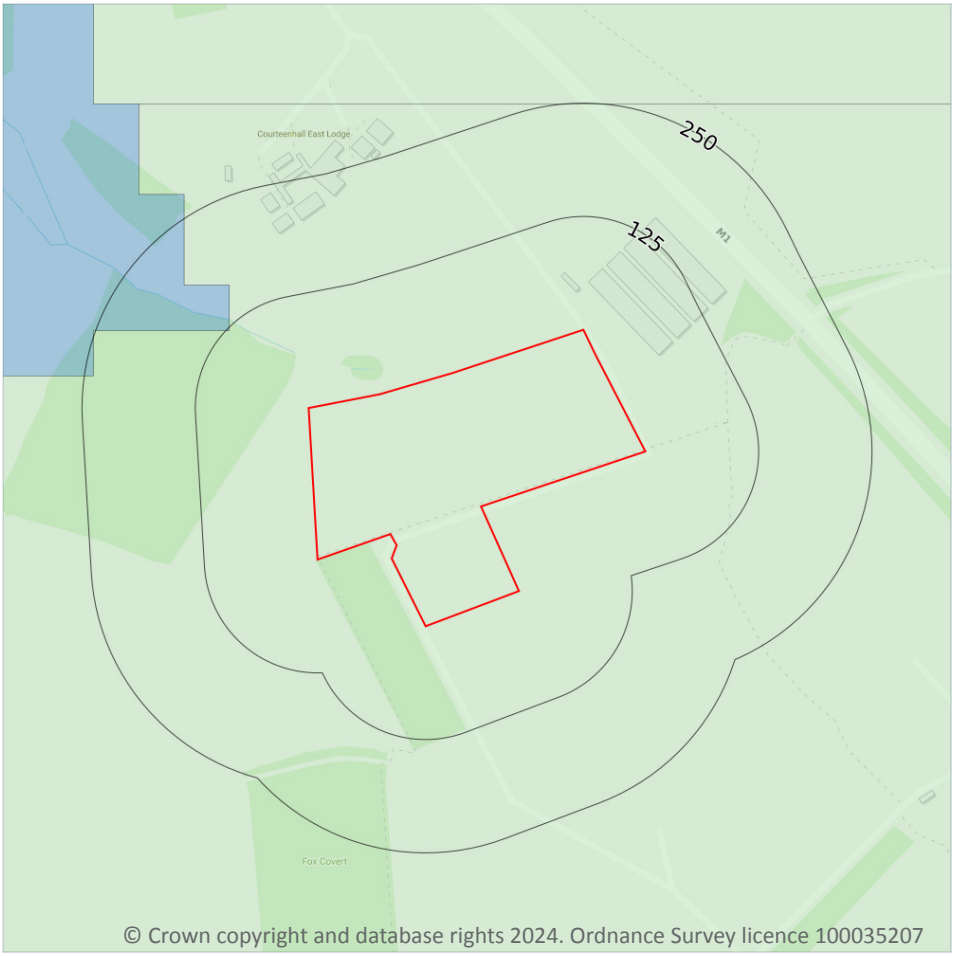
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

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

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 47 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations

Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	12

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.

Features are displayed on the Environmental designations map on **page 48 >**

ID	Location	Name	Woodland Type
-	1285m E	Salcey Forest	Ancient & Semi-Natural Woodland
2	1557m SE	Salcey Forest	Ancient & Semi-Natural Woodland
-	1598m E	Salcey Forest	Ancient Replanted Woodland
4	1598m SE	Unknown	Ancient Replanted Woodland
-	1629m SE	Rowley Wood	Ancient Replanted Woodland
-	1760m SE	Salcey Forest	Ancient Replanted Woodland
-	1815m E	Salcey Forest	Ancient Replanted Woodland
-	1959m NE	Unknown	Ancient & Semi-Natural Woodland
-	1964m SE	Salcey Forest	Ancient Replanted Woodland
-	1965m E	Salcey Forest	Ancient & Semi-Natural Woodland
-	1971m E	Salcey Forest	Ancient Replanted Woodland
-	1973m SE	Salcey Forest	Ancient & Semi-Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	3

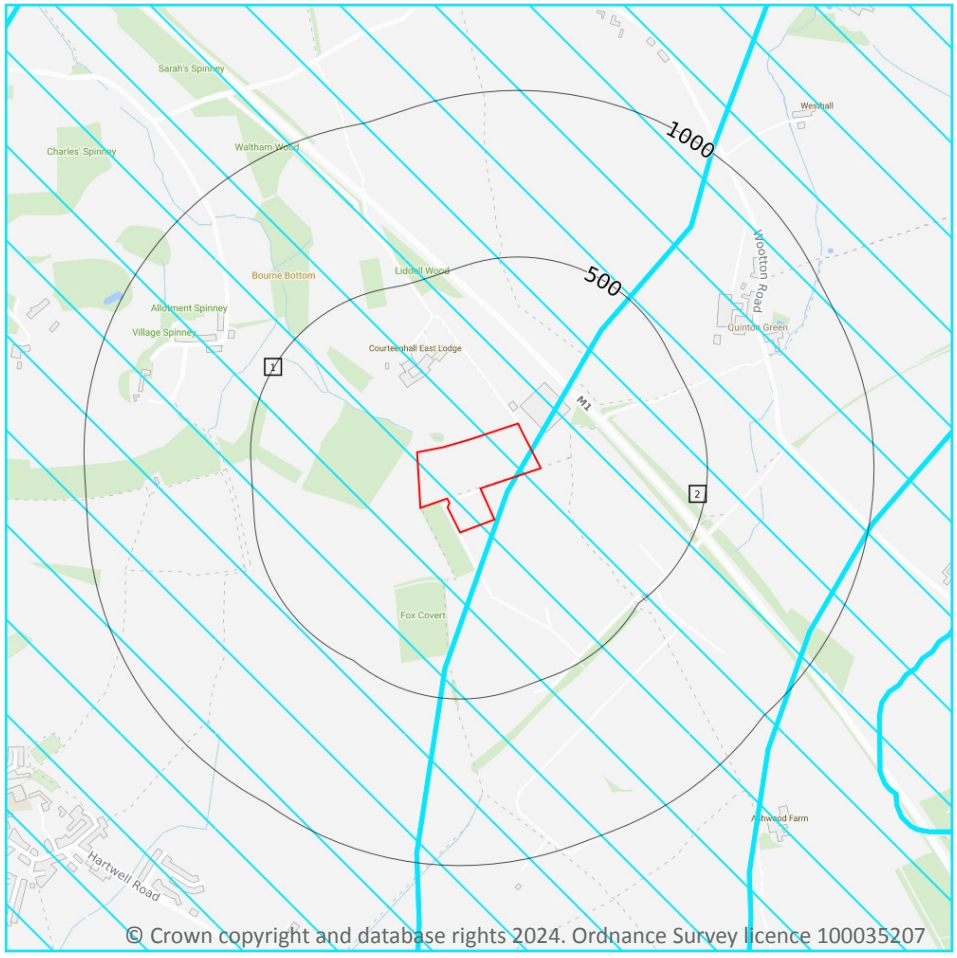
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	**River Nene NVZ**	**Surface Water**	**382**	**Existing**

Location	Name	Type	NVZ ID	Status
On site	**Thrapstone lake Eutrophic lake NVZ**	**Eutrophic Water**	**148**	**Existing**
141m S	Great Ouse NVZ	Surface Water	391	Existing

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

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

10.17 SSSI Impact Risk Zones

Records on site	2

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

Features are displayed on the SSSI Impact Zones and Units map on **page 54 >**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t. Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.**
2	On site	**Infrastructure - Airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t. Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.**

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

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	0

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.

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

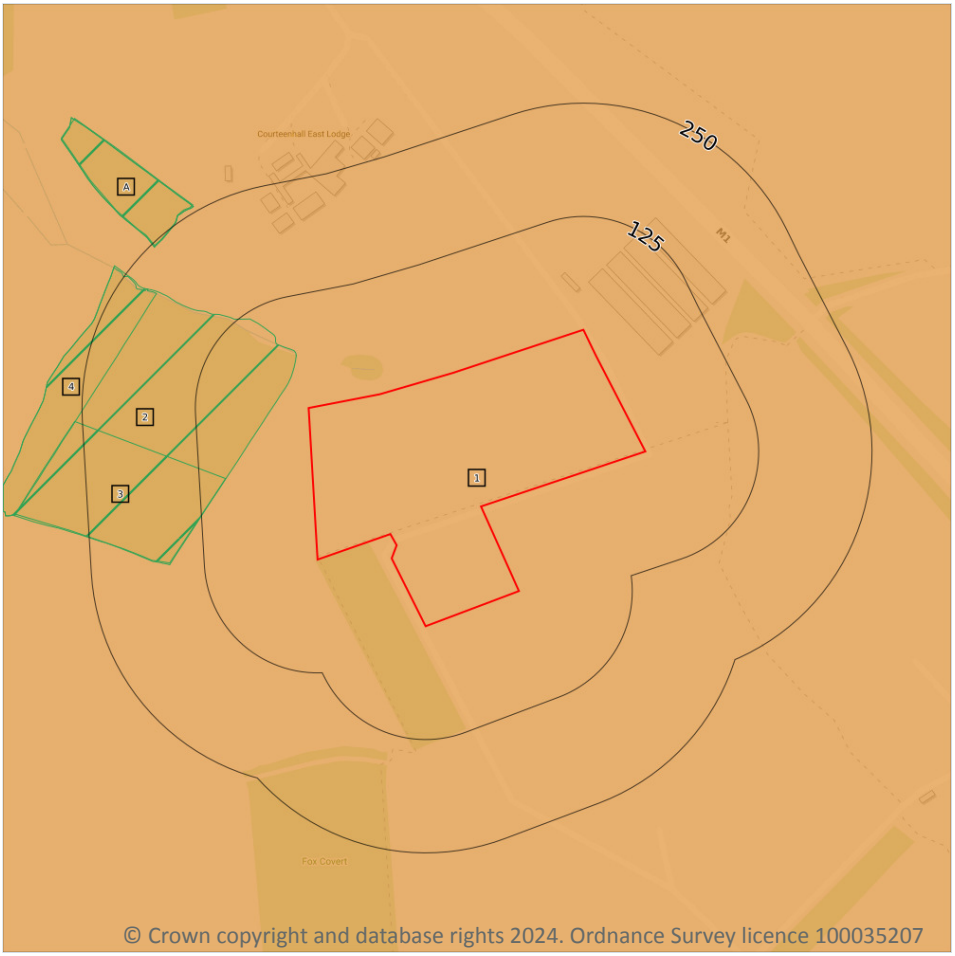
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

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 58 >**

ID	Location	Classification	Description
1	On site	Grade 3	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**

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	6

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 58 >**

ID	Location	Description	Reference	Application date
2	34m W	Selective Fell/Thin (Conditional)	014/124/12-13	28/01/2013
3	96m W	Selective Fell/Thin (Unconditional)	014/135/05-06	31/03/2006
4	209m NW	Selective Fell/Thin (Unconditional)	017/465/15-16	11/04/2016
A	246m NW	Selective Fell/Thin (Conditional)	014/124/12-13	28/01/2013
A	246m NW	Selective Fell/Thin (Unconditional)	014/135/10-11	06/04/2011
A	247m NW	Selective Fell/Thin (Unconditional)	014/135/05-06	31/03/2006

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

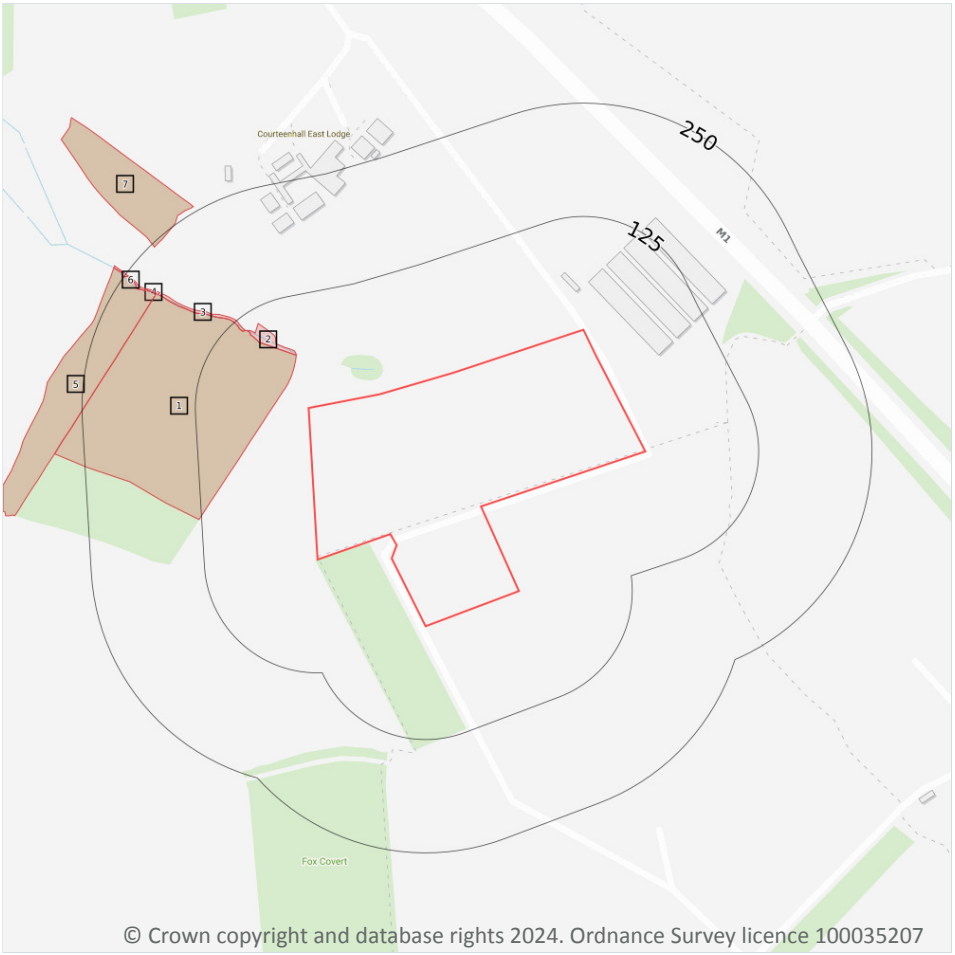
Records within 250m	3

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.

Location	Reference	Scheme	Start Date	End Date
On site	**1231481**	**Countryside Stewardship (Higher Tier)**	**01/01/2022**	**31/12/2031**
210m NE	1231481	Countryside Stewardship (Higher Tier)	01/01/2022	31/12/2031
211m NE	1053546	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025

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	7

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 61 >**

ID	Location	Main Habitat	Other habitats
1	34m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	60m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	111m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	208m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
5	209m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
6	222m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
7	246m NW	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.

14 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 63 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**SP75SE**

This data is sourced from the British Geological Survey.

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

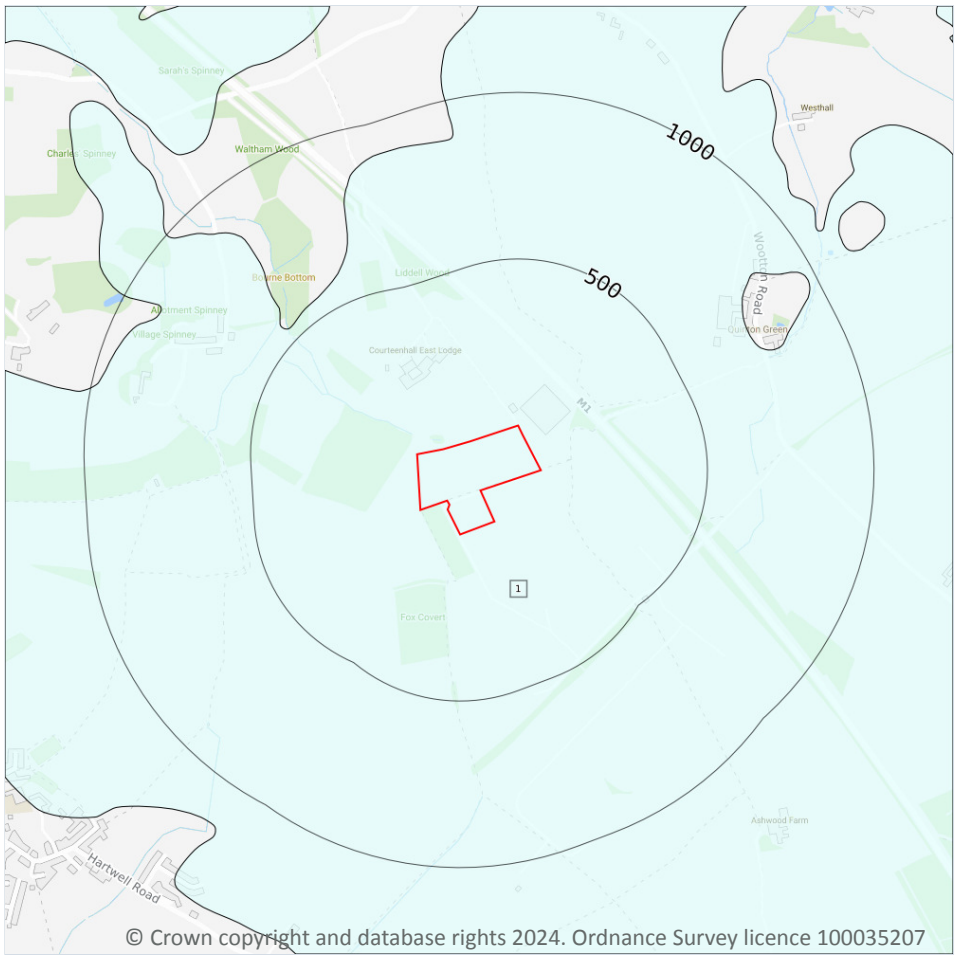
14.2 Artificial and made ground (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m	1

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 65 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILMP-DMTN**	**Till, Mid Pleistocene - Diamicton**	**Diamicton**

This data is sourced from the British Geological Survey.

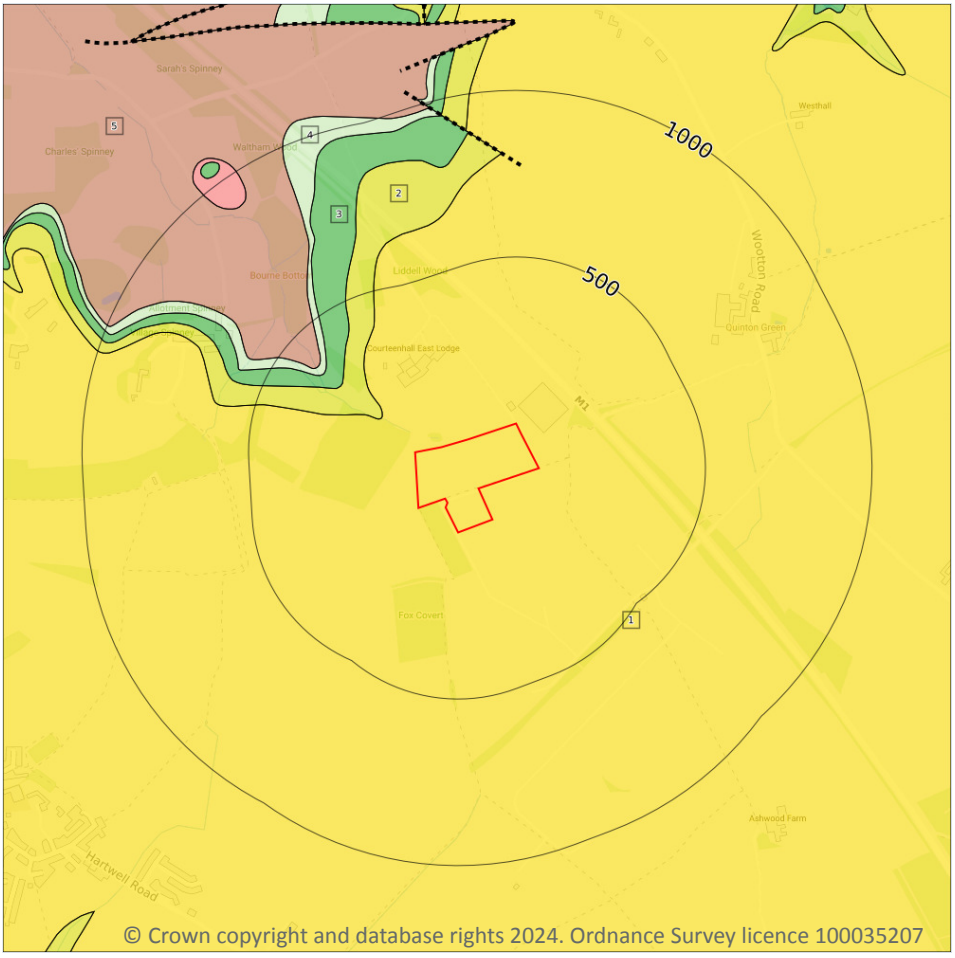
14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m	5

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 67 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BWL-LMST**	**Blisworth Limestone Formation - Limestone**	**Bathonian Age**
2	144m NW	RLD-MDST	Rutland Formation - Mudstone	Bathonian Age - Bajocian Age
3	299m NW	WBRO-LSMD	Wellingborough Limestone Member - Interbedded Limestone And Mudstone	Bathonian Age

ID	Location	LEX Code	Description	Rock age
4	362m NW	STAM-SDSL	Stamford Member - Sandstone And Siltstone, Interbedded	Bathonian Age - Bajocian Age
5	389m NW	WHM-MDST	Whitby Mudstone Formation - Mudstone	Toarcian Age

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 69 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW202_towcester_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

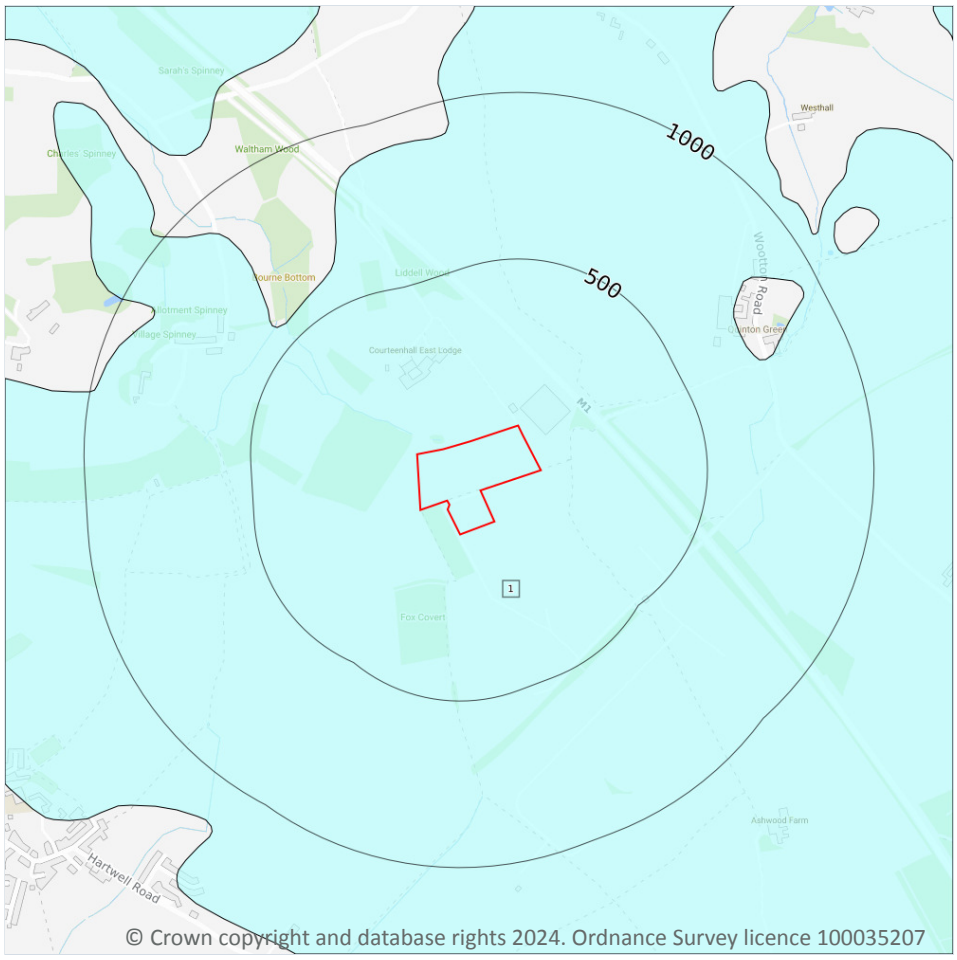
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m	1

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 71 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ODT-DMTN**	**OADBY MEMBER**	**DIAMICTON**

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Moderate**	**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.

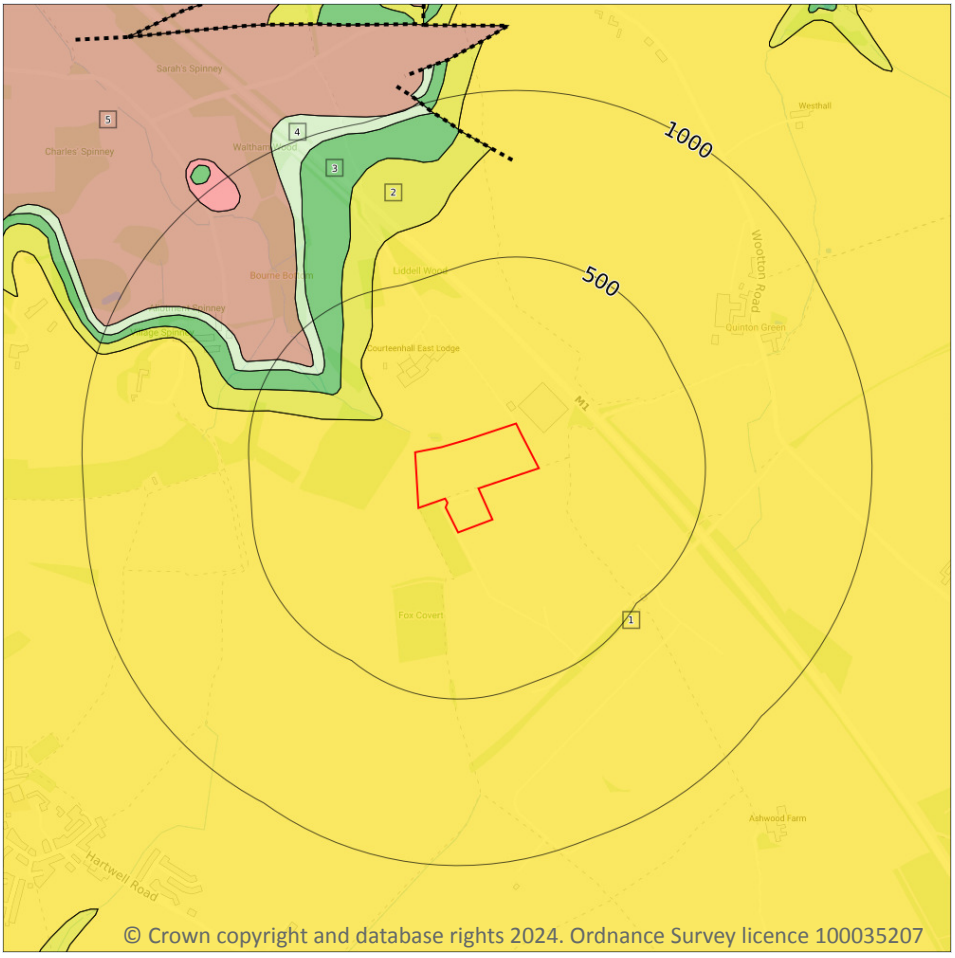
15.7 Landslip permeability (50k)

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 **5**

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 73 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BWL-LMST**	**BLISWORTH LIMESTONE FORMATION - LIMESTONE**	**BATHONIAN**
2	146m NW	RLD-MDST	RUTLAND FORMATION - MUDSTONE	BAJOCIAN
3	295m NW	WBRO-LMST	WELLINGBOROUGH LIMESTONE MEMBER - LIMESTONE	BATHONIAN

ID	Location	LEX Code	Description	Rock age
4	367m NW	STAM-SDSL	STAMFORD MEMBER - SANDSTONE AND SILTSTONE, INTERBEDDED	BAJOCIAN
5	403m NW	WHM-MDST	WHITBY MUDSTONE FORMATION - MUDSTONE	TOARCIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**1**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Very High**	**Very High**

This data is sourced from the British Geological Survey.

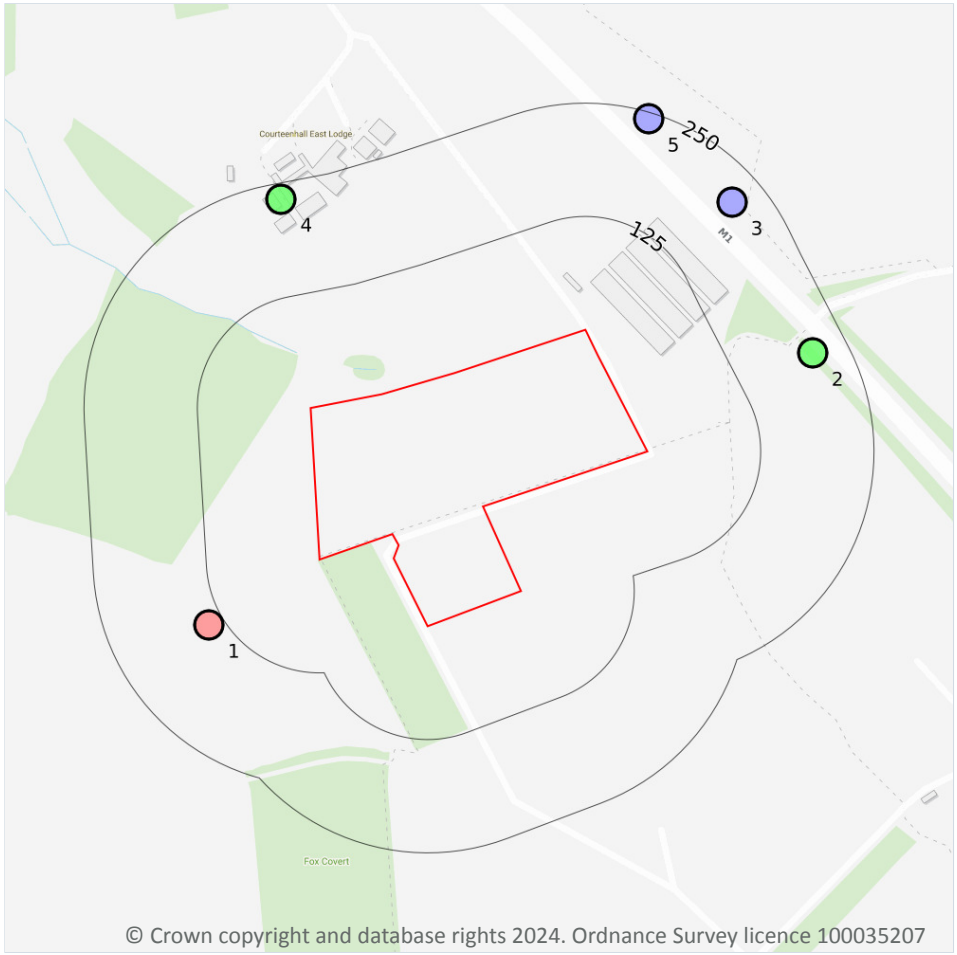
15.10 Bedrock faults and other linear features (50k)

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	5

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.

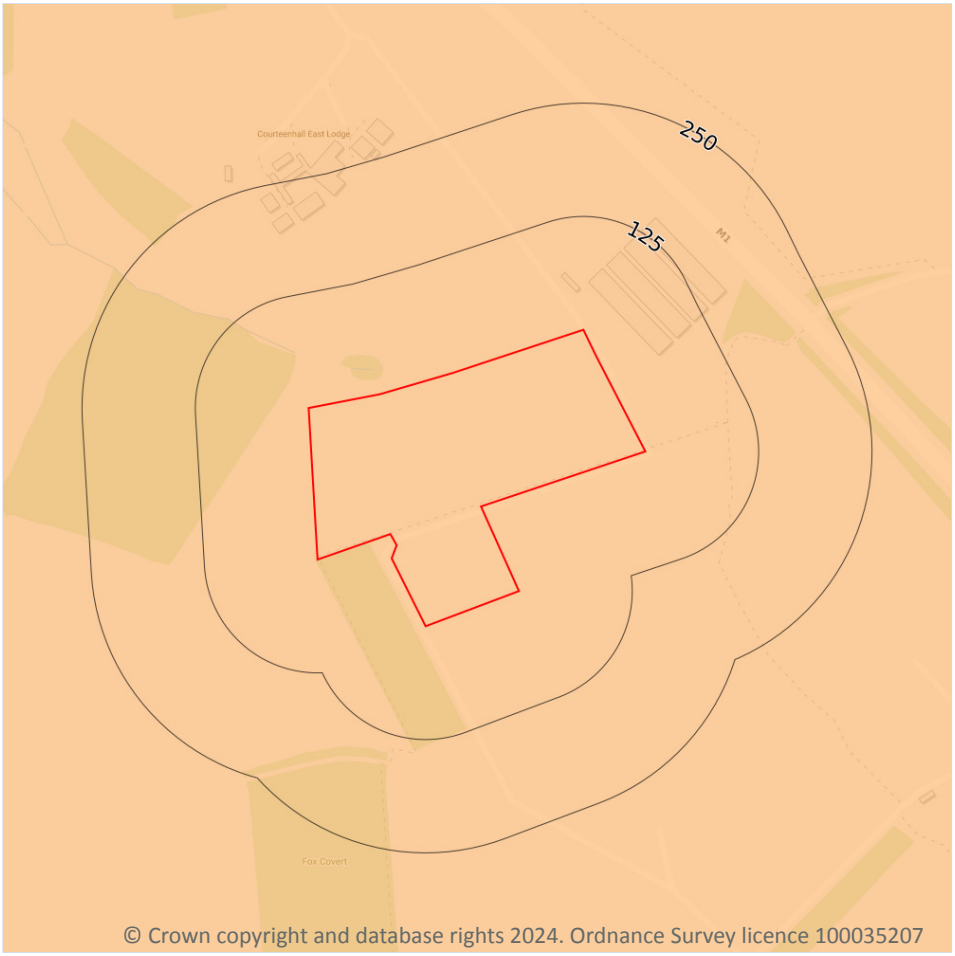
Features are displayed on the Boreholes map on **page 75 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	142m SW	477150 252450	EAST LODGE NO.2	76.0	N	344601 ↗
2	212m E	477816 252750	MI WIDEN JCTS 10-15 1724	20.45	N	344638 ↗
3	215m NE	477727 252917	MI WIDEN JCTS 10-15 TP 1515	4.0	N	344671 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	233m NW	477230 252920	EAST LODGE NO.1	12.0	N	344600 ↗
5	243m NE	477635 253009	MI WIDEN JCTS 10-15 TP 1516	4.0	N	344672 ↗

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

17.1 Shrink swell clays

Records within 50m	1

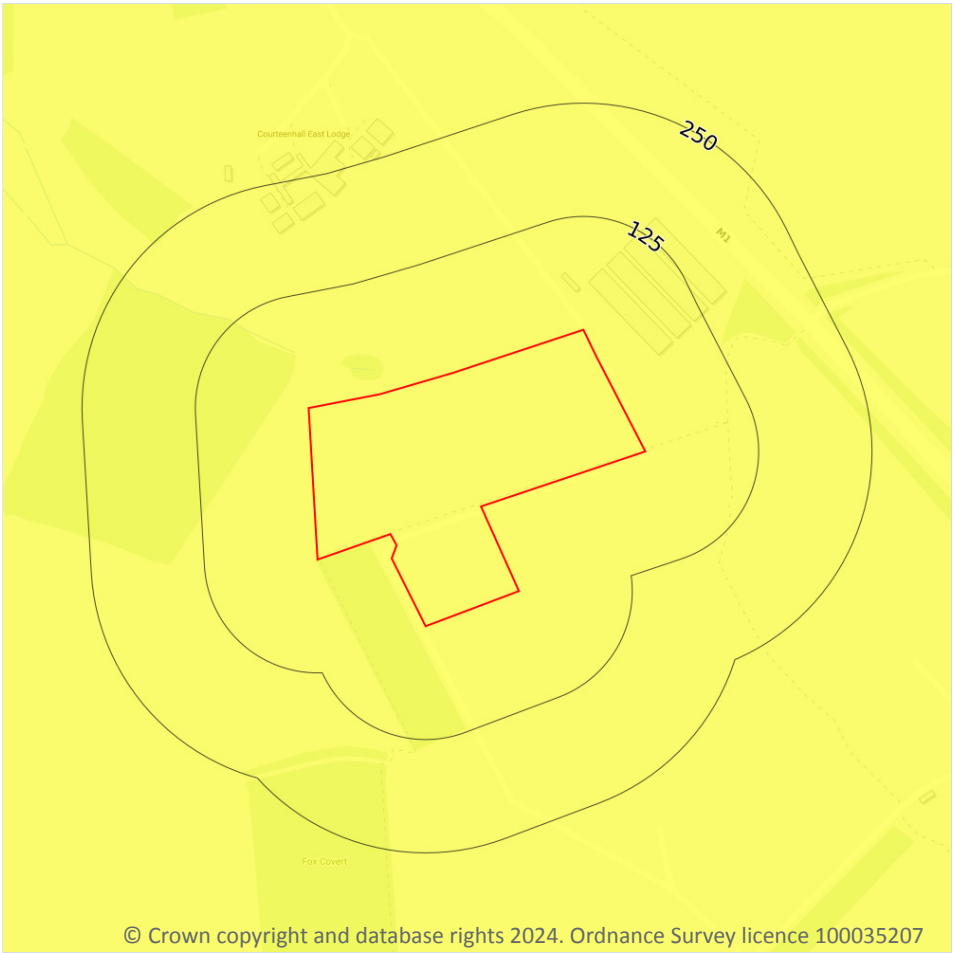
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 77 >**

Location	Hazard rating	Details
On site	**Low**	**Ground conditions predominantly medium plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

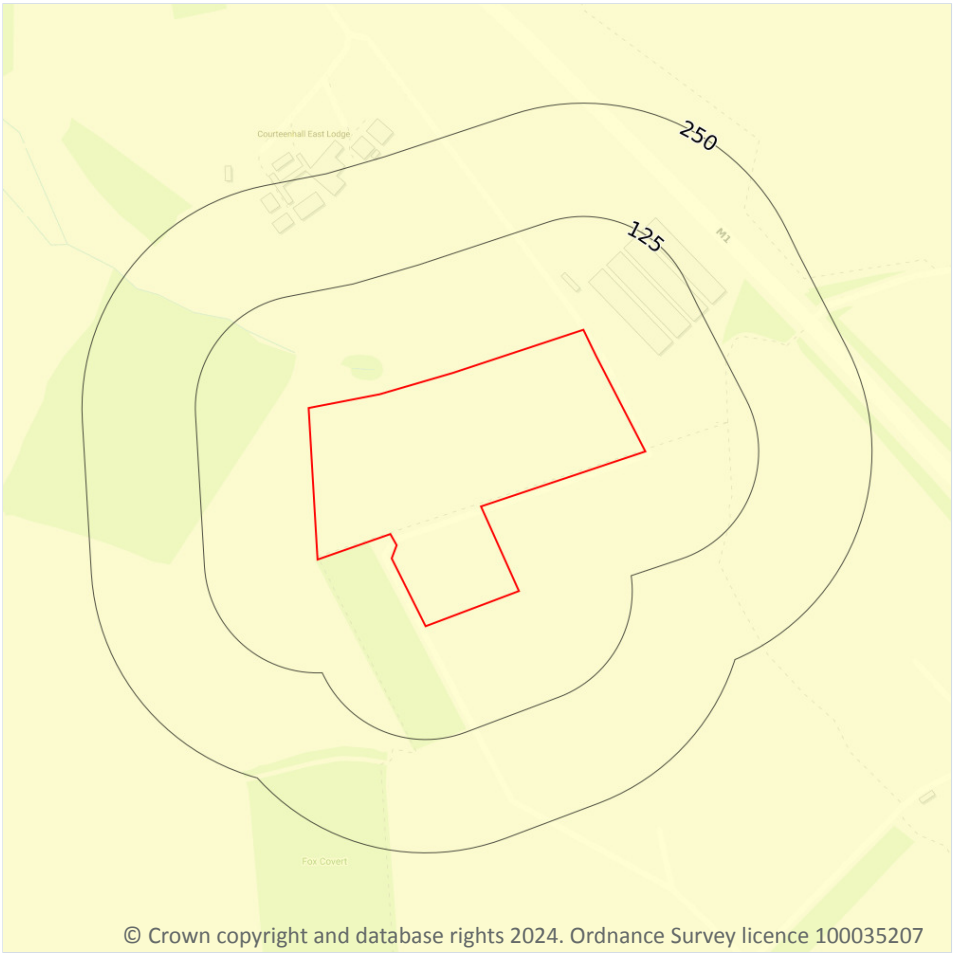
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 78 >**

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.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

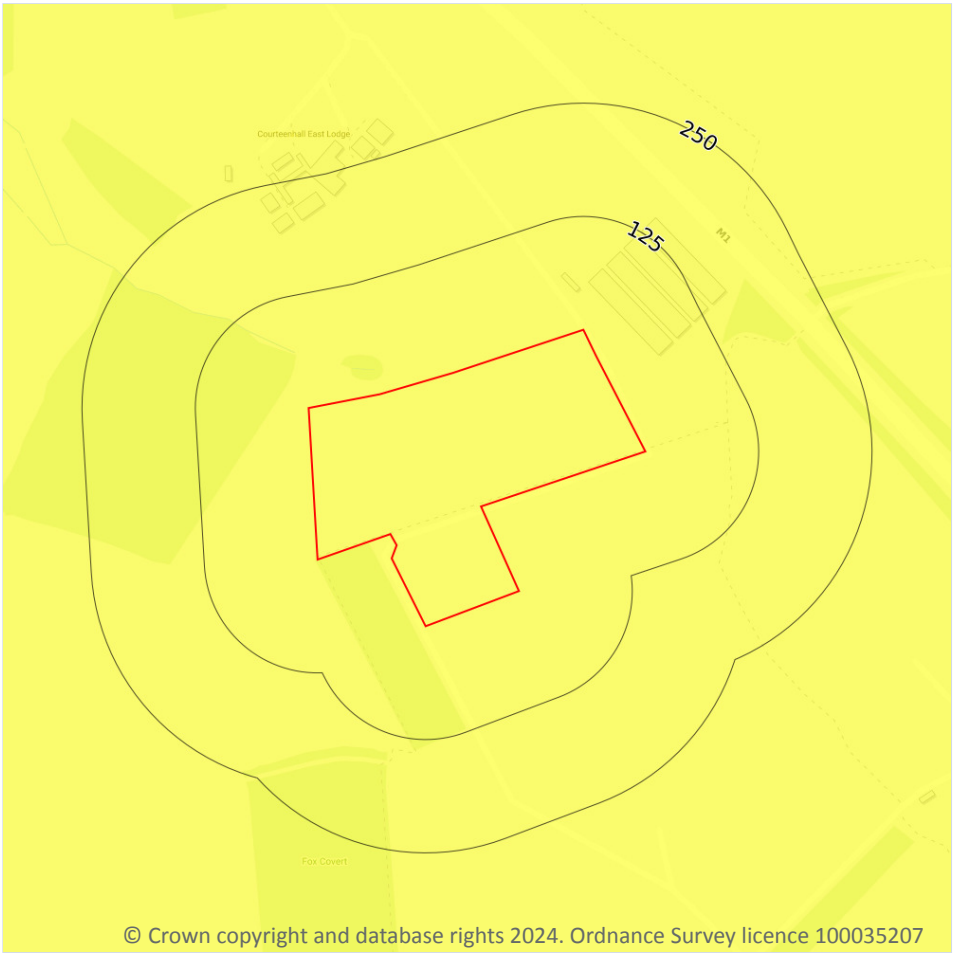
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 79 >**

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

17.4 Collapsible deposits

Records within 50m	1

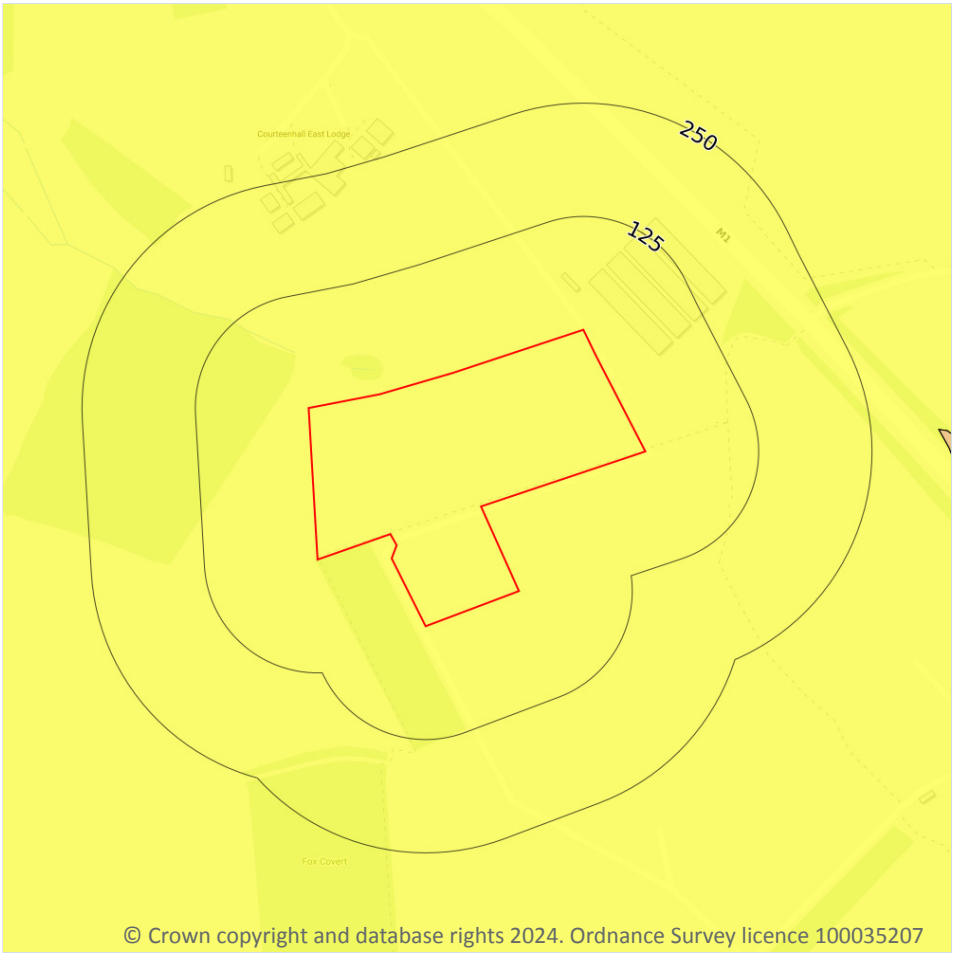
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 80 >**

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

17.5 Landslides

Records within 50m	1

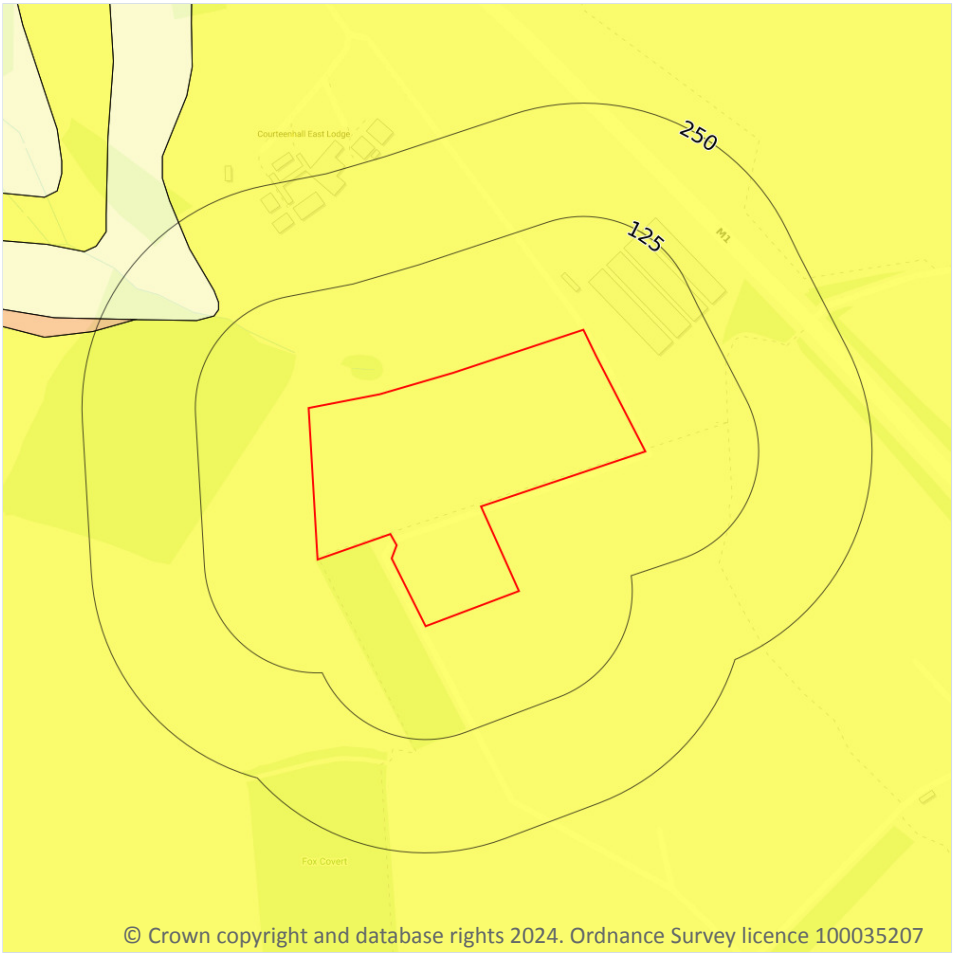
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 81 >**

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 82 >**

Location	Hazard rating	Details
On site	**Very low**	**Soluble rocks are present within the ground. Few dissolution features are likely to be present. Potential for difficult ground conditions or localised subsidence are at a level where they need not be considered.**

This data is sourced from the British Geological Survey.

18 Mining and ground workings

Site Outline

Search buffers in metres (m)

BritPits

Surface ground workings

Underground workings

Underground mining extents

Historical mineral planning areas

TCA non-coal mining

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 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.

18.2 Surface ground workings

Records within 250m	5

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 and ground workings map on **page 84 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	19m NW	Pond	1957	1:10560
A	23m NW	Pond	1900	1:10560
A	25m NW	Pond	1950	1:10560
A	25m NW	Pond	1883	1:10560
1	77m NW	Pond	1957	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 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 is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

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

This data is sourced from the British Geological Survey.

18.7 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.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 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.

18.13 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.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 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 Ground cavities and sinkholes

19.1 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.

19.2 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.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

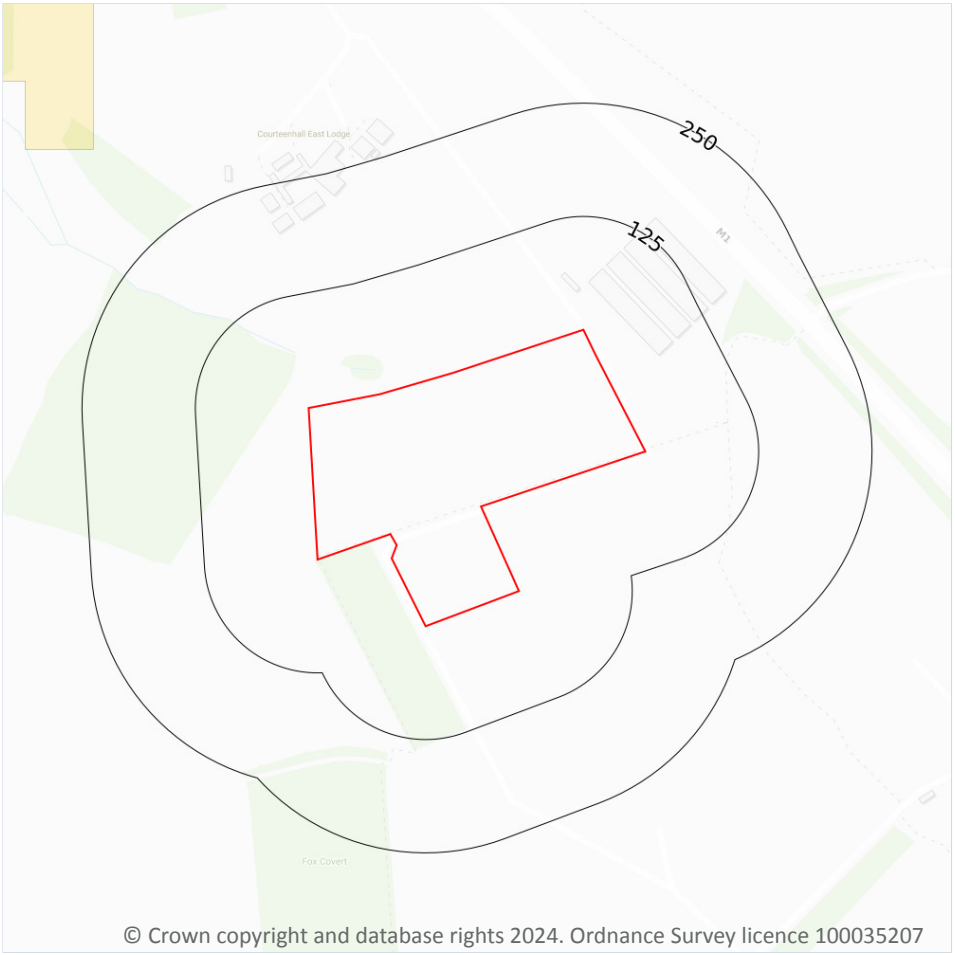
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

20 Radon



Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

20.1 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 91 >**

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.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	4

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
6m SE	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects

22.1 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.

22.2 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.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 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.

22.5 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.

22.6 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.

22.7 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.

22.8 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.

22.9 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.

22.10 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.

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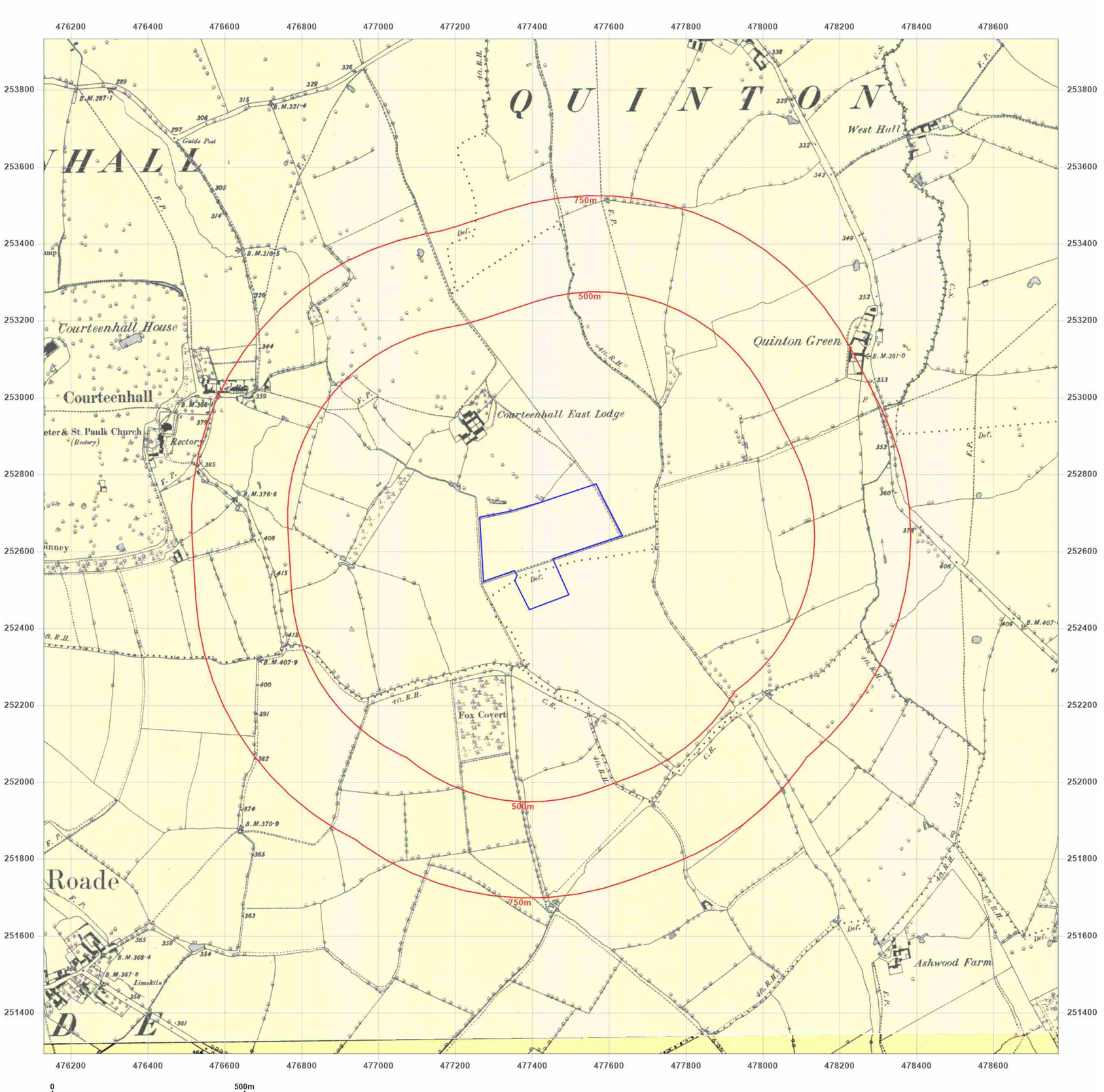

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Site Details:

Horseclose Anaerobic Digestion Facility, Courteenhall, West Northamptonshire, NN7 2QF

Client Ref: ETL747 Horseclose (Courteeen Hall)
Report Ref: GS-7XN-LHY-1HR-4YN
Grid Ref: 477448, 252612

Map Name: County Series

Map date: **1883-1884**

Scale: 1:10,560

Printed at: 1:10,560

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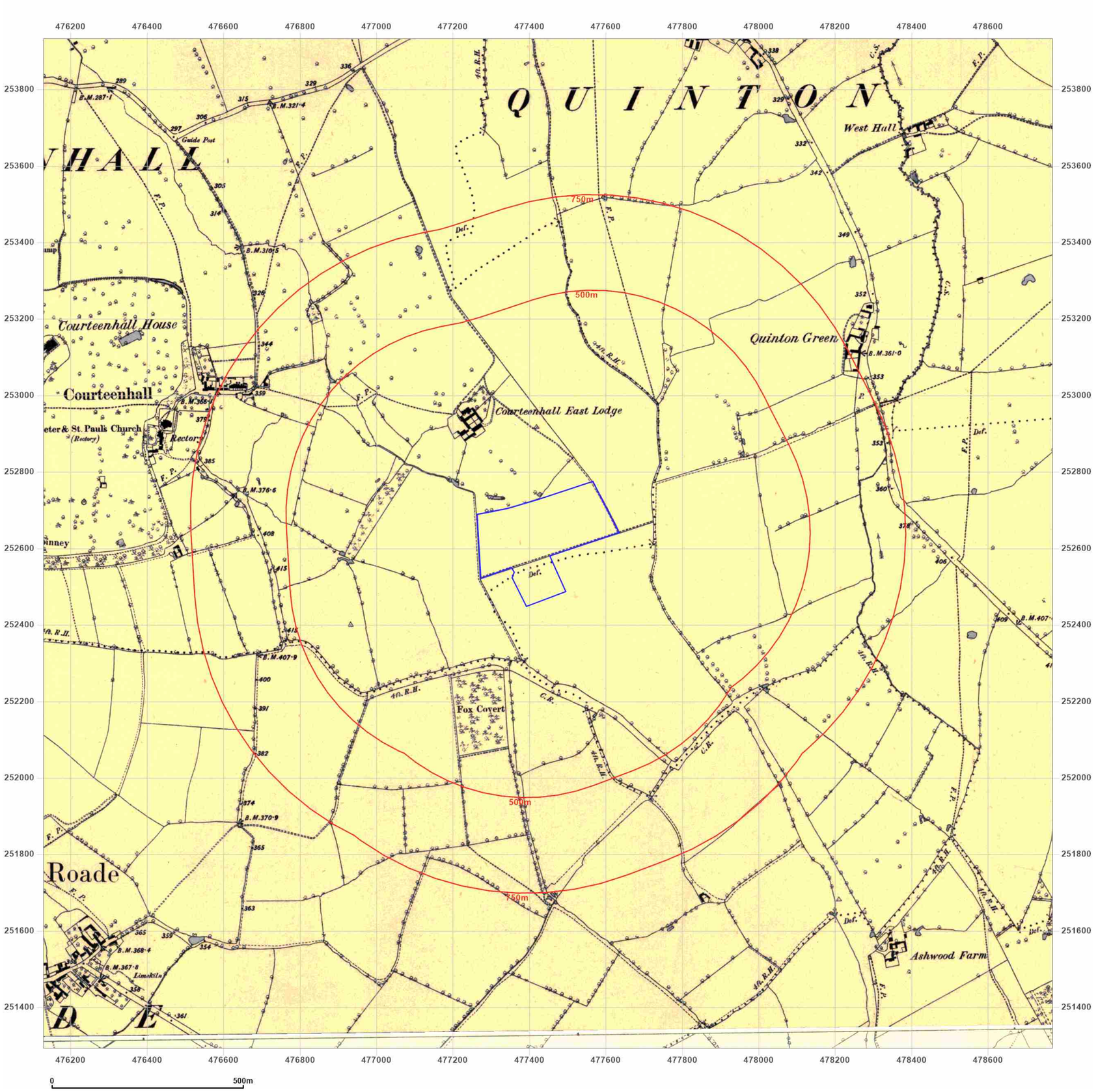

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Site Details:

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Client Ref: ETL747 Horseclose (Courteeen Hall)
Report Ref: GS-7XN-LHY-1HR-4YN
Grid Ref: 477448, 252612

Map Name: County Series

Map date: **1883-1884**

Scale: 1:10,560

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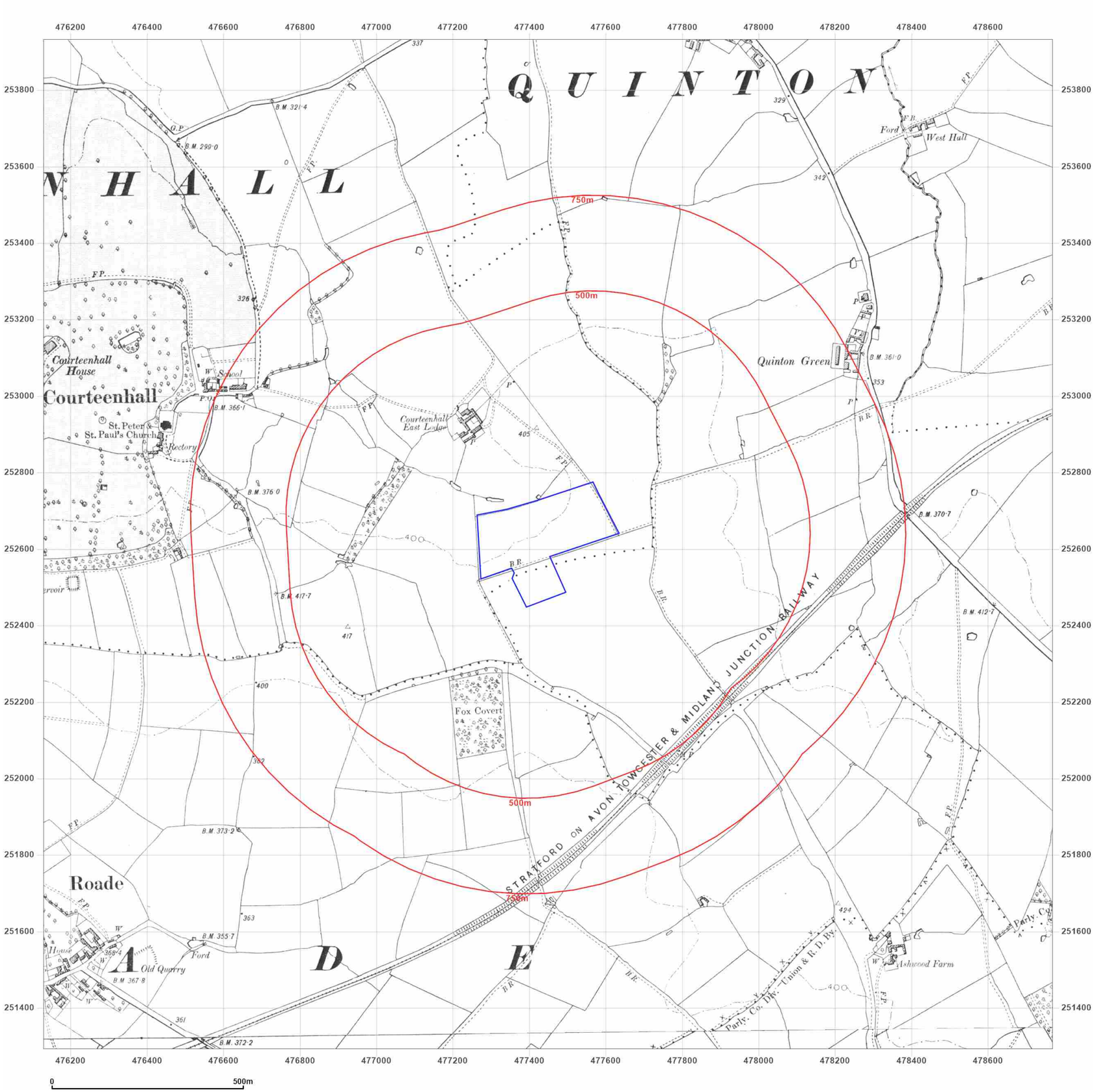

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Grid Ref: 477448, 252612

Map Name: County Series

Map date: **1899**

Scale: 1:10,560

Printed at: 1:10,560

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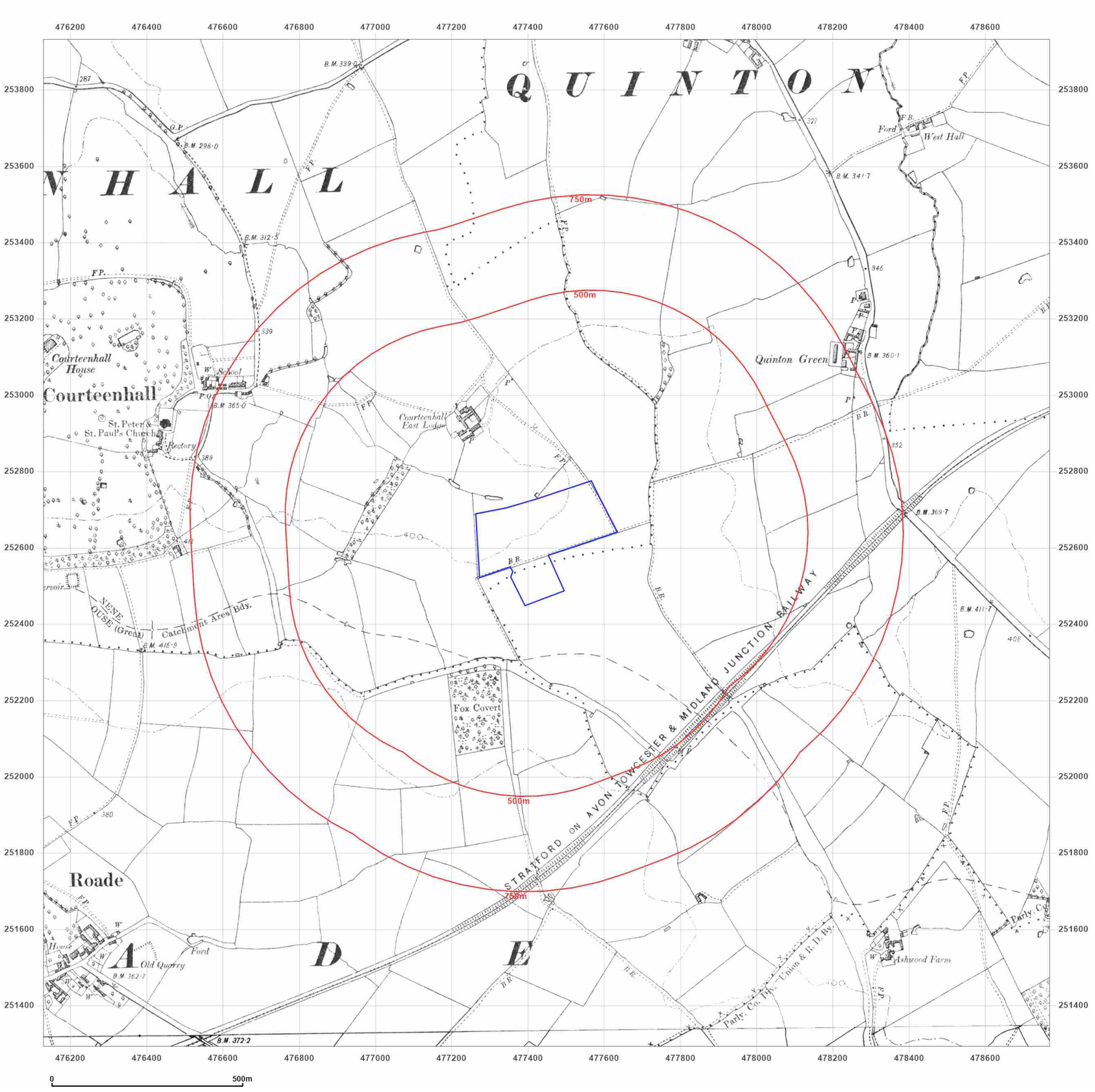

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Grid Ref: 477448, 252612

Map Name: County Series

Map date: **1900**

Scale: 1:10,560

Printed at: 1:10,560

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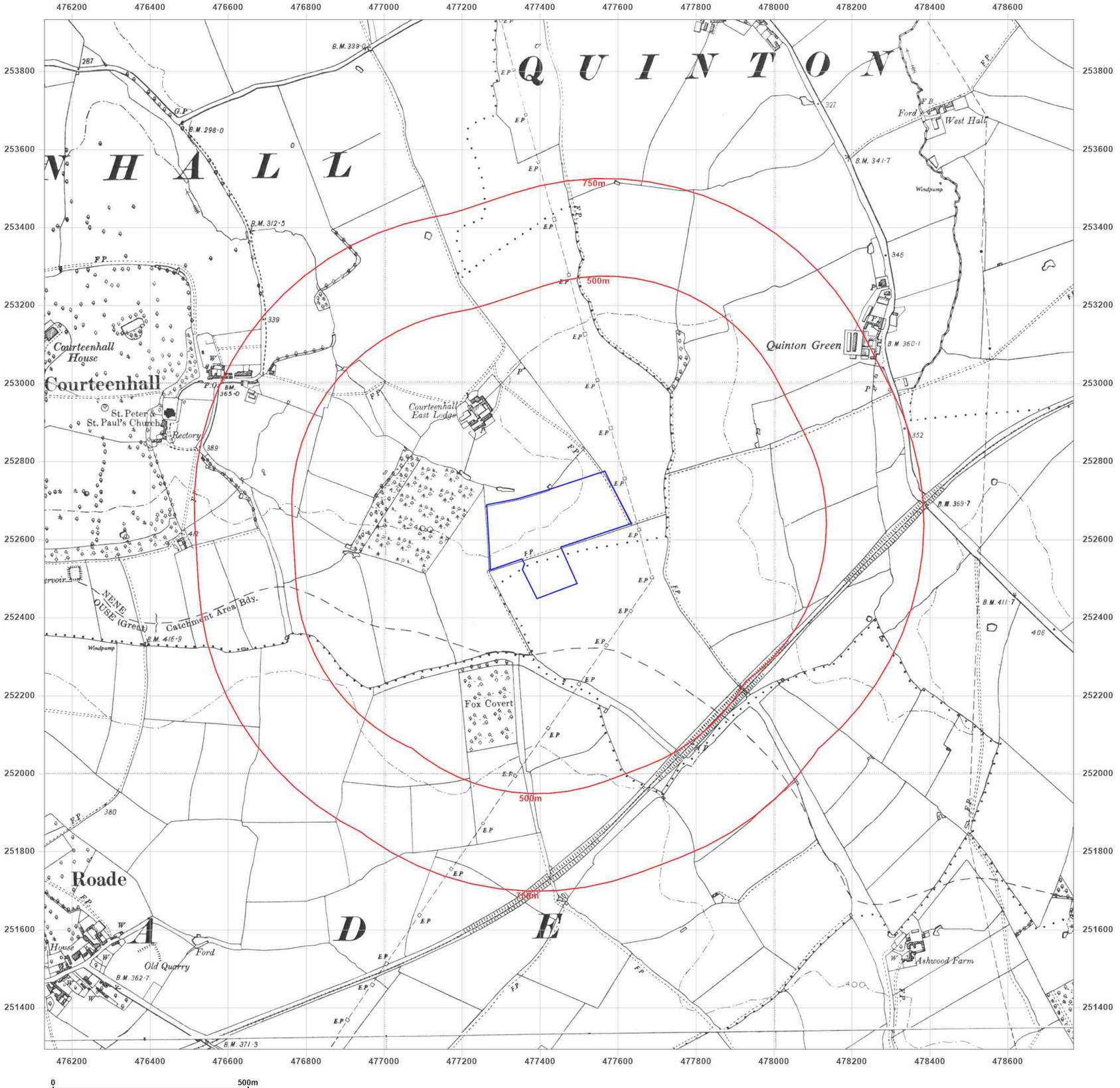

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Site Details:

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Client Ref: ETL747 Horseclose (Courteeen Hall)
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Grid Ref: 477448, 252612

Map Name: County Series

Map date: **1950**

Scale: 1:10,560

Printed at: 1:10,560

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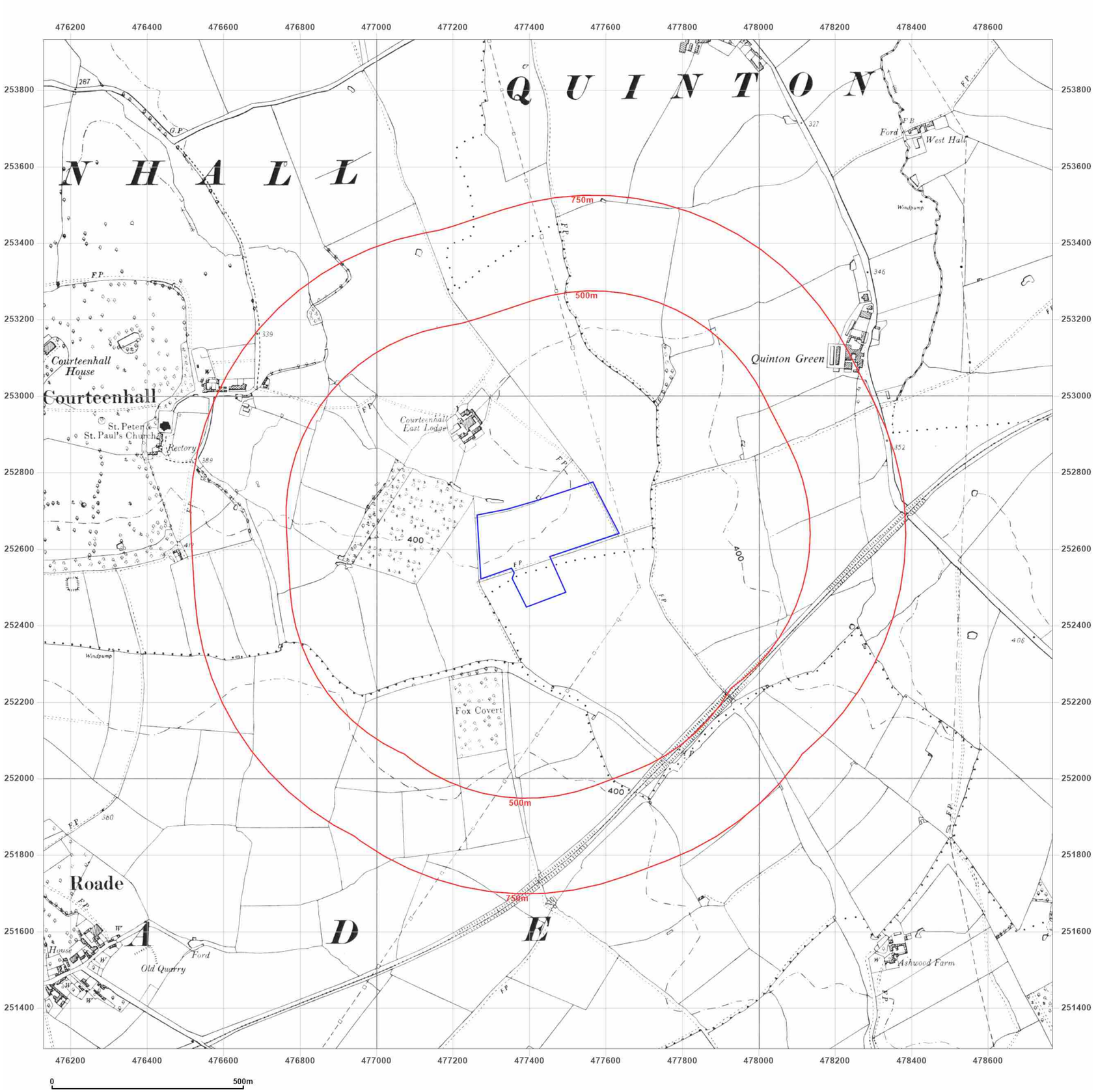

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Site Details:

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Client Ref: ETL747 Horseclose (Courteeen Hall)
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Grid Ref: 477448, 252612

Map Name: Provisional

Map date: **1957**

Scale: 1:10,560

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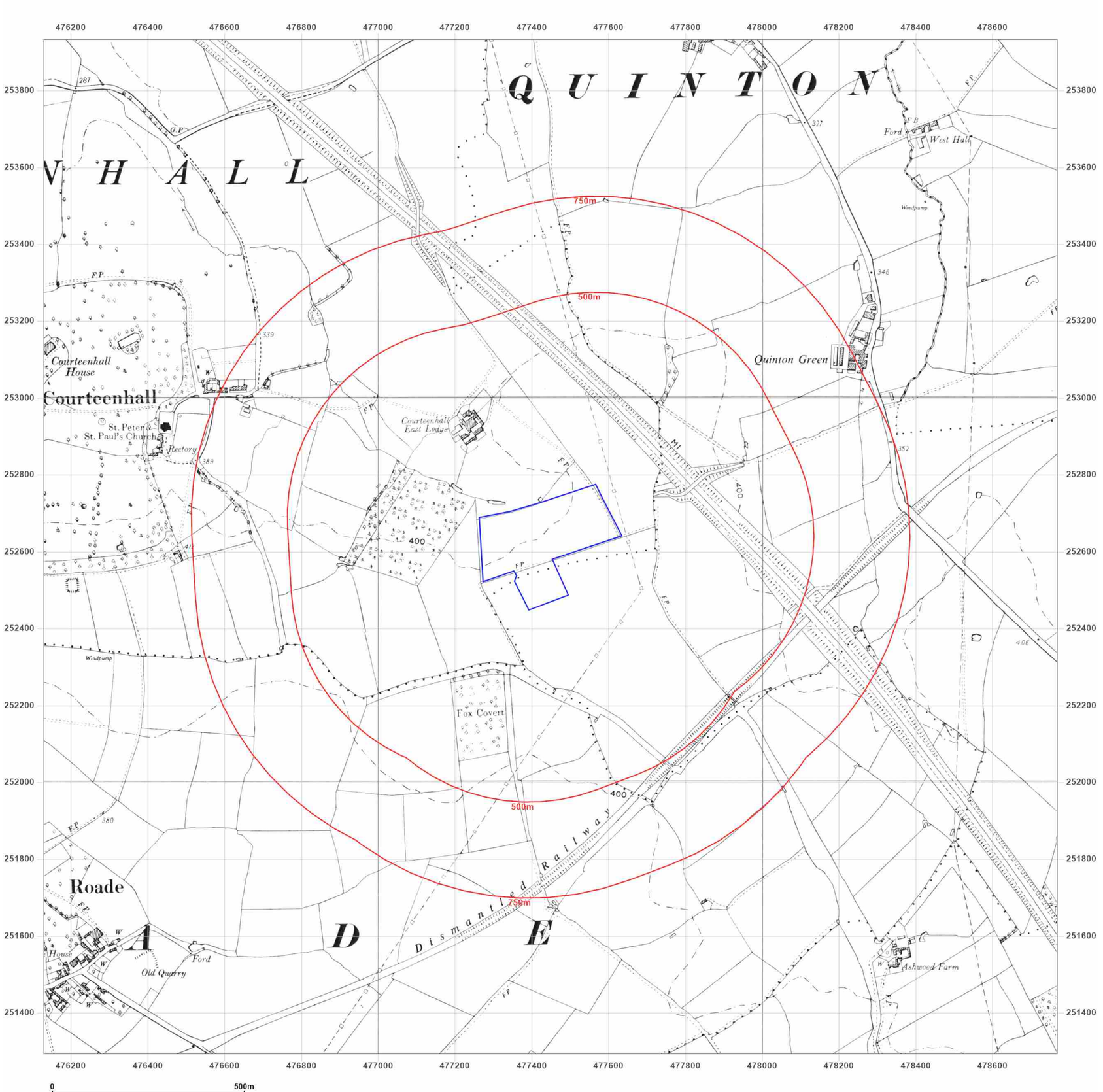

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Site Details:

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Client Ref: ETL747 Horseclose (Courteeen Hall)
Report Ref: GS-7XN-LHY-1HR-4YN
Grid Ref: 477448, 252612

Map Name: Provisional

Map date: **1968**

Scale: 1:10,560

Printed at: 1:10,560

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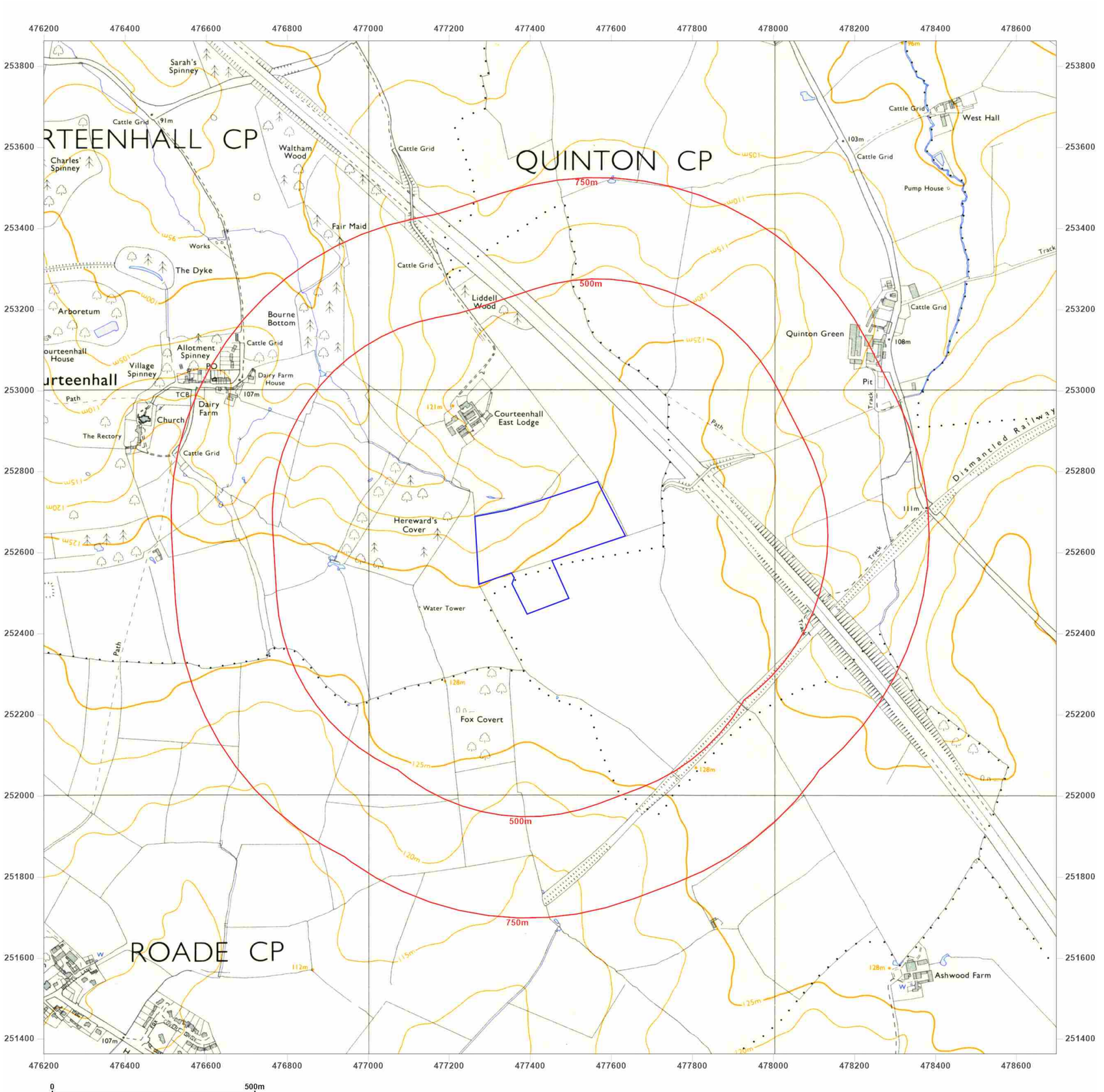

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Site Details:

Horseclose Anaerobic Digestion Facility, Courteenhall, West Northamptonshire, NN7 2QF

Client Ref: ETL747 Horseclose (Courteeen Hall)
Report Ref: GS-7XN-LHY-1HR-4YN
Grid Ref: 477448, 252612

Map Name: National Grid

Map date: **1981**

Scale: 1:10,000

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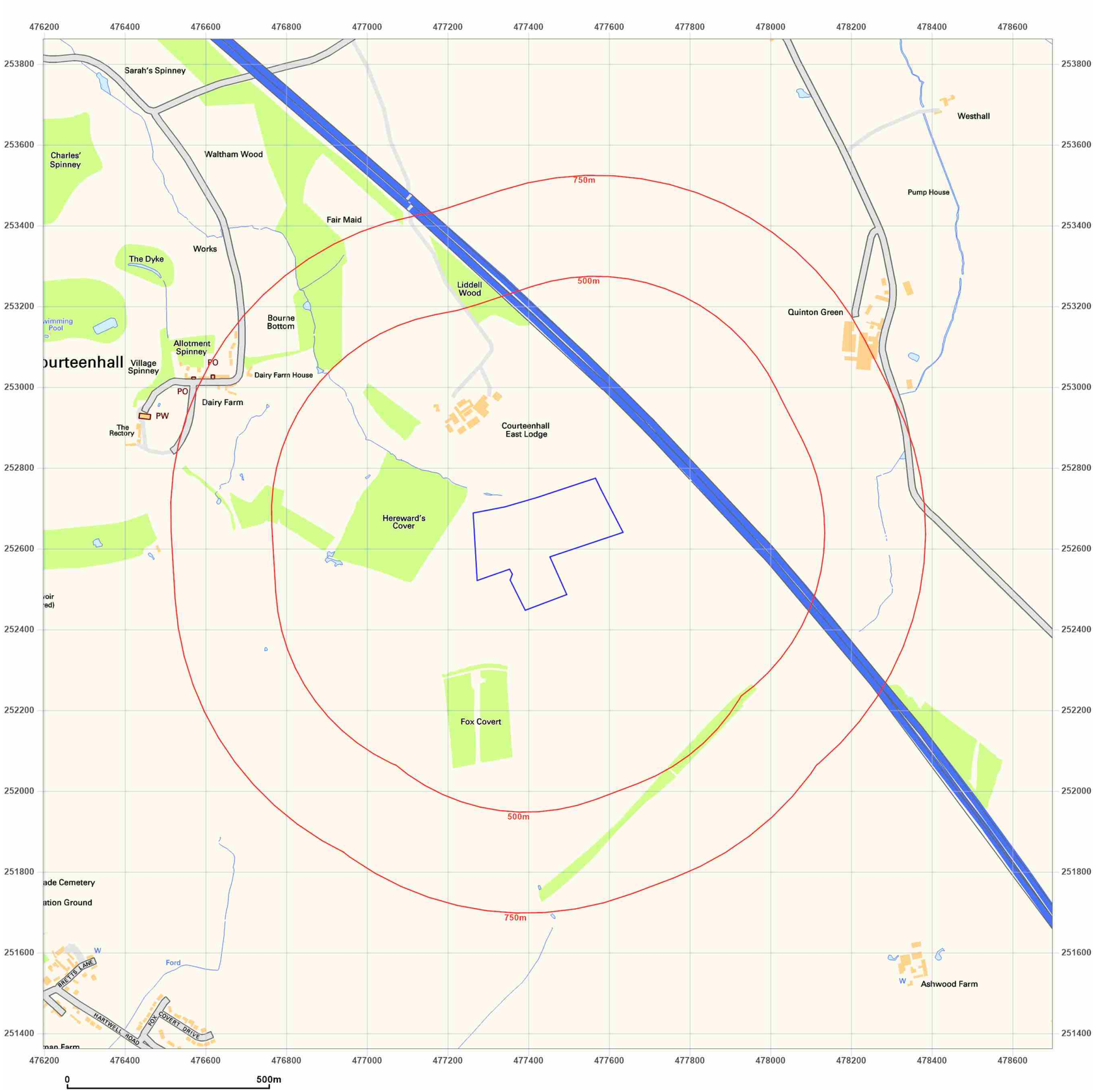

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Site Details:

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Client Ref: ETL747 Horseclose (Courteeen Hall)
Report Ref: GS-7XN-LHY-1HR-4YN
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Map Name: National Grid
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Client Ref: ETL747 Horseclose (Courteeen Hall)
Report Ref: GS-7XN-LHY-1HR-4YN
Grid Ref: 477448, 252612

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
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Grid Ref: 477448, 252612

Map Name: National Grid
Map date: **2024**
Scale: 1:10,000
Printed at: 1:10,000

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Appendix B: Preliminary Land Quality Risk Assessment, SLR (2022)

HORSE CLOSE GREEN POWER– ANAEROBIC DIGESTION FACILITY

Preliminary Land Quality Risk Assessment

Prepared for: Acorn Bioenergy

SLR Ref: 404.11923.00002
Version No: 1.0
November 2022

BASIS OF REPORT

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APPENDICES

Appendix 01: Proposed Development
Appendix 02: EnviroGeoInsight Report
Appendix 03: Historical Ordnance Survey Maps

Executive Summary

SLR Consulting was commissioned by Acorn Bioenergy to carry out a Preliminary Land Quality Risk Assessment (PLQRA) of the proposed development located at land to the west of the M1, Courteenhall, West Northamptonshire, NN7 2QF known as Horse Close Green Power.

The purpose of the PLQRA is to demonstrate whether the Site is suitable for its proposed development taking account of potential contamination related risks. The PLQRA, comprised a desk top study of published information including site history and environmental setting which was used to develop a Conceptual Site Model (CSM) risk assessment. A walkover was undertaken at the Site in May 2022.

The proposed development is to construct and operate an anaerobic digestion facility and ancillary infrastructure. It would import and treat in the region of 92,000 tonnes of feedstock per annum from the landowner's landholding and local farms, it would also use chicken litter from the nearby chicken sheds. It would undergo a process of controlled decomposition (anaerobic digestion) within the Anaerobic Digestion (AD) facility.

There was no evidence of potentially significant sources of contamination identified on site during the walkover or from published information.

Groundwater is sensitive within the area given the presence of a principal aquifer in the underlying bedrock deposits, however the sensitivity is mitigated by the significant thickness of low permeable superficial deposits designated a secondary undifferentiated aquifer. Therefore, overall, groundwater is of moderate sensitivity at the site. Surface water sensitivity is low given the minor watercourse emerging 30m north of the site.

Qualitative risk assessment indicates that the site represents a low risk of contamination impacts to human health and controlled waters associated with the proposed development as no potentially significant sources have been identified.

No further investigation or remediation is considered necessary for the proposed development. A watching brief should be maintained for potentially unexpected contamination during development.

Given the lack of potential contamination sources it is likely that on site soils can be excavated and reused as part of the proposed development. We recommend that any soil reuse is covered by a Materials Management Plan.

1.0 Introduction

1.1 Appointment

SLR Consulting was commissioned by Acorn Bioenergy to carry out a Preliminary Land Quality Risk Assessment (PLQRA) of the proposed development located at land to the west of the M1, Courteenhall, West Northamptonshire, NN7 2QF known as Horse Close Green Power.

A PLQRA has been requested to inform the planning process in respect of the proposed development of the application site. The proposed development would involve installation of an anaerobic digestion facility. Further details of the proposed development are provided below in Section 1.2.

1.2 Proposed Development

It is understood the development proposal at the site consists of the installation of an anaerobic digestion facility for the production of biogas, the biogas is then upgraded to biomethane and is then tankered to an off-site hub location.

The proposed development would consist of approximately 6.3Ha of hardstanding located on land approximately 550m to the southeast of the village of Courteenhall and 1.5km north east of the village of Roade, at NGR SP 77416 52532. The proposed development would accept in the region of 92,000 tonnes per annum of feedstock i.e. rye, maize, grass and straw arising from the landowner's farm and other farms in the immediate surrounding area. It would also use chicken litter from the nearby poultry farm.

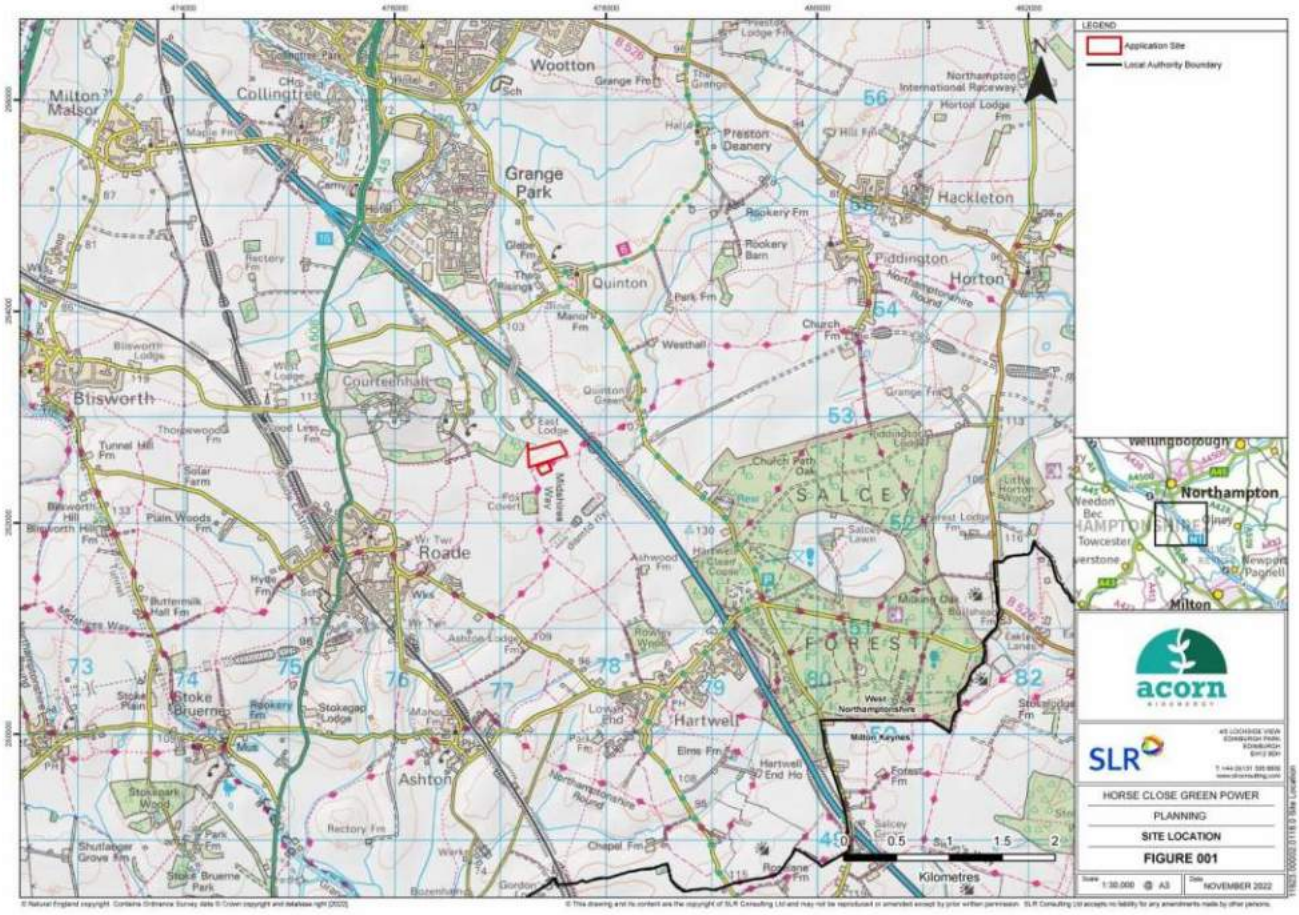
The development proposal is presented in Appendix 01.

1.3 Background and Objectives

The PLQRA was commissioned following a screening report by SLR. The purpose of the assessment is to demonstrate whether the site is suitable for its proposed development taking account of potential contamination related risks.

This report assesses the potential for contamination risk and is based upon details of the development proposals provided to SLR by Acorn Bioenergy (Appendix 01). This report provides details of the findings of the PLQRA, comprising a desk top study of published information and walkover undertaken at the site in May 2022. The site and survey boundaries can be seen on Figure 1-1 Site Boundary Plan.

Figure 1-1
Site Boundary Plan



1.4 Scope of Works

The PLQRA scope of work comprised the following tasks:

- A site walkover to:
  - Assess visual evidence of contamination and identify potential sources of contamination.
  - Review the potential for pollution to have occurred at the site.
  - Identify the surrounding land use.
- Review of land use history using available historical maps. Extracts of the maps are used to illustrate the historical land use of the site and surrounding area.
- Assessment of site sensitivity and environmental setting including a review of geological and hydrogeological records (e.g. geological maps, groundwater sensitivity and vulnerability maps etc). The quality of nearby surface waters and underlying groundwater is assessed, as well as any data available on pollution incidents, abstractions and discharges.
- Collection of information from public registers and regulators that is available via the GroundSure database, which can be obtained more quickly than through direct contact with the regulators and other public bodies.

- Data assimilation and risk assessment involving an assessment of potential sources (e.g. chemical storage, spillages etc), pathways (e.g. surface water drainage) and receptors (e.g. controlled surface watercourse) at or adjacent to the site. A conceptual site model (CSM) and the level of risk associated with identified potential pollutant linkages (PPLs) is determined qualitatively from the model.
- There were no previous contamination or ground investigation reports provided for review.

1.5 Sources of Information

SLR has collected and reviewed various reports, published data and maps to characterise the site and its surrounds. These sources comprise:

- MAGIC website (www.magic.defra.gov.uk).
- British Geological Survey (BGS) website (www.bgs.ac.uk).
- A Groundsure EnviroGeoInsight report on site conditions dated April 2022 (Appendix 02).
- Historical Ordnance Survey Mapping (Appendix 03).
- Google Earth/Streetview.
- Review of the West Northamptonshire Council's planning portal.

The information from the above sources is included within the following sections of this report. Note that since the Groundsure report was purchased there was a change to the site boundary to include the second, southern field. The Groundsure report was not updated however this report text incorporates the change.

2.0 Site Description

2.1 Summary Site Details

A summary of site details based on Groundsure reports and a site walkover is provided in Table 2-1 below. The site is located at land at East Lodge Farm in an agricultural area west of the M1 and east of the A508, approximately 1.5km northeast of the village of Roade in Northamptonshire. The site covers two fields north and south of an access track which runs past Courteen East Lodge, and which also forms part of the Midshires Way, a regional walking route.

Table 2-1
Site Details

Site Details	Land at East Lodge Farm, West Northamptonshire, NN7 2QF	
National Grid Reference	477431 252650	
Site Area	Approximately 6.3 Hectares	
Surrounding Land Use	North	Arable fields and small light industrial estate beyond
	East	Poultry farm, fields and M1 motorway.
	South	Arable fields and windfarm
	West	Arable fields and pockets of woodland

2.2 Site Walkover

The site was inspected by a representative of SLR's Land Quality and Remediation team on 10th May 2022.

Both fields which form the site are in arable use. The northern field lies to the southeast of a deciduous woodland (Hereward's Cover) and is bounded by hedgerows. The field is edged to the northeast by four chicken barns, which were granted permission in 2020 (ref. S/2020/1163/EIA). An industrial estate including building materials supply and storage is located 200m to the north.

The southern field lies east of a plantation of young trees, bounded to the north and west by the access track. It appears to be open and forms part of a larger field which includes a windfarm (Roade Wind Farm) which extends southwards towards Hartwell and Ashwood Farm to the southeast. The presence of overhead electricity lines is a noticeable feature to the north and south of the site.

There are pockets of woodland around the site including Hereward's Cover, Fox Covert to the west, Rowley Wood to the south and woodland within and edging Courteenhall Registered Park and Garden to the northwest.

A ditch, containing very little water, runs along the northern site boundary. An earth bund which surrounds a surface water storage lagoon borders the north western boundary of the northern field. The bund is between 1-3m high increasing with height towards the west and is grassed and planted with trees.

Figure 2-1
General view of northern field from south east corner

Figure 2-2
Earth bund bordering north east corner of site

Figure 2-3
Poultry farm off site to north east

Figure 2-4
Building supplies site off site to north

3.0 Site History

3.1 Review of Historical Maps and Photographs

The site history is based on a review of historical maps (Appendix 03).

From first available maps dated 1883 onwards the site is undeveloped land. Public footpaths run along the western boundary, eastern boundary of the northern field and between the two fields which form the site.

From first available maps dated 1883 off site land surrounding the site within 100m is similar open undeveloped agricultural land with two small ponds c.30m north and 100m northwest. The surrounding area remains generally agricultural with some changes. By 1950 an approximately 6 Ha portion of the field 25m west reverted to woodland. In 1966 mapping an issue and a sink are shown c.30-40m north where the pond was previously shown, indicating a watercourse emerges from the ground and then disappears. The pond 100m northwest is recorded as an issue and the watercourse then extends to the northwest as shown on current mapping. The M1 motorway was constructed c. 200m east between 1957 and 1966. Aerial imagery shows an area of woodland was planted west of the southern field in the early 2000s, and a poultry farm was recently constructed on the adjacent land to the northeast between 2018 and 2020. The surface water lagoon was constructed at the same time and is first shown on 2020 aerial images.

Courteenhall East Lodge (farm) is present 250m north of the site on historical maps from 1884 with additional units associated with the industrial estate being constructed during the early 2000s. The open storage of building materials is shown on aerial photographs from 2018 onwards.

3.2 Previous Planning Permissions

A search of West Northamptonshire Council's planning portal shows that there are no planning applications for the site. Nearby planning records pertain to the application and discharge of conditions for the poultry farm to the northeast.

There are no records of intrusive ground investigations at the site or on adjacent land on the planning portal.

3.3 Summary

The site has a continuous history of being open fields. The surrounding area has remained agricultural with generally only minor changes except for construction of the M1 motorway 200m east in the 1950s-1960s and a newly constructed poultry farm on the adjacent property around 2019.

4.0 Site Environmental Setting

4.1 Geography and Geology

The site environmental setting including geography, geology, hydrogeology and hydrology based on information from Groundsure, MAGIC and BGS is summarised in Table 4-1.

Table 4-1
Site Setting

Site Details	Land at East Lodge Farm, West Northamptonshire, NN7 2QF	
Geography and Hydrology	Topography, Elevation and Gradient	The topography of the site varies between the fields. The northern field is generally gently sloping downwards to the northwest, from an elevation of approximately 125m AOD in the east to approximately 116m AOD in the west. The southern field is generally flatter, rising gently from approximately 124m AOD in the north to 127m AOD at the southern boundary. The site sits on a relatively high point compared to its immediate surroundings.
	Surface Water	There are no surface water features on-site and the risk of surface water flooding is designated as negligible. An unnamed watercourse arises from the ground 30m north of the site and extends to the northwest. The nearest major surface water feature is Wooton Brook, located 3km north.
Geology and Hydrogeology	Geology	No artificial deposits are recorded on site. Superficial geology comprises the Oadby Member - Diamicton. The bedrock geology comprises the Blisworth Limestone Formation. There are four BGS borehole records within 250m of the site. The records indicate the geology comprises glacial till of typically brown to blue clay to over 20m bgl. No groundwater was encountered.
	Natural Ground Risks	The site is reported to be at low risk from shrink swell clays, very low risk from running sands, collapsible deposits, landslides and ground dissolution of soluble rocks and negligible risk from compressible deposits. There are no records of mining activities within 500m of the site. Surface ground workings relating to ponds are recorded 30m to the north and 80m to the northwest. Site buildings are at very low risk from radon and radon protection measures are not required within buildings.
	Aquifer status	The superficial deposits are designated a secondary undifferentiated aquifer. The bedrock deposits are designated a principal aquifer. The site is not located within a groundwater source protection zone (SPZ).

Site Details	Land at East Lodge Farm, West Northamptonshire, NN7 2QF	
	Abstractions	There is one active recorded groundwater abstraction c. 1km northeast of the site for general farming and domestic use (Licence no. 5/32/04/*G/0013). The are no active recorded surface water abstractions within 2km of the site.
Sensitivity	Groundwater	Groundwater is sensitive within the area given the presence of the principal bedrock aquifer, however the vulnerability of the bedrock aquifer is low. The sensitivity is mitigated by the significant thickness of the low permeability superficial deposits and the distance from the nearest abstraction point. Therefore, overall, groundwater is of moderate sensitivity at the site.
	Surface Water	Surface water sensitivity is low given the lack of features on-site and presence of the minor drain located 30m north.

4.2 Regulatory Searches

The Groundsure Enviroinsight report provided information on current and historical industrial activities in the vicinity of the site, pollution incidents and on activities that required environmental regulatory permitting to indicate the nature of surrounding site operations and identify those permitted activities that might be a source of soil or groundwater contaminant impact with respect to the site. The resulting detail on relevant permits, licenses and designations within 500m of the site is summarised below.

- There are historical cuttings recorded c.400m southeast, dated 1900 to 1981;
- There are 11 waste exemptions recorded within 500m. The nearest waste exemption is recorded immediately southeast for the storage of sludge on a farm.
- One Part A(1) licensed industrial facility is recorded within 500m, pertaining to Courteenhall Poultry Farm c.130m north (permit number EPR/TP3109BY).
- Courteenhall Poultry Farm is recorded exceeding annual reporting thresholds for pollution inventory substance emissions of ammonia and particulate matter (PM10) to air.
- The site is located within the River Ene and Thrapstone Lake nitrate vulnerable zones meaning they are areas of land that drain into waters polluted by nitrates.
- The site is located within a site of scientific special interest (SSSI) impact risk zone meaning several types of commercial/industrial developments, including anaerobic digestion facilities, require consultation.
- There are no records of any of the following within 500m of the site: current or recent petrol stations, energy features, landfills or waste sites, electricity cables, gas pipelines, sites determined as Contaminated Land, Control of Major Accident Hazards (COMAH) sites, regulated explosive sites, hazardous substance storage / usage, historical licensed industrial activities (IPC, Part A(2)/B), radioactive substance authorisations, licensed discharges to controlled waters, pollutant release to surface waters (red List), pollutant release to public sewer, List 1 and 2 dangerous substances, pollution incidents and pollution inventory radioactive waste.

5.0 Conceptual Site Model and Preliminary Qualitative Risk Assessment

5.1 Conceptual Site Model

This report section uses the information gathered in previous sections and aims to identify potential contaminant sources at the site and sensitive receptors which may be impacted by them. Consideration of viable pathways which may link a source and receptor can then enable an assessment of Potential Pollutant Linkages (PPLs).

When identifying the PPLs relevant to this site, SLR has considered the proposed redevelopment of site as an anaerobic digestion facility.

5.1.1 Sources

UK contaminated land statutory guidance[1],defines a Contaminant as:

"a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of Controlled Waters".

Given the history of the site as agricultural fields we have not identified any significant potential sources of contamination on site.

The adjacent poultry farm and nearby building materials storage site are not considered a significant potential source of contamination given recent construction, the farm is managed under an environmental permit and the pre-construction environmental statement concluded the development will not produce significant environmental impacts. The bund associated with the adjacent surface water storage lagoon is most likely constructed from natural material excavated to create the lagoon.

5.1.2 Receptors

UK contaminated land statutory guidance defines a Receptor as:

"something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property, or Controlled Waters." Under the proposed commercial/industrial end use the following potentially sensitive receptors have been identified:

- R1 – Human Health (future site users).
- R2 – Controlled Waters (surface water course arising 30m north).
- R3 – Controlled Waters (groundwater within principal aquifer at depth beneath site).

5.1.3 Pathways

UK contaminated land statutory guidance defines a Pathway as:

"a route by which a receptor is or might be affected by a contaminant".

Given the lack of potential sources of contamination there is no further assessment of potential pathways to sensitive receptors required.

[1] DEFRA; 2012; EPA 1990: Part2A, Contaminated Land Statutory Guidance, PB13735; April 2012

5.2 Qualitative Risk Assessment

UK contaminated land statutory guidance and associated supporting guidance documents including LCRM[2]and R&D66[3] recommend that a qualitative assessment of risk should be provided for each identified PPL to determine any risk management actions. Given the lack of potential contamination sources we have not identified any viable PPLs which require further consideration.

[2] Land Contamination Risk Management (LCRM), EA 2020.
[3] Guidance for the Safe Development of Housing, R&D66, DEFRA, EA, CIEH 2008

6.0 Conclusions

6.1 Conclusions

The site consists of two arable fields bordered by trees / hedges in the west, north and east, and part of a larger field to the south. Historically there have been no different site uses. There was no evidence of potentially significant sources of contamination identified on site during the walkover or from published information.

Groundwater is sensitive within the area given the presence of a principal aquifer in the underlying bedrock deposits, however the sensitivity is mitigated by the significant thickness of low permeable superficial deposits designated a secondary undifferentiated aquifer. Therefore, overall, groundwater is of moderate sensitivity at the site. Surface water sensitivity is low given the minor watercourse emerging 30m north of the site.

Qualitative risk assessment indicates that the site represents a low risk of contamination impacts to human health and controlled waters associated with the proposed development as no potentially significant sources have been identified.

Given the lack of potential contamination sources it is likely that on site soils can be excavated and reused as part of the proposed development.

6.2 Recommendations

6.2.1 Land Quality

No further investigation or remediation is considered necessary for the proposed development. A watching brief should be maintained for potentially unexpected contamination during development. If any geotechnical investigations are proposed for foundation design, then consideration should be given to chemical analysis of made ground if it is encountered on site.

6.2.2 Soil Materials Management

It is the responsibility of a holder of material to form their own view on whether that material is waste or not. Given the proposed reuse of natural occurring material within the same site boundary and lack of potential contamination sources it is possible that excavated soils reused as part of the proposed development would not be considered waste. However, we would recommend that any soil reuse is covered by a Materials Management Plan in accordance with the CLAIRE Definition of Waste Code of Practice (DoWCoP).

APPENDIX 01

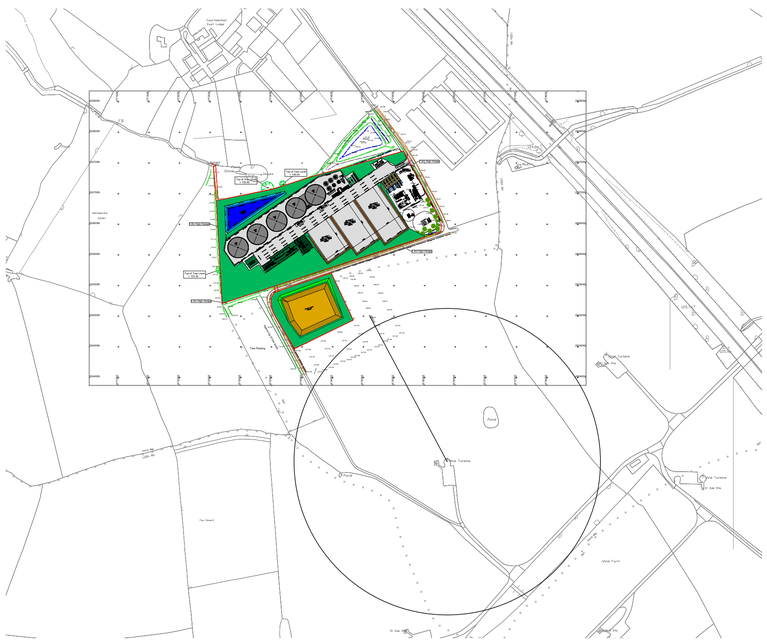
Proposed Development

AS NOTED ON A1 FRAME

N

0 10m 20m 30m 40m 50m
Scale 1:1000 @ A1

0 50m 100m 150m 200m 250m
Scale 1:5000 @ A1



SITE LOCATION PLAN
Scale: 1:5000 @ A1

SITE PLAN
Scale: 1:1000 @ A1

NOTES:-

1. All dimensions must be checked on site and not scaled from this drawing.
2. The Contractor shall make a survey of the site and shall be responsible for obtaining all dimensions and levels necessary for the proper fabrication of the structure as indicated.
3. All levels shown on this drawing are relative to Agreed Topographic survey
4. This drawing is to be read in conjunction with 29384/100 Series Drawings.
5. All existing invert levels are to be confirmed by contractor prior to construction. Connection subject to approval.

Denotes Site Boundary (6.33Ha)

Denote BNG Area (1.82Ha)

Rev	Date	Description	DR	CH
G	19/10/22	Updated to OS Grid	JMC	JMC
F	04/10/22	Redline & lagoon udpated	JH	WP
E	05/08/22	Redline & lagoon udpated	JMC	JMC
D	08/07/22	Lagoon changed to suit bridle way, with 10m buffer redline updared	JMC	JMC
C	23/06/22	ISSUED FOR APPROVAL	DJC	JMC
B	13/06/22	ISSUED FOR APPROVAL	DJC	JMC
A	14/04/22	ISSUED FOR APPROVAL	DJC	JMC

UVDB empowered by Achilles Registered

Link-up empowered by Achilles Qualified via Audit

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Client: acorn energy

Job Title
AD Plant
Horse Close Green Power

Drawing Title
Site Layout Plan

Status: APPROVAL

Scale: As Noted @ A1 | Date: March '22

Drawn By: Jenson Hattersley | Checked: JHC | Approved: JHC

Drg. No.: 29384/100 | Rev: G

NOT FOR CONSTRUCTION

APPENDIX 02

EnviroGeoInsight Report

Refer to Appendix A SCR

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Appendix C: Earthcare Site Walkover Photographs 17 April 2024

Image 1 Northern field northeast Gateway adjacent to Courteenhall Poultry Farm

Image 2 – Northern field view west from northeast gateway from Courteenhall Poultry Farm

Image 3 - Northern field view east to Courteenhall Poultry Farm

Image 4 Northern field southern boundary view east

Image 5 - Southern field view south and track between two field areas

Image 6 - Southern field bordered by woodland

Appendix D: Google Earth Images of the site

Google Image 1 - June 2004

Google Image 2 - May 2009

Google Image 3 - April 2017

Google Image 4 - May 2020

Google Image 5 - July 2021

Google Image 6 - November 2024