



Geo-Environmental Report

Land at Oakcroft Lane, Stubbington, PO14 3EZ
for:

Persimmon Homes South Coast



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For:	Persimmon Homes South Coast.
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Executive Summary

Proposed Development

The site is to be re-developed for residential use.

Investigation

Site investigation, desk study and a monitoring visit were undertaken by Enzygo Geoenvironmental Ltd. in October 2017.

Ground Conditions

Ground Conditions comprise topsoil over firm becoming stiff with depth clay and medium dense sand and gravel. Shallow groundwater was encountered during return monitoring visits but ingress to installations appears to be slow.

Contamination

No contamination was identified.

Foundations

Spread foundations may be feasible although some evidence of desiccation was noted.

Pavement Design

An equilibrium CBR of 3% is recommended. Soils are not considered to be frost susceptible.

Buried Concrete

It is recommended that Class AC-1s conditions of Special Digest 1 are used for shallow soils.

Drainage

Given the presence of clayey soils across the site it is considered that soakaway drainage is not feasible.

Ground Gas and Radon

No radon or ground gas risk risks have been identified at the site.

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1.0 INTRODUCTION

Background

- 1.1 Enzygo Geoenvironmental Limited has been commissioned by Persimmon Homes South Coast to prepare a Geo-Environmental Report for a site at Oakcroft Lane, Stubbington, PO14 3EZ.

Proposed Development

- 1.2 Persimmon Homes are seeking to re-develop the site for residential use comprising domestic houses and gardens with associated infrastructure.

Objectives

- 1.3 The objectives of the study are to:
- Review historical plans, geology, hydrogeology, site sensitivity, mining records and contaminated land information in order to complete a Desk Study. A Groundsure Report has been obtained which includes a larger area than the application site. A copy of the Groundsure Report is included in Appendix A;
 - Undertake a targeted ground investigation;
 - Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors; and
 - Provide a factual and interpretative report relating to the desk study and site investigations.
 - Provide a revised conceptual model and recommendations on any potential development issues and mitigation measures, where appropriate.
 - Provide geotechnical recommendations in relation to foundations and infrastructure.

Risk Classification

1.4 Enzygo Geoenvironmental has utilised the available information, together with our experience to assess the likely risks to development from land quality issues. Definitions of the risk terms used are provided on the following table.

Risk	Description
Negligible	No contamination risk has been identified which is likely to affect development.
Low	No significant contaminated land risks have been encountered affecting development and a low risk that remediation will be required.
Low-Moderate	There are unlikely to be significant contaminated land issue associated with the site which will adversely affect its re-development. However, minor or localised contamination may be present requiring remediation. Remediation should be possible under a discovery strategy and with a call out service.
Moderate	Some potential contaminated land risks have been encountered or identified which may affect re- development. The risks identified are unlikely to affect the entire site or preclude development. Remediation is considered feasible as part of the development process and no further investigation is considered necessary.
Moderate-High	Some potentially significant contaminated land risks have been identified at the property that requires remediation. It is recommended that a separate remedial methodology is prepared supported by a site-specific risk assessment
High	Significant potential contaminated land risks have been identified and remediation is required supported by further intrusive ground investigation, risk assessment and remedial design.

1.5 Where adverse risks from ground instability are identified these are discussed within the report.

2.0 SITE SETTING

Site Description

Item	Description
Site Address	Oakcroft Lane, Stubbington, PO14 3EZ
National Grid Reference	455373,104440
Site Area	19 Ha

Current Site Description

- 2.1 The following site description has been compiled from the site inspection undertaken by Enzygo Geoenvironmental staff, together with current maps, aerial photographs and a topographical survey.
- 2.2 At the time of the ground investigation the site comprises two fields separated by Oakcroft Lane, trending east to west. Trees are present along the field boundaries.
- 2.3 A ditch is present within the southern area of the northern field. To the south east of this ditch is an area of un-cultivated land. The ditch also forms the southern boundary of the northern field.
- 2.4 An area of woodland is present within the south-western corner of the site.
- 2.5 A drain is present 20m from the western boundary of the site.

Surrounding Area

- 2.6 The surrounding land uses are summarised as follows:

Direction	Land Use
South	Fields with residential development beyond.
East	Residential development and fields.
West	Cemetery and drain with vegetated buffer strip.
North	Fields.

- 2.7 No significant sources of potential contamination were noted on or near to the site.

3.0 SITE HISTORY

3.1 A review of historical Ordnance Survey maps and information pertinent to the site and within a 250m radius is summarised below:

Potentially Contaminative Historical Land Use		
Historical Land Use		
Map Edition	On Site	Off Site
1859	Fields separated by Oakcroft Road.	Fields 0m N, S, E & W. Farm 150m SW. Ditch 20m W. Farm 50m W.
1882	No change.	No change.
1898	No change.	No change.
1907	No change.	Sand pits 30m SE.
1927	No change.	Sand pits no longer shown.
1938	No change.	No change.
1957	No change.	Cemetery 0m W.
1965	No change.	Residential development 100m S & E. Nursery 30m E.
1975	No change.	No change.
1982	No change.	Residential development 100m SW.
1989	No change.	Residential development 20m S & E.
2002	No change.	No change.
2010	No change.	No change.
2014	Woodland in south western corner of site.	No change.

3.2 Sand pits 30m South East are not considered a significant risk given the distance and age.

3.3 No risks to the site are identified to the site from the historical maps.

4.0 ENVIRONMENTAL SETTING

Ground Conditions

- 4.1 The British Geological Survey (BGS) indicates that the site is underlain by the following geological sequence:

Geological Unit	Type	Description	Aquifer Classification
Drift	River Terrace Deposits	Sand, Silt and Clay	Secondary A
Solid (NE corner only)	Whitecliffe Sand Member	Sand	Secondary A
Solid	Wittering Formation	Sand, silt and Clay	Secondary A

- 4.2 River Terrace Deposits are present as outliers within the central area of the site, the north-western corner and along the western boundary. River Terrace Deposits are generally localised outcrops.
- 4.3 There are no records of Made Ground below or near to the site and no records of landslips near to the site.
- 4.4 BGS borehole records close to the site show sandy clay over clayey sand.
- 4.5 Records of background soil chemistry show no exceedances of residential values.

Groundwater

- 4.6 The recorded permeability of the drift geology is moderate to very high consistent with sand and gravel deposits. The recorded permeability of the solid geology is low to high.
- 4.7 The GroundSure Report shows the site not to be within a Source Protection Zone.
- 4.8 There are no groundwater abstraction licenses within 500m of the site.

Coal Mining

- 4.9 No historical or current coal mining extraction has been identified within 1000m of the site.

Non Coal Mining

- 4.10 No other mining activity has been identified within 1000m of the site.

Natural Cavities

4.11 No natural cavities or solution features are identified within 1000m of the site.

Ground Workings

4.12 No ground workings are identified within 250m of the site other than ponds, which are not considered a risk.

Hydrology

4.13 There are two drains on site which are designated as a Tertiary Rivers.

4.14 There are no surface water abstractions within 250m of the site.

4.15 Environment Agency records show that the south-western corner of the site is located within a Flood Zone 3. Part of the western site boundary is also located within a Flood Zone 3.

Radon Risk Potential

4.16 The Groundsure Geolnsight Report indicates that the site is not within a Radon Affected Area. No radon protective measures are necessary in the construction of new dwellings.

Natural Hazards Finding

4.17 BGS information presented within the Groundsure Geolnsight report identifies the following:

Hazard	Risk Designation (Groundsure)
Coal Mining.	None Identified.
Collapsible Ground.	Low/Very low.
Compressible Ground.	Negligible.
Ground Dissolution.	Negligible.
Landslide.	Very Low.
Running Sand.	Very low/Low.
Swelling / Shrinking Clay.	Moderate/Negligible.

4.18 There is a moderate risk of clay heave associated with the Wittering Formation, indicating that it is likely to be clay dominant. No other significant geotechnical risks are identified.

Sensitive Land Uses

- 4.19 There are no sites of special interest on or adjacent to the site.
- 4.20 English Heritage has not identified any listed buildings or scheduled ancient monuments on or close to the site. No sensitive geology has been identified at the site.

Environmental Sensitivity

- 4.21 Overall the site is currently considered to be of **moderate** sensitivity due to the following:
- The underlying stratum is classified as a Secondary A Aquifer;
 - Not located within a Source Protection Zone;
 - Surface water-courses on site;
 - fields; and
 - No sensitive ecology designation is noted adjacent to or on the site.
- 4.22 The proposed end use of the site is residential and as such future sensitivity will be high for end users.

Industrial Land Uses

- 4.23 There are no significant industrial uses within 250m of the site other than electrical substations and a works, which are not considered a significant risk.
- 4.24 The Groundsure EnviroInsight Report indicates that there no fuel stations within 500m of the site.
- 4.25 There are no high-pressure oil/gas pipelines within 500m of the site.
- 4.26 No new potential contamination risks are identified on or adjacent to the site from the register of industrial activities.

5.0 CONSULTATIONS

Regulatory Database

5.1 The following information has been obtained from a commercially available environmental database. The summary table only includes records not otherwise detailed in the report.

Environmental Permits, Incidents and Registers	0 -250m	250-500m	Details
Site determined as contaminated land.	0	0	Not Applicable.
Authorised industrial processes.	0	0	Not Applicable.
Registered radioactive substances.	0	0	Not Applicable.
Enforcements, prohibitions or prosecutions.	0	0	Not Applicable.
Pollution Incidents.	0	1	Significant impact to water 251m SW but no details provided. Given distance not considered a risk to the site.
Consents issued under the Planning (Hazardous Substances) Act 1990.	0	0	Not Applicable.
Control of Major Accident Hazard (COMAH)/ Notification of Installations Handling Hazardous Substances (NIHHS) sites.	0	0	Not Applicable.
Records of Licensed Discharge Consents.	0	6	Sewage discharges, the nearest being 256m SW. Not considered a risk.

5.2 No risks are identified from the regulatory database.

Landfill Sites and Waste Treatment Sites

5.3 There are no active or historic landfills within 500m of the site.

5.4 There are no waste treatment licenses within 500m of the site.

5.5 There are no new significant risks are identified from waste activities.

Planning Records

5.6 A review of Havant Fareham Borough Council's planning portal does not show any potential risks at or adjacent to the site.

6.0 PRELIMINARY CONCEPTUAL MODEL

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, Hydrocarbon and metals.	Unforeseen Contamination.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal PPE will address risk.
			Site users.	Negligible.	No source identified.
Asbestos, Hydrocarbon and metals.	Current and historic uses.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
Hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No significant off-site sources identified.
			Site users.		
Ground Gas.	Historic Landfill.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Potential Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No significant source identified.
			Site users.		
Groundwater					
Hydrocarbon and metals.	Potential spillage on site	Vertical Migration.	Groundwater	Negligible.	No source identified.
Surface Water					
Hydrocarbon and metals.	Potential spillage on site	Horizontal Migration.	River Network	Negligible.	No source identified.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	No sensitive receptor presents.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	No source identified.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	No source identified.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	None present.
		Direct.	Proposed Buildings.	Dismissed.	No source identified.
		Permeate into pipework.	Water Pipes.	Dismissed.	No source identified.

6.1 There is a negligible risk associated with potential unforeseen contamination such as inclusions within soils from agricultural practices.

7.0 SITE INVESTIGATION

General

- 7.1 A ground investigation was undertaken based on the findings of the desk study. The locations of the exploratory holes are shown on Drawing CRM.1033.030.GE.D.001.

Site Works

- 7.2 The site investigation works were undertaken between 16th and 24th October 2017 and comprised window sampler holes and trial pits.
- 7.3 The investigation works are summarised in the table below:

Rational	Exploratory Holes	Notes
Site Coverage.	WS1 to WS10 & TP1 to TP55.	Across site.
Pavement Design.	TP4, TP10, TP42, TP44 & TP53.	CBR tests
Monitoring.	WS1, WS3, WS4, WS5, WS7, WS8, WS9 & WS10.	Installations.
Soakage.	WS5.	Preliminary soil infiltration test.

- 7.4 Representative soil samples were collected for chemical and geotechnical testing. Soil samples destined for chemical analysis were collected in appropriate containers provided by the analytical laboratory. Samples were stored in cool boxes prior to dispatch to the laboratory for analysis. All samples were collected using appropriate sampling equipment that was cleaned at each sampling location.
- 7.5 Generally samples were collected from Made Ground, which may contain potential inclusions of contaminating materials and materials displaying evidence of potential contamination.
- 7.6 In the absence of any evidence of contamination samples were collected near surface as this material is more likely to be contaminated by surface spillages and also will potentially be in contact with future residents.

Monitoring

- 7.7 Return visits to monitor groundwater levels from installations were undertaken and during these visits ground gas was also measured.

Laboratory Testing

- 7.8 Samples for geotechnical testing were sent to the laboratories of I2, which is UKAS accredited, for the following analysis:
- California Bearing Ratio(CBR) tests undertaken on re-compacted samples
 - Atterberg Limits Determinations; and
 - Soluble sulphate and pH.
- 7.9 Samples for chemical analysis were sent to the laboratories of laboratories of I2 who are UKAS and MCERTS accredited. Samples were tested for the CLEA metal suite, pH, sulphate, cyanide, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAH), organic carbon, banded Total Petroleum Hydrocarbon (TPH), asbestos screen and two stage WAC tests.
- 7.10 As no specific contamination sources were identified on or near to the site, which is a greenfield site, a general suite of testing was undertaken.

8.0 GROUND AND GROUNDWATER CONDITIONS

Summary of Ground and Groundwater Conditions

8.1 The investigations undertaken identify the following strata:

Strata	Summary Description	Thickness (m)
Topsoil.	Grass over soft brown clay and clayey flint gravel with roots.	0.1 to 0.5
River Terrace Deposits	Medium dense brown sandy and clayey flint gravel varying to firm gravelly clay.	0.4 to >3.0
Wittering Formation	Firm, becoming stiff with depth orange brown sandy clay and clayey sand.	>3.9
Groundwater	Not Encountered.	N/A

8.2 Details of the ground and groundwater conditions encountered are given on the exploratory hole records included in Appendix B and are summarised in the sections below:

Topsoil

8.3 Topsoil was encountered across the site comprising soft brown clay and clayey flint gravel with roots.

River Terrace Deposits

8.4 River Terrace Deposits were noted locally on site and comprised medium dense brown sandy and clayey flint gravel varying to firm gravelly clay.

8.5 The location of the River Terrace Deposits does not correlate with the geological map but seem to be more distributed across the site.

Wittering Formation

8.6 Soils encountered below the topsoil and River Terrace Deposits were noted to comprise firm, becoming stiff with depth orange brown sandy clay and clayey sand. It is considered that these soils comprise the Wittering Formation, although may also include Whitecliffe Sand Member and no clear distinction between soils was possible.

Visual and Olfactory Evidence of Contamination

- 8.7 No visual or olfactory evidence of contamination was encountered during the site works.

Soil Strength

- 8.8 SPT results undertaken within the window sampler boreholes together with hand shear vane tests confirm that the granular soils are medium dense with SPT values of between 10 and 15.
- 8.9 Clay soils are firm becoming stiff with depth. Undrained shear strength values increase from 50kN/m² at 1m below ground level (bgl) to 80kN/m² at 4m bgl.

Groundwater

- 8.10 Groundwater was not encountered during the site investigation. The depth to groundwater measured from installations during monitoring visits are summarised on the table below:

Exploratory Hole	Depth m(bgl)			
	2-11-17	9-11-17	16.11.17	27-11-17
WS1	2.21	1.2	1.68	1.70
WS2	1.82	0.93	1.67	Damaged.
WS4	2.14	2.11	2.05	2.01
WS5	3.67	3.08	3.06	2.27
WS7	2.03	1.98	1.80	1.82
WS8	2.59	2.51	2.61	2.63
WS9	2.08	2.05	2.01	1.97
WS10	0.85	0.76	0.86	0.75

- 8.11 It is likely that groundwater within standpipes is due to slow ingress of water perched within sand and silt layers within the soils.

Preliminary Soil Infiltration

- 8.12 Preliminary soakaway tests were undertaken in Boreholes WS5 installations during a monitoring visit. There was insufficient soakage to allow a preliminary soil infiltration rate to be estimated.

Ground Gas

- 8.13 Ground gas was monitored during the return visits to monitor groundwater levels. Results are provided on the table below:

Exploratory Hole	Atmos pressure (Mb)	Flow (l/hr)	CH4		CO2		O2
			Concentration (%)	GSV (l/hr)	Concentration (%)	GSV (l/hr)	Concentration (%)
2-11-17							
WS1	1012	<0.1	<0.1	<0.0001	3.2	<0.0032	15.1
WS2	1012	<0.1	<0.1	<0.0001	4.9	<0.0049	11.6
WS4	1012	<0.1	<0.1	<0.0001	4.1	<0.0041	17.8
WS5	1012	<0.1	<0.1	<0.0001	4.7	<0.0047	12.9
WS7	1012	<0.1	<0.1	<0.0001	3.5	<0.0035	14.8
WS8	1012	<0.1	<0.1	<0.0001	3.1	<0.0031	15.6
WS9	1012	<0.1	<0.1	<0.0001	4.1	<0.0041	13.7
WS10	1012	<0.1	<0.1	<0.0001	2.1	<0.0021	17.2
9-11-17							
WS1	1027	<0.1	<0.1	<0.0001	4.1	<0.0041	13.5
WS2	1027	<0.1	<0.1	<0.0001	0.6	<0.0006	19.6
WS4	1027	<0.1	<0.1	<0.0001	0.1	<0.0001	13.1
WS5	1027	<0.1	<0.1	<0.0001	4.2	<0.0042	15.8
WS7	1027	<0.1	<0.1	<0.0001	1.2	<0.0012	19.3
WS8	1027	<0.1	<0.1	<0.0001	1.8	<0.0018	15.6
WS9	1027	<0.1	<0.1	<0.0001	2.6	<0.0026	14.4
WS10	1027	<0.1	<0.1	<0.0001	1.4	<0.0014	19.5
16-11-17							
WS1	1012	<0.1	<0.1	<0.0001	4.1	<0.0041	12.3
WS2	1012	<0.1	<0.1	<0.0001	4.7	<0.0047	11.5
WS4	1012	<0.1	<0.1	<0.0001	4.0	<0.0040	16.9
WS5	1012	<0.1	<0.1	<0.0001	4.7	<0.0047	14.1
WS7	1012	<0.1	<0.1	<0.0001	4.6	<0.0046	11.9
WS8	1012	<0.1	<0.1	<0.0001	4.5	<0.0045	10.2
WS9	1012	<0.1	<0.1	<0.0001	4.7	<0.0047	10.1
WS10	1012	<0.1	<0.1	<0.0001	2.2	<0.0022	16.1
27-11-17							
WS1	1010	<0.1	<0.1	<0.0001	4.4	<0.0044	10.6
WS2	Damaged						
WS4	1010	<0.1	<0.1	<0.0001	3.8	<0.0038	13.9
WS5	1010	<0.1	<0.1	<0.0001	4.2	<0.0042	14.6
WS7	1010	<0.1	<0.1	<0.0001	4.8	<0.0048	12.7
WS8	1010	<0.1	<0.1	<0.0001	4.7	<0.0047	11.7
WS9	1010	<0.1	<0.1	<0.0001	4.8	<0.0048	10.7
WS10	1010	<0.1	<0.1	<0.0001	2.6	<0.0026	16.3

9.0 CONTAMINATION ASSESSMENT

General

- 9.1 A Tier I risk assessment has been undertaken using available and current screening values for human health and where appropriate controlled waters. The risk assessment is undertaken based on the findings of the preliminary conceptual model presented in Section 6. Based on the contamination testing and Tier I assessment a revised Conceptual Model has been prepared, which is presented later in this section.
- 9.2 Where significant risks are identified remedial measures are recommended.

Human Health

- 9.3 Assessment of the risks to human health has been undertaken by comparing the soil quality data with reference values obtained from the Contaminated Land Exposure Assessment (CLEA), Soil Guideline Values (SGV) and General Acceptance Criteria (GAC) published by LQM/CIEH. The LQM/CIEH S4UL4 values are used and summary tables of the reference values are included in Appendix C.
- 9.4 Where an exceedance is identified the risk is assessed by considering the sensitivity of the proposed development and the potential pathway.
- 9.5 The soil quality shows no exceedances of the reference values for residential use with plant uptake.
- 9.6 No asbestos fibres were detected.

Controlled Waters

- 9.7 Where groundwater samples have been analysed the results are compared against reference values. These reference values are summarised in Appendix C and are taken from Fresh Water Environmental Quality Standards (EQS), UK Drinking Water Standards and World Health Organisation (WHO) values for Drinking Water.
- 9.8 Where the controlled waters receptor is a surface water course then the EQS are used as the primary reference value. Drinking Water Standards and WHO values are used where EQS values are not available. An assessment of likely risk is then made based on a source-pathway-receptor model. Where the receptor is potable groundwater resources the Drinking Water Standards and WHO values are used.
- 9.9 The risk to surface water is dismissed due to the absence of contaminant source on site.

- 9.10 The risk to groundwater is dismissed due to the absence of contaminant source on site.

Ground Gas

- 9.11 Following the guidance provided in Section 3 of CIRIA C665 an initial assessment is undertaken to determine if there are any significant sources of potential ground gas. Such sources include landfills, organic clays and made ground incorporating putrescible materials such as rags, paper and wood. Where no significant source is identified no further assessment is necessary.
- 9.12 This approach is further supported by supplementary guidance given in RB17, published by CL:AIRE which confirms that gas monitoring is not generally required on sites where Made Ground is less than 5m thick and with low organic matter content or on natural soils such as alluvial clays and Chalk as the ground gas sources are not considered significant. The supplementary guidance given in RB17 also takes account of the current requirements for sealing of floor slabs and substructures to meet air tightness requirements under Part L of the Building Regulations which were not considered in CIRIA C665. The advice given in RB17 is consistent with CIRIA C665 and the Local Authority Guide to Ground Gas published by CIEH.
- 9.13 Where significant potential risk from ground gas has been identified from the Initial Conceptual Model and the intrusive ground investigation works ground gas monitoring is undertaken and the results of the monitoring are compared against the Gas Screening Values given in CIRIA Report 665. From this the Characteristic Situation is identified and remedial measures proposed.
- 9.14 When assessing the risk and type of remedial measures appropriate consideration is given to the likely construction of the development, the nature of the gas posing a risk and the nature of the likely source. The use of engineering judgement when determining risk from ground gas is consistent with the recommendations given in CIRIA C665.
- 9.15 No significant sources of ground gas were noted from the desk study. Soils encountered on site did not include significant discrete putrescible materials and as such there is not considered to be a viable significant risk from ground gas.
- 9.16 Gas monitoring was undertaken during return visits to monitor groundwater levels. Ground gas has not recorded significant elevated concentrations of Methane or Carbon Dioxide and no detectable gas flow rates have been measured.

9.17 As no significant ground gas source has been identified it is considered that there is no significant gas risk requiring remediation.

9.18 No gas protection measures are proposed.

Revised Conceptual Model

9.19 The Initial Conceptual Model presented in Section 6 has been revised based on the findings of the ground investigation and the revised Conceptual Model is presented below:

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, Hydrocarbon and metals.	Unforeseen Contamination.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal PPE will address risk.
			Site users.	Negligible.	No source identified.
Asbestos, Hydrocarbon and metals.	On site materials.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Below GAC.
			Site users.		
Asbestos, Hydrocarbon and metals.	Current and historic uses.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
Hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No significant off-site sources identified.
			Site users.		
Ground Gas.	Historic Landfill.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Potential Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No significant source identified, and no elevated gas flux measured.
			Site users.		
Groundwater					
Hydrocarbon and metals.	Potential spillage on site	Vertical Migration.	Groundwater	Dismissed.	No source.
Surface Water					
Hydrocarbon and metals.	Potential spillage on site	Horizontal Migration.	River Network	Dismissed.	No source.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	No sensitive receptor presents.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	No source identified.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	No source identified.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	None present.
		Direct.	Proposed Buildings.	Dismissed.	No source identified.
		Permeate into pipework.	Water Pipes.	Dismissed.	No source identified.

Remediation

- 9.20 No remediation is proposed.
- 9.21 If unforeseen contamination is encountered during construction works an Environmental Consultant will be available on a 'call out' basis to undertake an assessment of risk. If 'unforeseen contamination' is encountered this will be discussed with the Local Planning Authority and remedial measures agreed prior to implementation. A validation report will be prepared should any remediation of unforeseen contamination be required in accordance with the NPPF.

Waste Classification

- 9.22 Two-part WAC test has been undertaken across the site, the results of which are included in Appendix C. These show no exceedances above the inert threshold values for leachable extracts. TPH, PAH and TOC are all below the threshold for inert waste.
- 9.23 The Waste Management paper 2 has recently been updated to version 3 which states that that sites which previously could be considered 'uncontaminated land' surplus soils if they did not exceed the GAC values now requires the landfill to make an appropriate assessment of the waste classification. As such final assessment, will be undertaken by the receiving landfill based on the requirements of their permit.

10.0 GEOTECHNICAL ASSESSMENT

Proposed Development

- 10.1 The proposed development comprises two storey residential houses. Structural loadings are not known but assumed to be 50 kN/m wall run.
- 10.2 It is considered that the scheme meets the criteria of Geotechnical Category 1 of Eurocode 7.

Ground Conditions

- 10.3 Ground Conditions comprise topsoil over firm becoming stiff with depth clay and medium dense sand and gravel.
- 10.4 Shallow groundwater was encountered during return monitoring visits but ingress to installations appears to be slow.

Site Preparation

- 10.5 The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:
- Any redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill;
 - Tree root balls and soils with significant organic material should be grubbed out and replaced with appropriate compacted materials.

Foundations

- 10.6 Consideration has been given to the use of conventional strip foundations founding at a minimum depth of 1.0m bgl and at least 150mm in to the firm clay or medium dense sand and gravel using an allowable bearing capacity of 115kN/m².
- 10.7 Settlements are estimated to be less than 25mm.
- 10.8 Strip foundations will need to be deepened in accordance with NHBC requirements for building near trees. Foundations should be designed assuming soils of high shrinkage potential. Evidence of desiccation was noted in soil samples at 1m depth and locally to 2m depth based on the laboratory test results.

- 10.9 Given the variability of the soils it is recommended that foundations are reinforced to allow them to span over both cohesive and granular soils.

Ground Floor Slab

- 10.10 Ground bearing floor slabs maybe used in areas where granular soils are present at formation level and areas where clay soils are present which do not exhibit signs of significant desiccation.
- 10.11 Significant desiccation in shallow soils was identified within positions across the site during the investigation. It is possible that further desiccation would be encountered if construction works are undertaken during prolonged periods of dry weather.
- 10.12 Shallow soils are variable across the site and so it is not feasible to zone the site in to areas where ground bearing floor slabs maybe used. Therefore, if ground bearing slabs are used the formation should be inspected and tested where necessary to check for evidence of significant desiccation.
- 10.13 Where ground bearing floor slabs are used plate load tests should be undertaken to confirm suitable modulus of sub-grade reaction to allow detailed design. Alternatively, suspended floor slabs maybe used.

Pavement Construction

- 10.14 An assessment of the likely California Bearing Ratio (CBR) has been assessed from the following sources:
- Laboratory CBR tests undertaken on re-compacted soil samples;
 - Description of the materials encountered in the exploratory holes; and
 - Guidance given in HD25/94.
- 10.15 Based on the above it is considered that an equilibrium CBR of 3% is recommended. Recompacted CBR tests gave higher values but this is likely to be due to the soils being partly desiccated.
- 10.16 It is recommended that the sub-formation is proof rolled with any soft materials being excavated and replaced with suitable compacted capping.
- 10.17 Soils are not considered to be frost susceptible.

Drainage

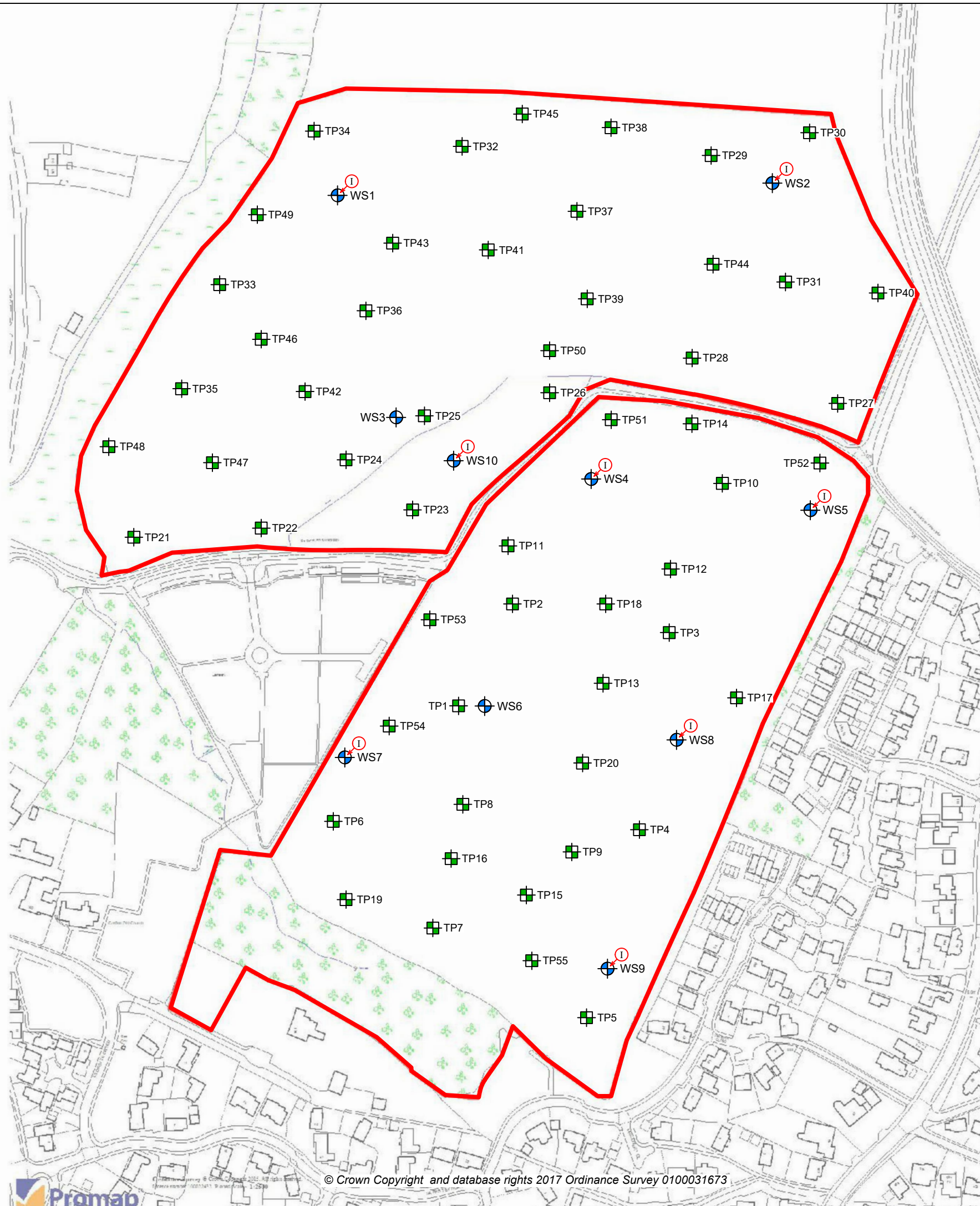
- 10.18 Given the presence of clayey soils across the site together with the results of the preliminary soil infiltration test it is considered that soakaway drainage is not feasible.
- 10.19 Chemical results should be provided to the water authority to confirm the design of potable water supply pipes. No special requirements are anticipated.

Buried Concrete

- 10.20 Results of the sulphate testing indicate that shallow soils have soluble sulphate concentrations of less than 0.5 g/l consistent with DS1 Conditions and as such buried concrete can be designed to Class AC1-s.

Excavation

- 10.21 Site observations show that excavations should be suitable with normal construction plant. Where access is required the excavations should be designed in accordance with CIRIA RR97.
- 10.22 Ingress of perched groundwater in to excavations is likely but it should be possible to deal with this using sump pumping.



- Key**
- Site Boundary
 - Window Sampler Location (WS)
(WS1 - WS10)
 - Trial Pit (TP)
(TP1-TP55)
 - Borehole Installation (I)



Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

CLIENT:
Persimmon Homes

SCALE: 1:2,500@A3 PROJECT REF: CRM.1033.030

DRAWN: NP CHECKED: SR DATE: Nov 2017

PROJECT:
Stubbington

TITLE:
Site Plan

FIGURE NO:
CRM.1033.030.GE.D.001



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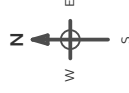
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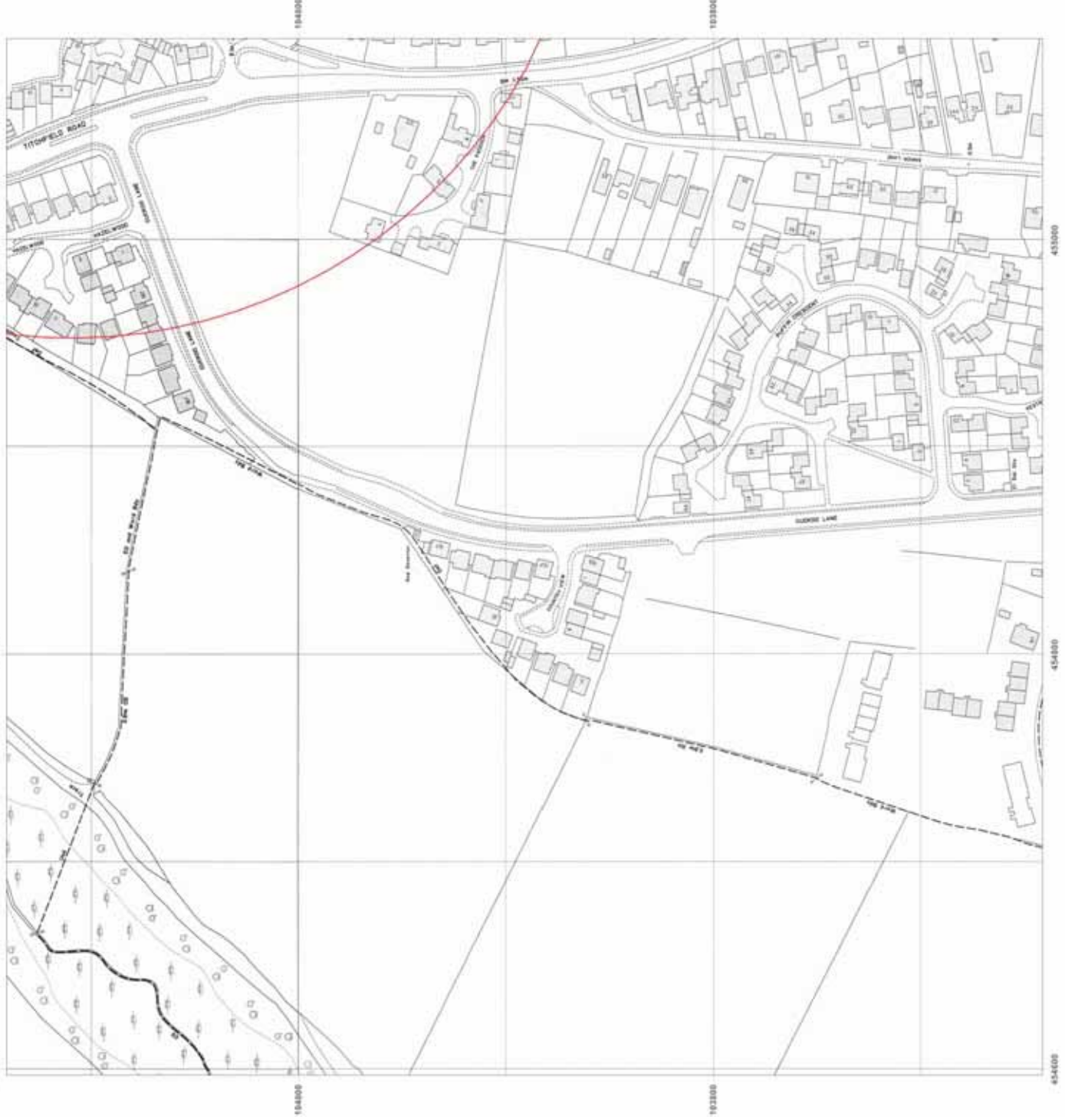
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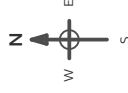
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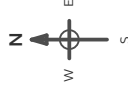
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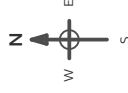
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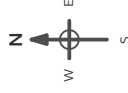
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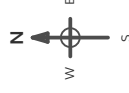
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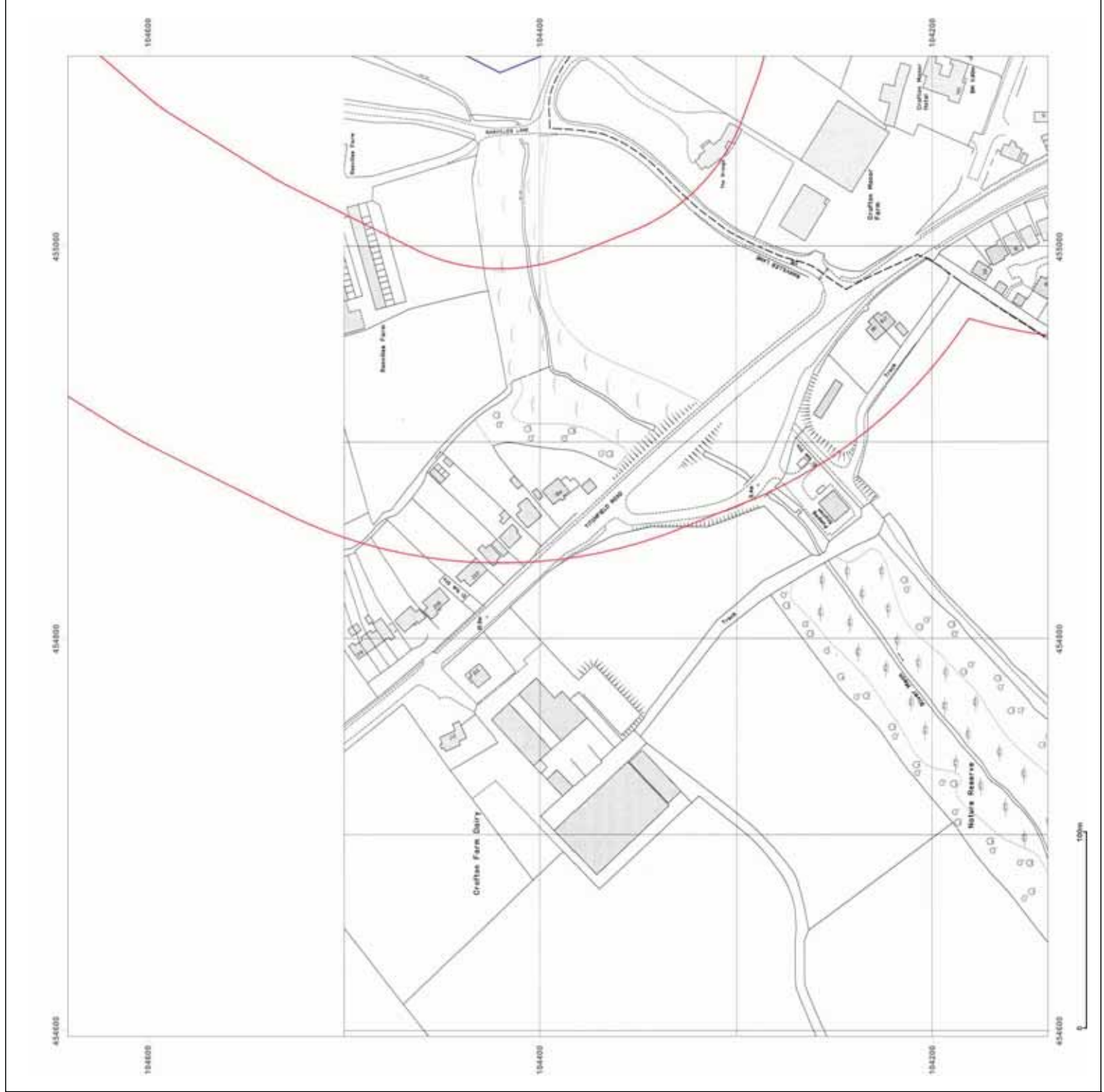
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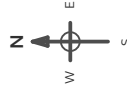
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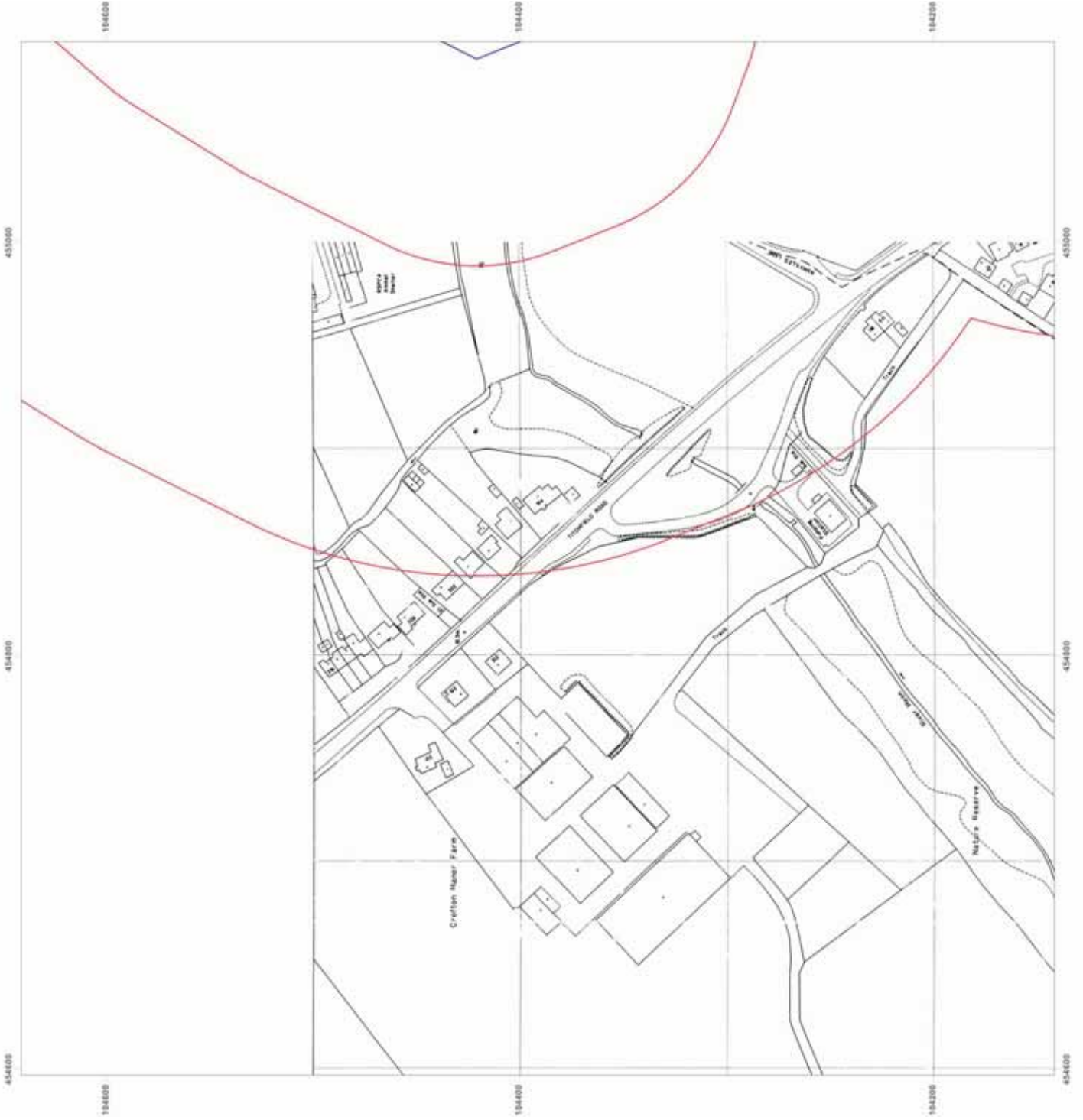
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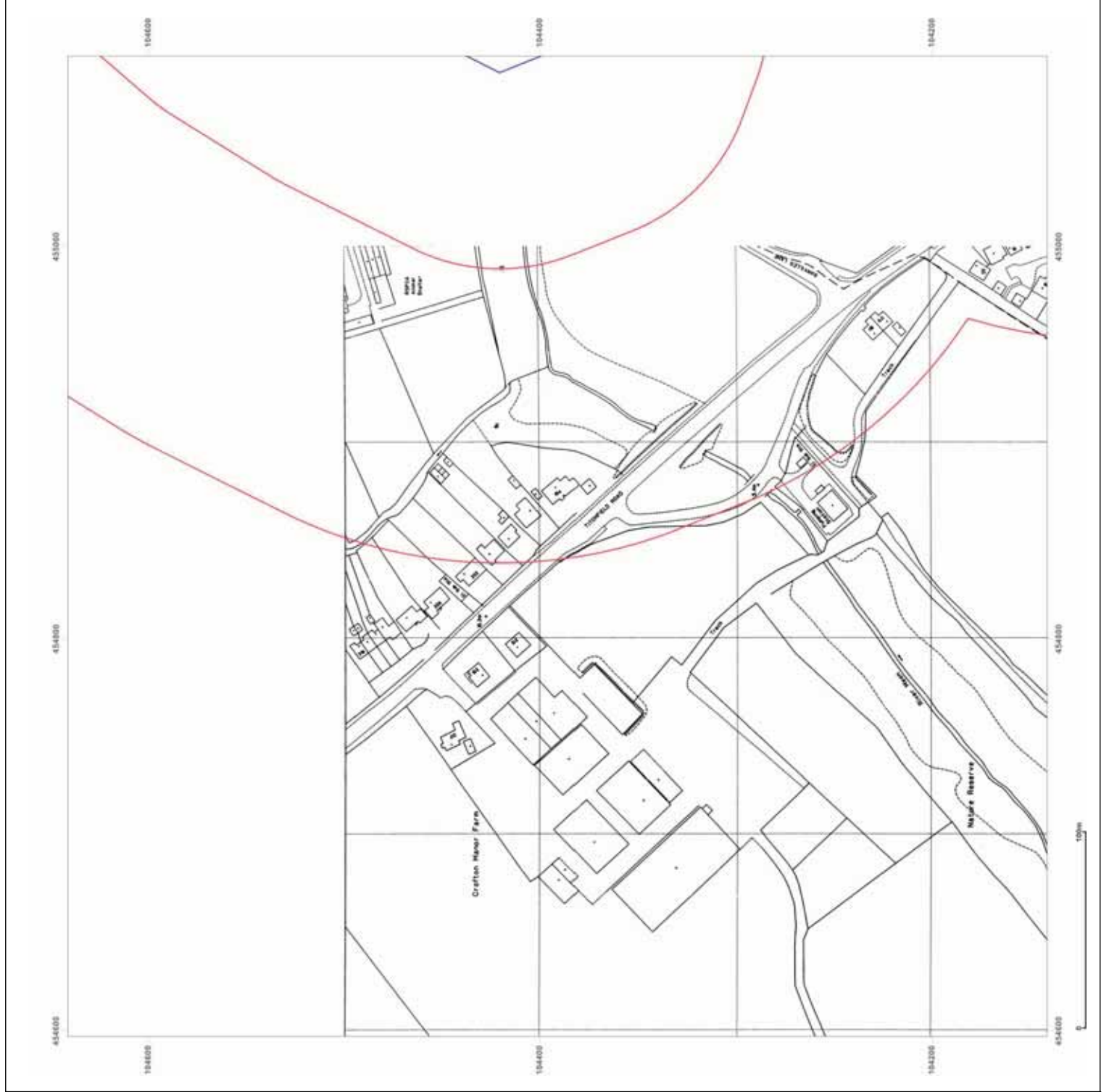
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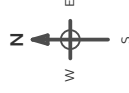
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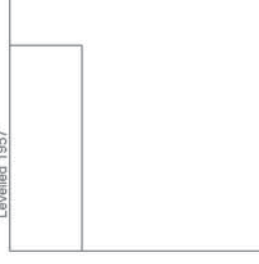
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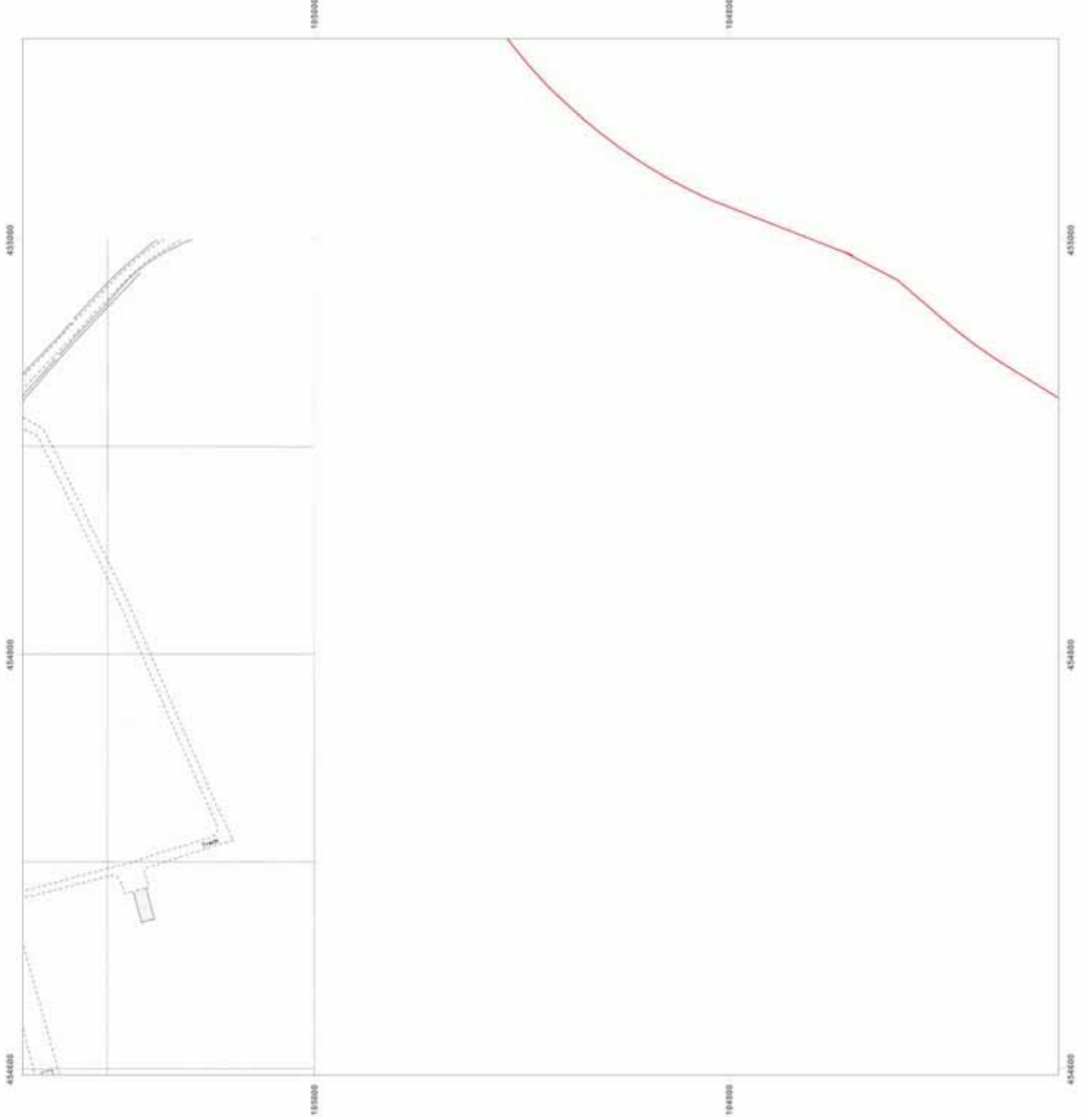
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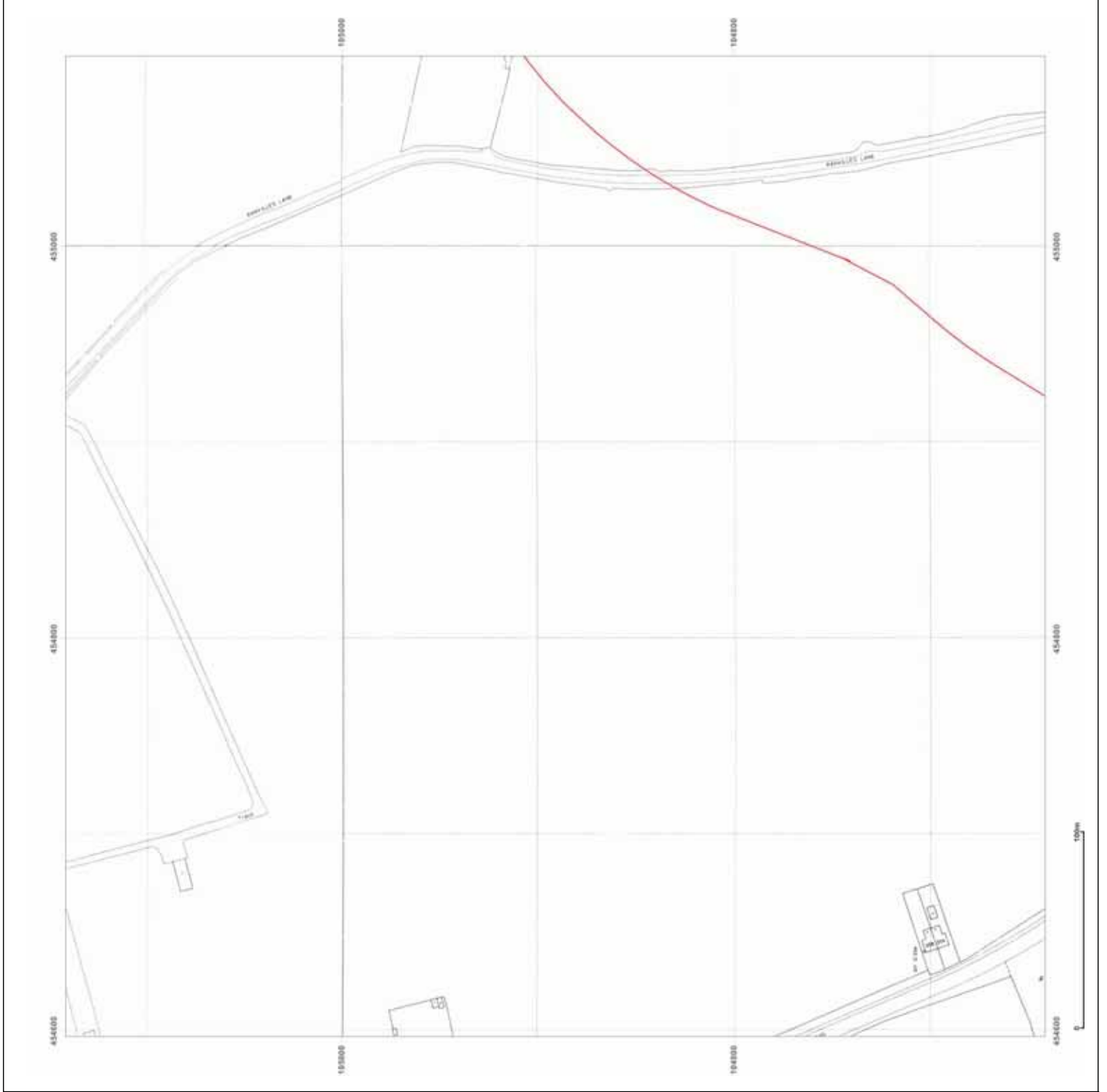
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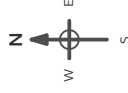
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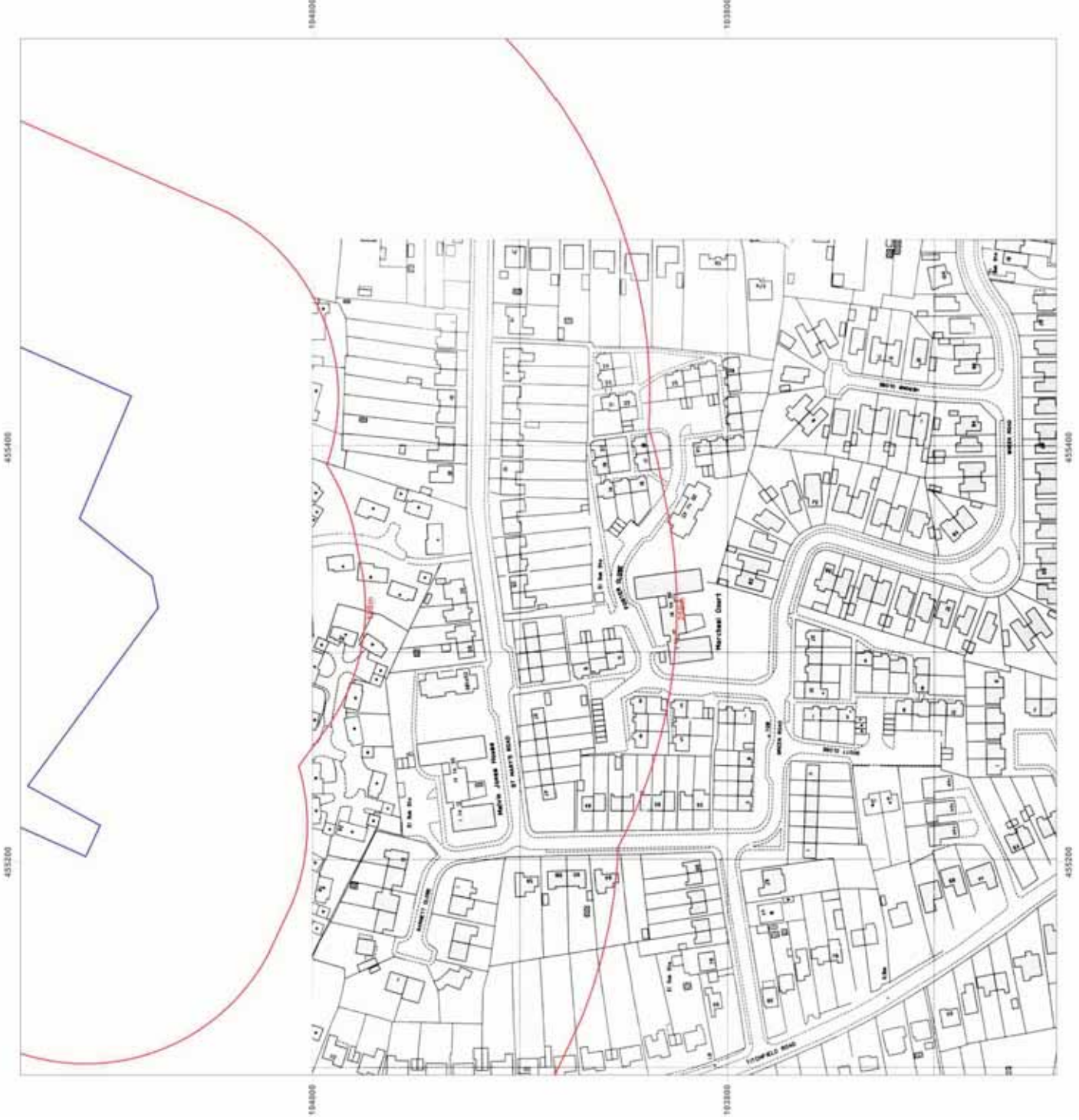
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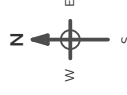
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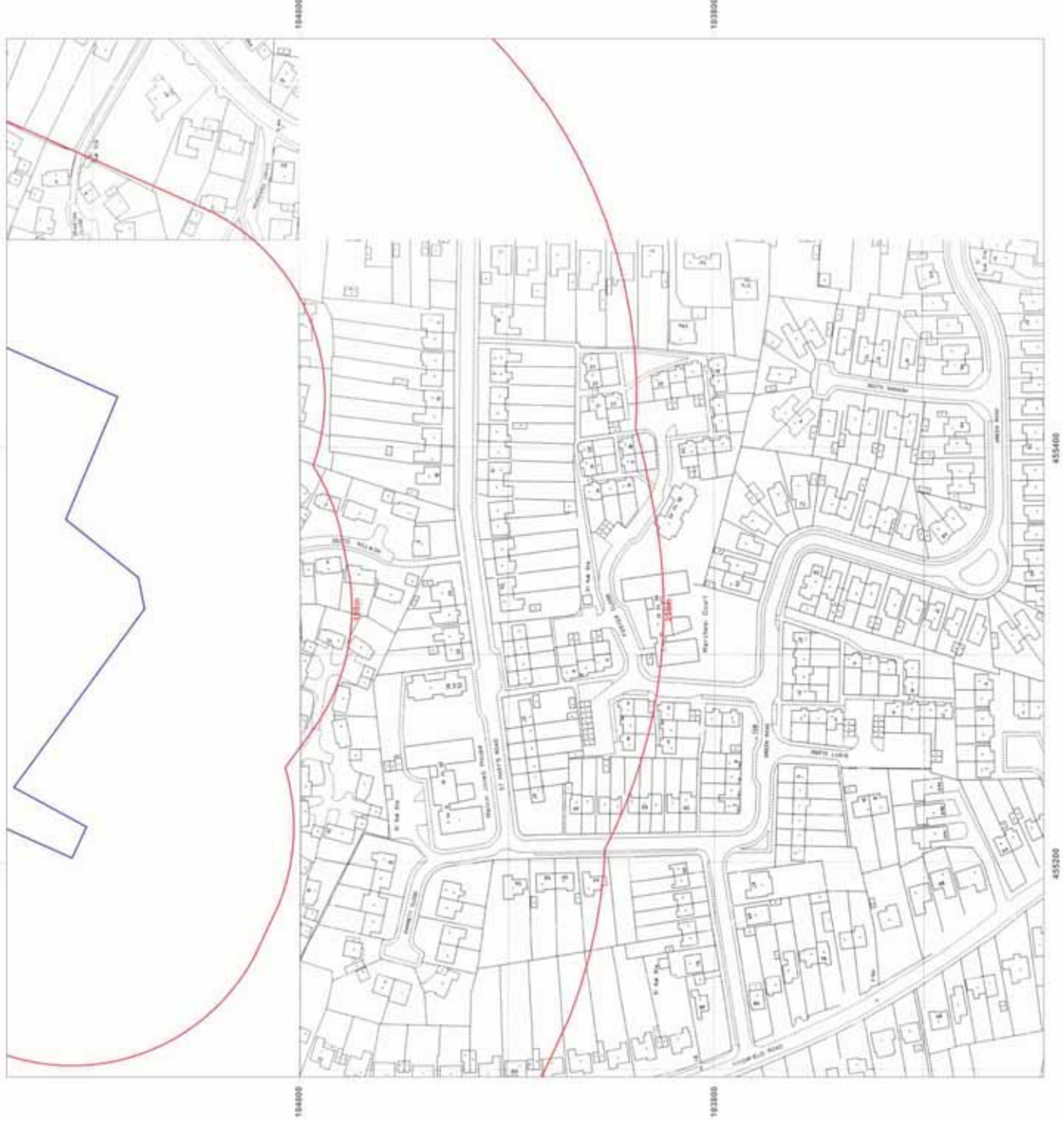
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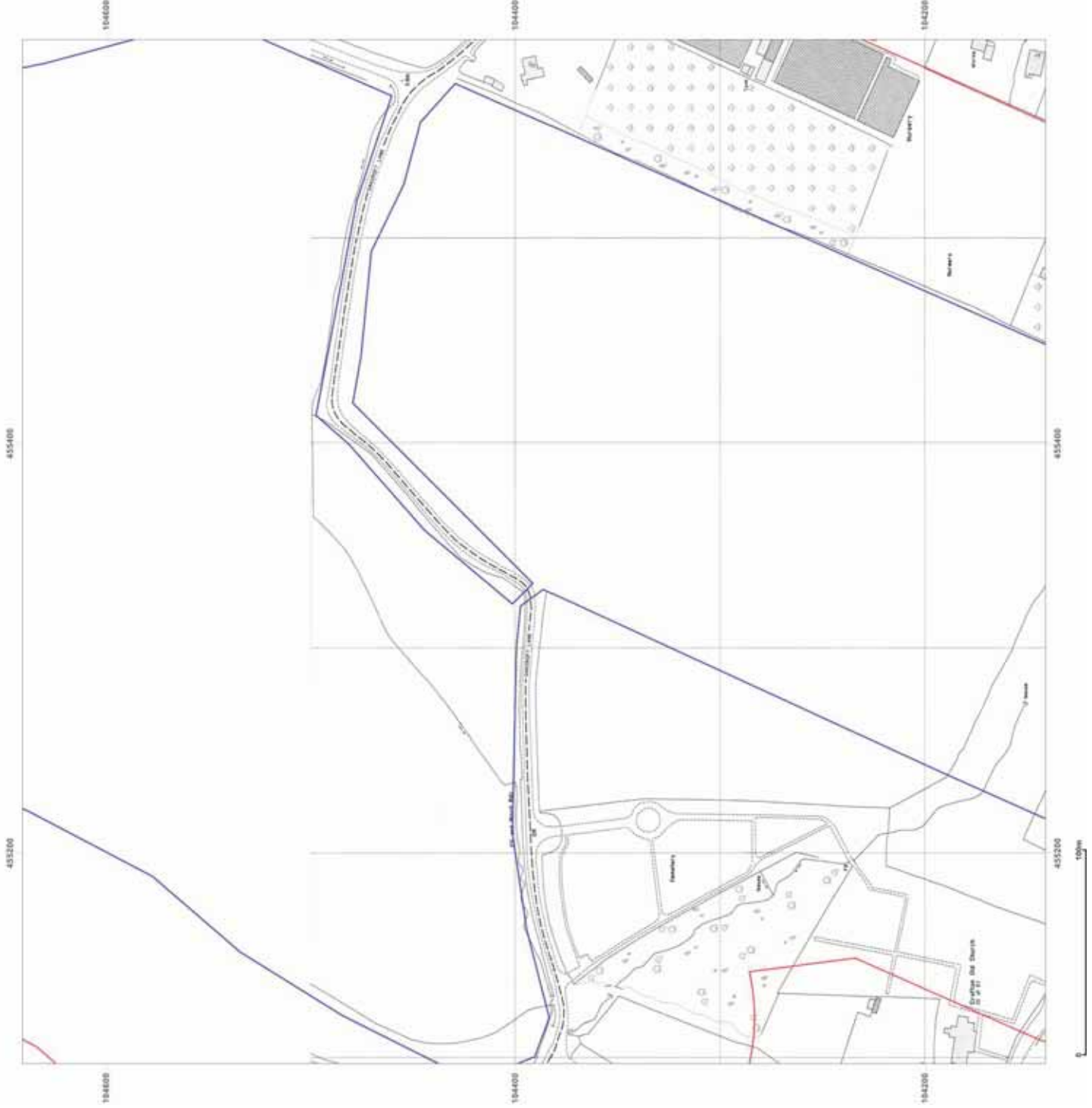
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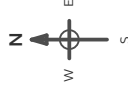
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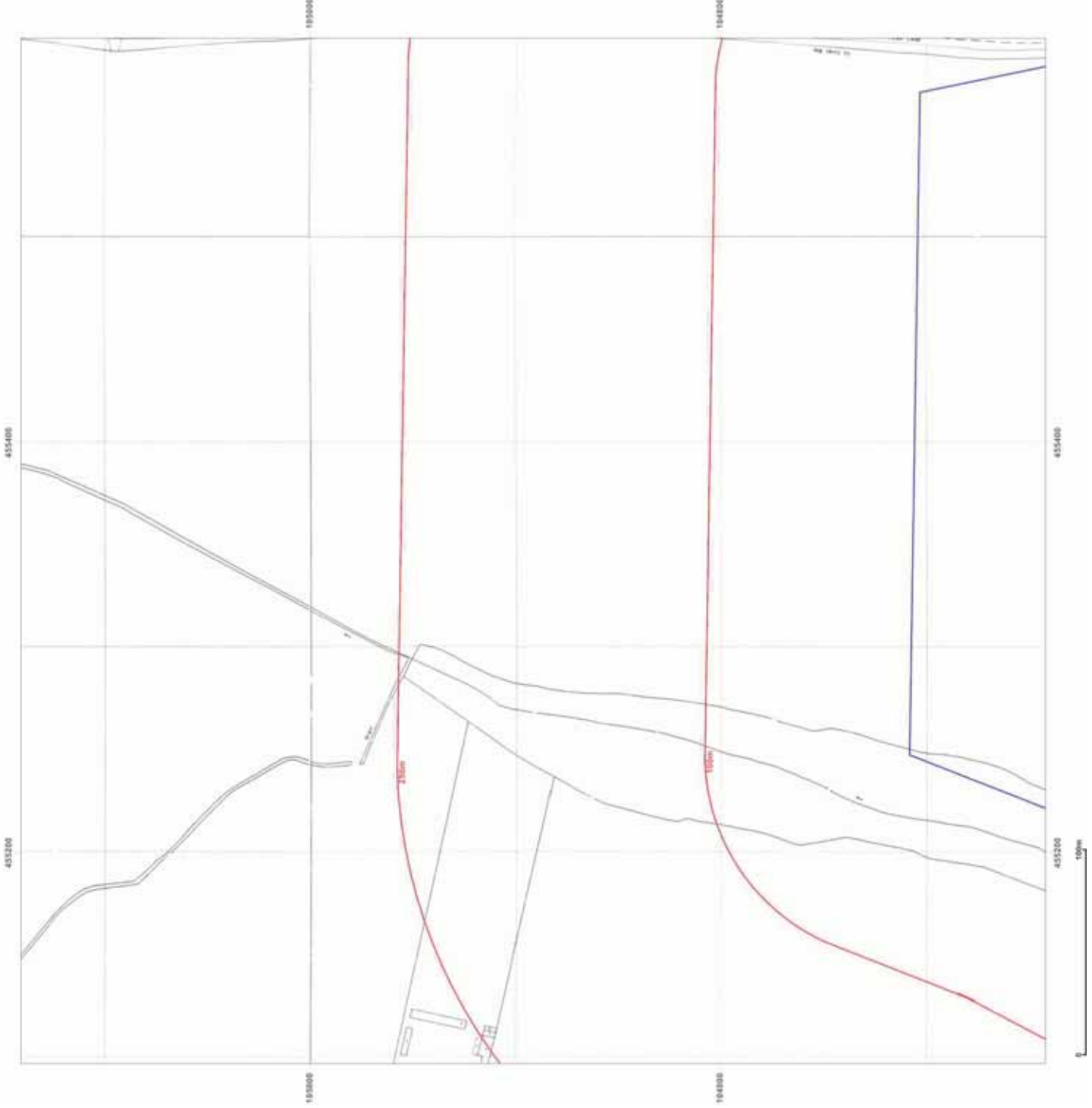
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Report Ref: EMS-444398_595774_1250scale_3_1
Grid Ref: 455847, 103891

Map Name: National Grid

Map date: 1982-1984

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1982
Revised 1982
Edition N/A
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Levelled 1957



Surveyed 1982
Revised 1982
Edition N/A
Copyright 1982
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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_1250scale_3_1
Grid Ref: 455847, 103891

Map Name: National Grid

Map date: 1990-1993

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

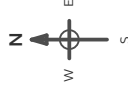
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Map Name: National Grid

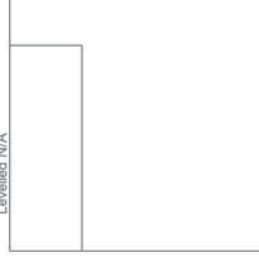
Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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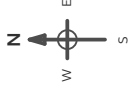
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 Report Ref: EMS-444398_595774_1250scale_3_2
 Grid Ref: 455847, 104391

Map Name: National Grid

Map date: 1984

Scale: 1:1,250

Printed at: 1:2,000



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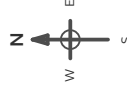
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Report Ref: EMS-444398_595774_1250scale_3_2
Grid Ref: 455847, 104391

Map Name: National Grid

Map date: 1990-1993

Scale: 1:1,250

Printed at: 1:2,000



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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_1250scale_3_2
Grid Ref: 455847, 104391

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

Client Ref: EMS_444398_595774
 Report Ref: EMS-444398_595774_1250scale_3_3
 Grid Ref: 455847, 104891

Map Name: National Grid

Map date: 1989-1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1989
 Levelled N/A

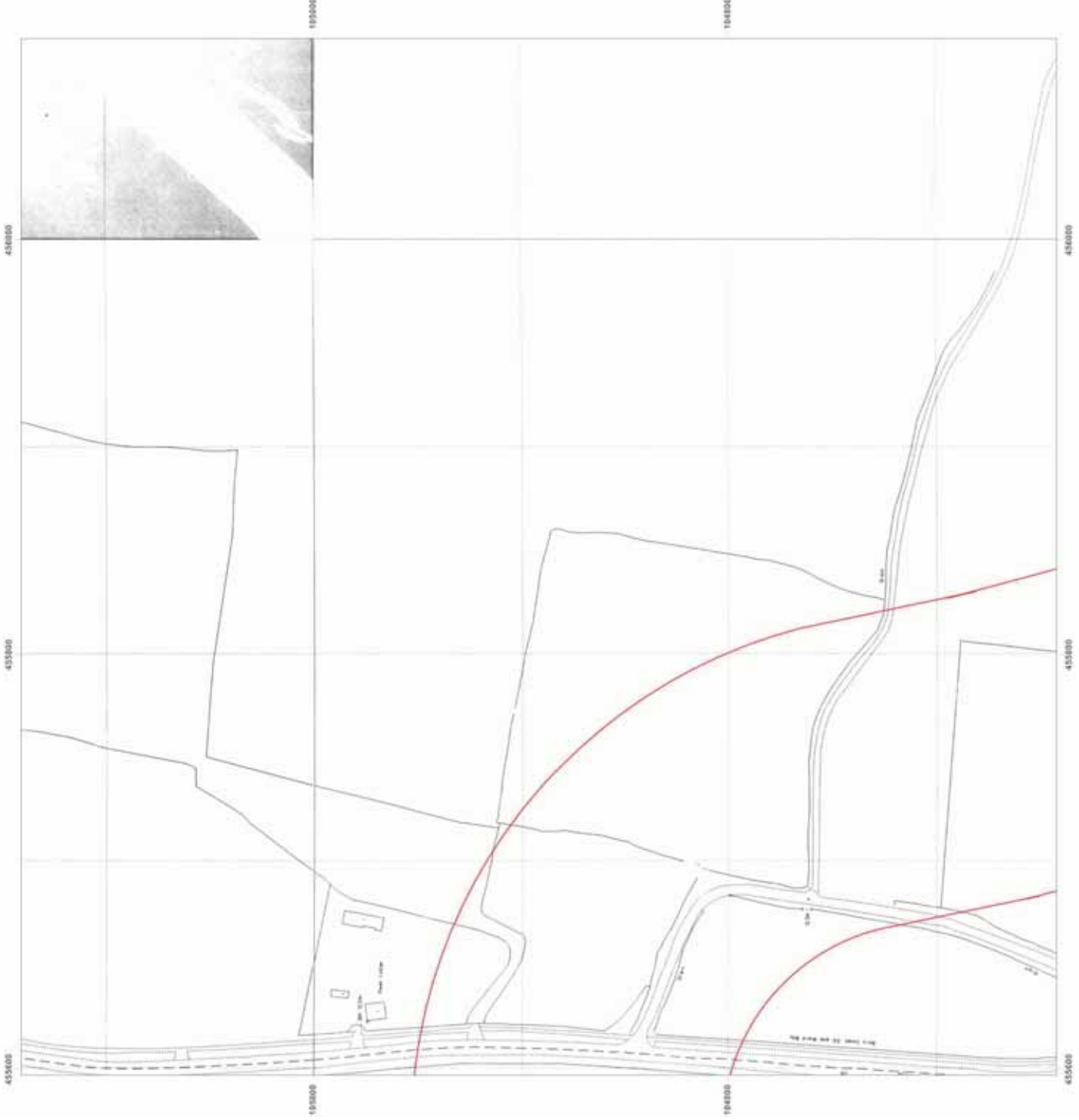
Surveyed 1993
 Revised N/A
 Edition N/A
 Copyright 1993
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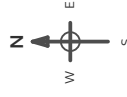
Client Ref: EMS_444398_595774
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Map Name: County Series

Map date: 1868

Scale: 1:2,500

Printed at: 1:2,500



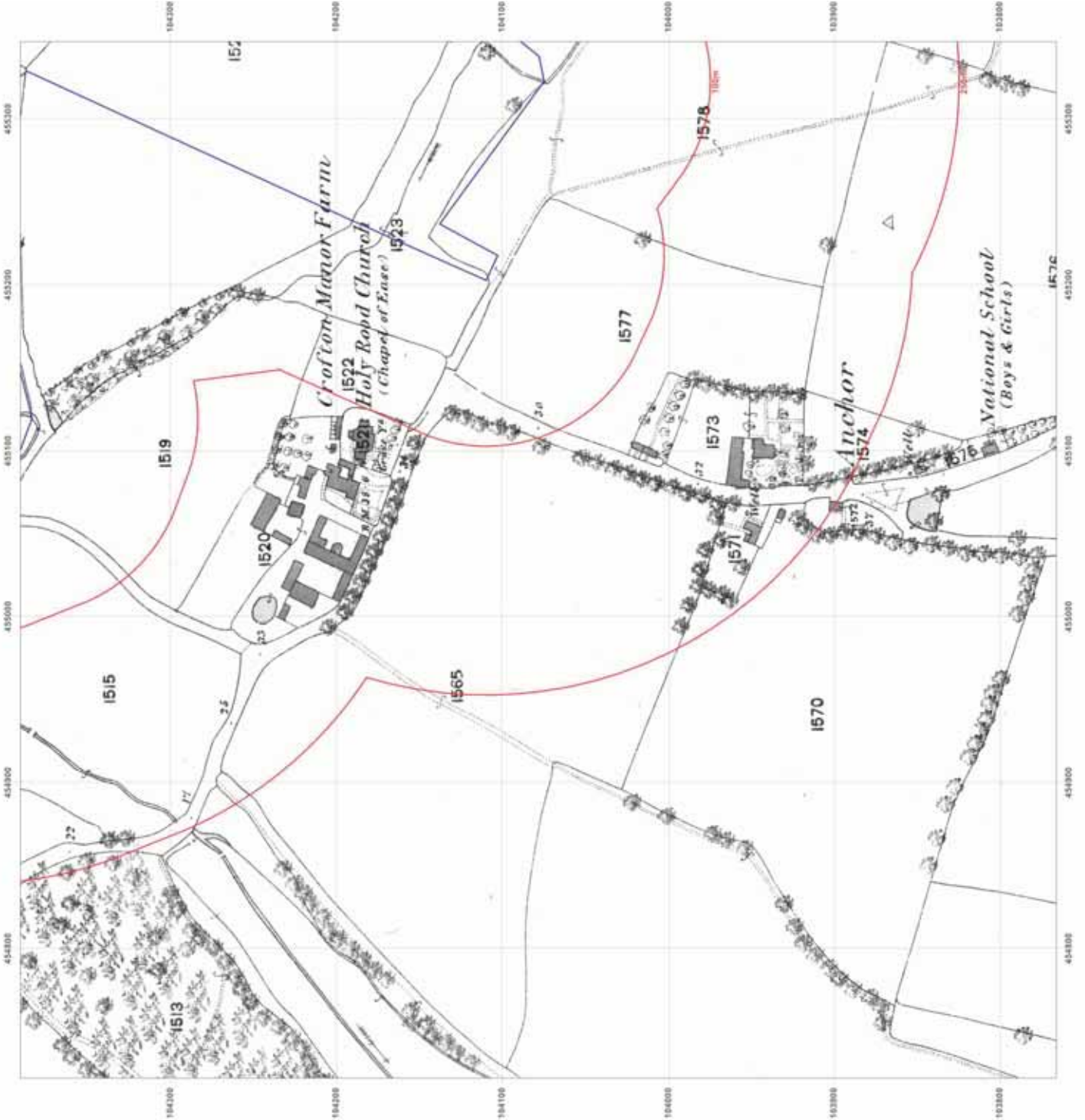
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 Revised 1868
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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_1
Grid Ref: 455034, 104078

Map Name: County Series

Map date: 1868

Scale: 1:2,500

Printed at: 1:2,500



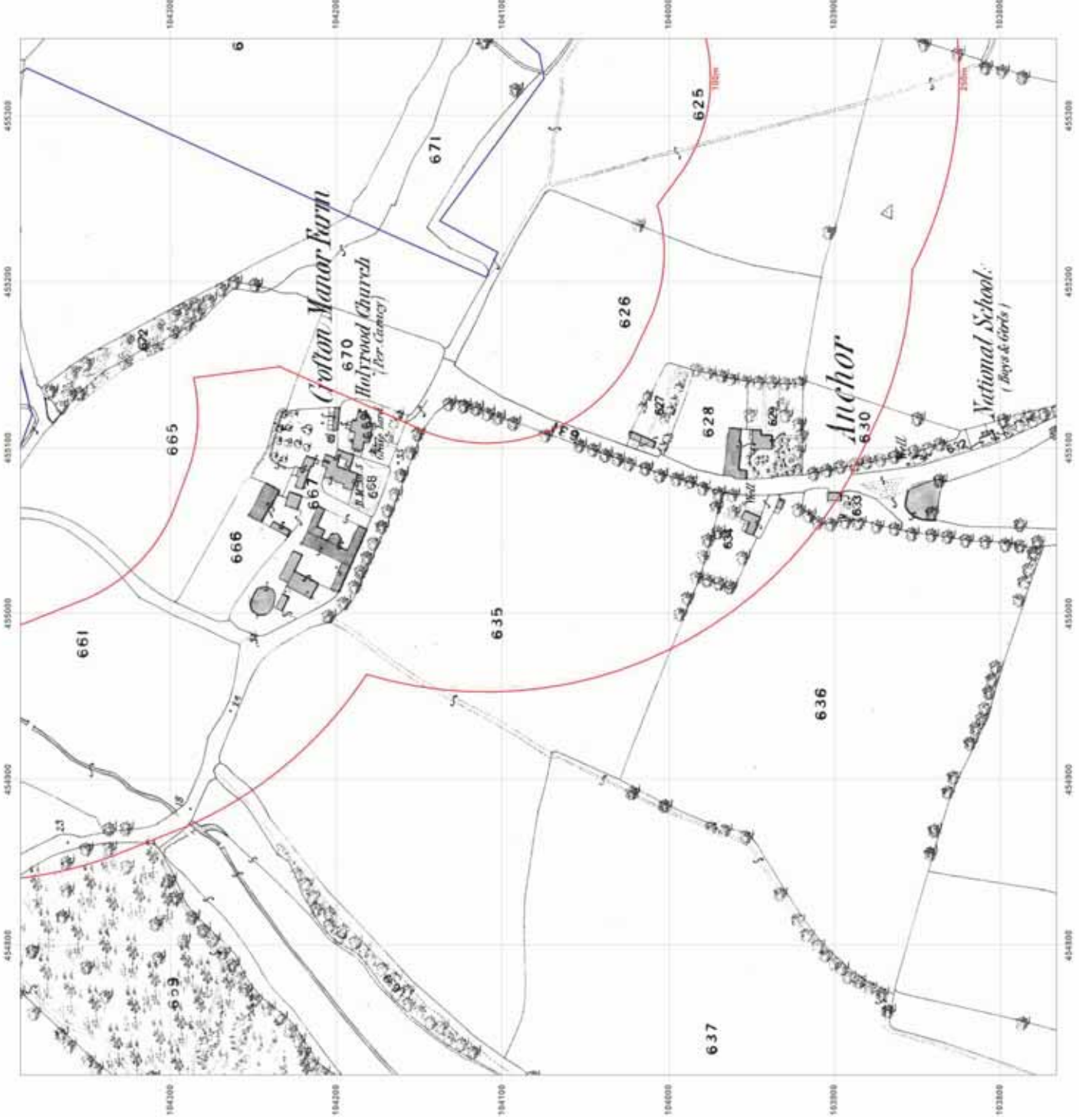
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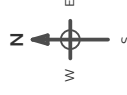
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Grid Ref: 455034, 104078

Map Name: County Series

Map date: 1897

Scale: 1:2,500

Printed at: 1:2,500



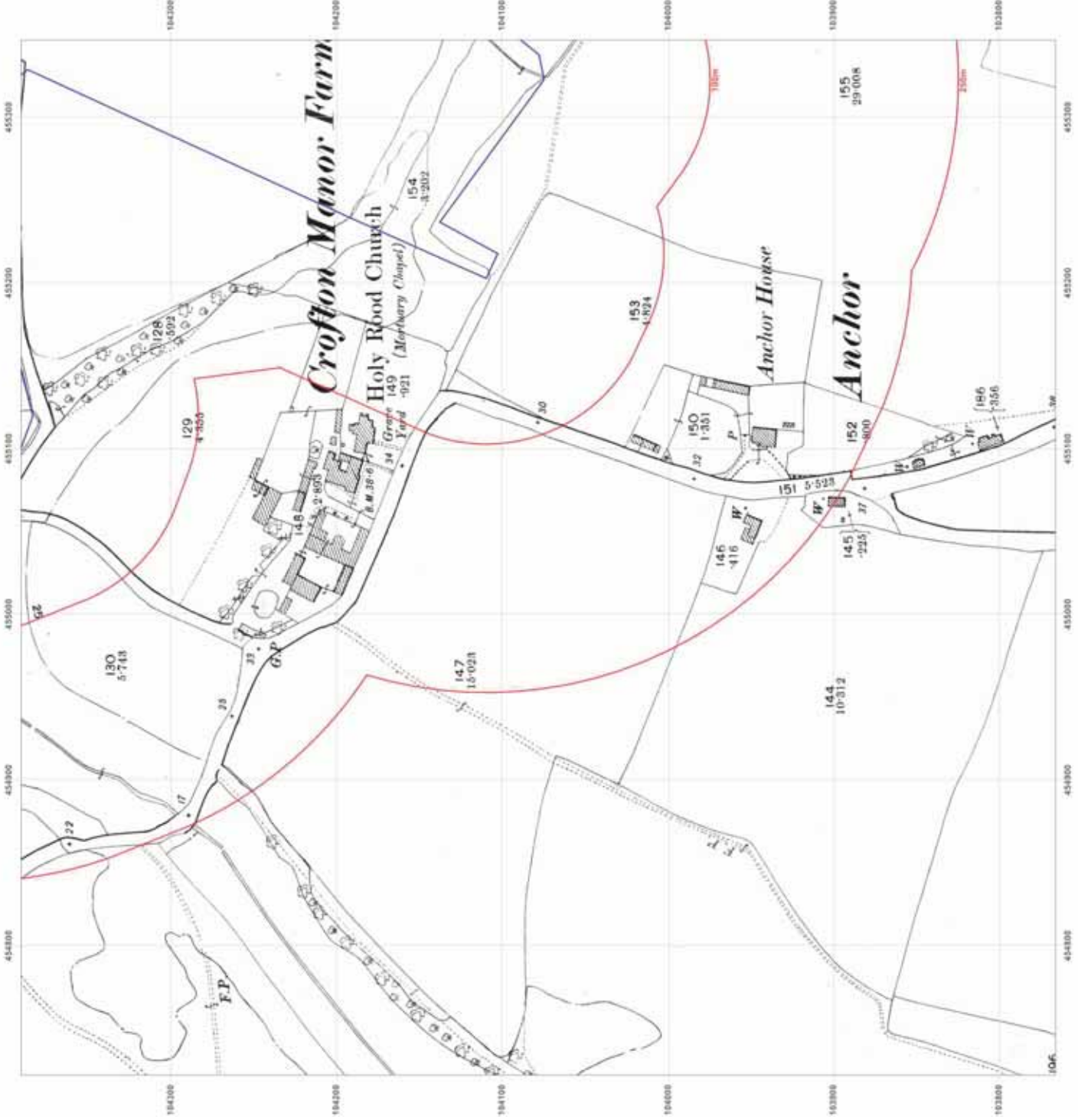
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Revised 1897
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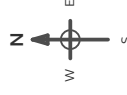
Client Ref: EMS_444398_595774
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 Grid Ref: 455034, 104078

Map Name: County Series

Map date: 1909

Scale: 1:2,500

Printed at: 1:2,500



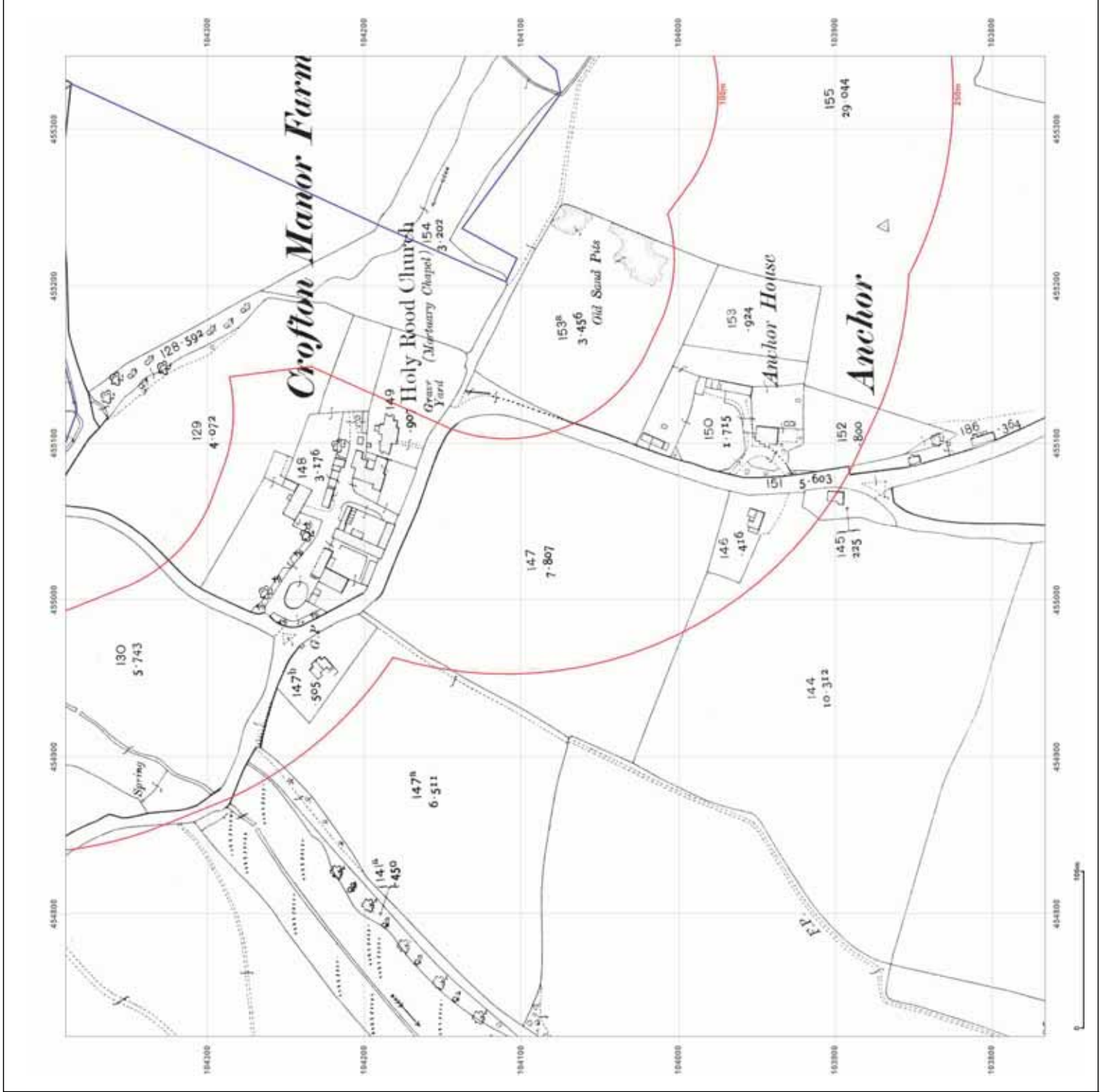
Surveyed 1909
 Revised 1909
 Edition N/A
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Site Details:

Client Ref: EMS-444398_595774
Report Ref: EMS-444398_595774_LS_1_1
Grid Ref: 455034, 104078

Map Name: County Series

Map date: 1932

Scale: 1:2,500

Printed at: 1:2,500



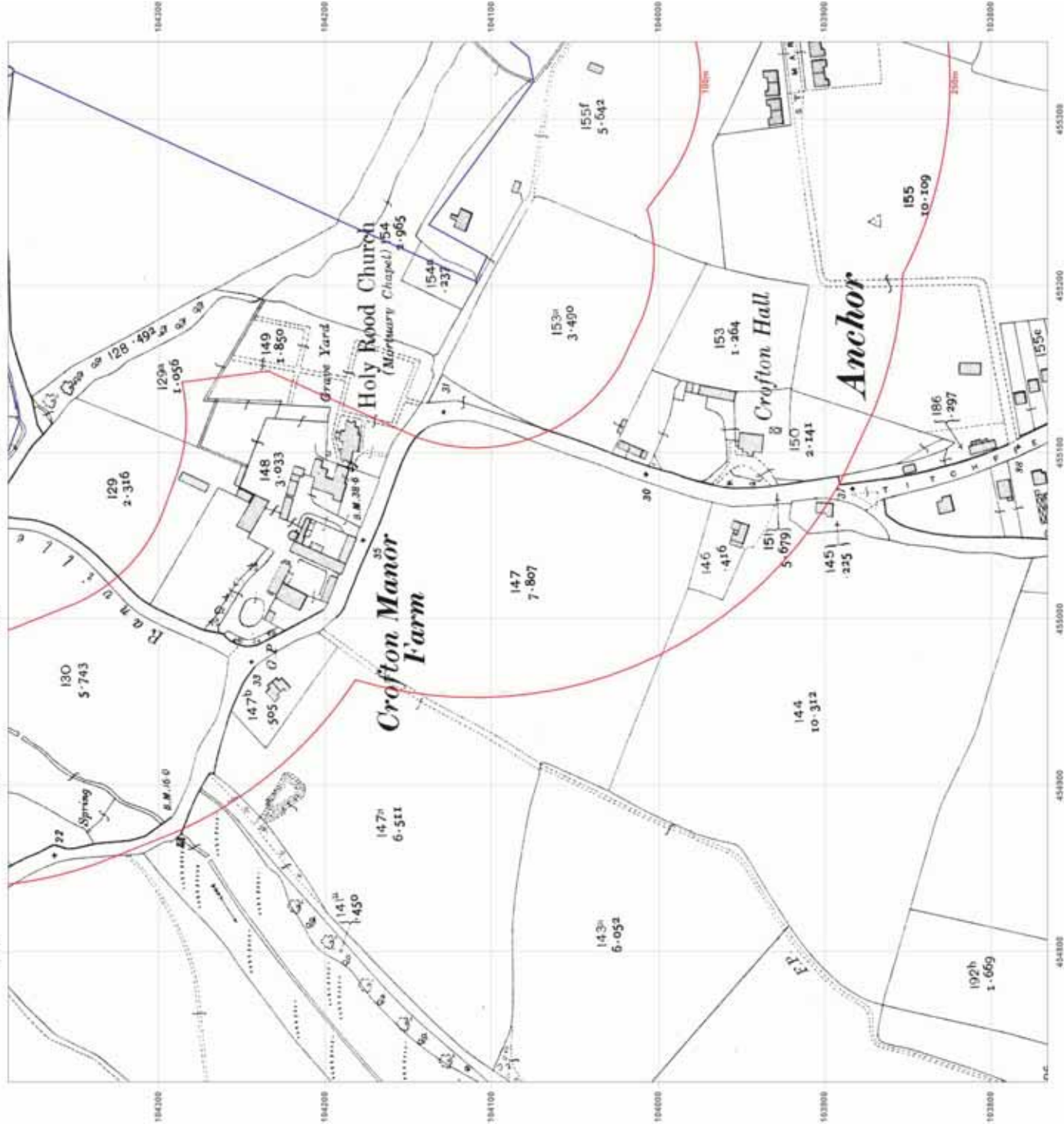
Surveyed 1932
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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_1
Grid Ref: 455034, 104078

Map Name: County Series

Map date: 1941

Scale: 1:2,500

Printed at: 1:2,500



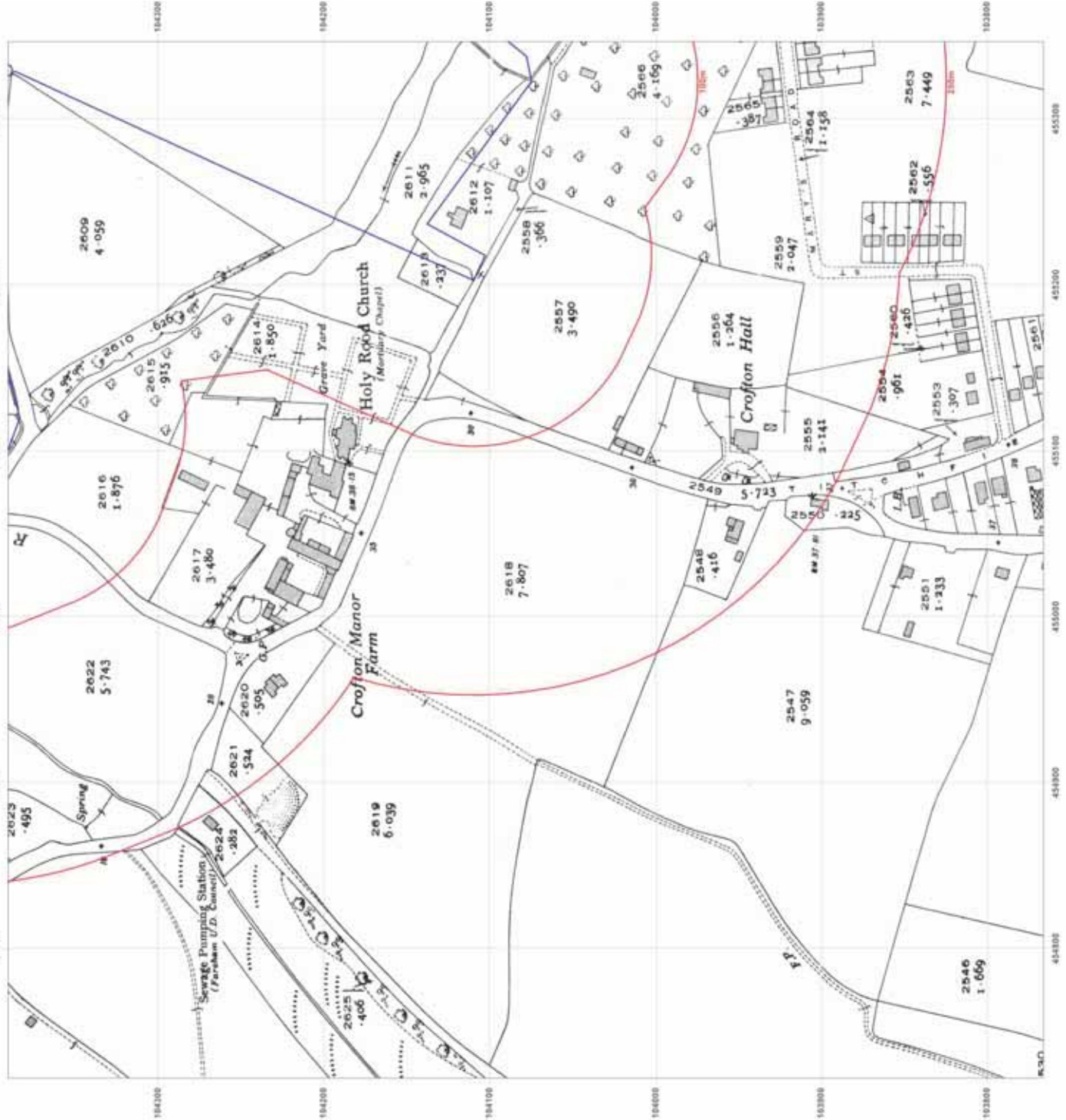
Surveyed 1941
Revised 1941
Edition N/A
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Client Ref: EMS-444398_595774
Report Ref: EMS-444398_595774_LS_1_1
Grid Ref: 455034, 104078

Map Name: National Grid

Map date: 1964

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
 Revised 1964
 Edition N/A
 Copyright 1965
 Levelled 1957

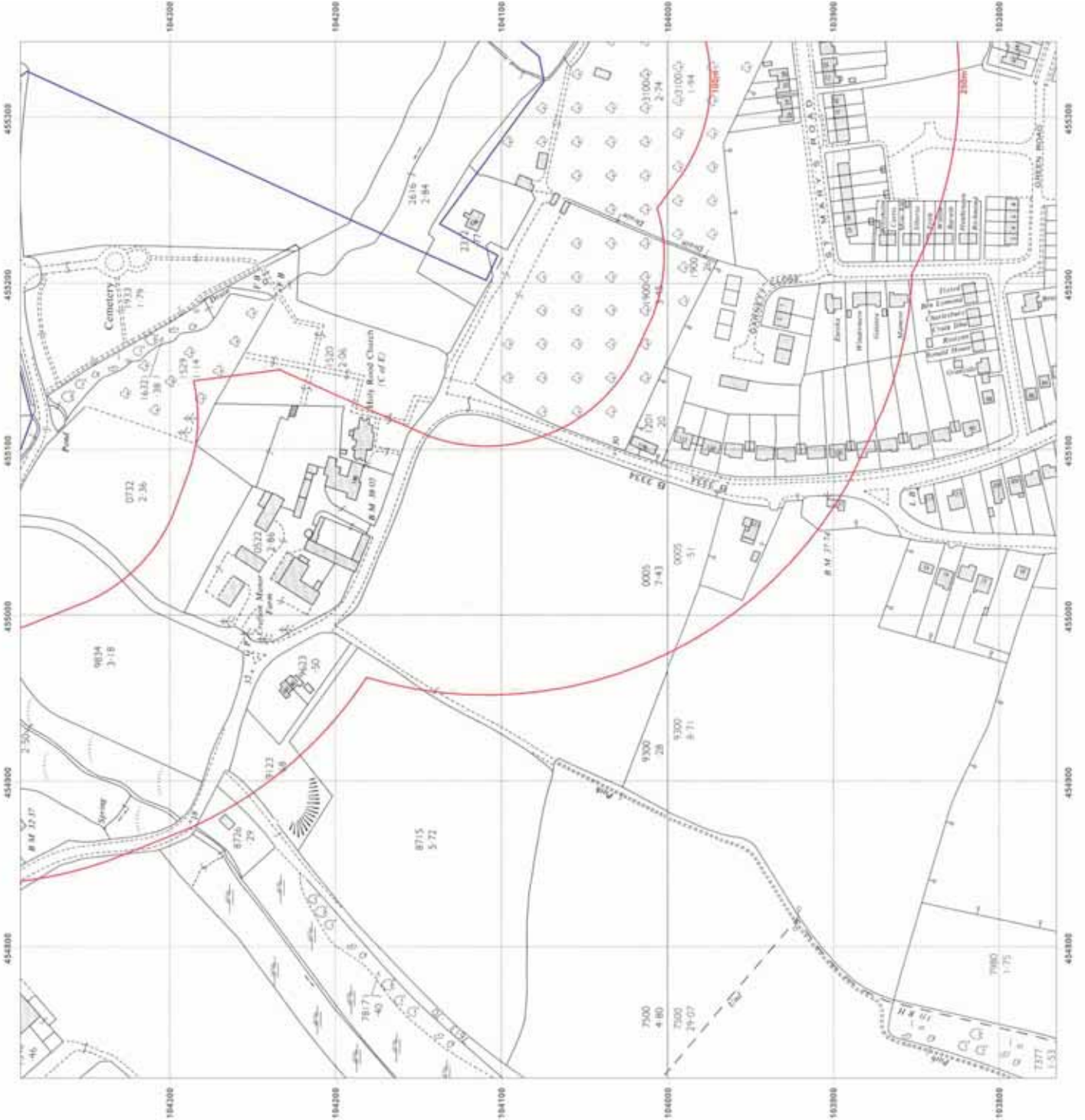
Surveyed 1964
 Revised 1964
 Edition N/A
 Copyright 1965
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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_1
Grid Ref: 455034, 104078

Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



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



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Edition N/A
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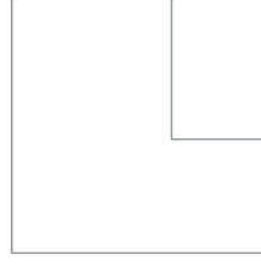
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Grid Ref: 455034, 104078

Map Name: National Grid

Map date: 1974

Scale: 1:2,500

Printed at: 1:2,500



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



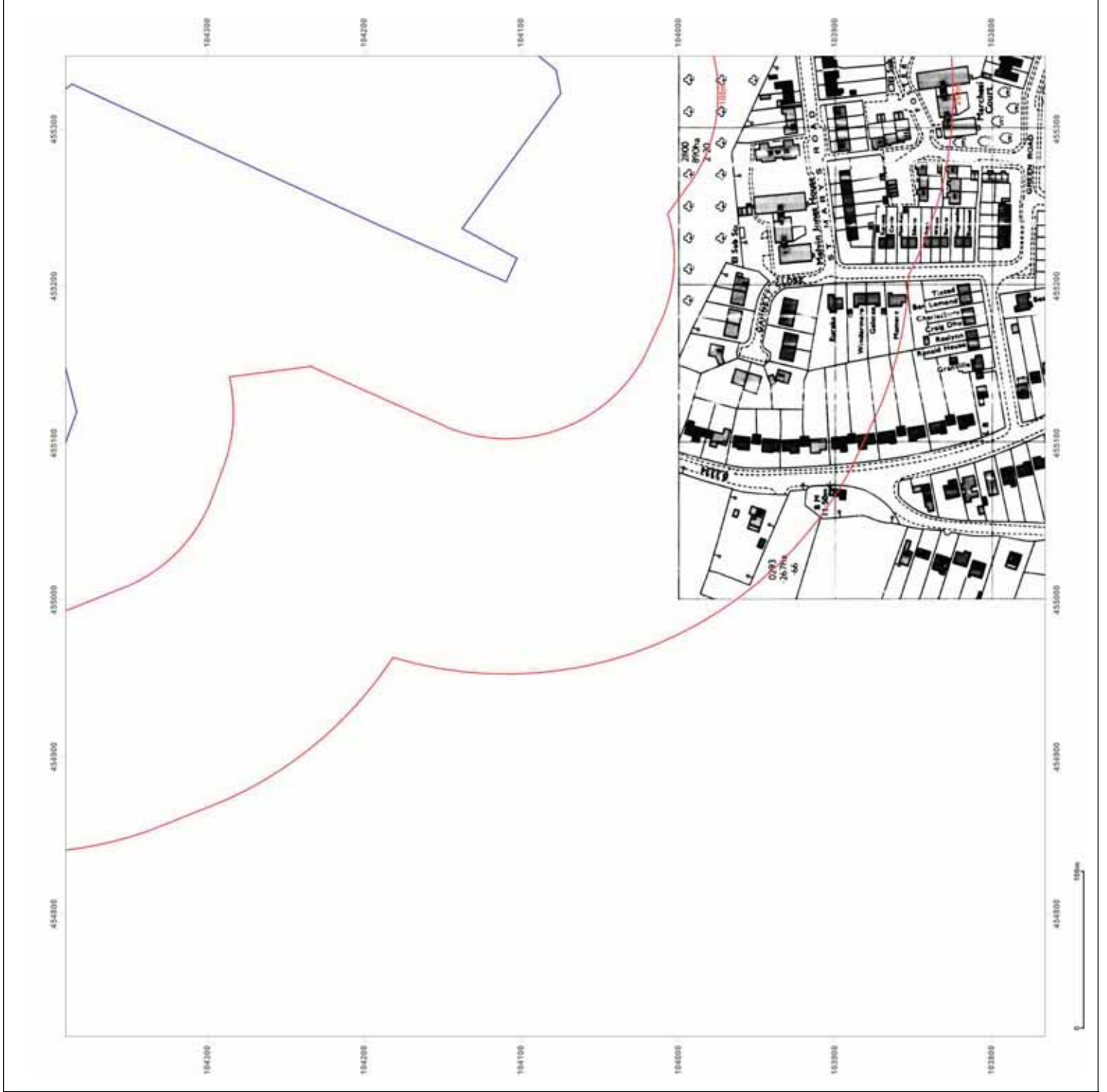
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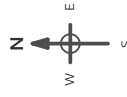
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Map Name: National Grid

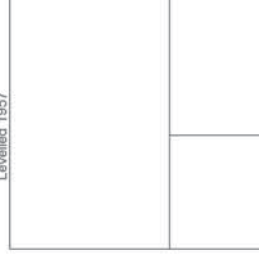
Map date: 1973-1975

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1975
 Revised 1975
 Edition N/A
 Copyright 1977
 Levelled 1957



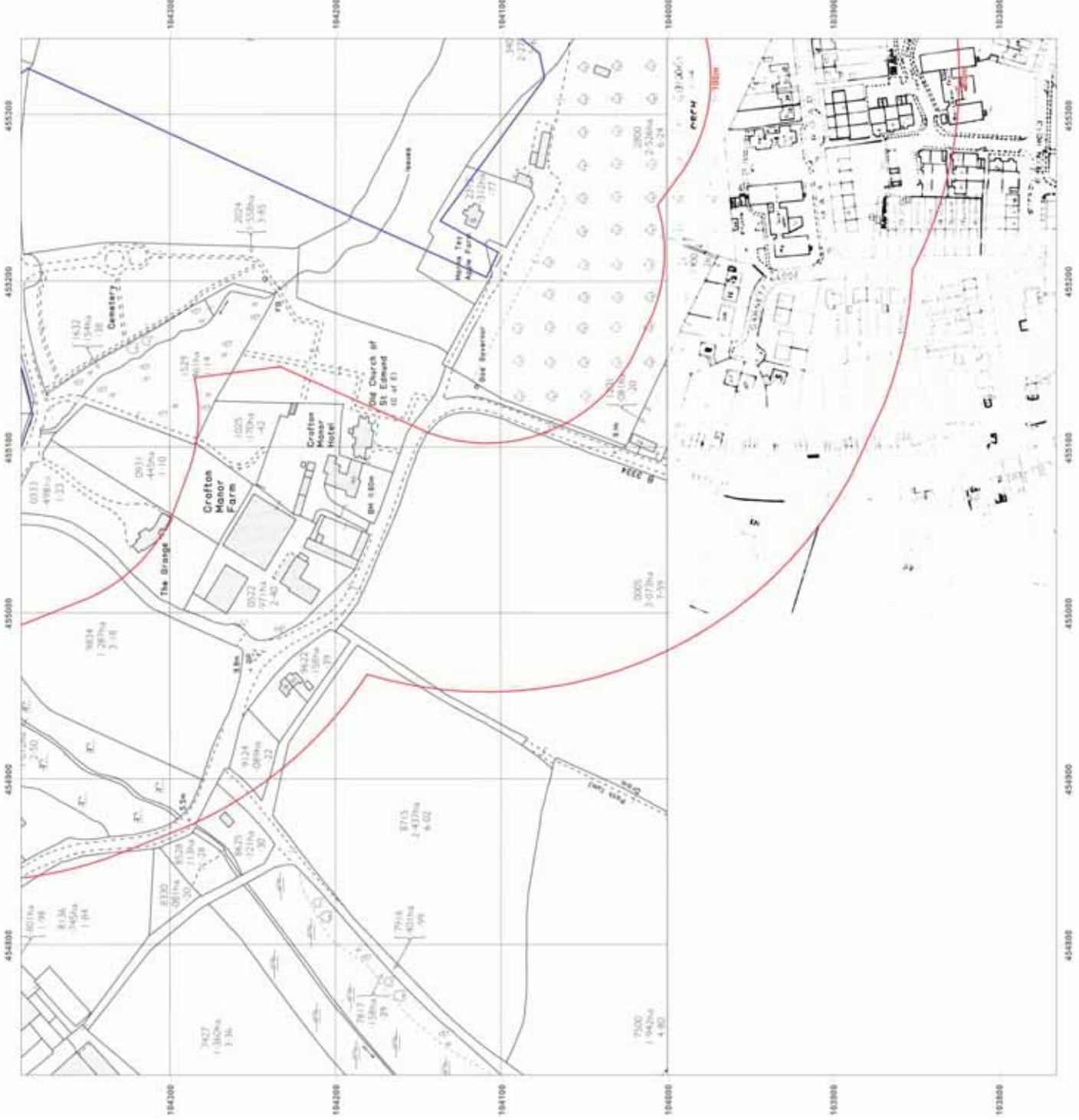
Surveyed N/A
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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_1
Grid Ref: 455034, 104078

Map Name: National Grid

Map date: 1973-1977

Scale: 1:2,500

Printed at: 1:2,500



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

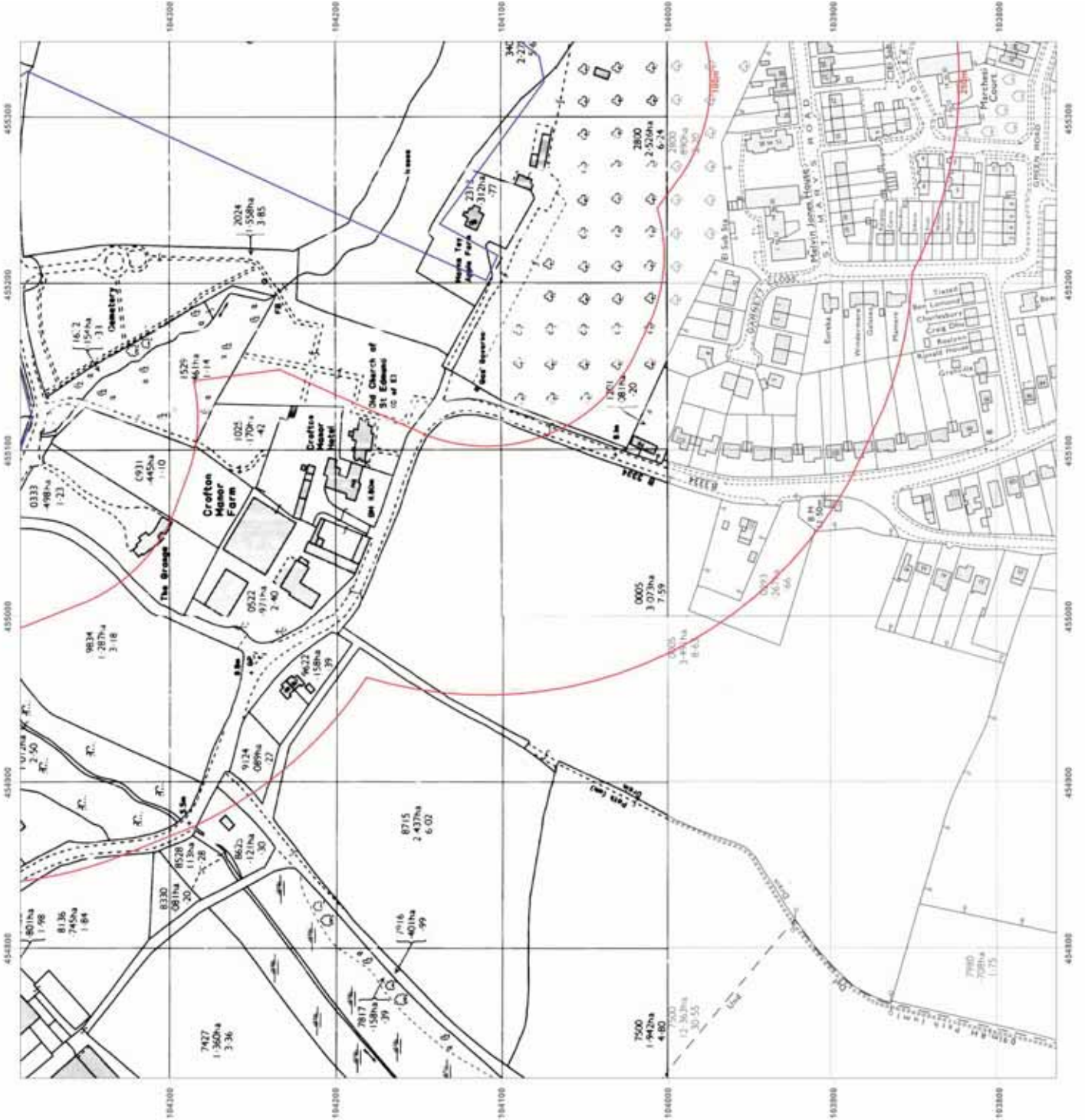
Surveyed 1973
 Revised 1973
 Edition N/A
 Copyright 1974
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Report Ref: EMS-444398_595774_LS_1_1
Grid Ref: 455034, 104078

Map Name: National Grid

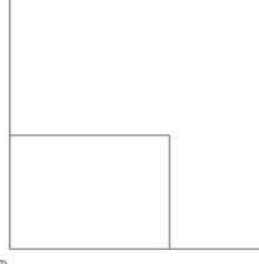
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Scale: 1:2,500

Printed at: 1:2,500



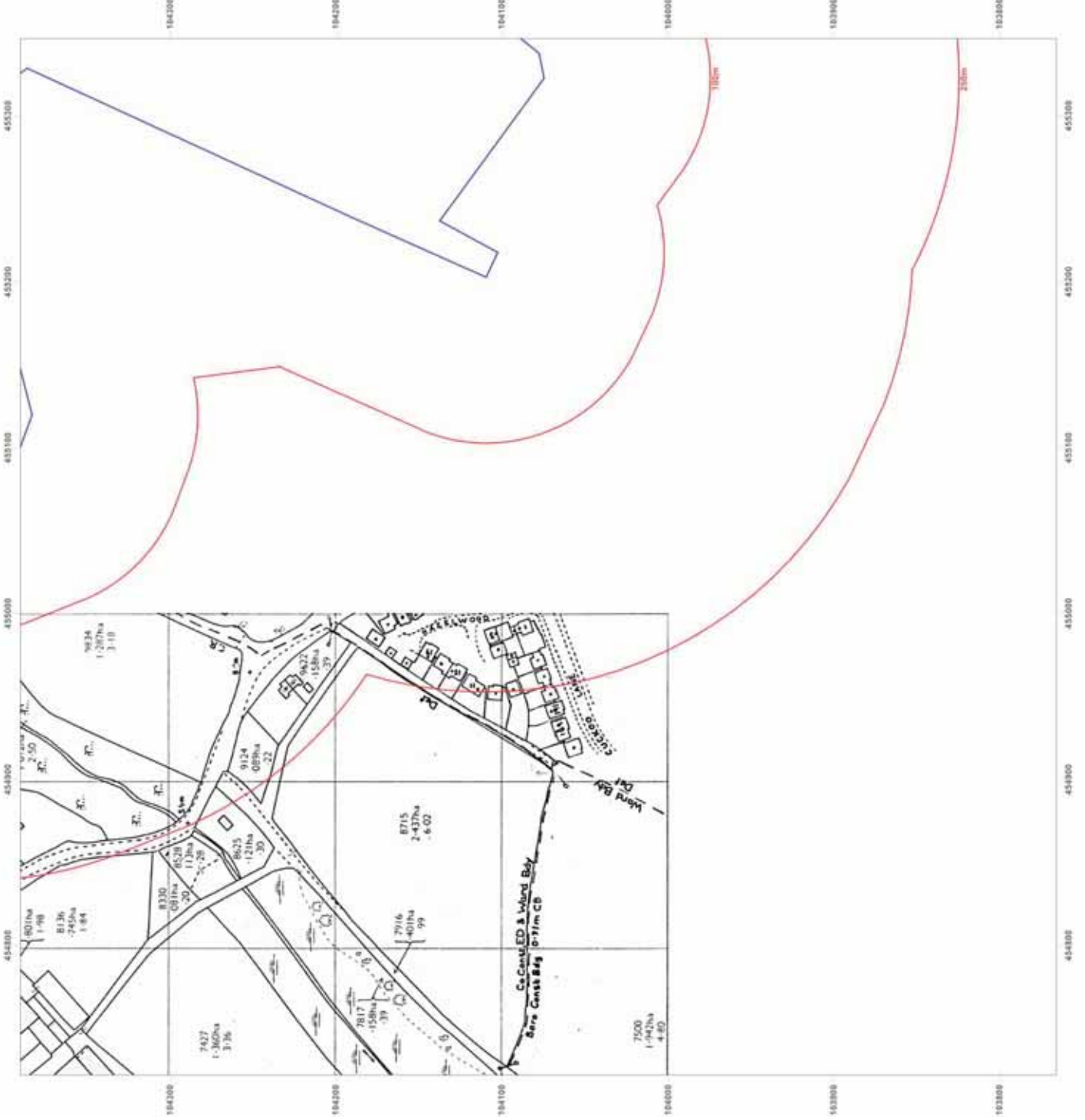
Surveyed 1959
 Revised 1985
 Edition N/A
 Copyright 1985
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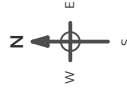
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 Report Ref: EMS-444398_595774_LS_1_2
 Grid Ref: 455034, 104704

Map Name: County Series

Map date: 1868-1869

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1869
 Revised 1869
 Edition N/A
 Copyright N/A
 Levelled N/A

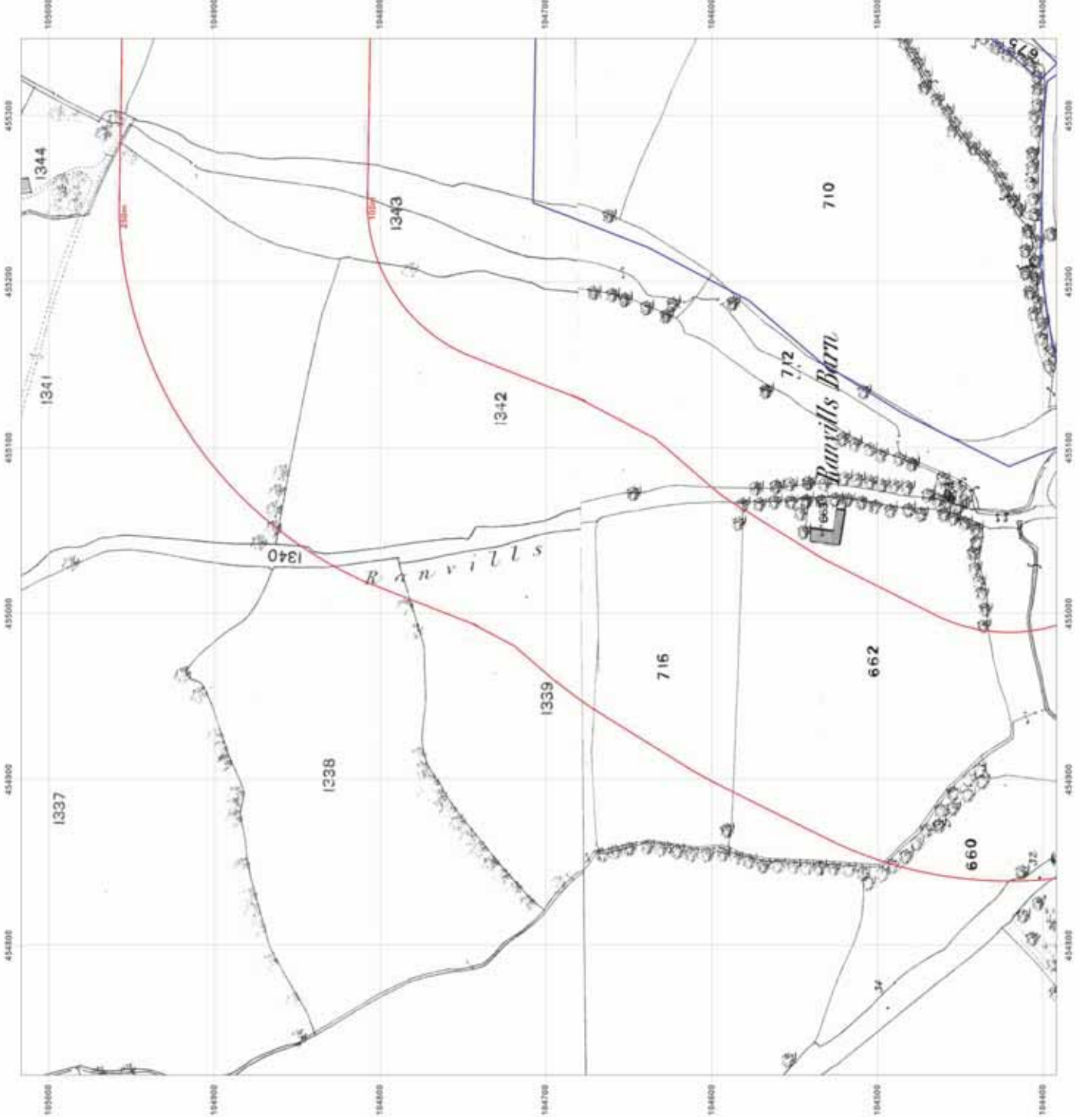
Surveyed 1868
 Revised 1868
 Edition N/A
 Copyright N/A
 Levelled N/A



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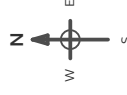
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Grid Ref: 455034, 104704

Map Name: County Series

Map date: 1868-1869

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1869
 Revised 1869
 Edition N/A
 Copyright N/A
 Levelled N/A

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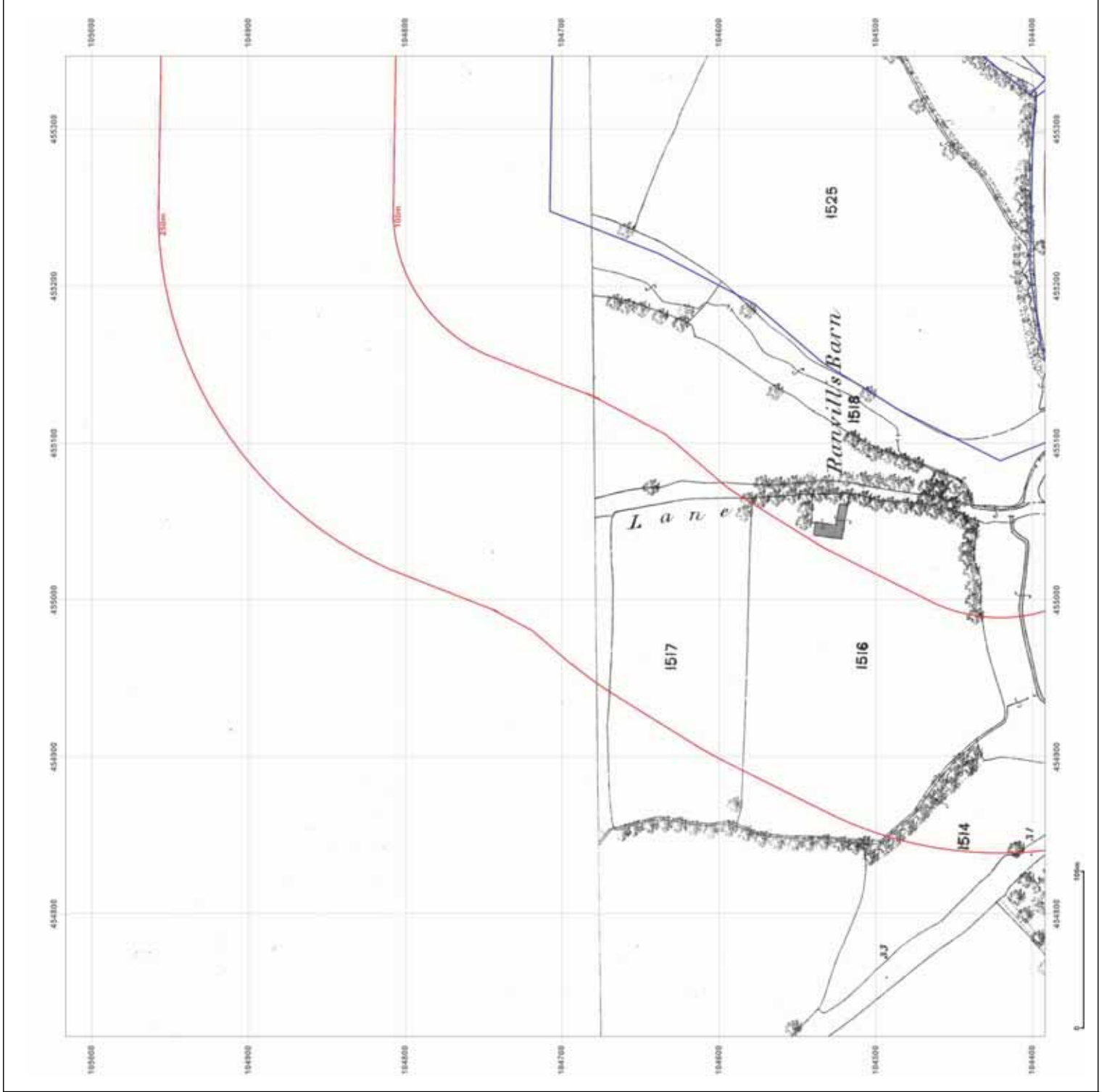
Surveyed 1868
 Revised 1868
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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_2
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Map Name: County Series

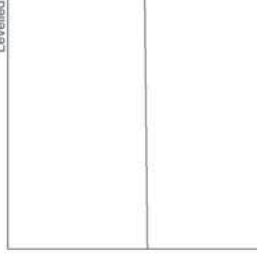
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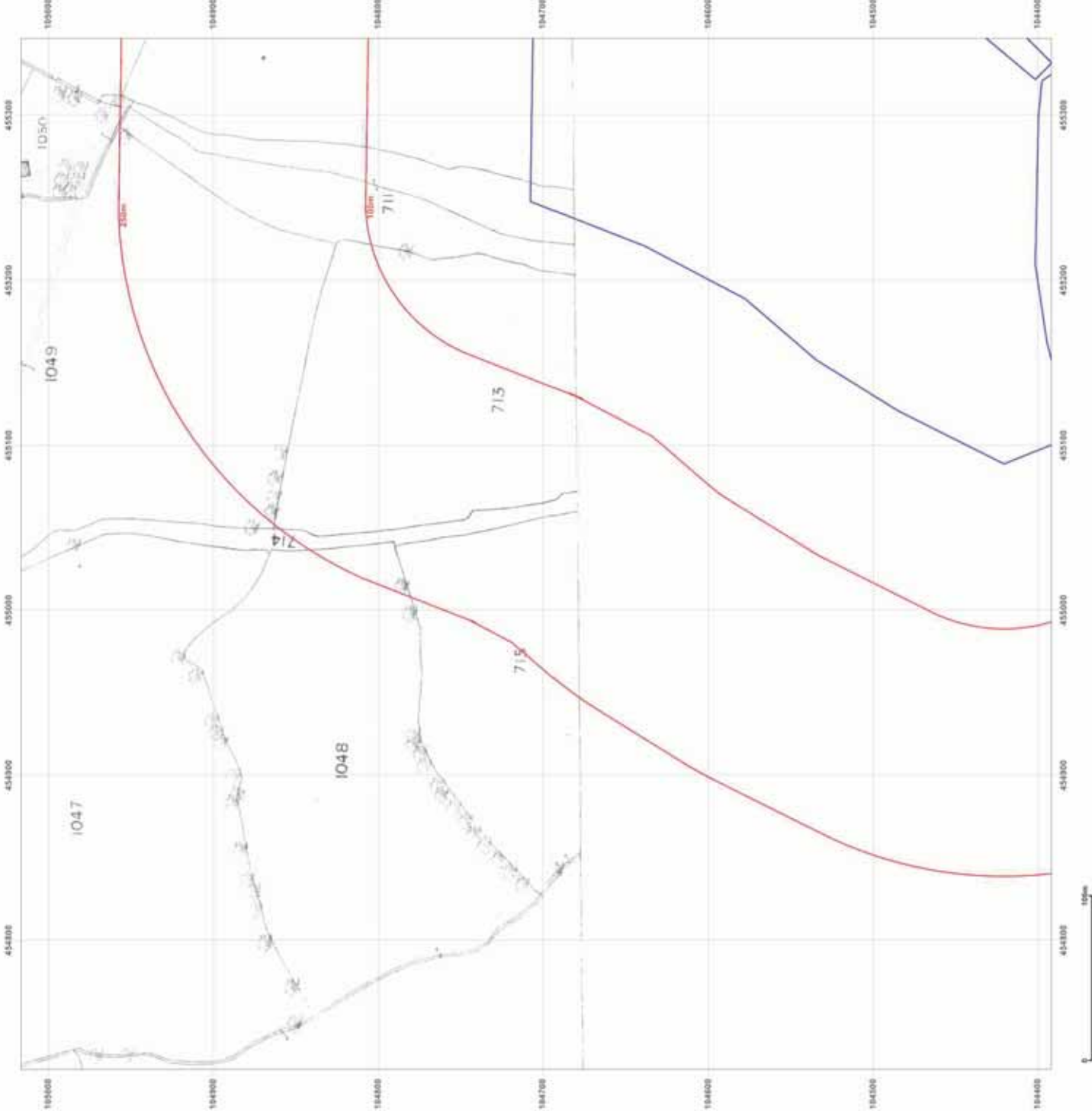
Surveyed 1869
Revised 1869
Edition N/A
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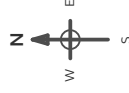
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 Grid Ref: 455034, 104704

Map Name: County Series

Map date: 1897

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1897
 Revised 1897
 Edition N/A
 Copyright N/A
 Levelled N/A

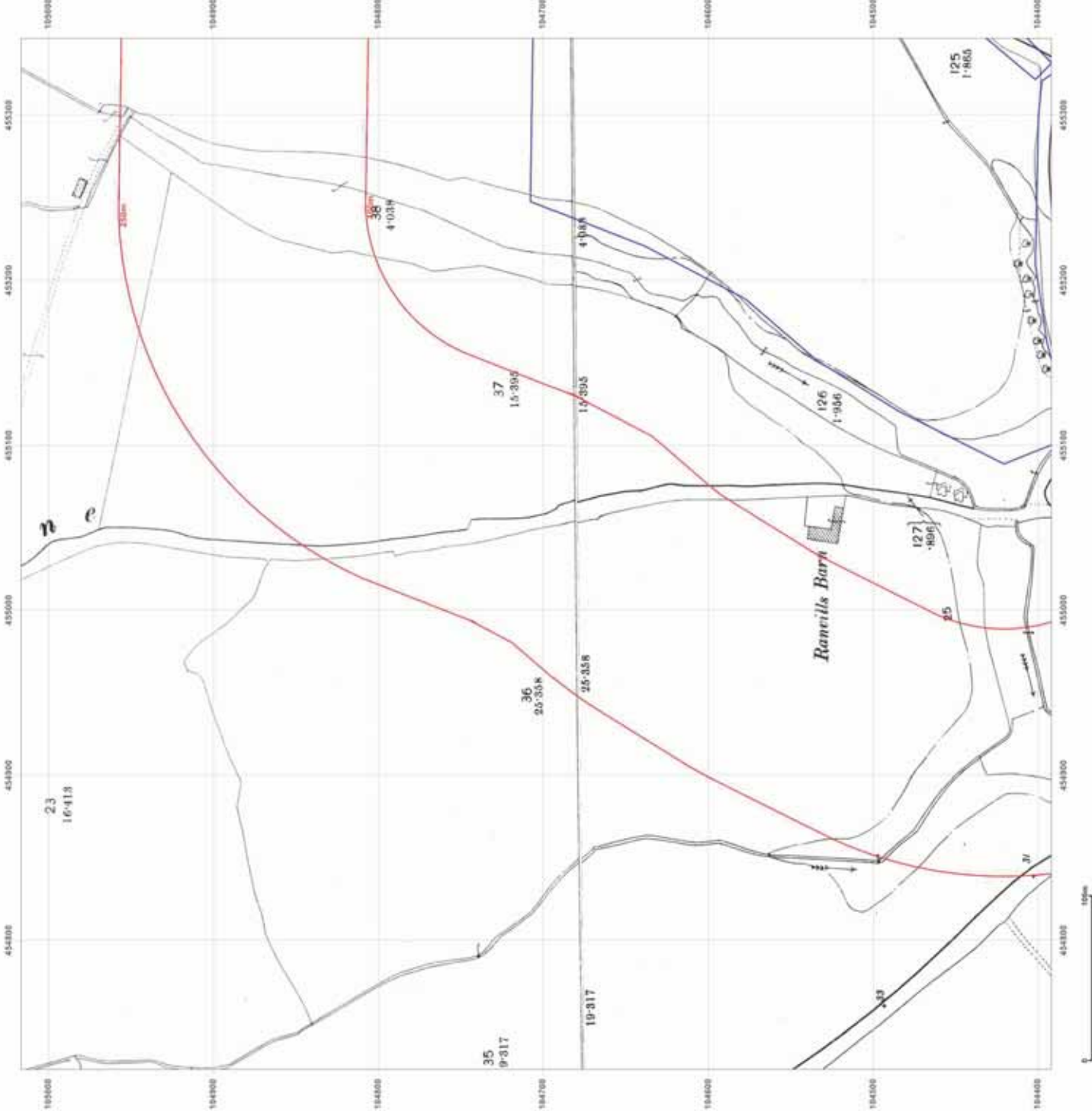
Surveyed 1897
 Revised 1897
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Client Ref: EMS_444398_595774
 Report Ref: EMS-444398_595774_LS_1_2
 Grid Ref: 455034, 104704

Map Name: County Series

Map date: 1909

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1909
 Revised 1909
 Edition N/A
 Copyright N/A
 Levelled N/A

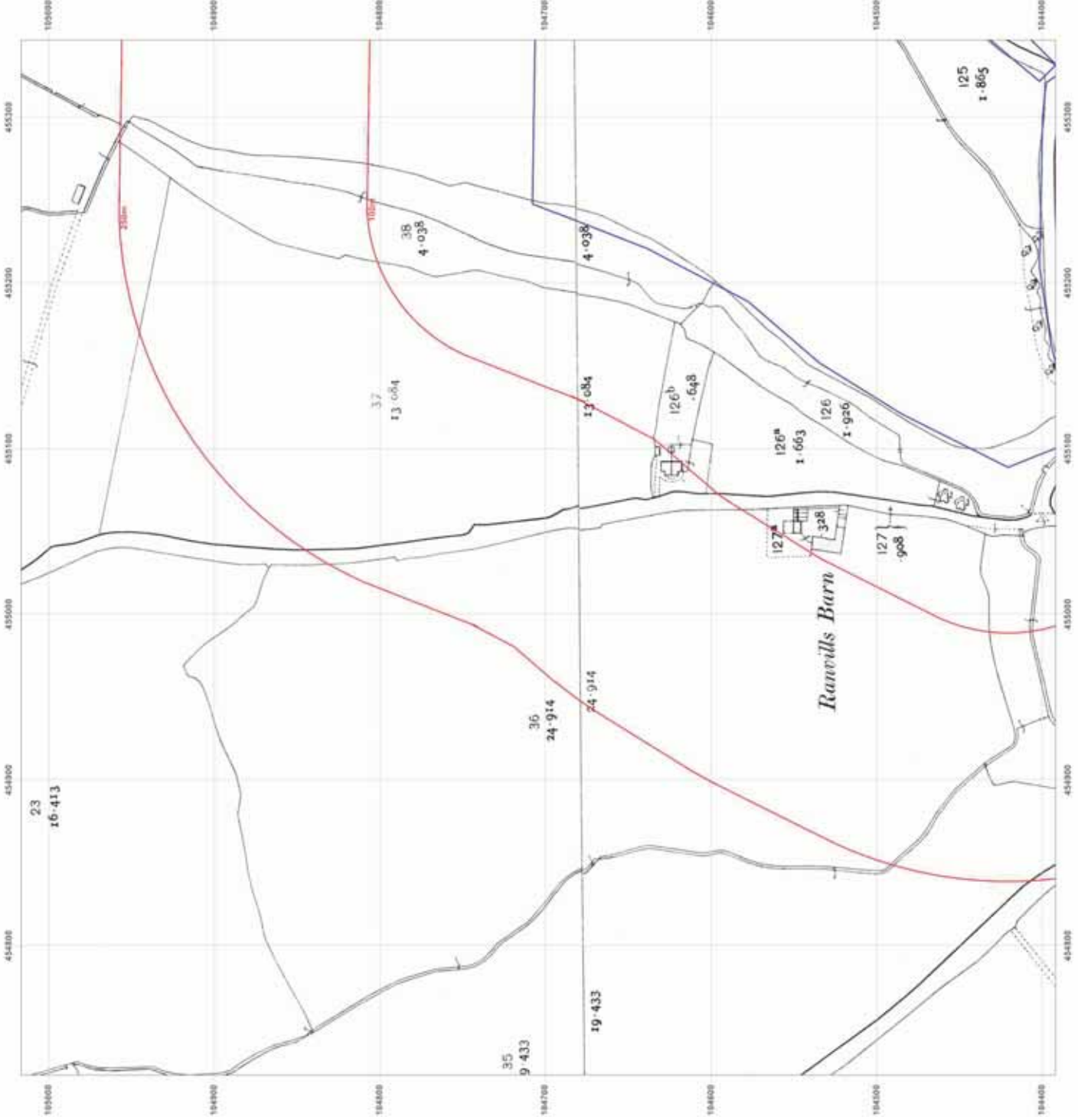
Surveyed 1909
 Revised 1909
 Edition N/A
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Client Ref: EMS_444398_595774
 Report Ref: EMS-444398_595774_LS_1_2
 Grid Ref: 455034, 104704

Map Name: County Series

Map date: 1932

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1932
 Revised 1932
 Edition N/A
 Copyright N/A
 Levelled N/A

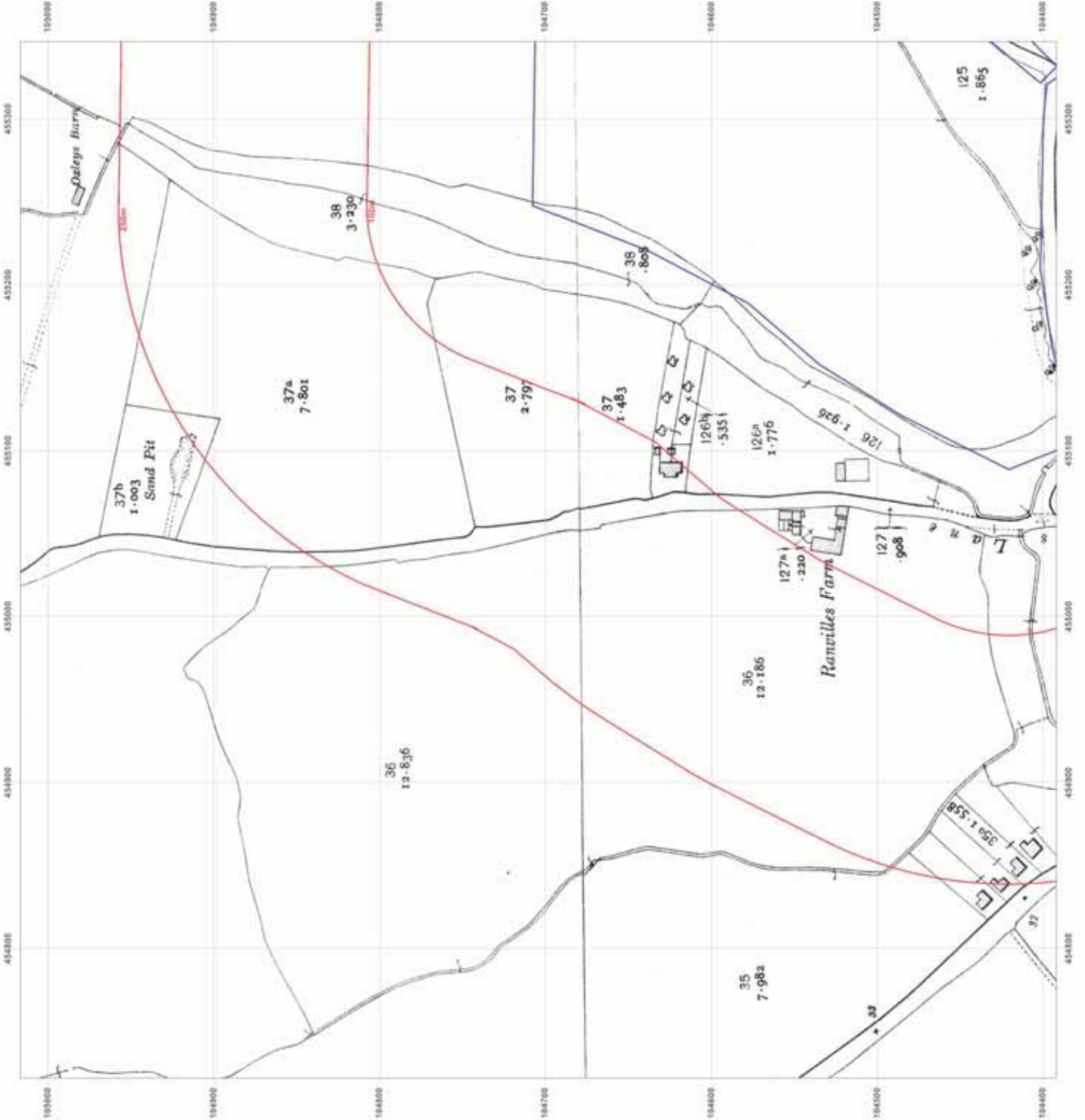
Surveyed 1932
 Revised 1932
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Client Ref: EMS_444398_595774
 Report Ref: EMS-444398_595774_LS_1_2
 Grid Ref: 455034, 104704

Map Name: County Series

Map date: 1941

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1941
 Revised 1941
 Edition N/A
 Copyright N/A
 Levelled N/A

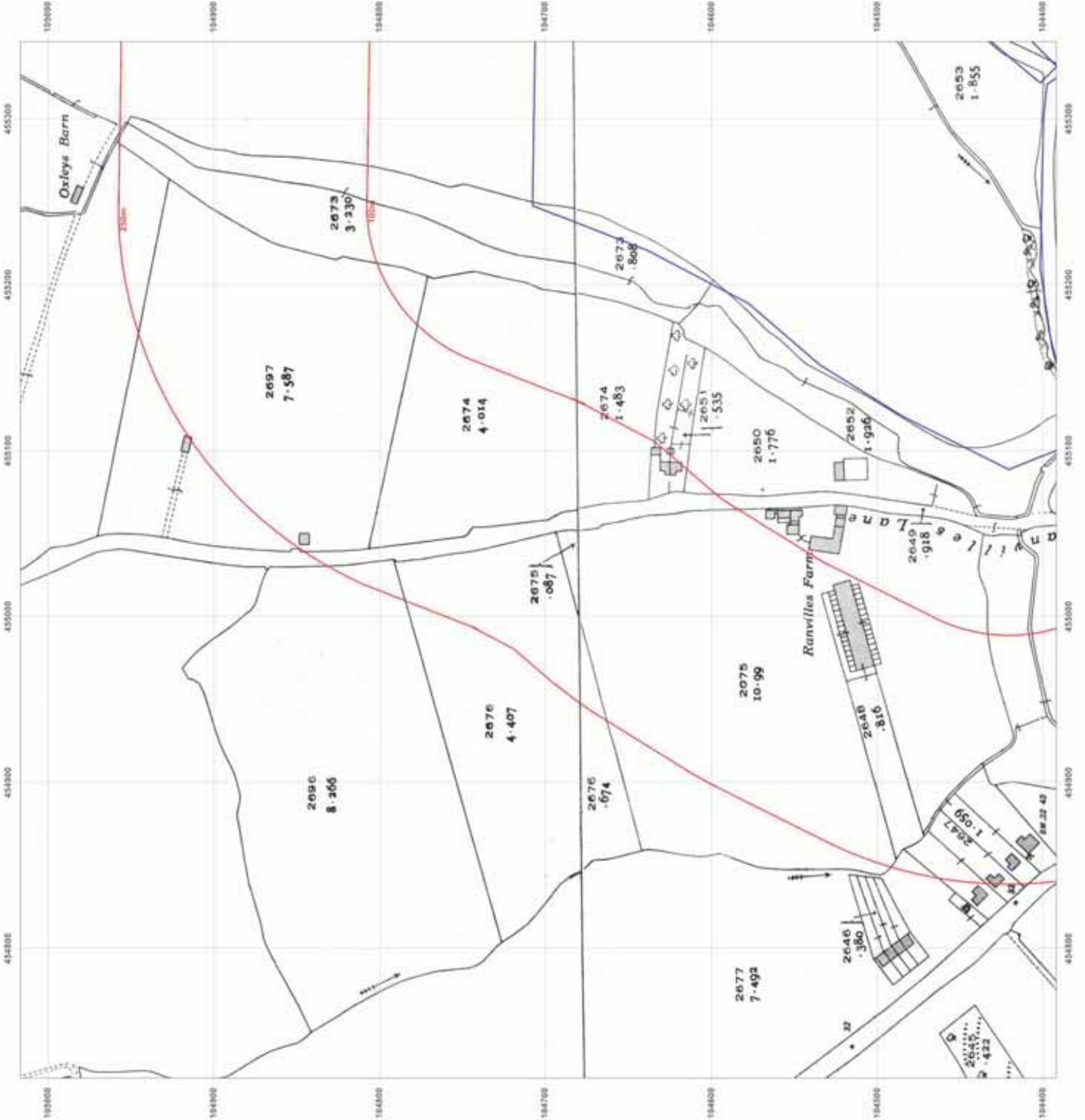
Surveyed 1941
 Revised 1941
 Edition N/A
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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_2
Grid Ref: 455034, 104704

Map Name: National Grid

Map date: 1964

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
Revised 1964
Edition 1965
Copyright 1965
Levelled 1957

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1965
Levelled 1957



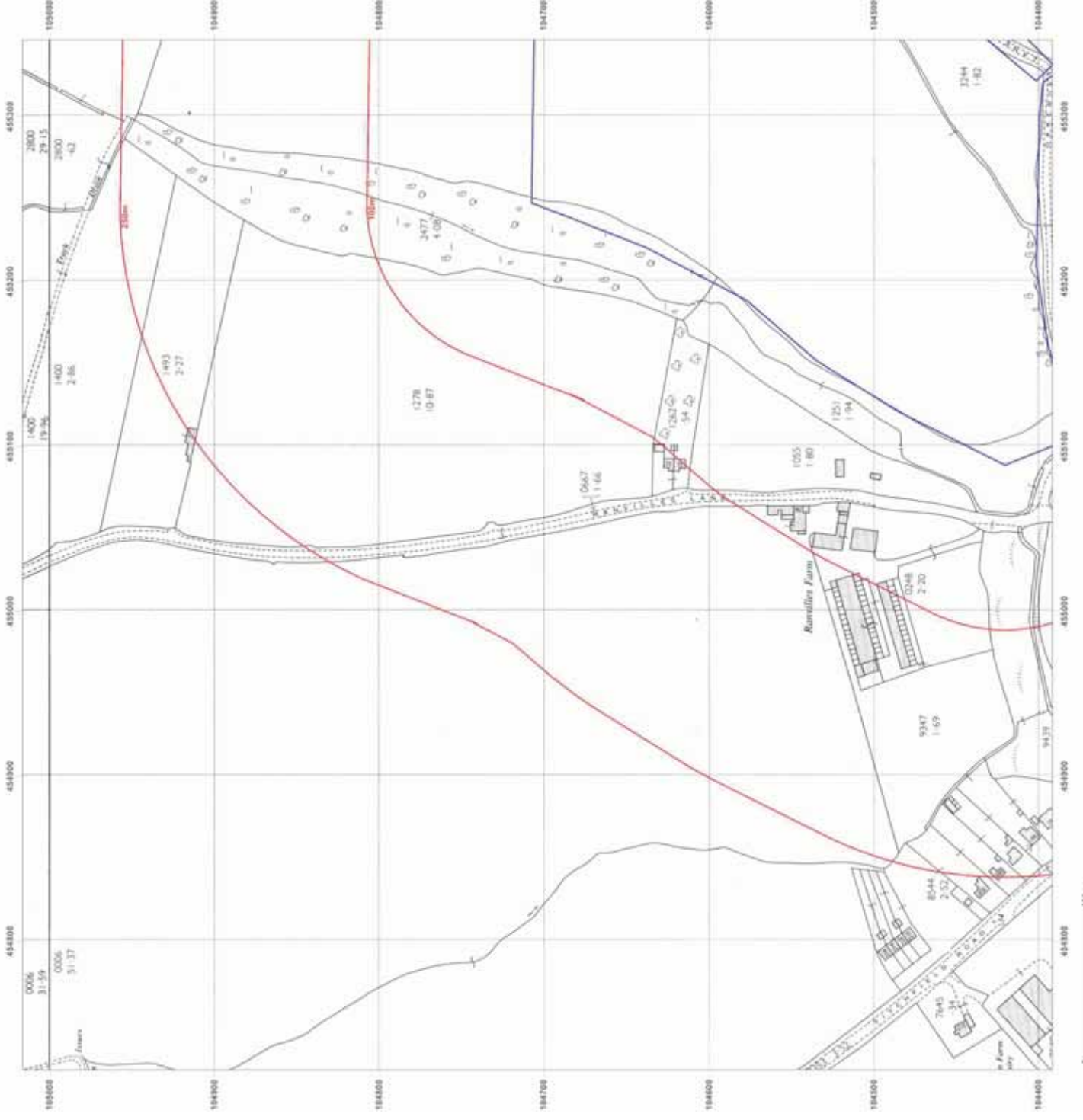
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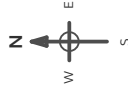
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Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



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



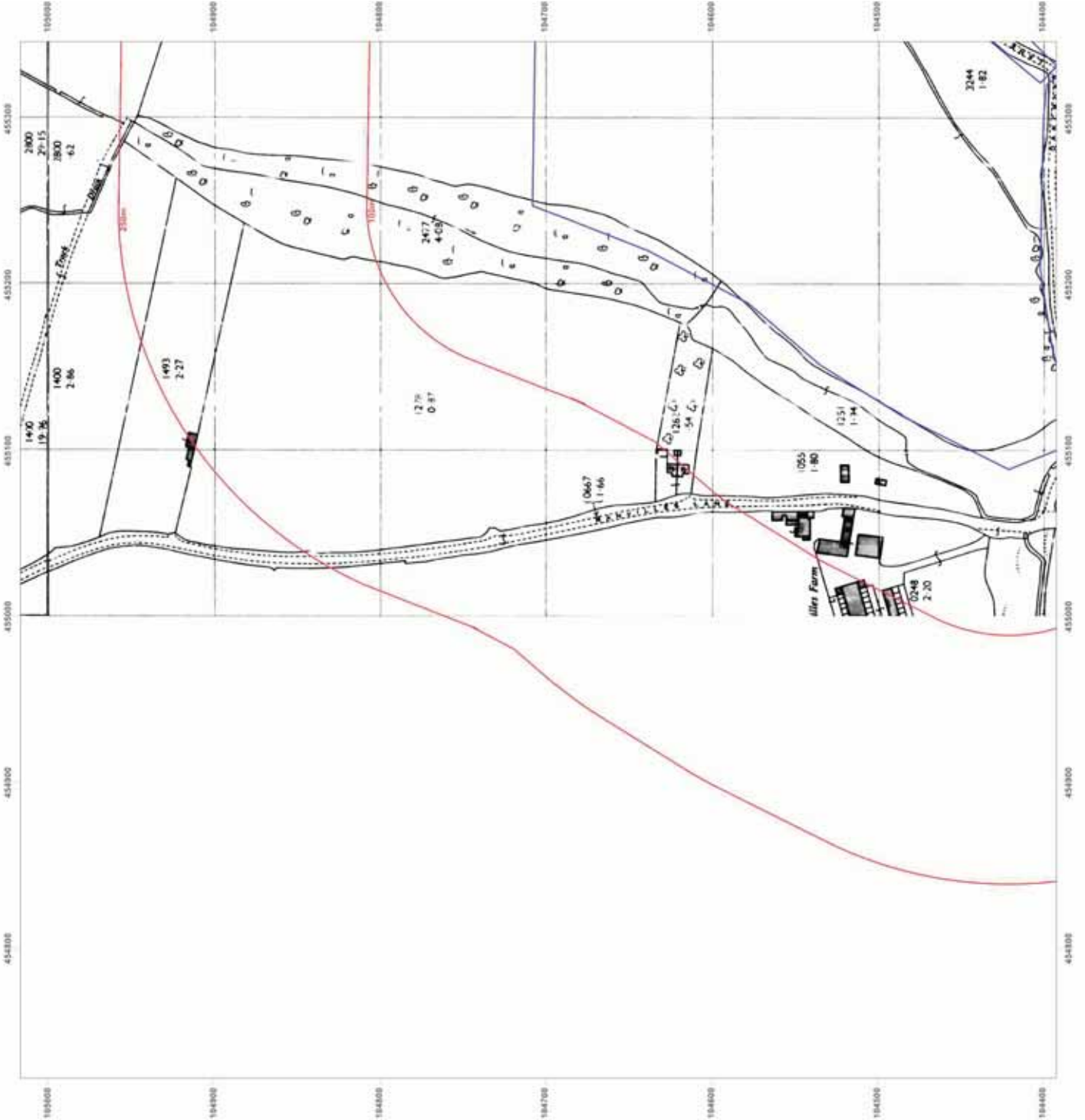
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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_2
Grid Ref: 455034, 104704

Map Name: National Grid

Map date: 1973-1975

Scale: 1:2,500

Printed at: 1:2,500



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



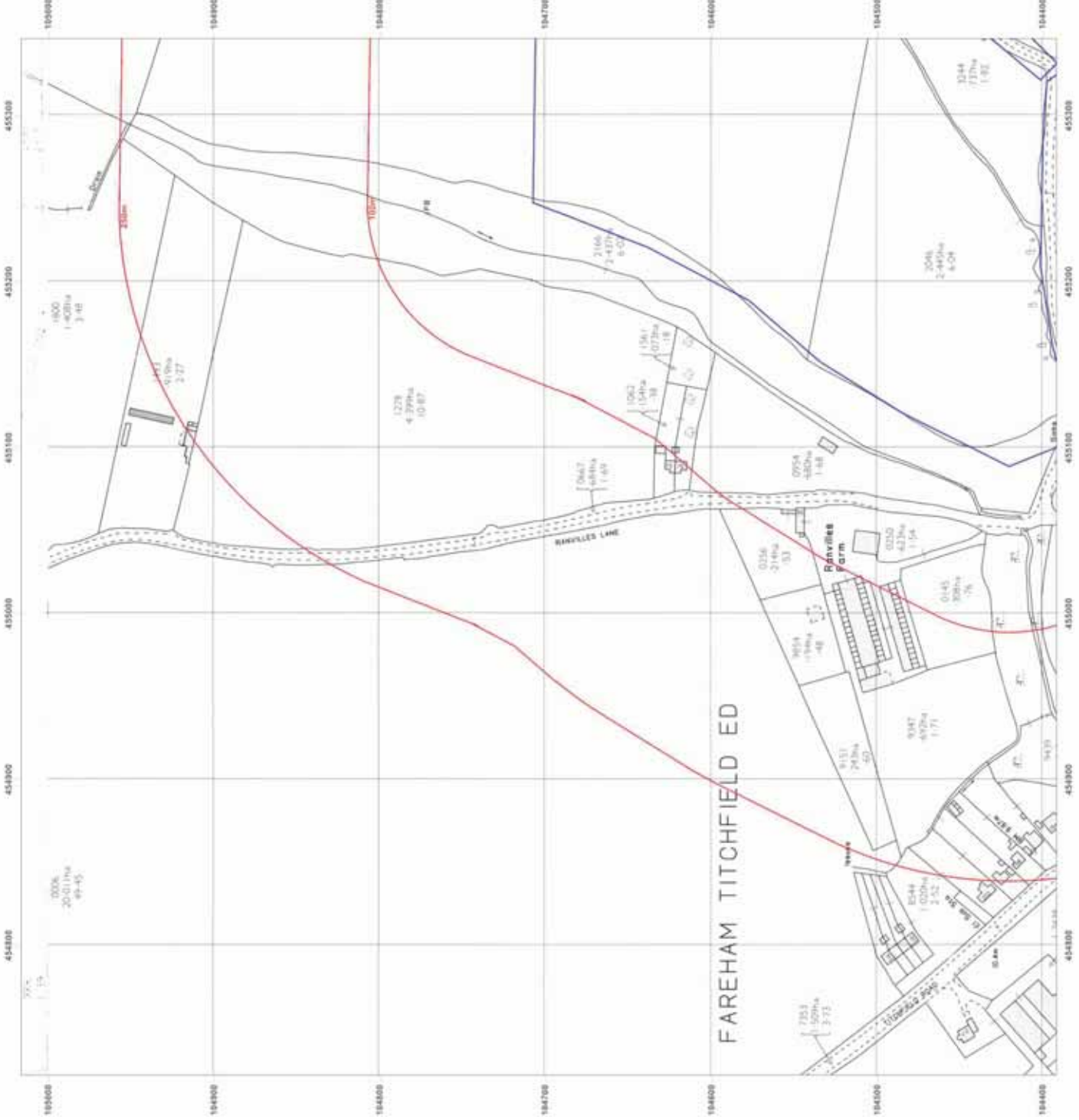
Surveyed 1975
 Revised N/A
 Edition N/A
 Copyright 1977
 Levelled 1957



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_2
Grid Ref: 455034, 104704

Map Name: National Grid

Map date: 1976-1977

Scale: 1:2,500

Printed at: 1:2,500



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



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

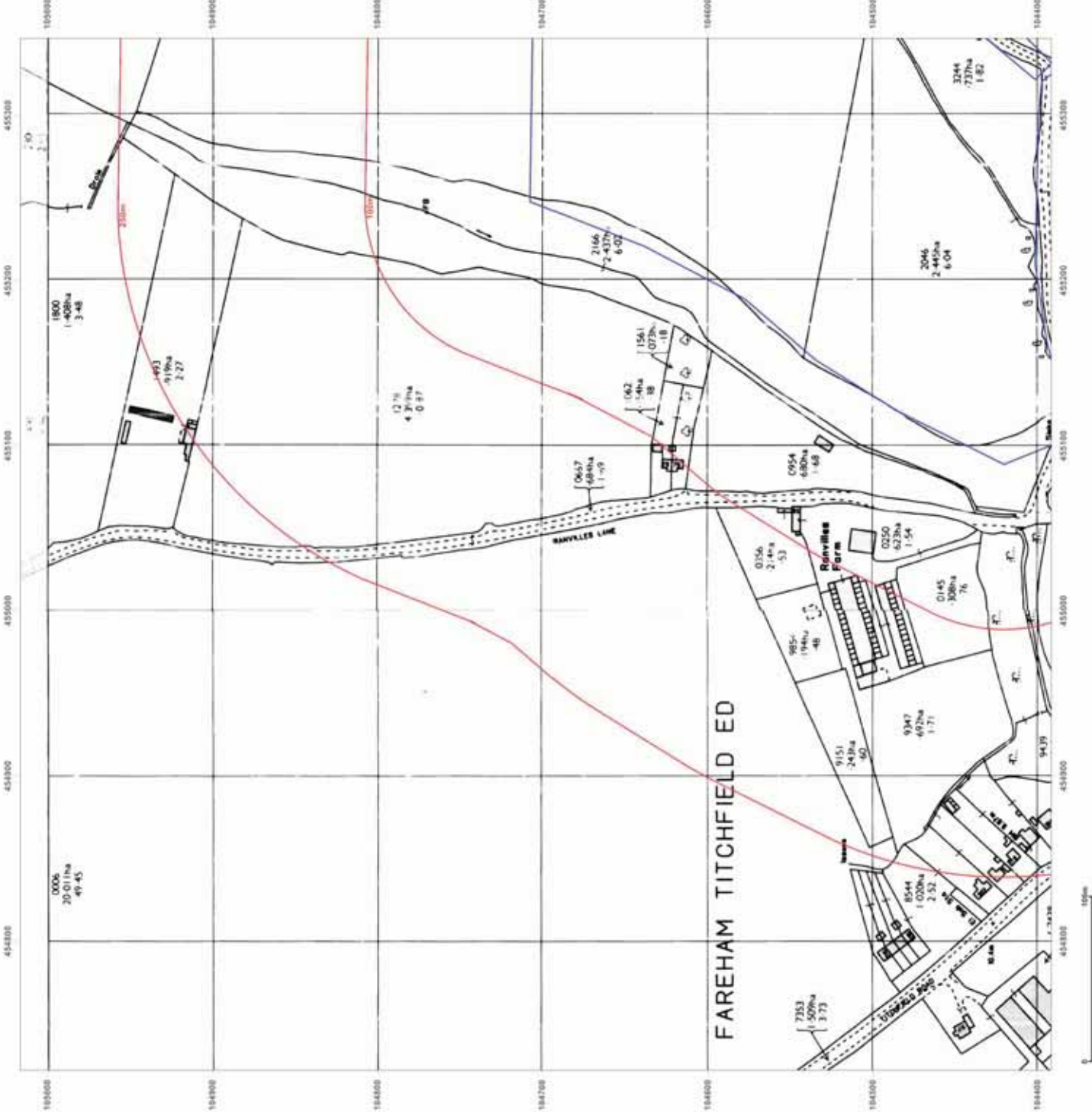
Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_1_2
Grid Ref: 455034, 104704

Map Name: National Grid

Map date: 1981-1985

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
 Revised 1981
 Edition N/A
 Copyright 1983
 Levelled 1957



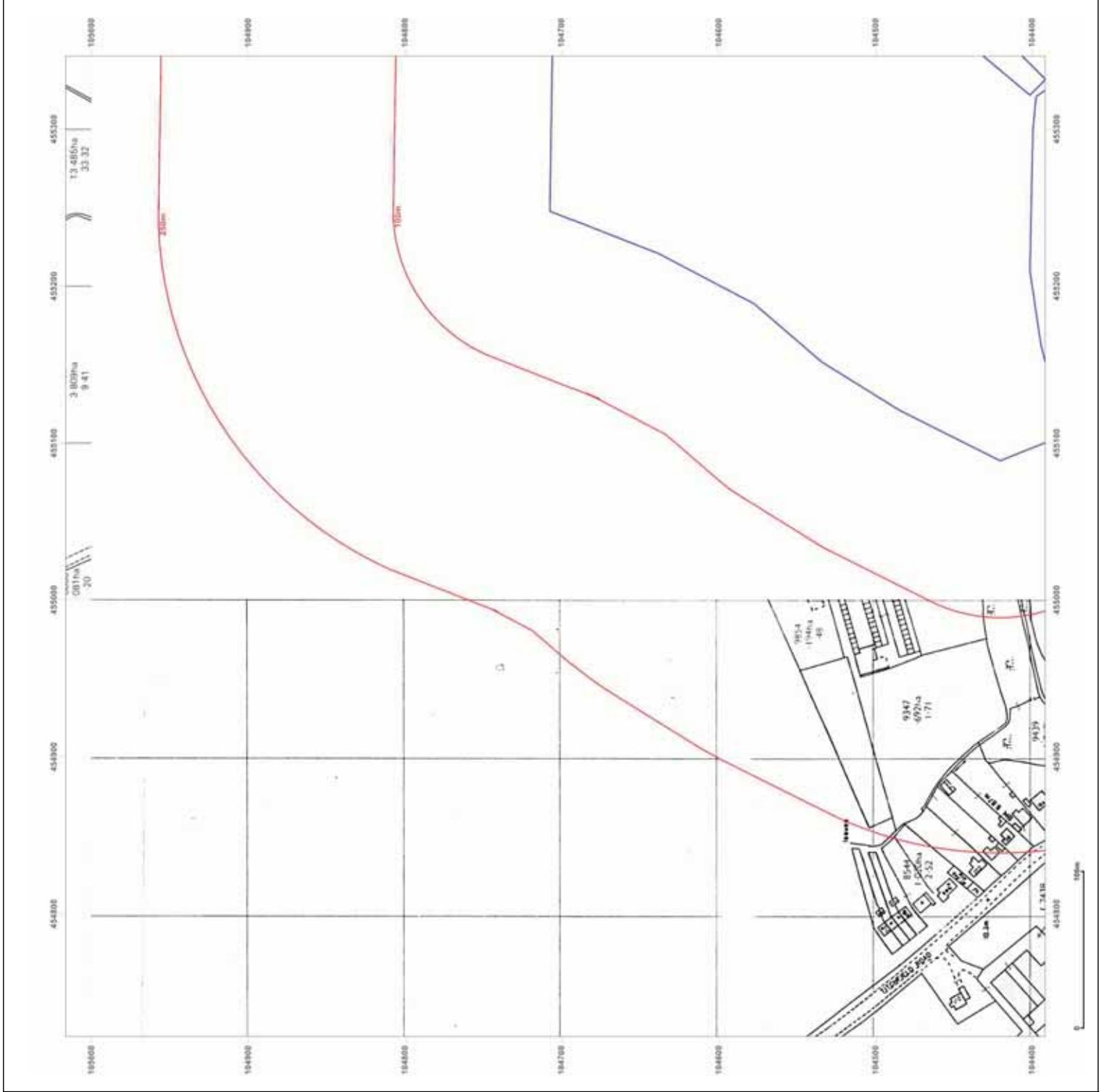
Surveyed 1959
 Revised 1985
 Edition N/A
 Copyright 1985
 Levelled 1959



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: County Series

Map date: 1868

Scale: 1:2,500

Printed at: 1:2,500



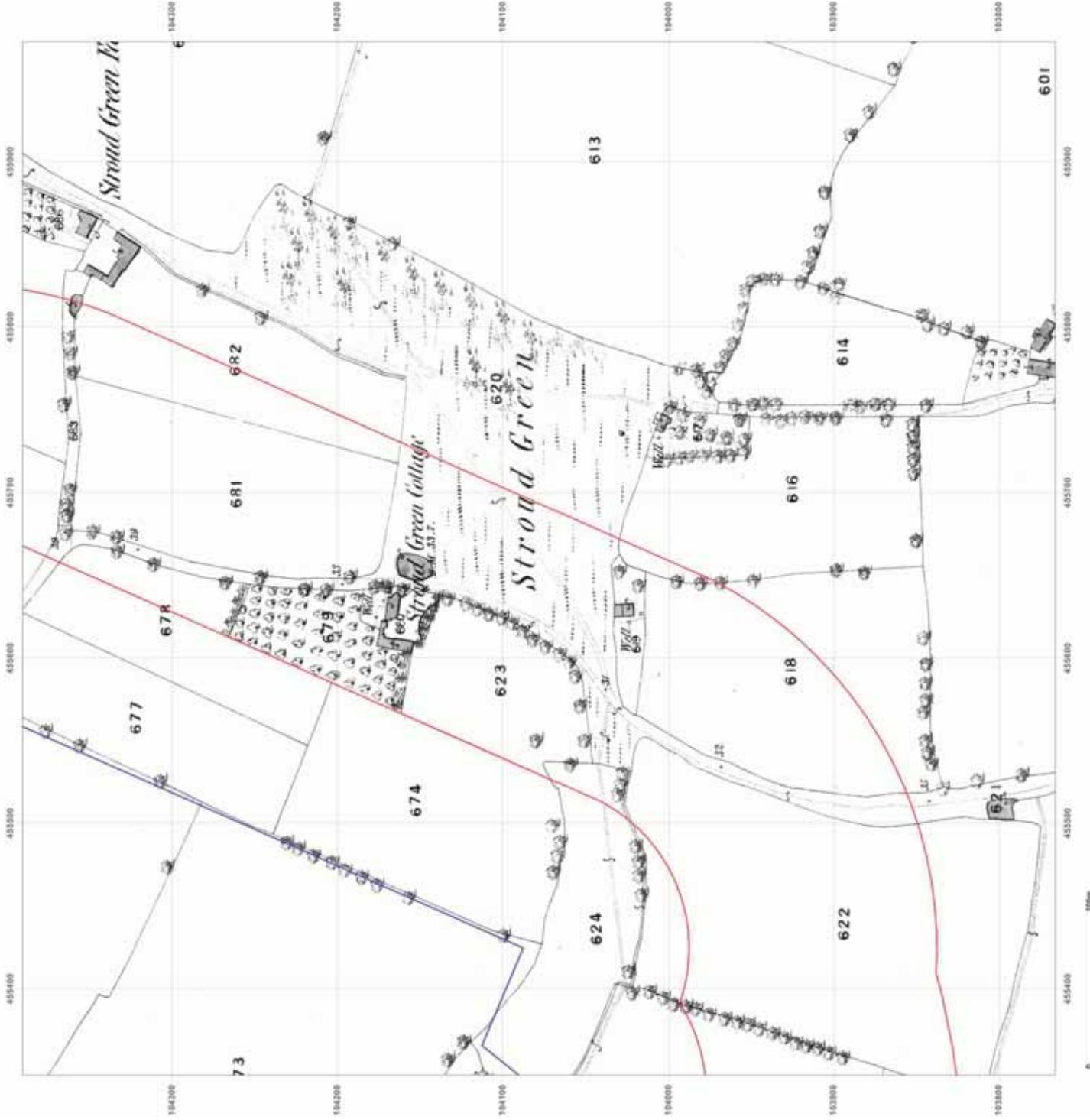
Surveyed 1868
Revised 1868
Edition N/A
Copyright N/A
Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: County Series

Map date: 1868

Scale: 1:2,500

Printed at: 1:2,500



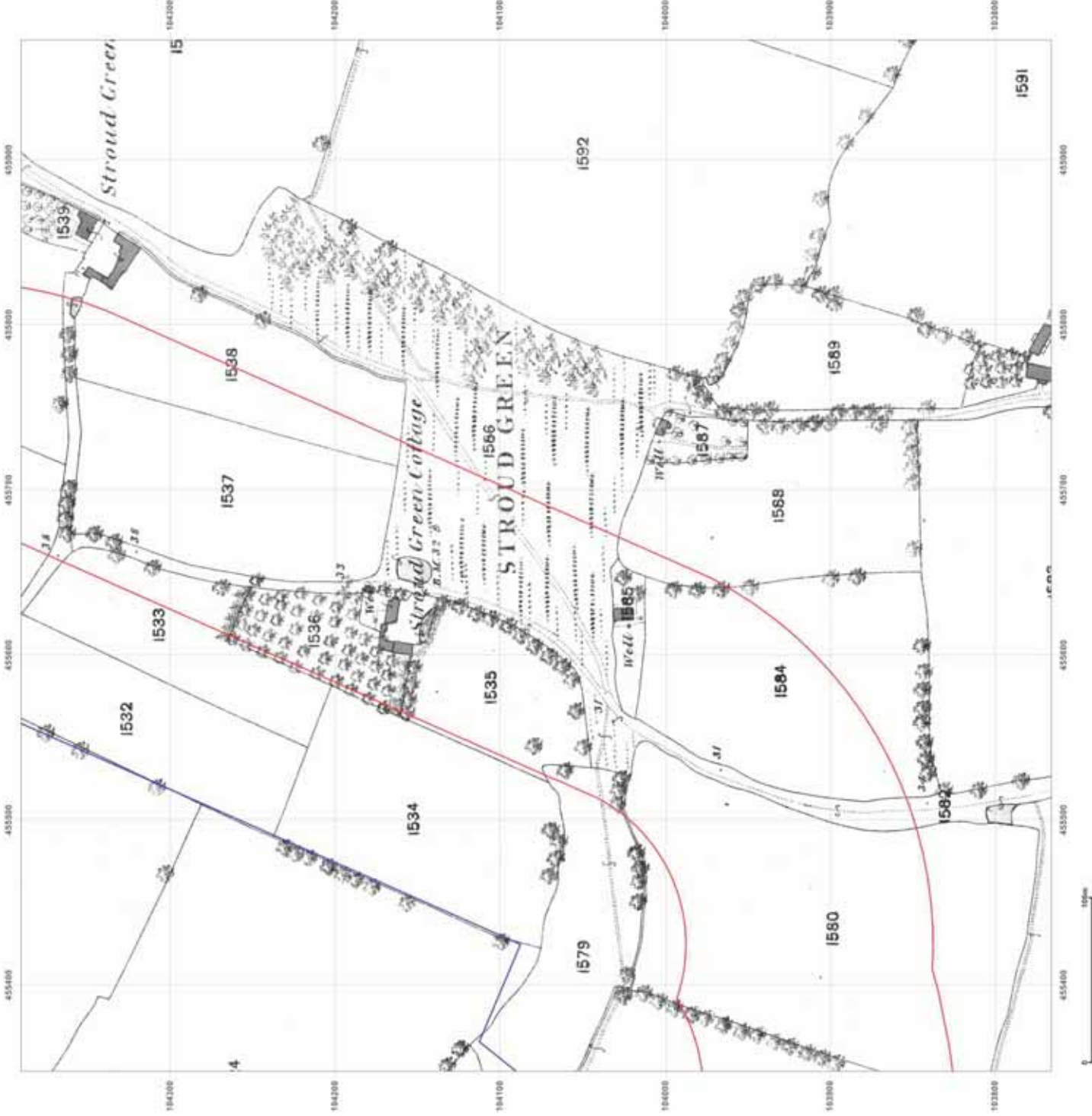
Surveyed 1868
Revised 1868
Edition N/A
Copyright N/A
Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
 Report Ref: EMS-444398_595774_LS_2_1
 Grid Ref: 455660, 104078

Map Name: County Series

Map date: 1897

Scale: 1:2,500

Printed at: 1:2,500



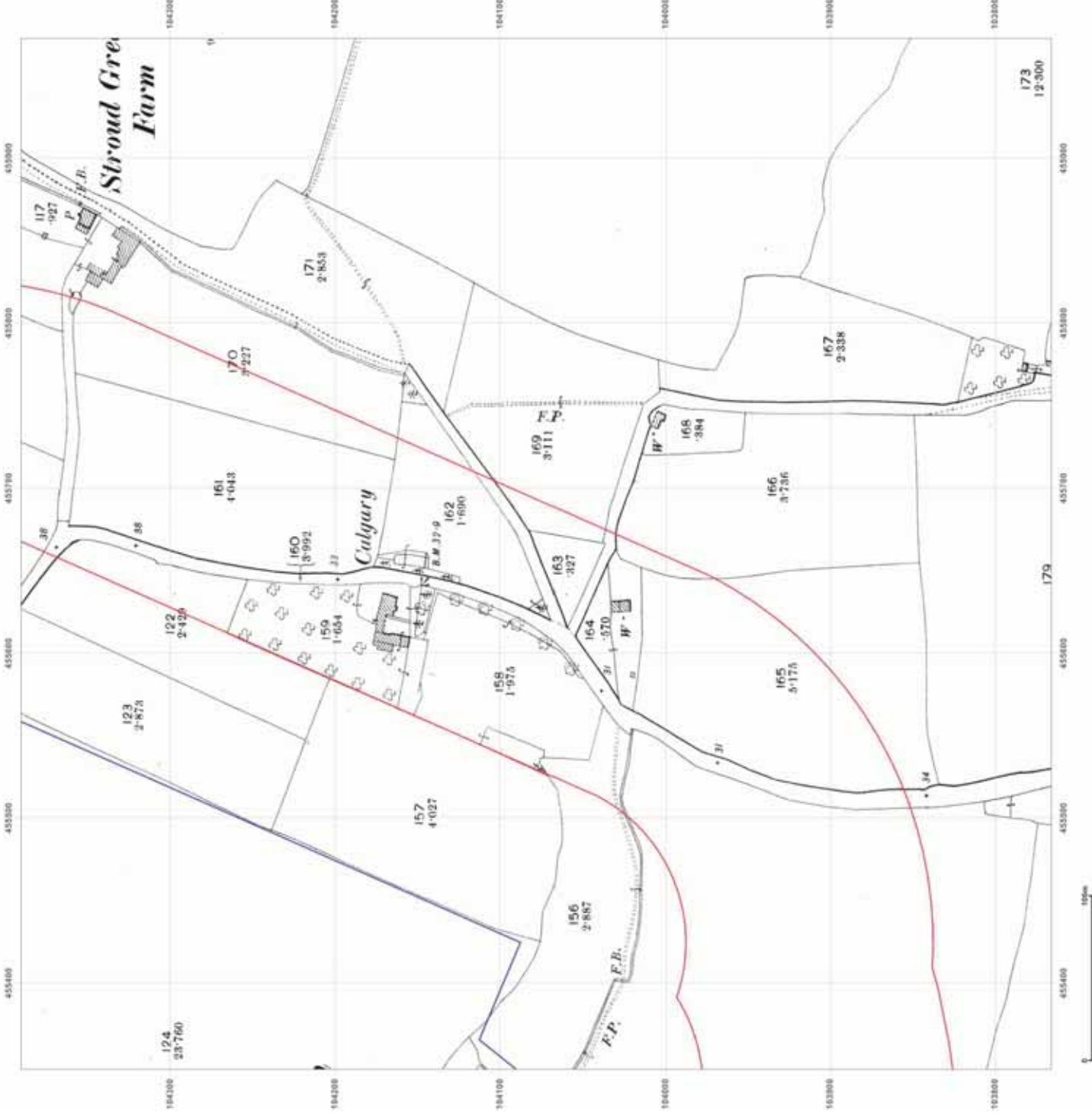
Surveyed 1897
 Revised 1897
 Edition N/A
 Copyright N/A
 Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: County Series

Map date: 1909

Scale: 1:2,500

Printed at: 1:2,500



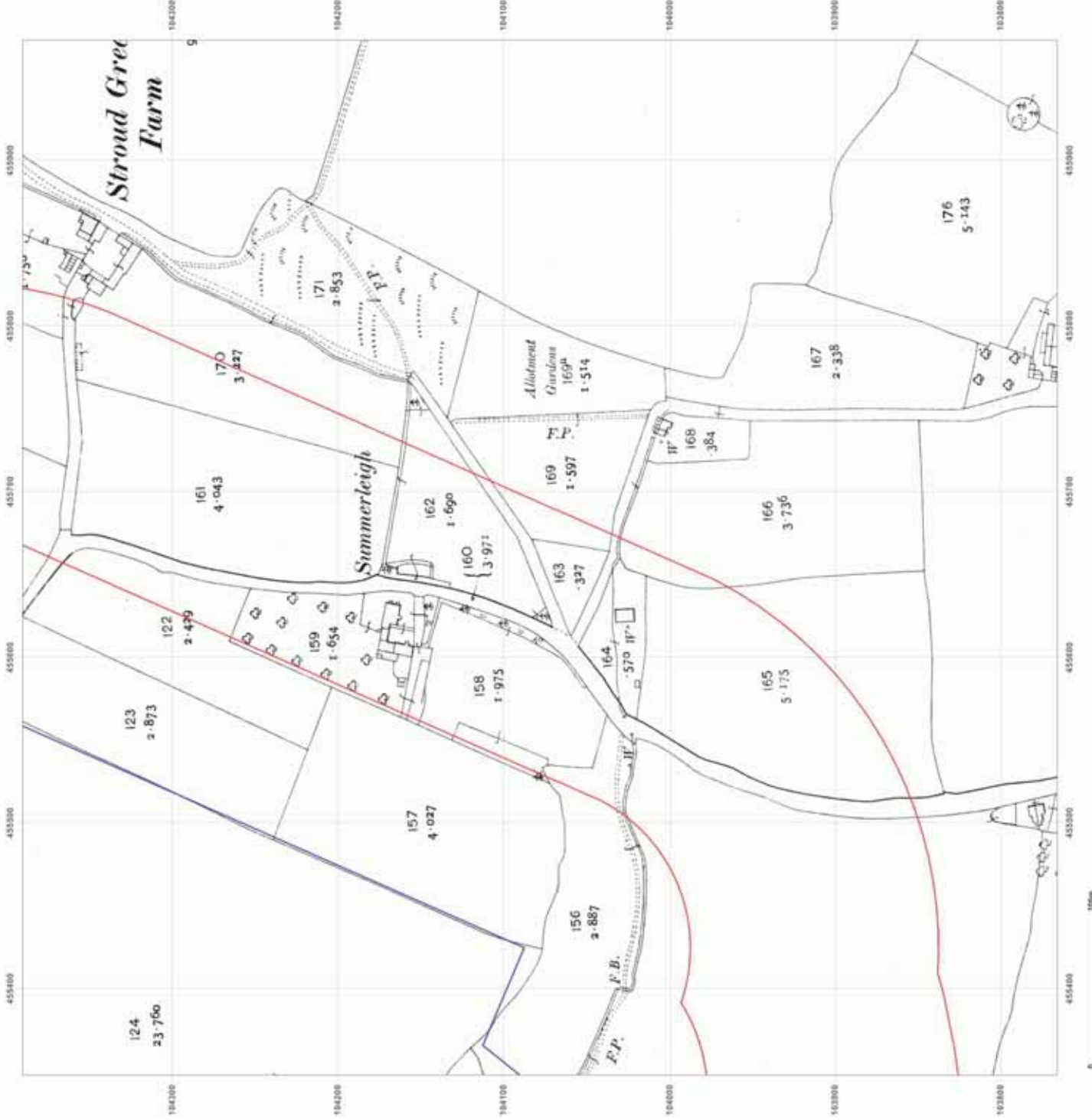
Surveyed 1909
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
 Report Ref: EMS-444398_595774_LS_2_1
 Grid Ref: 455660, 104078

Map Name: County Series

Map date: 1932

Scale: 1:2,500

Printed at: 1:2,500



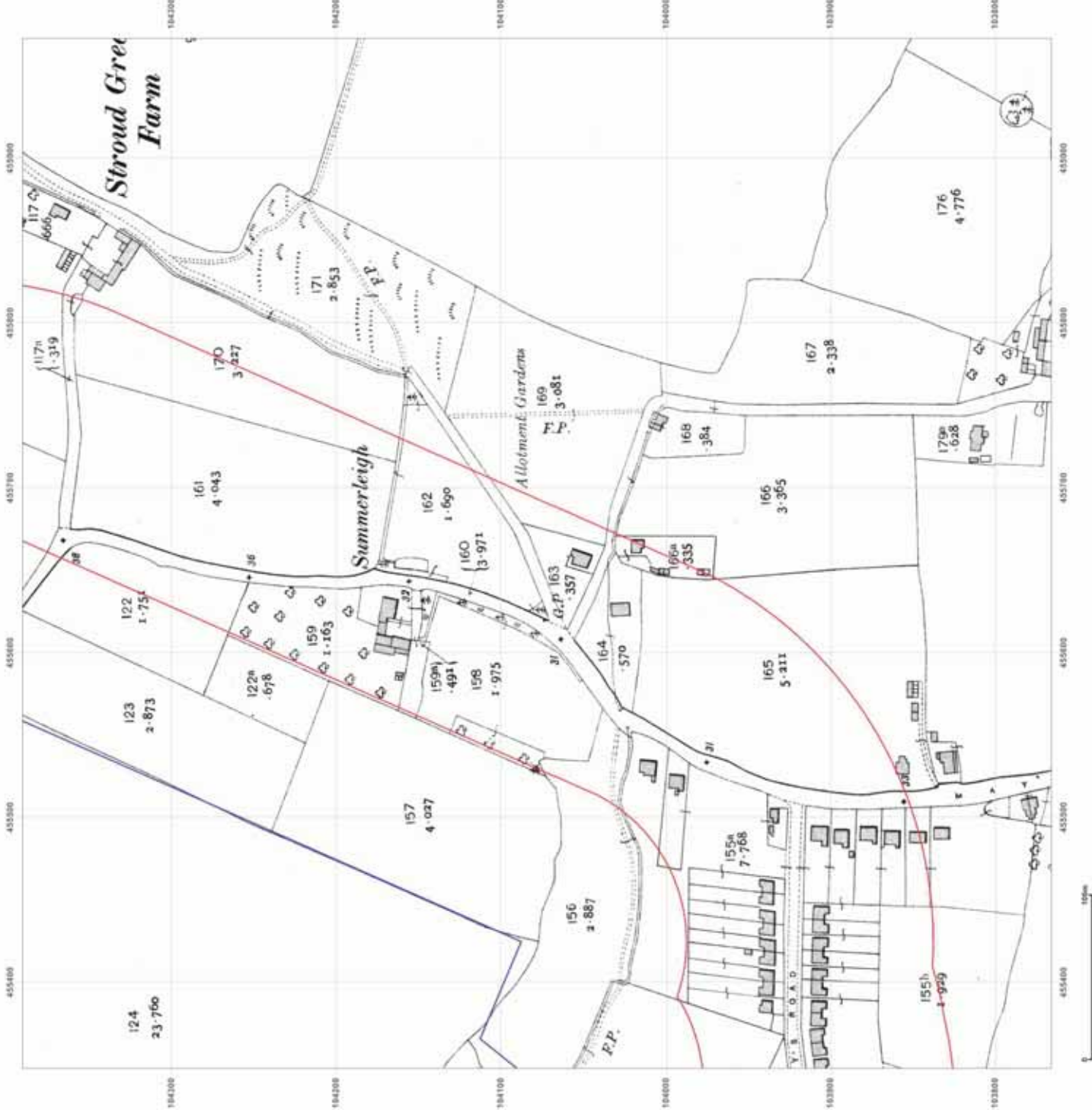
Surveyed 1932
 Revised 1932
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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: County Series

Map date: 1941

Scale: 1:2,500

Printed at: 1:2,500



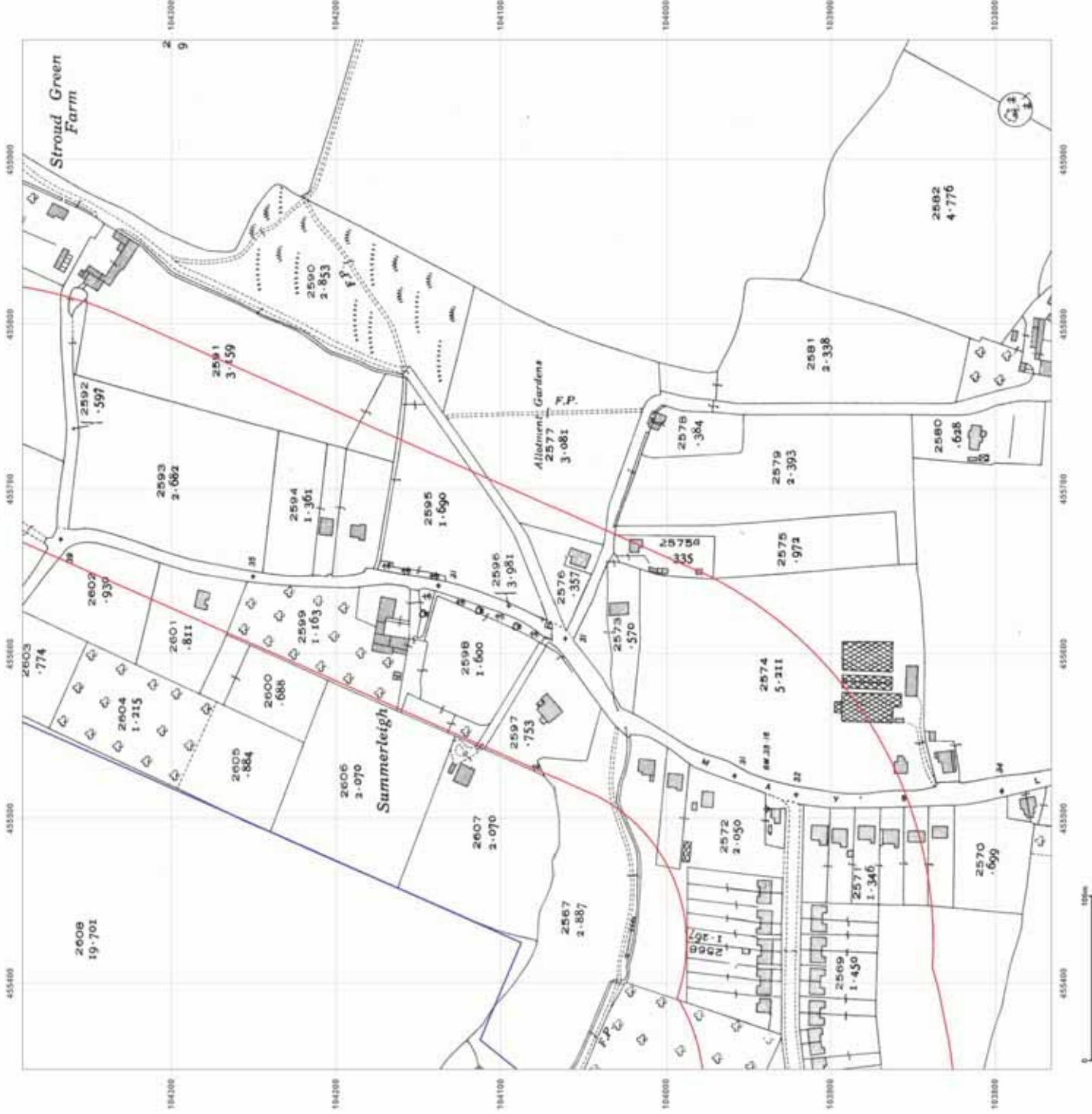
Surveyed 1941
Revised 1941
Edition N/A
Copyright N/A
Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: National Grid

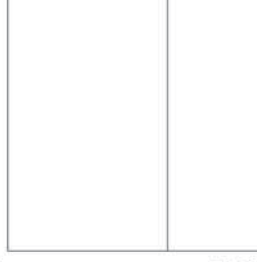
Map date: 1964

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
 Revised 1964
 Edition N/A
 Copyright 1965
 Levelled 1957



Surveyed 1964
 Revised 1964
 Edition N/A
 Copyright 1965
 Levelled 1959



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



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

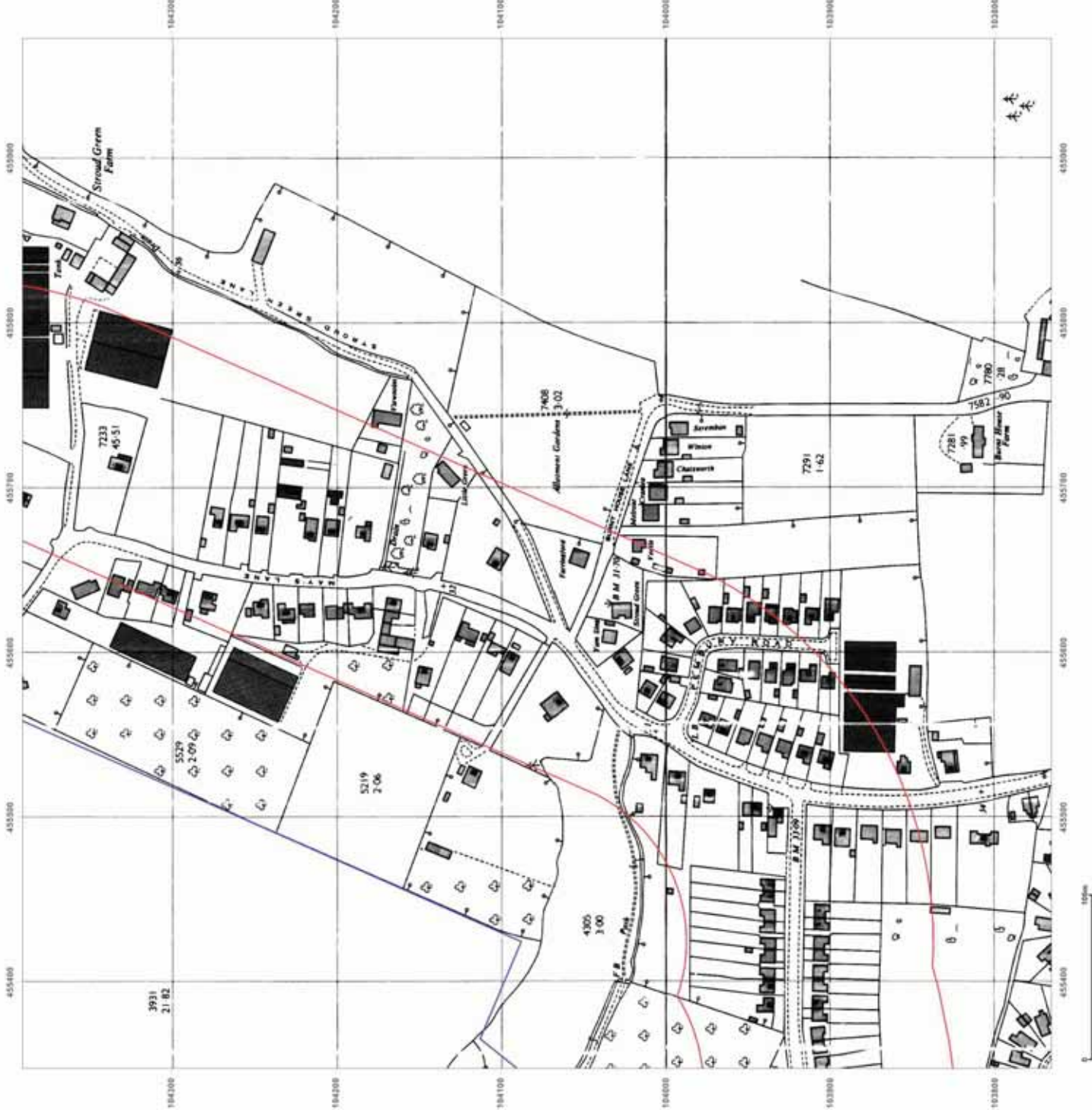
Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A



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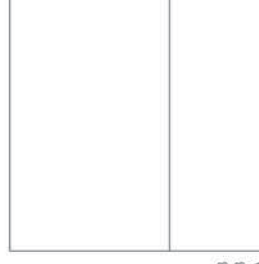
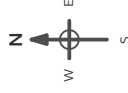
Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: National Grid

Map date: 1973

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1973
Revised 1973
Edition N/A
Copyright 1974
Levelled 1959



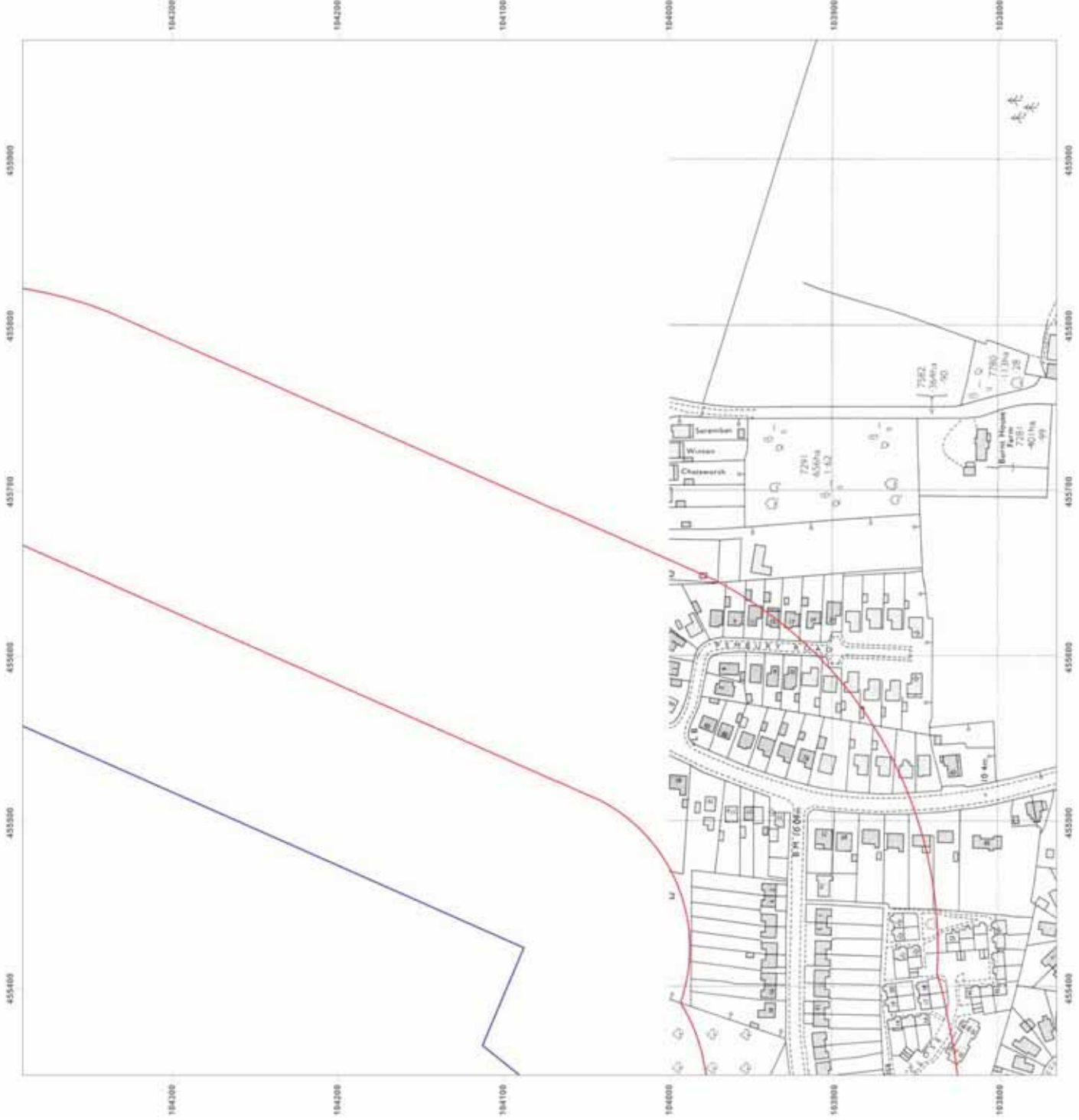
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Production date: 12 October 2017

To view map legend click here [Legend](#)



Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: National Grid

Map date: 1973-1975

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1975
 Revised 1975
 Edition N/A
 Copyright 1977
 Levelled 1957

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



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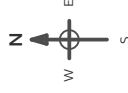
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Report Ref: EMS-444398_595774_LS_2_1
Grid Ref: 455660, 104078

Map Name: National Grid

Map date: 1974-1977

Scale: 1:2,500

Printed at: 1:2,500



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

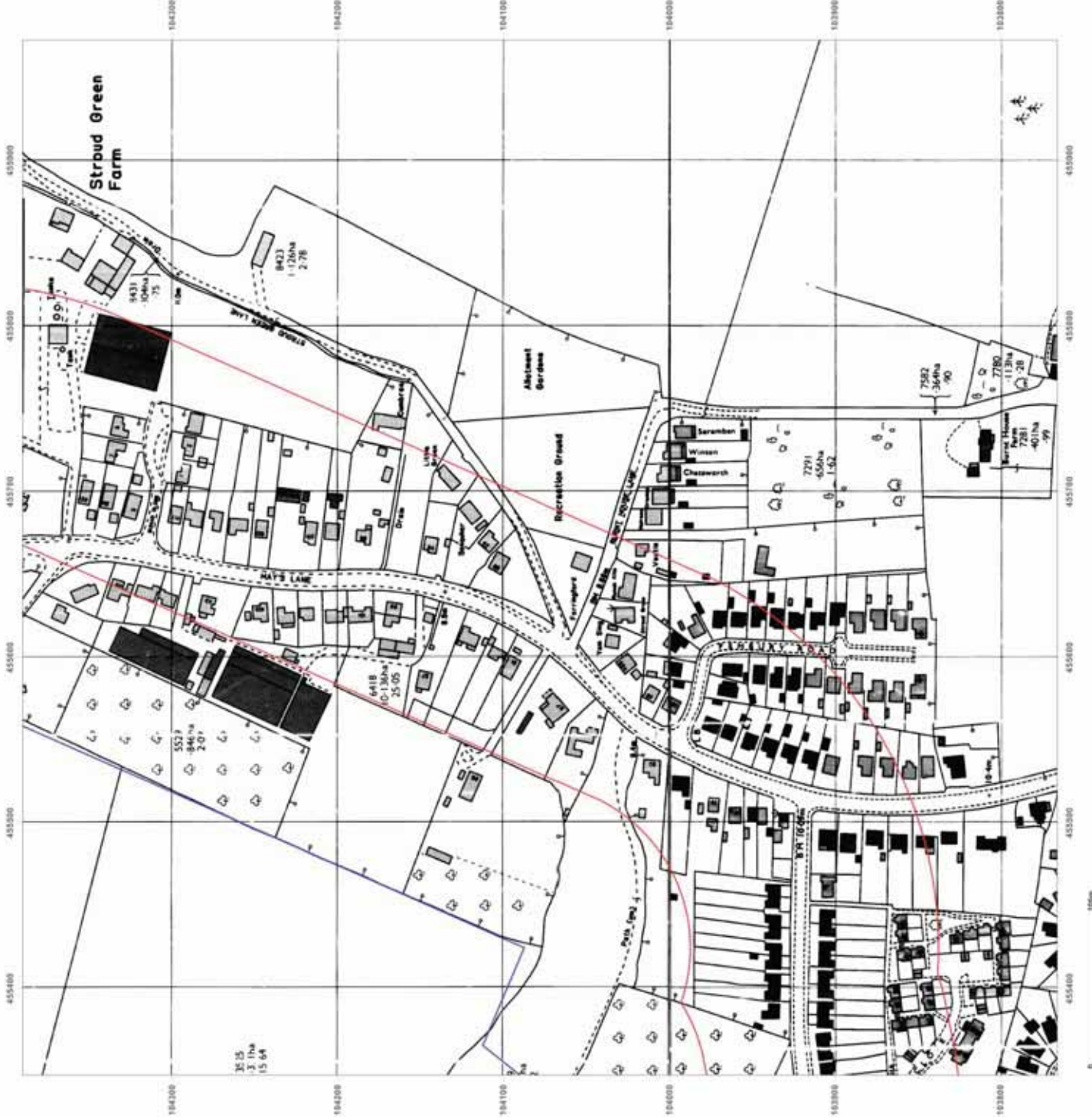
Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: County Series

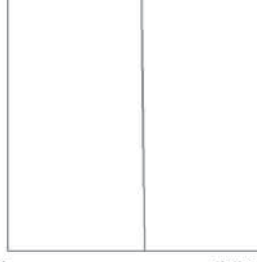
Map date: 1868-1869

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1889
 Revised 1889
 Edition N/A
 Copyright N/A
 Levelled N/A



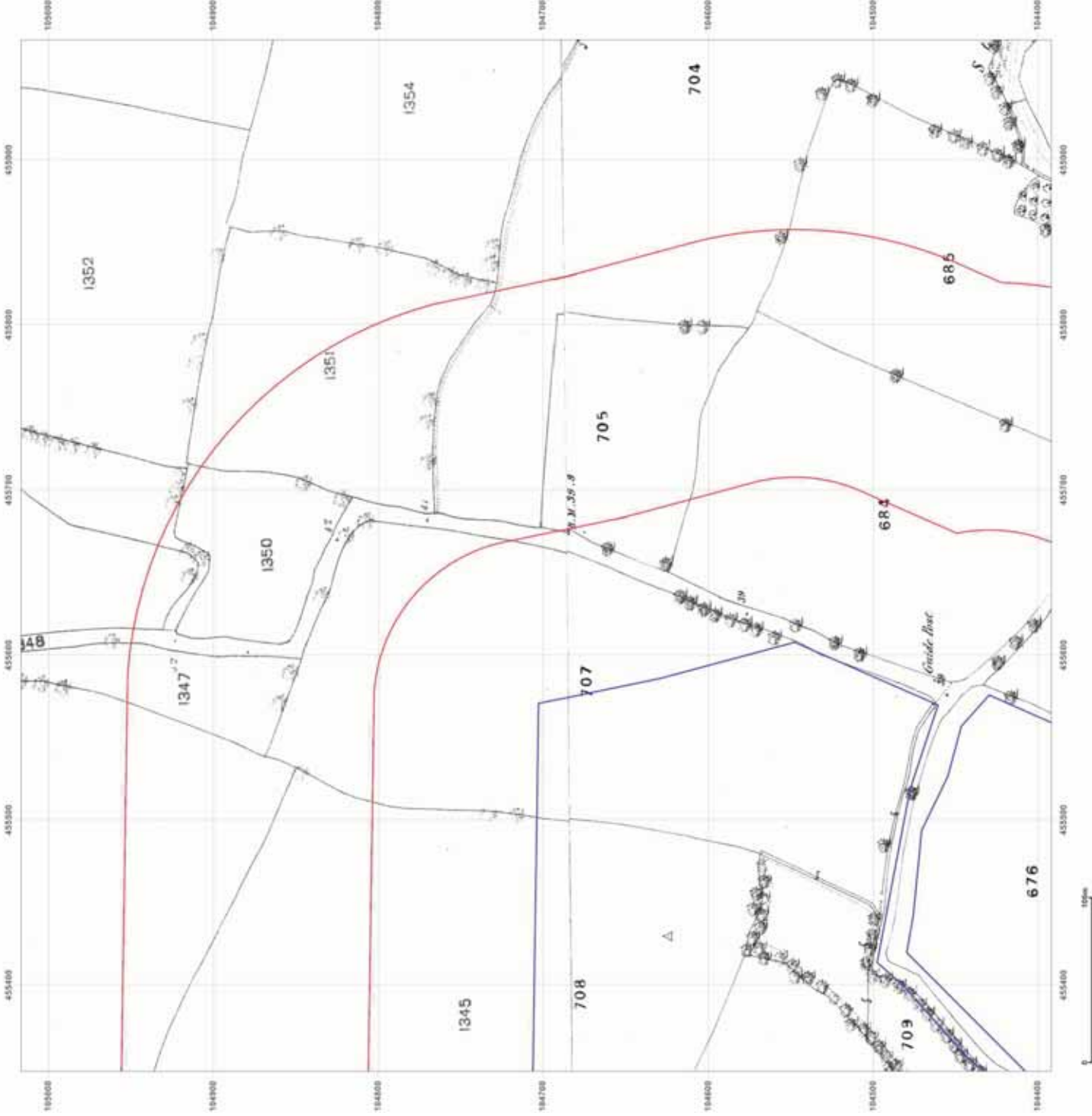
Surveyed 1868
 Revised 1868
 Edition N/A
 Copyright N/A
 Levelled N/A



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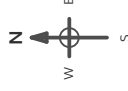
Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: County Series

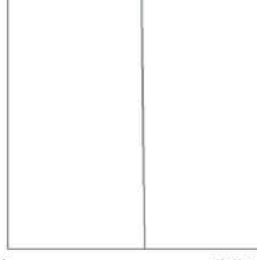
Map date: 1868-1869

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1869
Revised 1869
Edition N/A
Copyright N/A
Levelled N/A



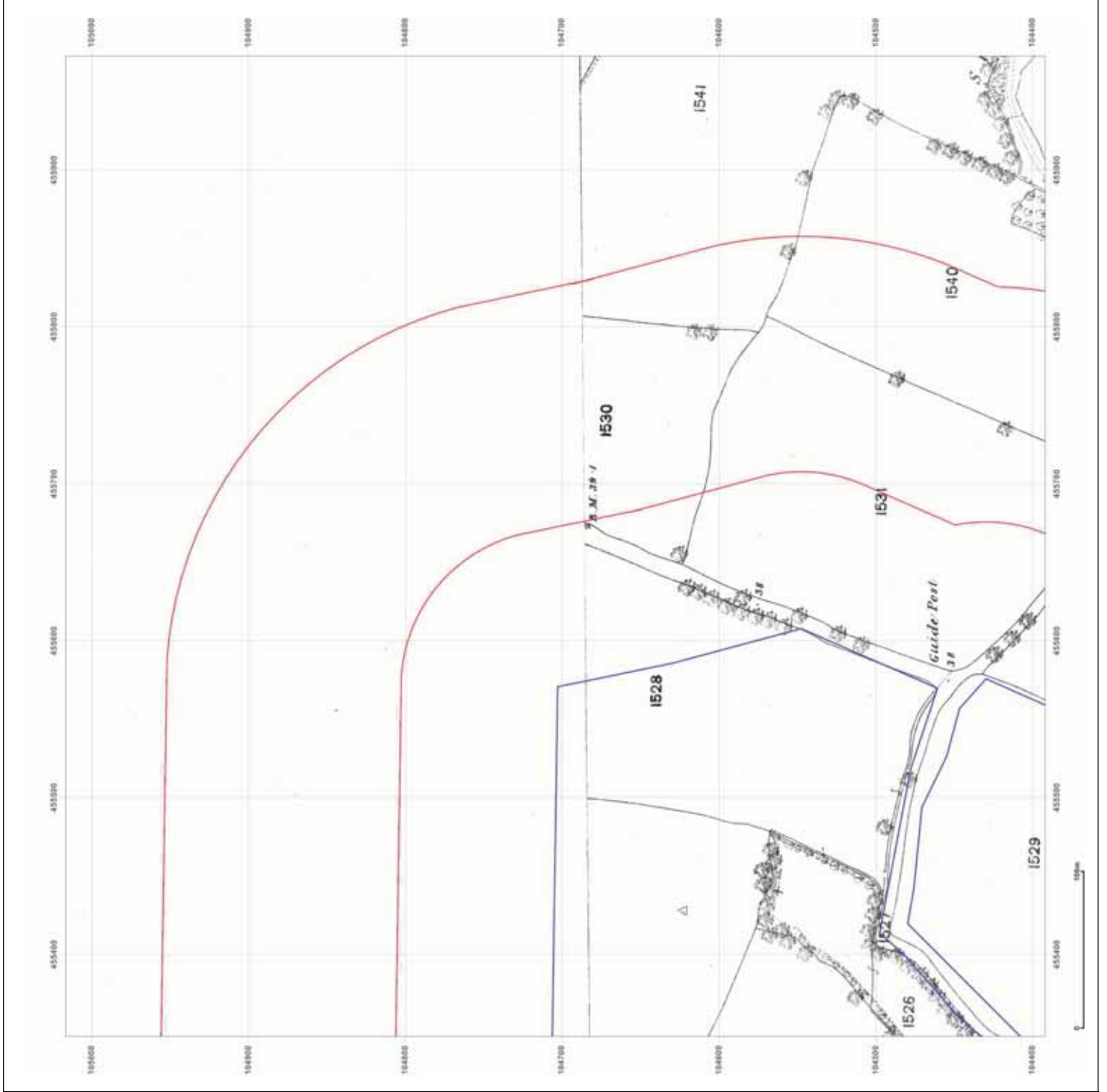
Surveyed 1868
Revised 1868
Edition N/A
Copyright N/A
Levelled N/A



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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: County Series

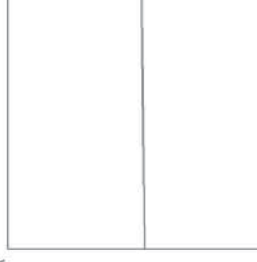
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Scale: 1:2,500

Printed at: 1:2,500



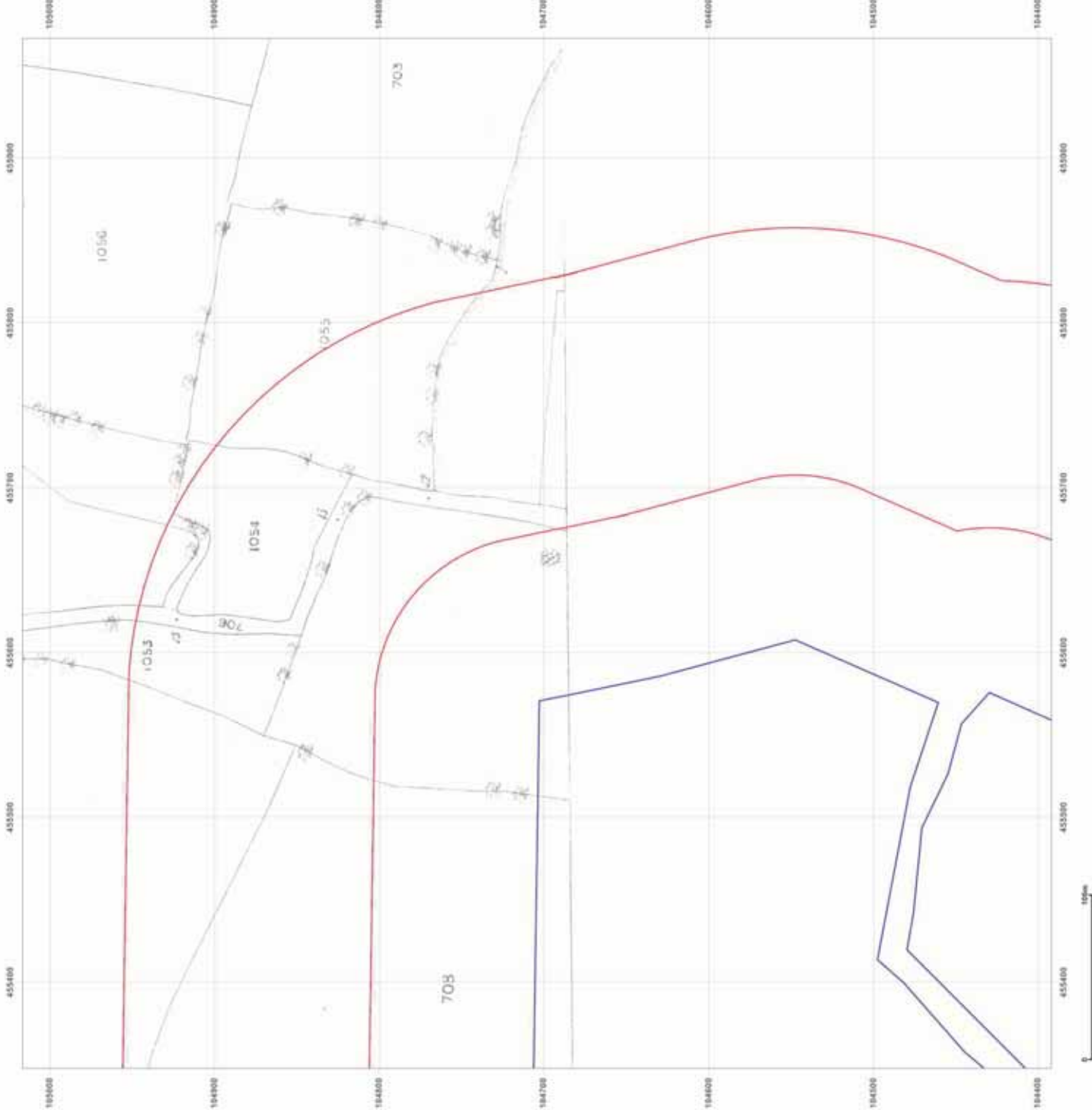
Surveyed 1889
Revised 1889
Edition N/A
Copyright N/A
Levelled N/A



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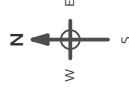
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Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: County Series

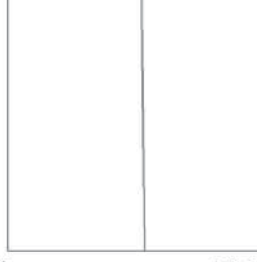
Map date: 1897

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1897
 Revised 1897
 Edition N/A
 Copyright N/A
 Levelled N/A



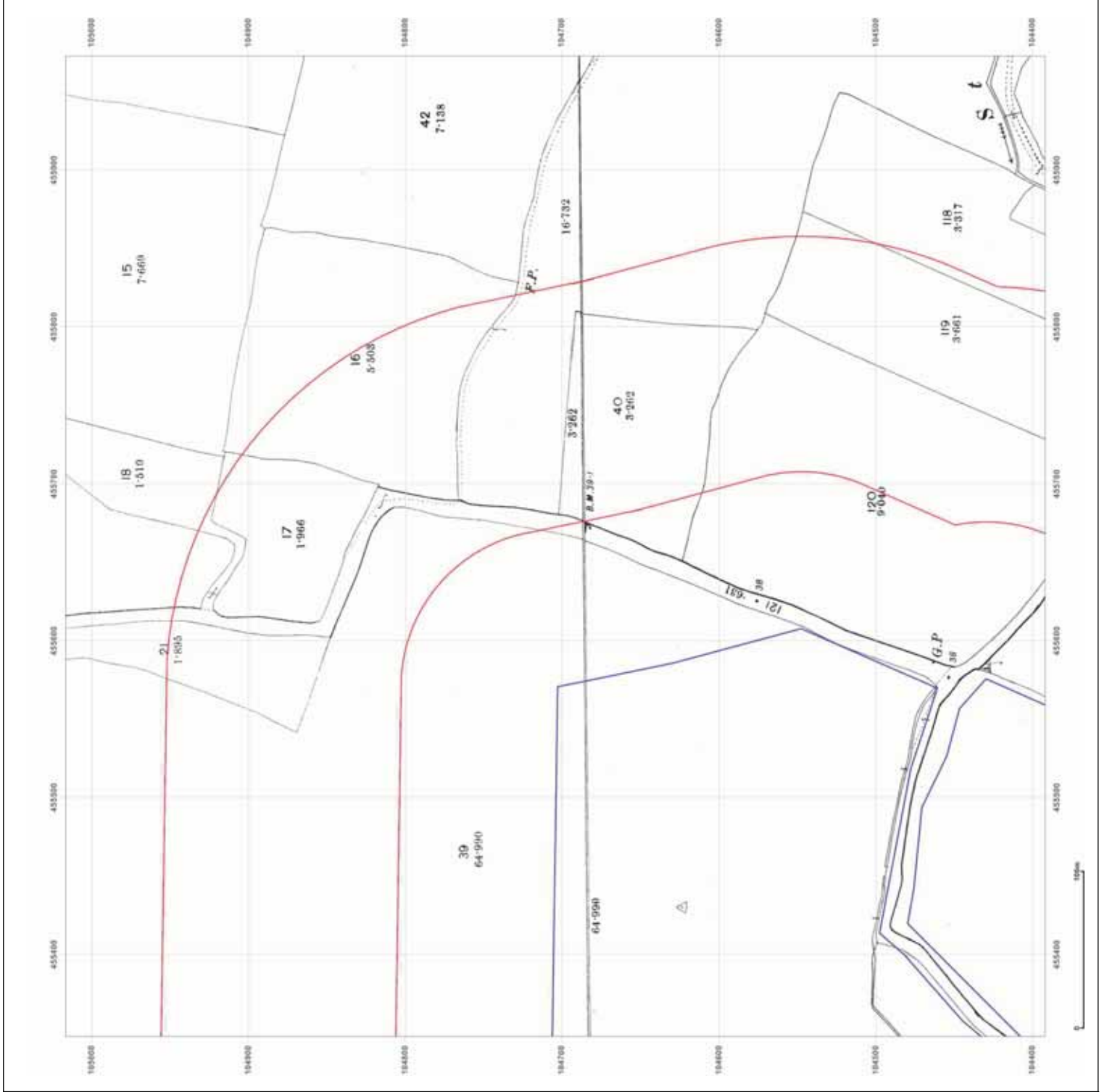
Surveyed 1897
 Revised 1897
 Edition N/A
 Copyright N/A
 Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: County Series

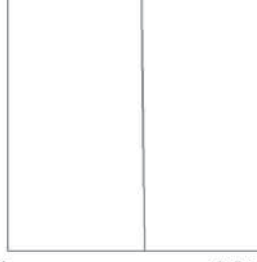
Map date: 1909

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1909
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A



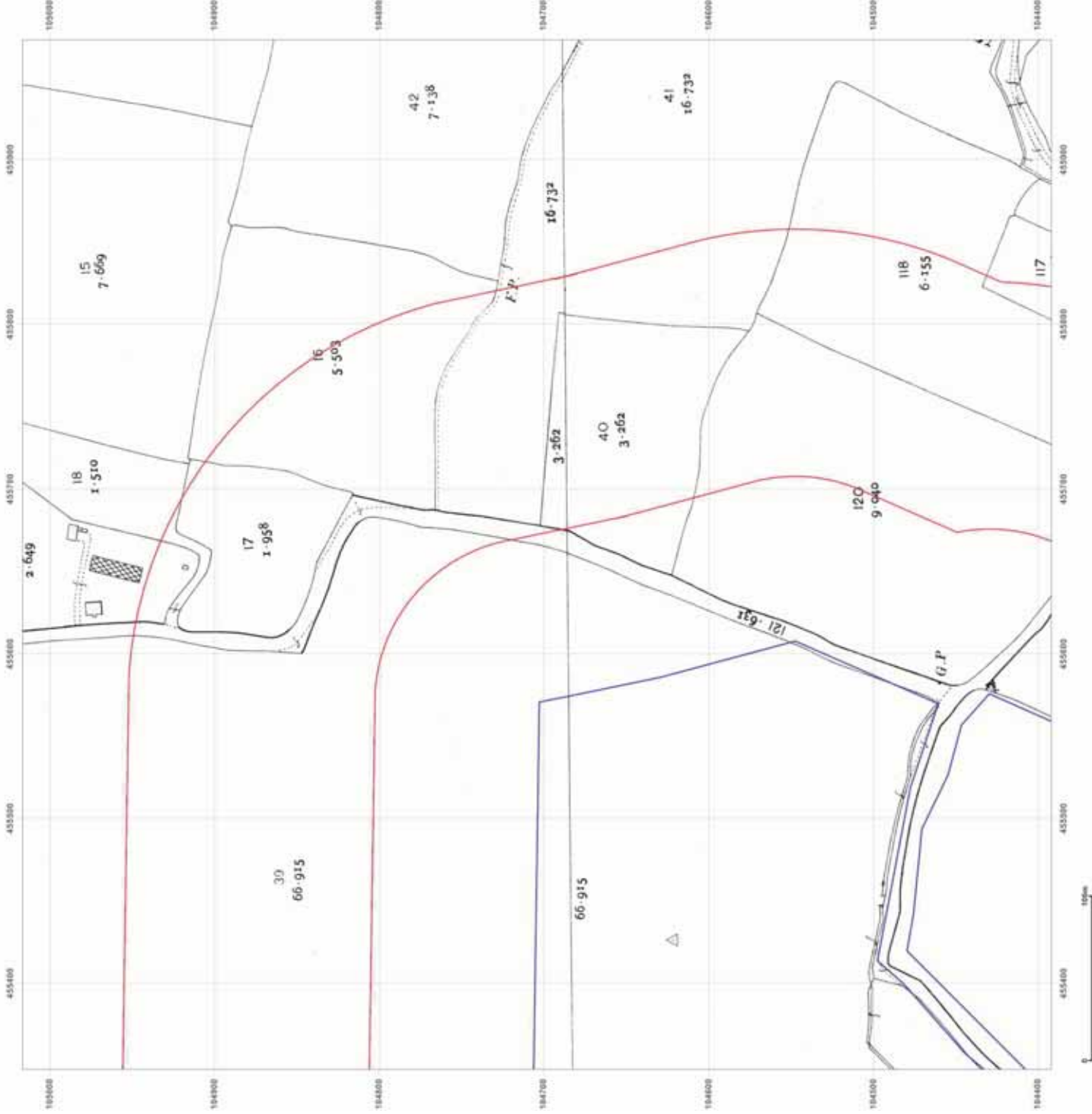
Surveyed 1909
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: County Series

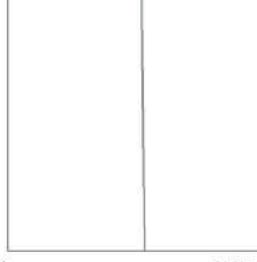
Map date: 1932

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1932
 Revised 1932
 Edition N/A
 Copyright N/A
 Levelled N/A



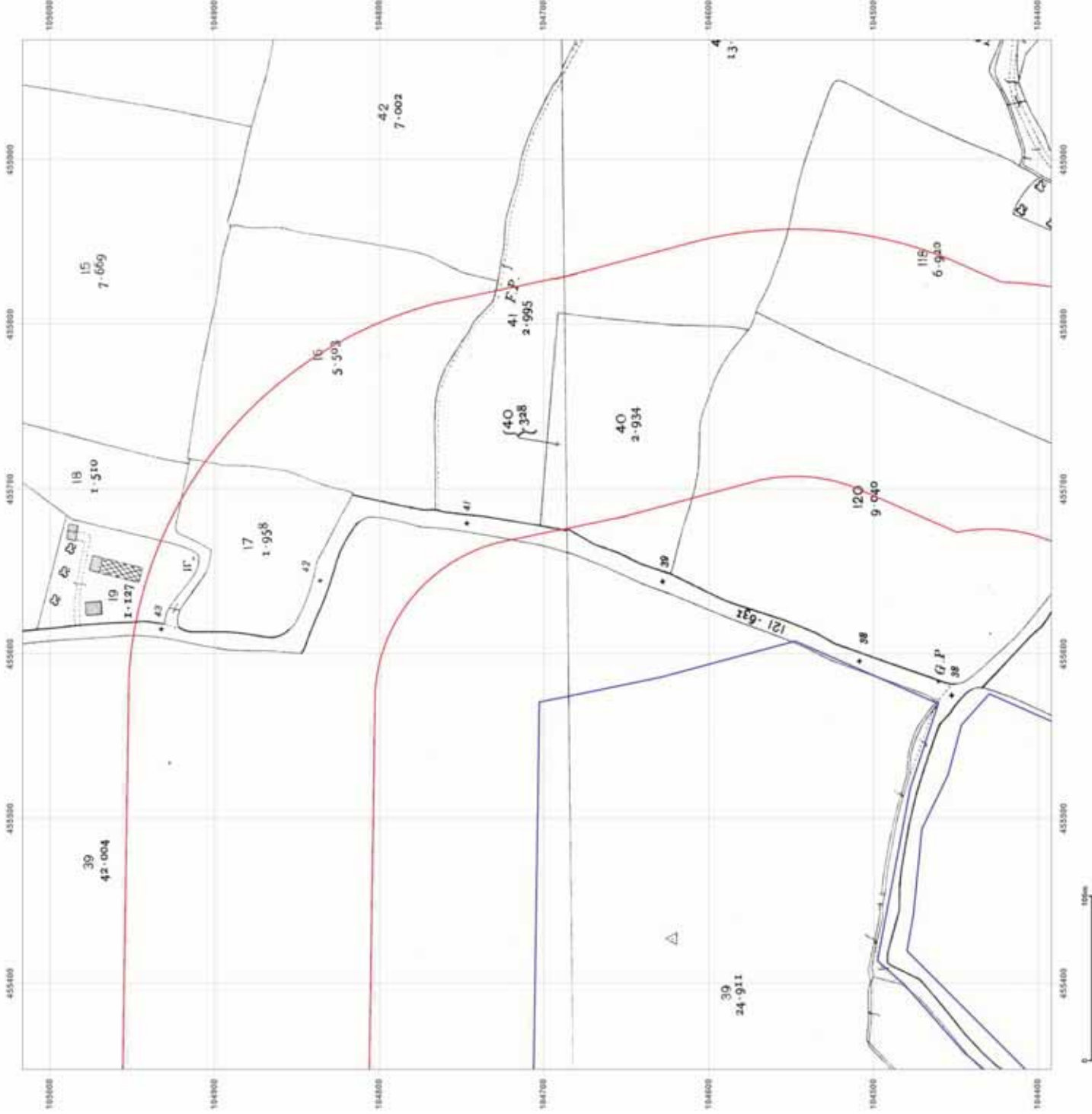
Surveyed 1932
 Revised 1932
 Edition N/A
 Copyright N/A
 Levelled N/A



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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: County Series

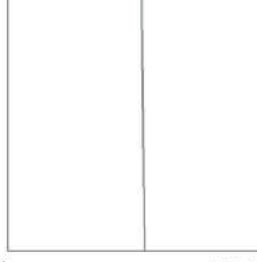
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Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1941
 Revised 1941
 Edition N/A
 Copyright N/A
 Levelled N/A



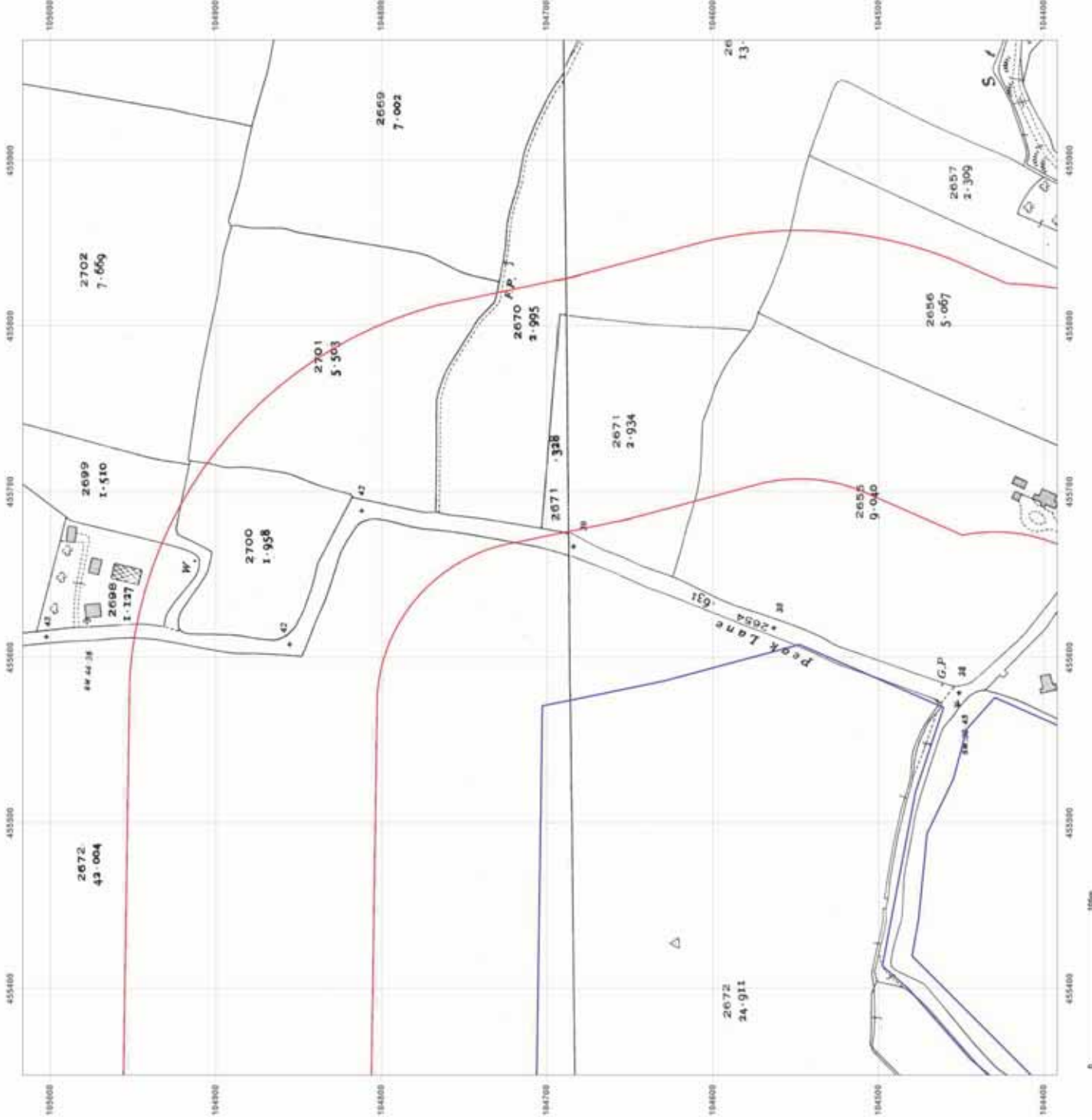
Surveyed 1941
 Revised 1941
 Edition N/A
 Copyright N/A
 Levelled N/A



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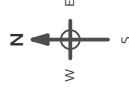
Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: National Grid

Map date: 1964

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1964
 Revised 1964
 Edition 1965
 Copyright 1965
 Levelled 1957



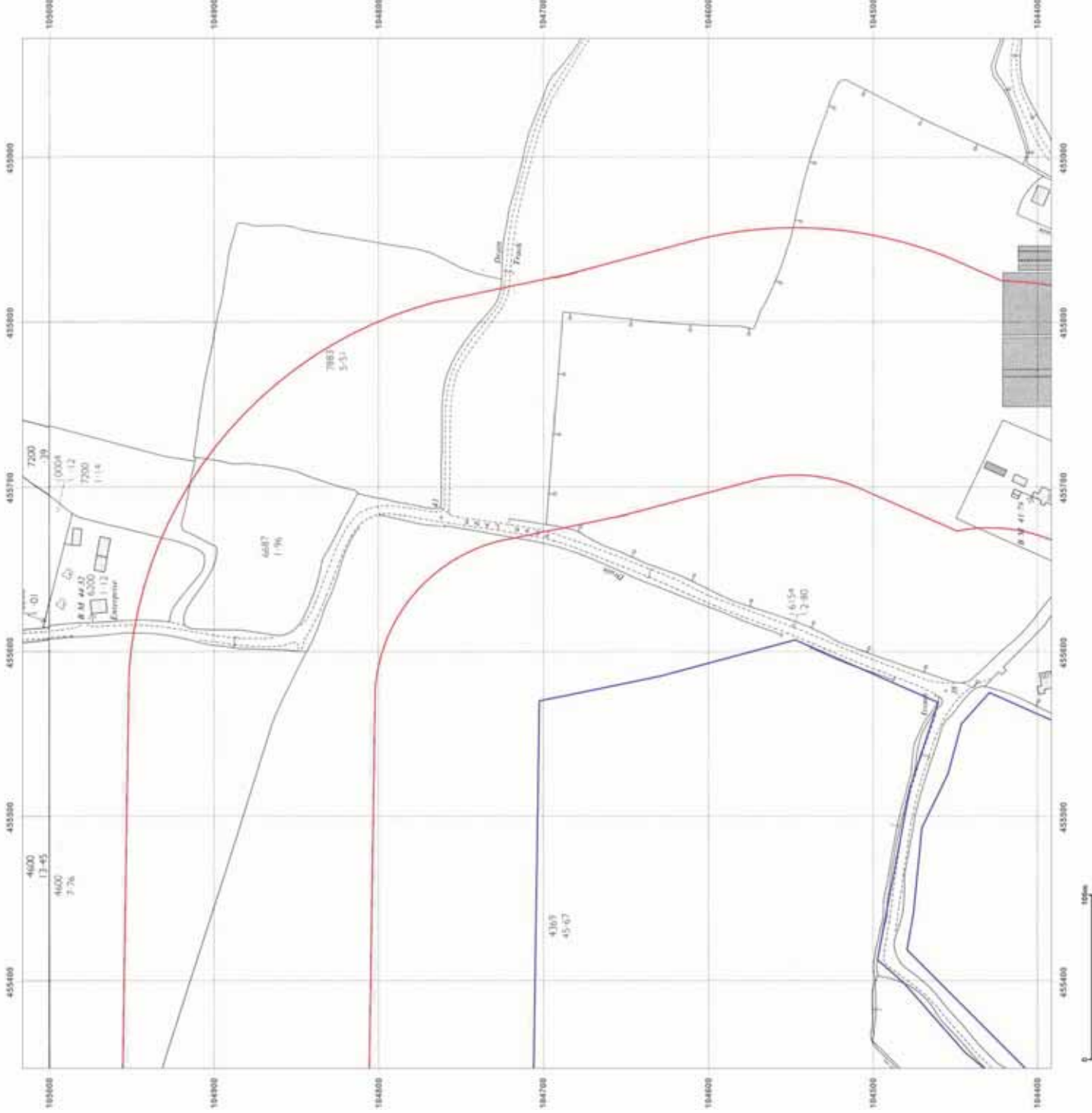
Surveyed 1964
 Revised 1964
 Edition N/A
 Copyright 1965
 Levelled 1957



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Client Ref: EMS_444398_595774
 Report Ref: EMS-444398_595774_LS_2_2
 Grid Ref: 455660, 104704

Map Name: National Grid

Map date: 1965

Scale: 1:2,500

Printed at: 1:2,500



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

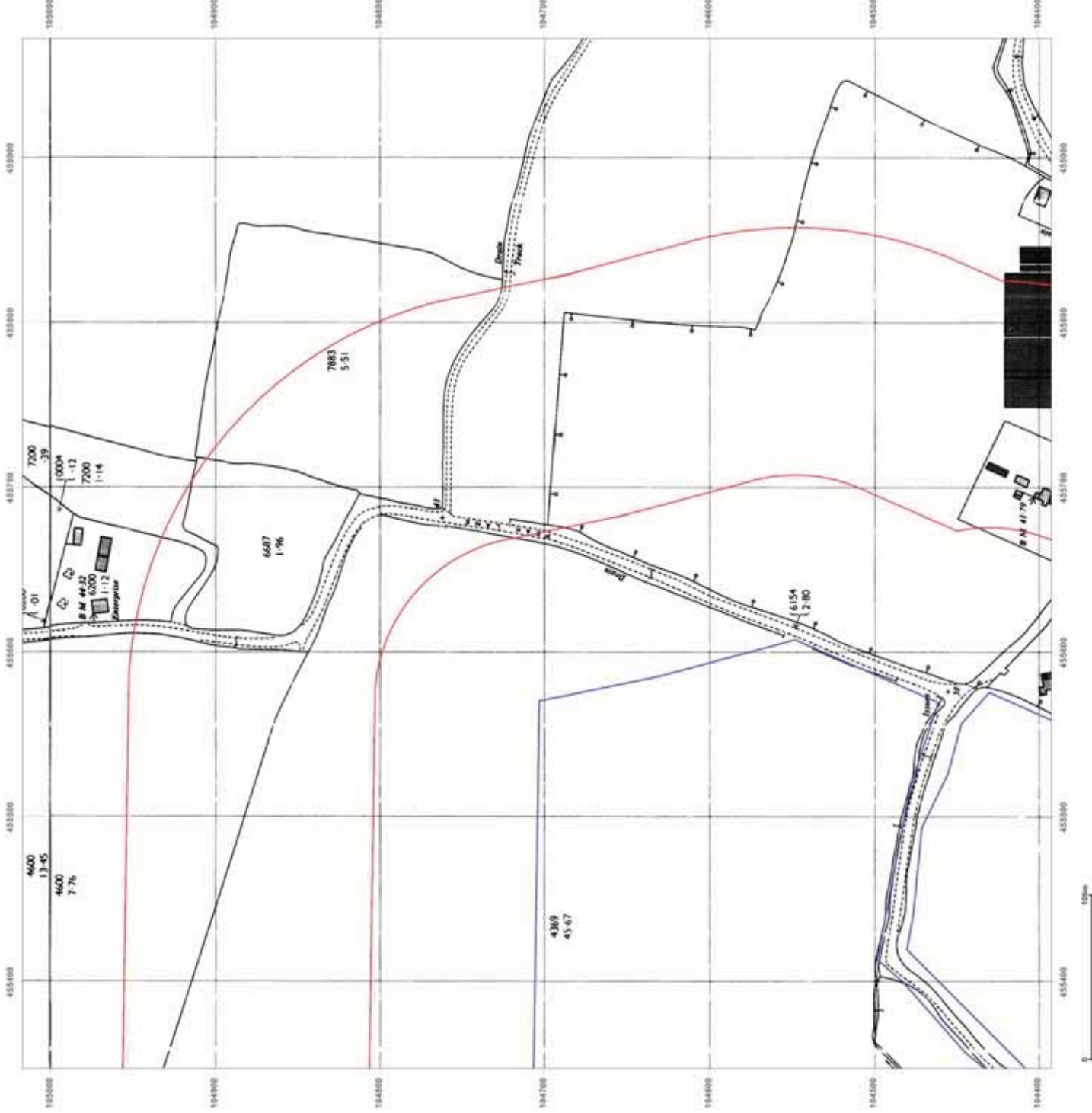
Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright N/A
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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: National Grid

Map date: 1973-1975

Scale: 1:2,500

Printed at: 1:2,500



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



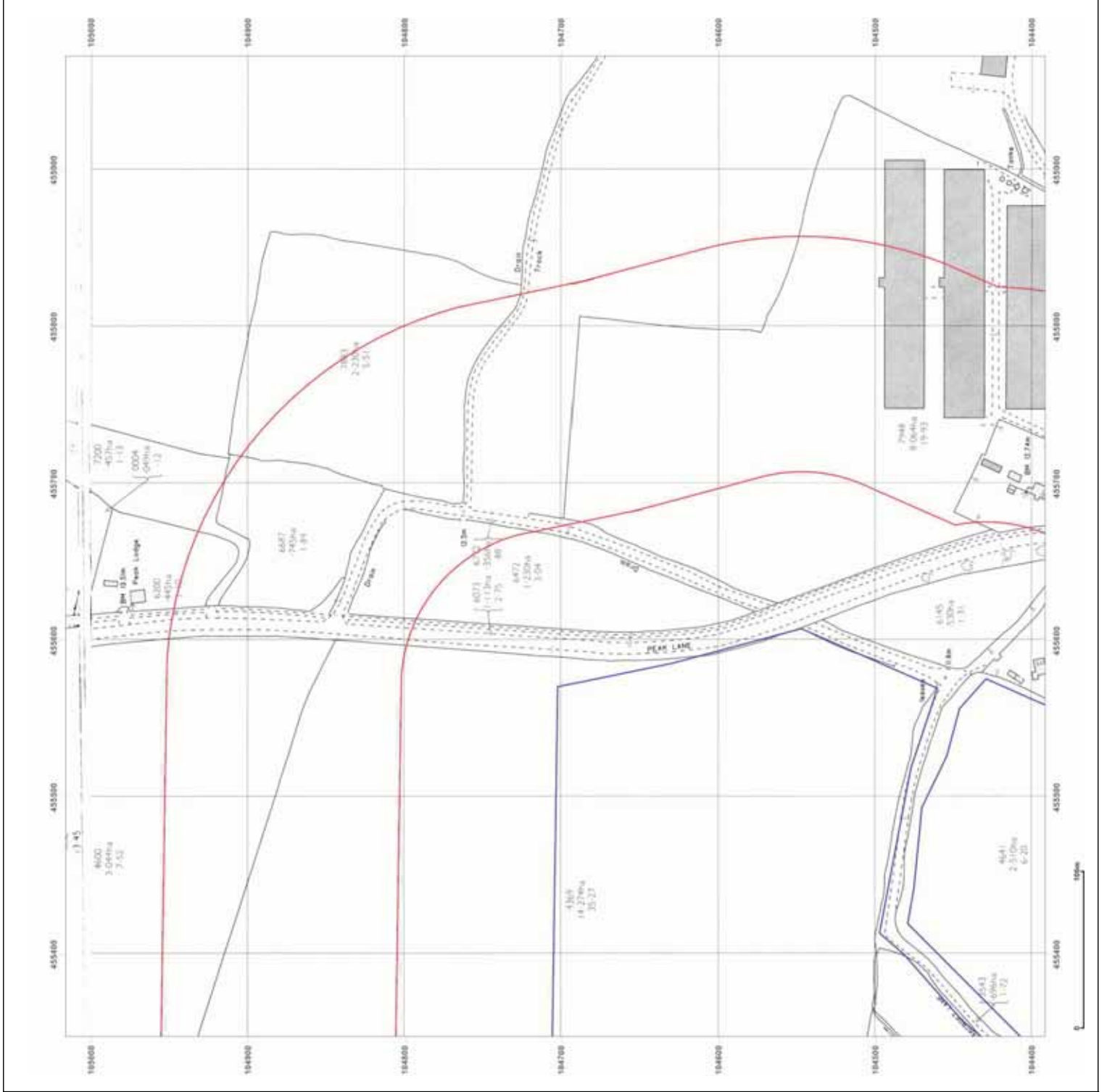
Surveyed 1975
 Revised 1975
 Edition N/A
 Copyright 1977
 Levelled 1957



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774_LS_2_2
Grid Ref: 455660, 104704

Map Name: National Grid

Map date: 1976-1977

Scale: 1:2,500

Printed at: 1:2,500



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

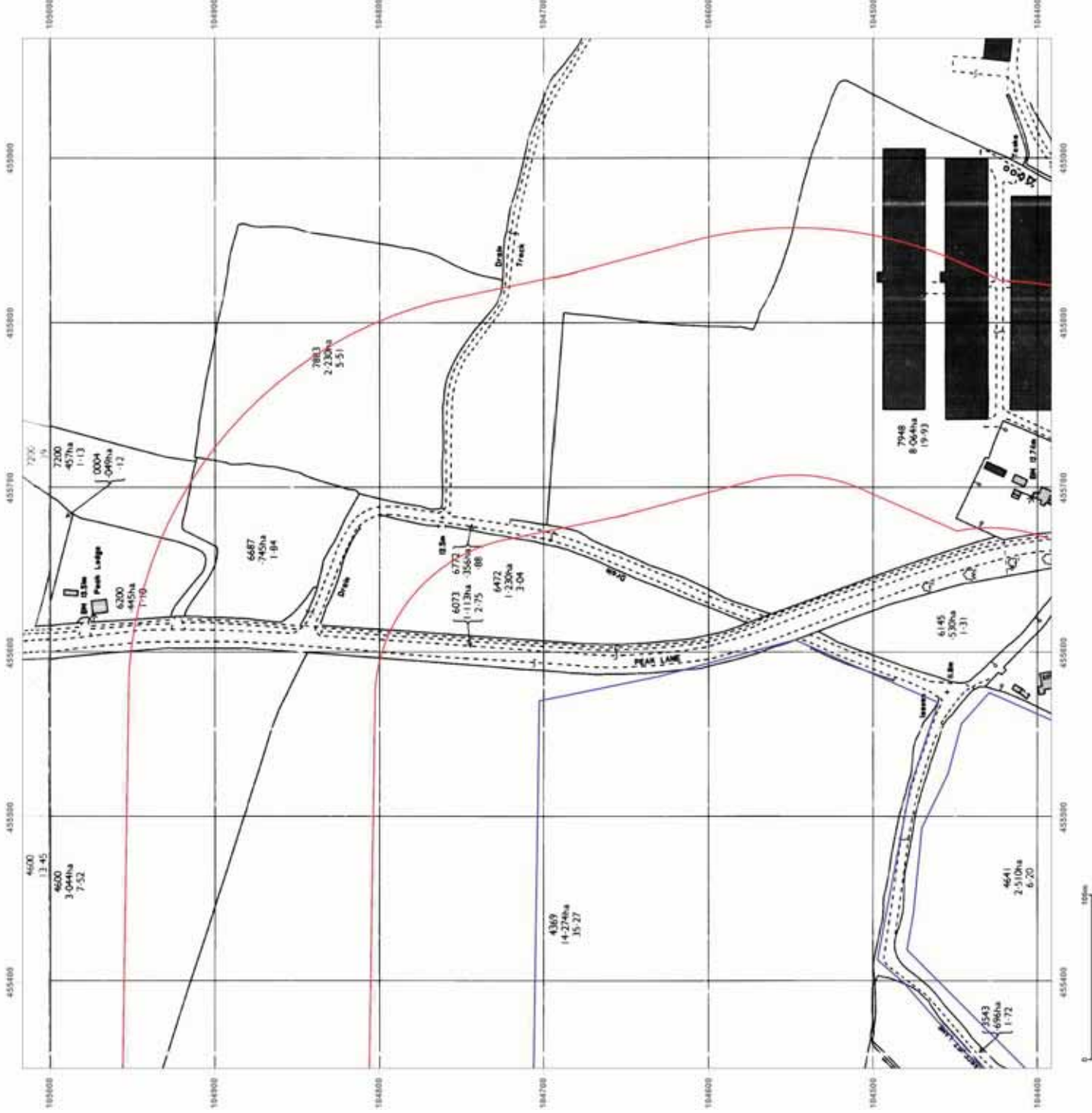
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 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A



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Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774
Grid Ref: 455348, 104391

Map Name: County Series

Map date: 1856-1859

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1859
 Revised 1859
 Edition N/A
 Copyright N/A
 Levelled N/A



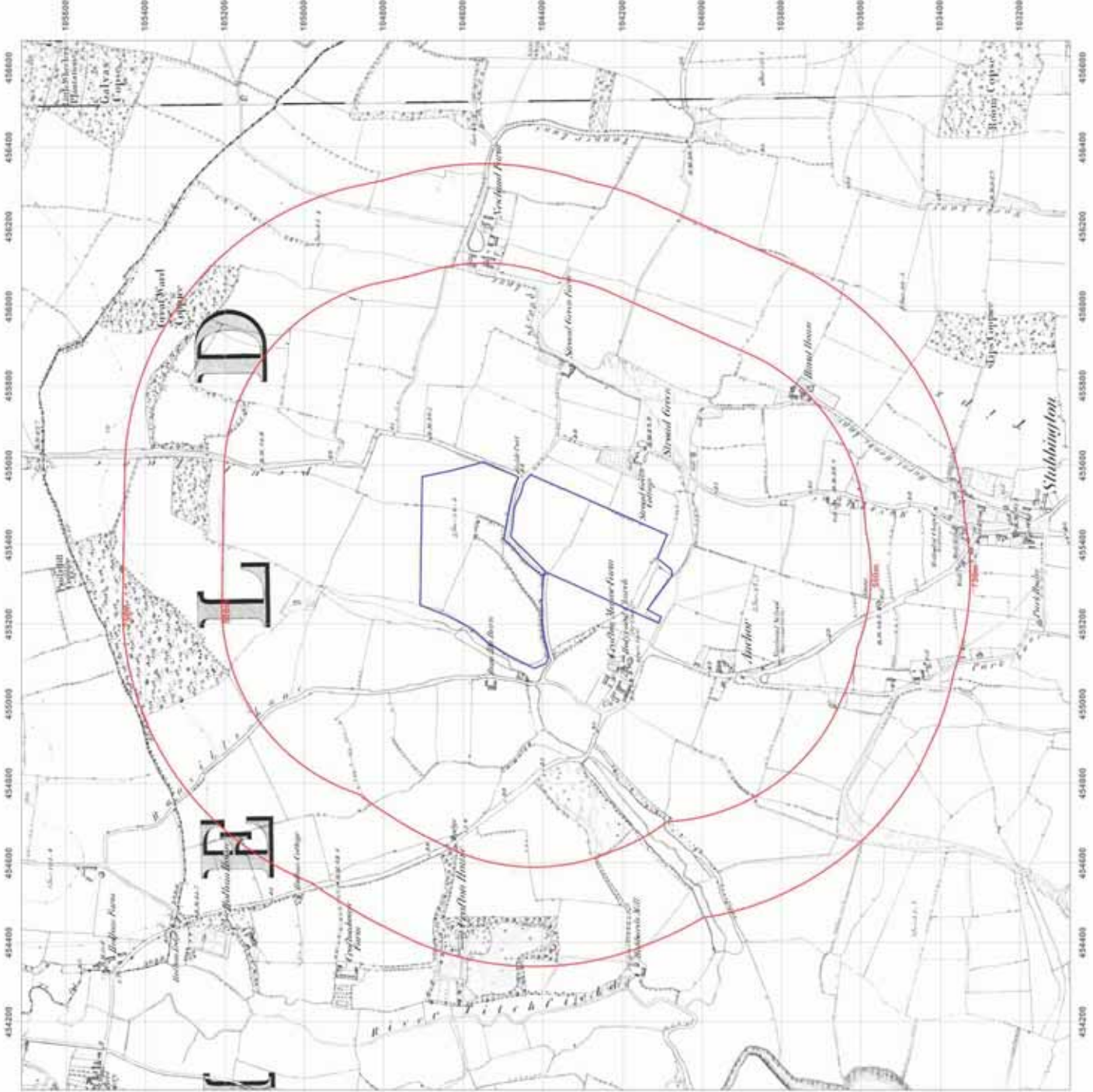
Surveyed 1856
 Revised 1856
 Edition N/A
 Copyright N/A
 Levelled N/A



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Site Details:

Client Ref: EMS_444398_595774
Report Ref: EMS-444398_595774
Grid Ref: 455348, 104391

Map Name: County Series

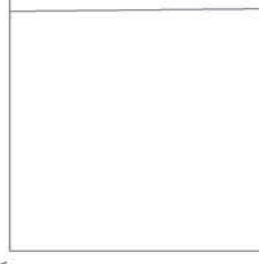
Map date: 1882

Scale: 1:10,560

Printed at: 1:10,560



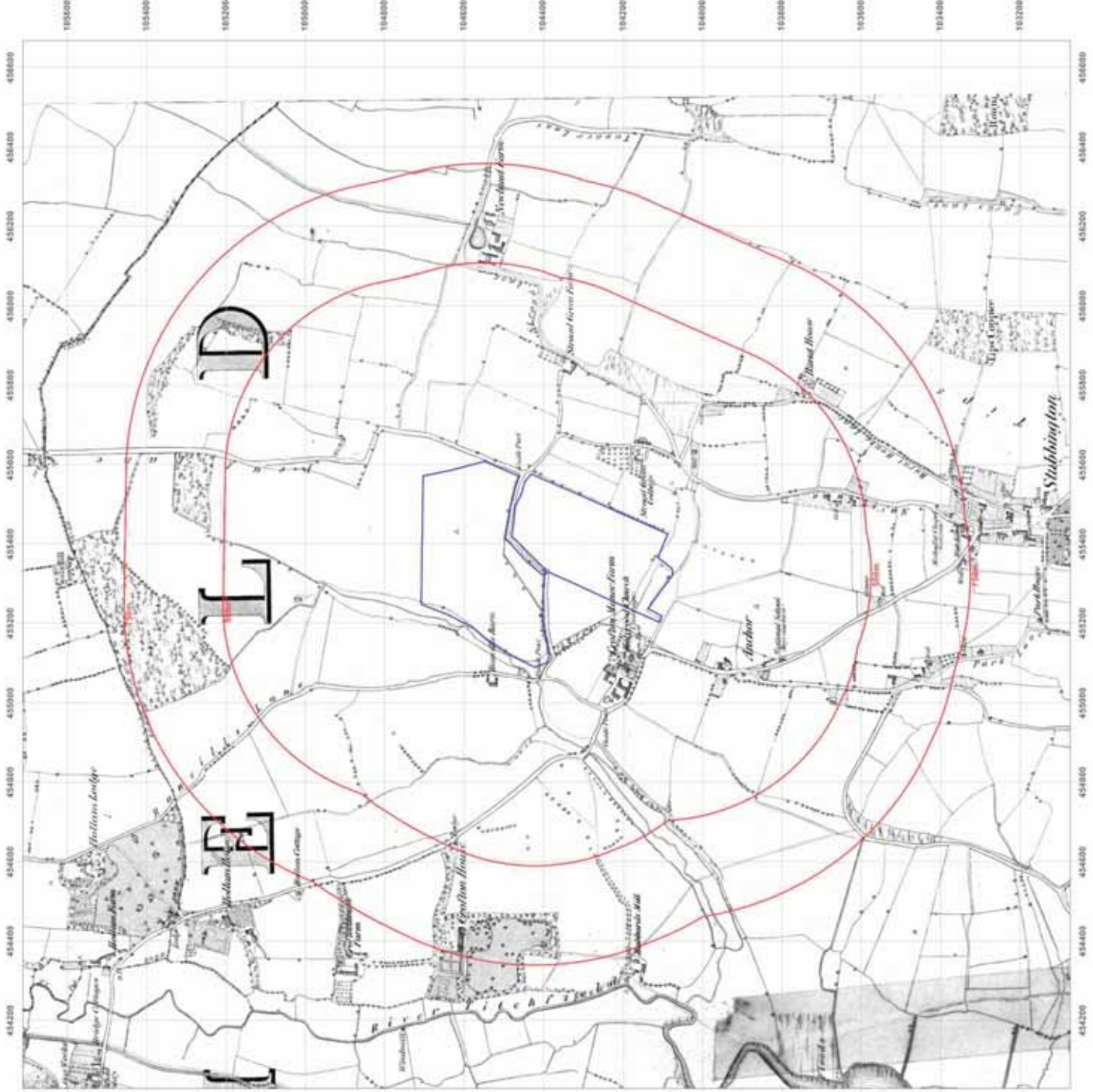
Surveyed 1859
Revised 1873
Edition 1882
Copyright N/A
Levelled N/A



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Site Details:

Client Ref: EMS-444398_595774
Report Ref: EMS-444398_595774
Grid Ref: 455348, 104391

Map Name: County Series

Map date: 1895-1898

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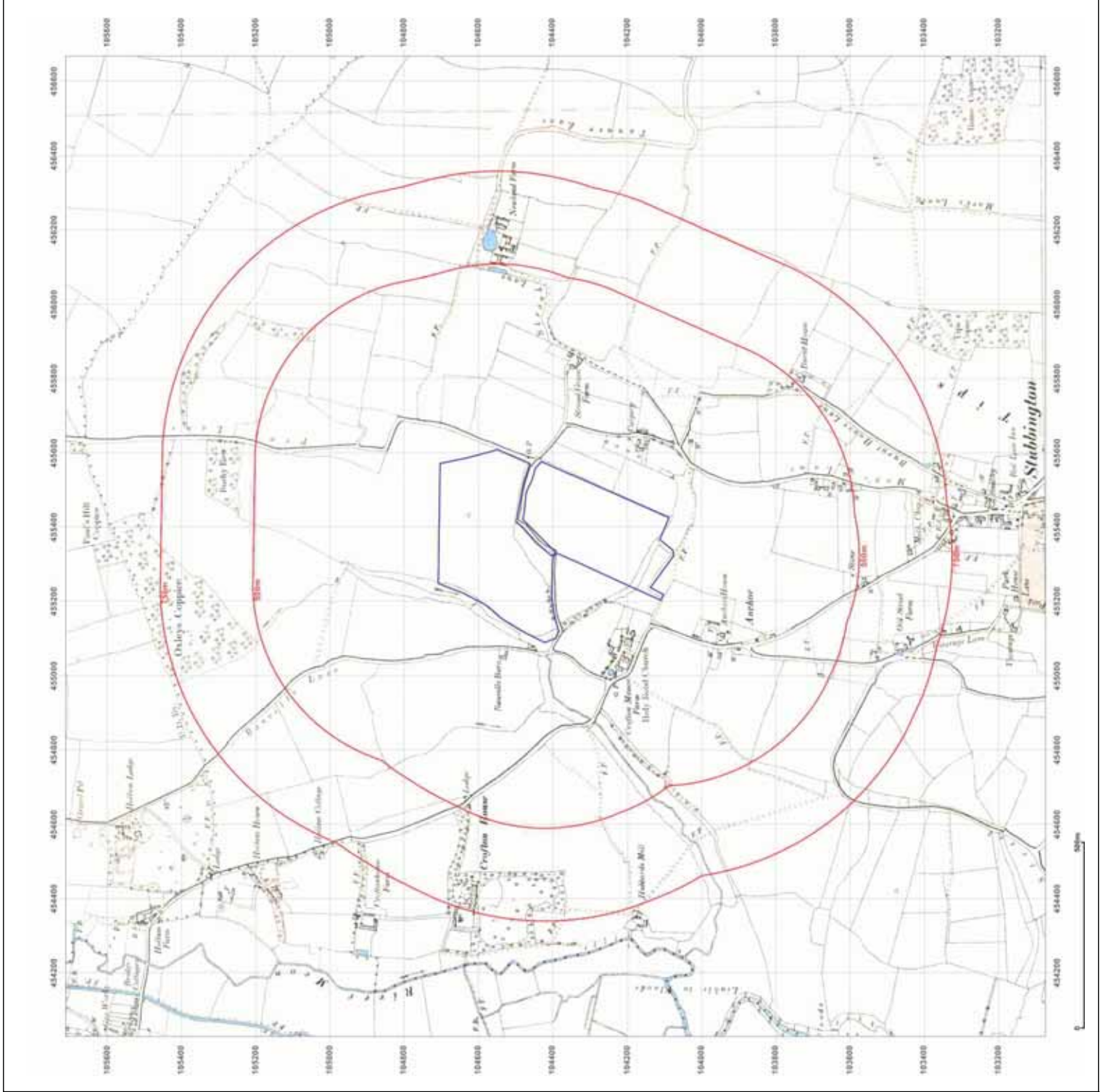
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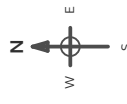
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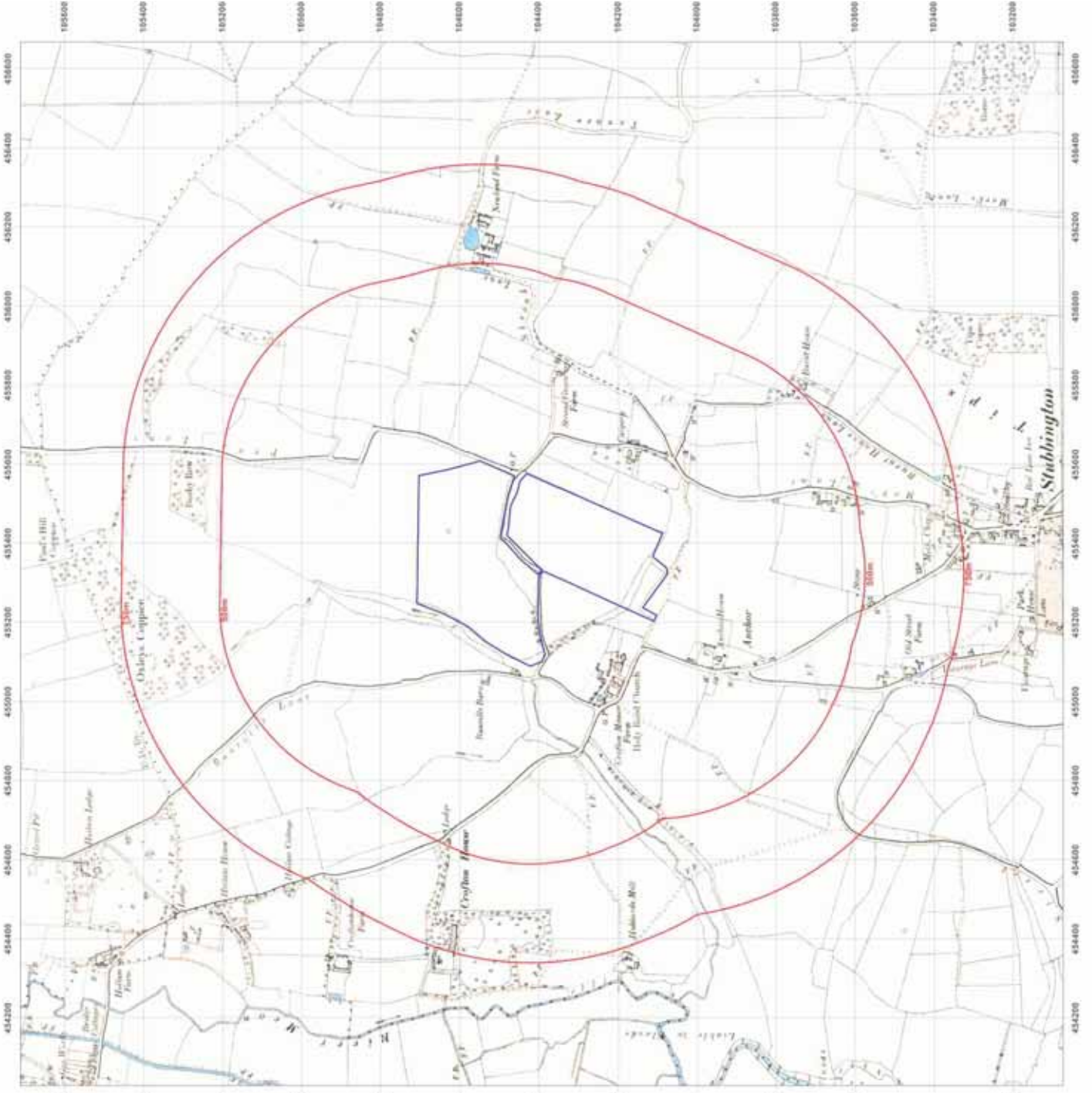
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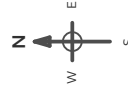
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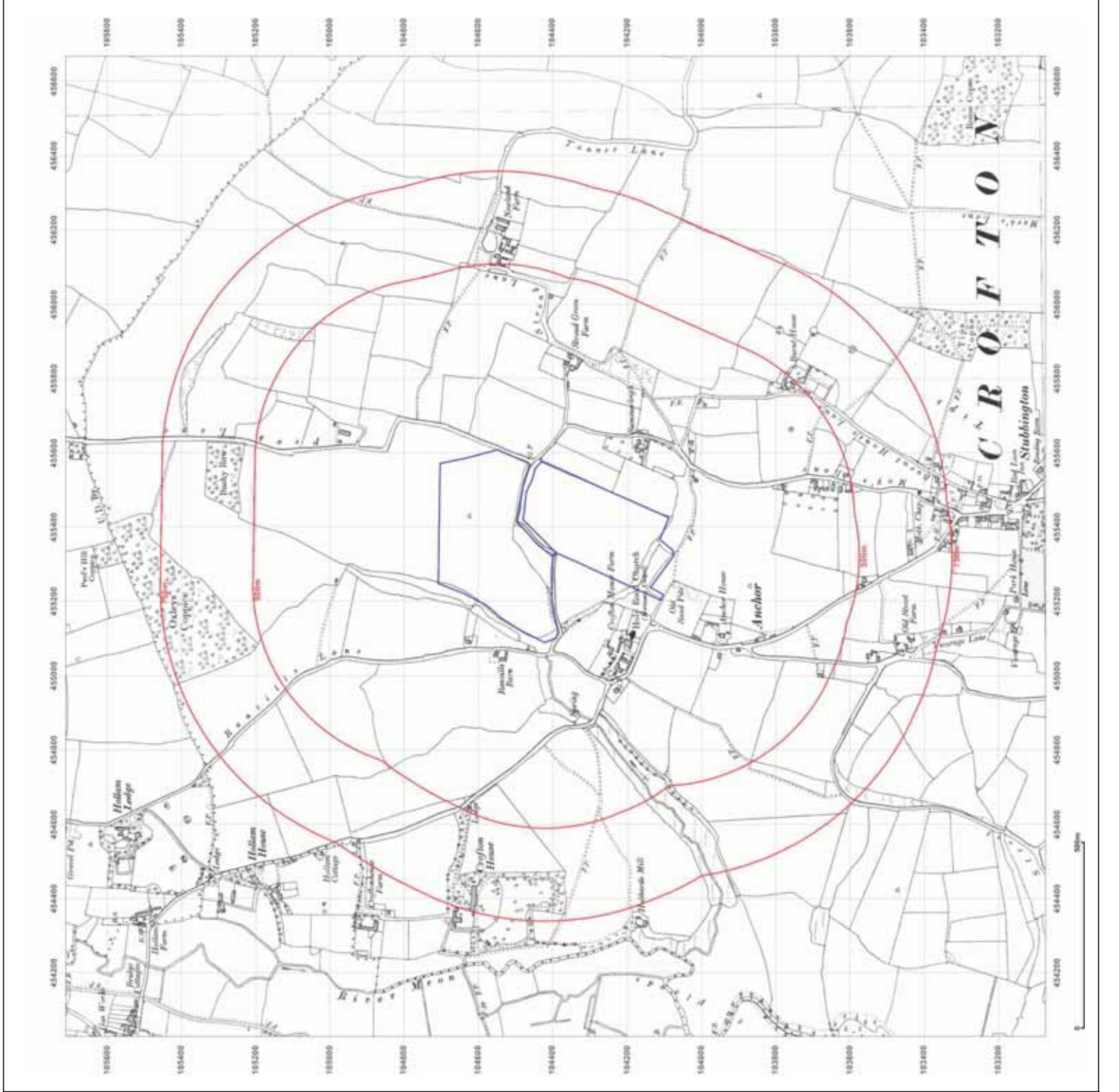
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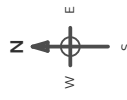
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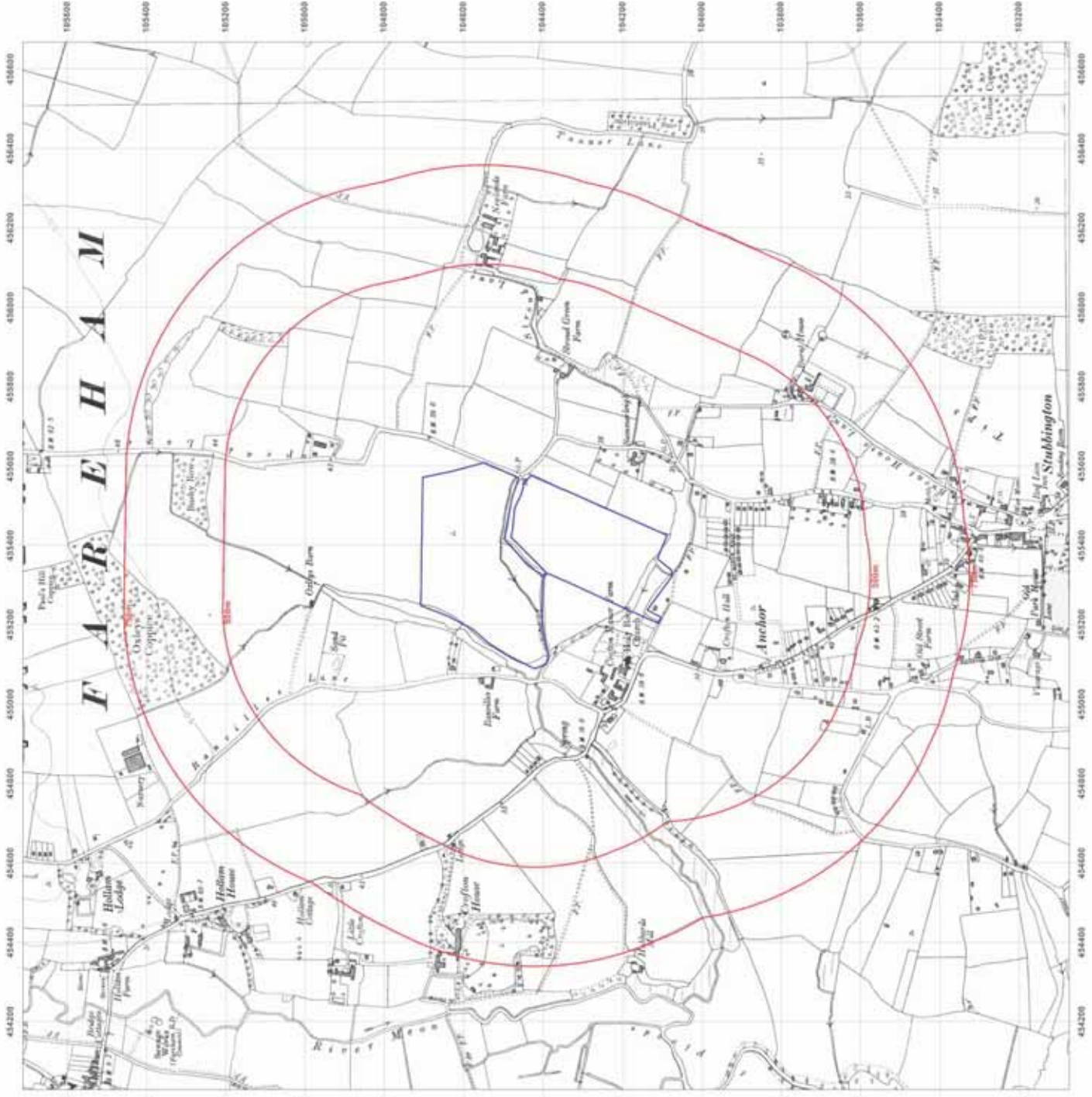
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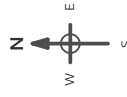
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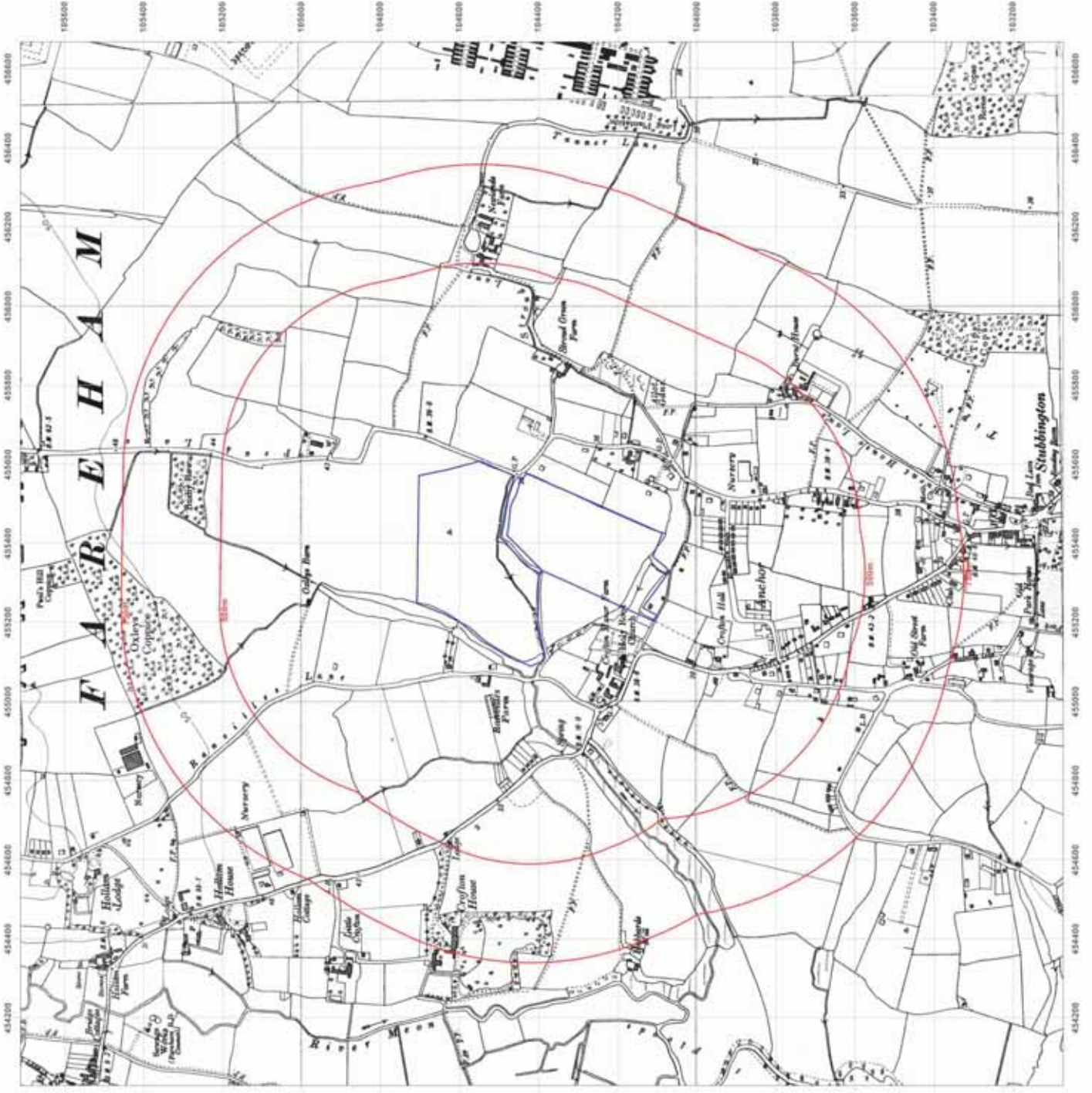
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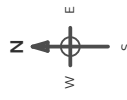
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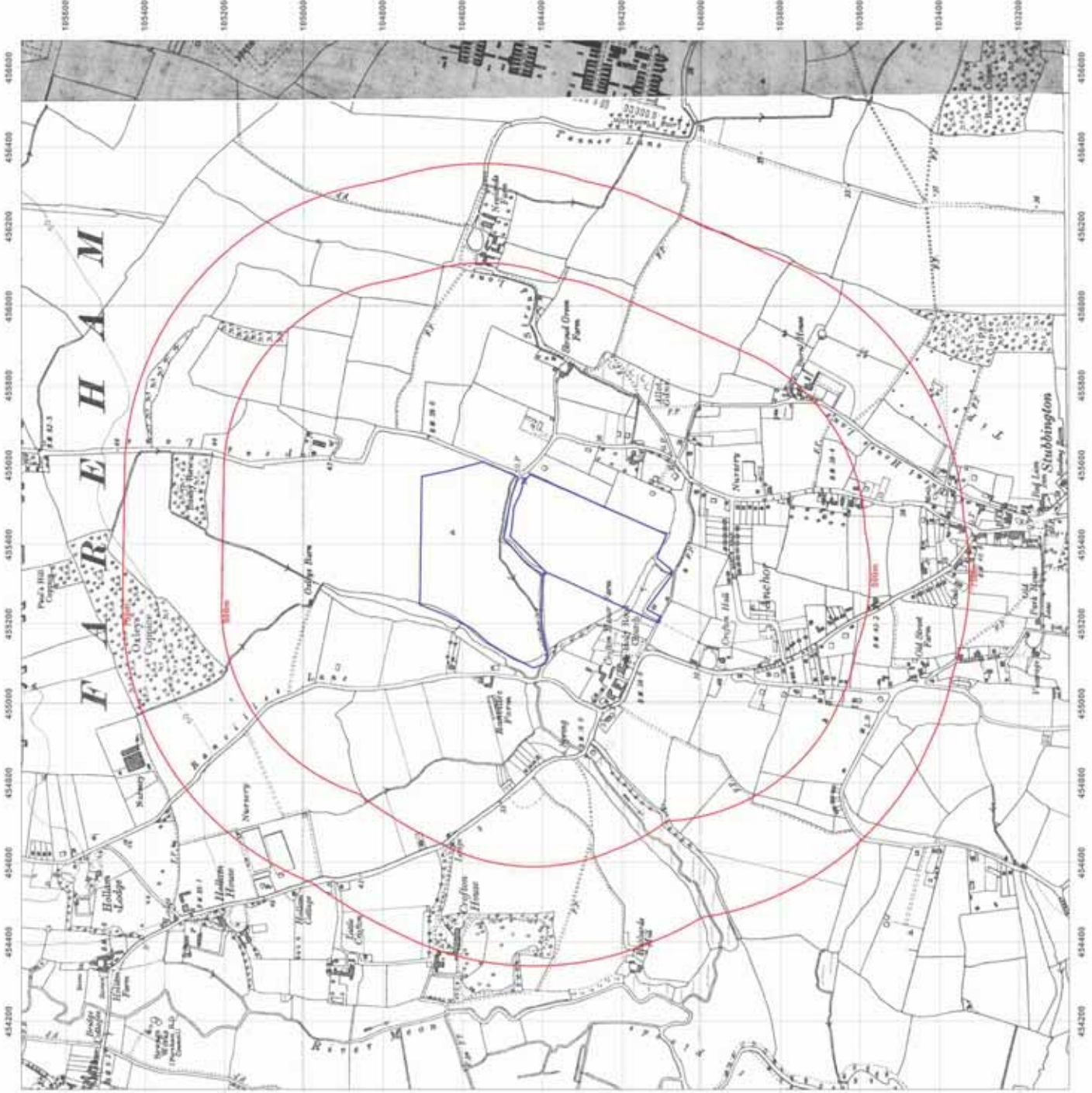
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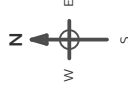
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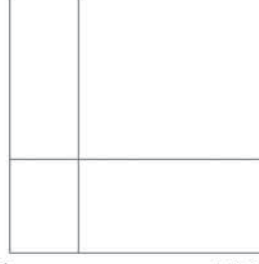


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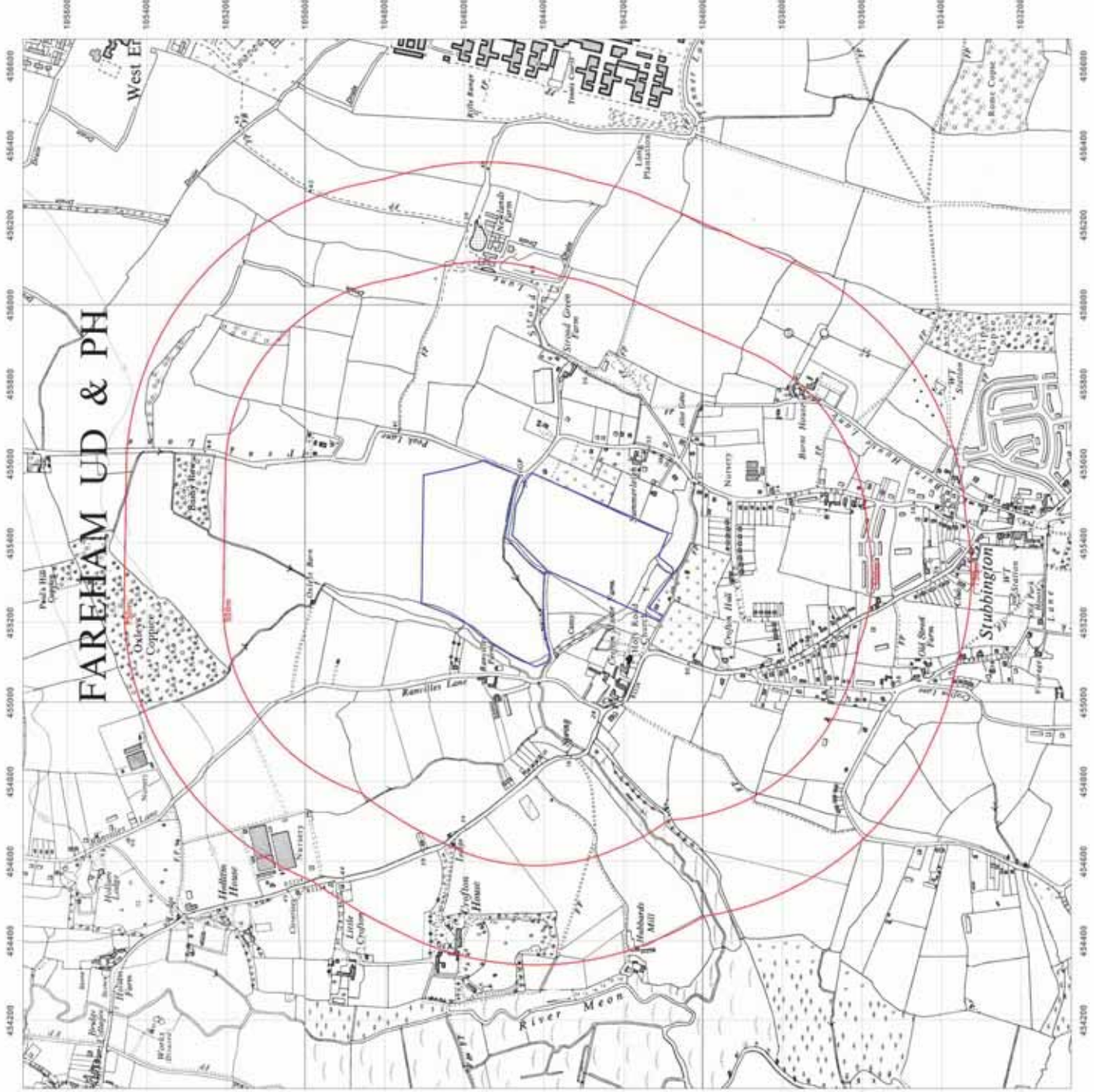
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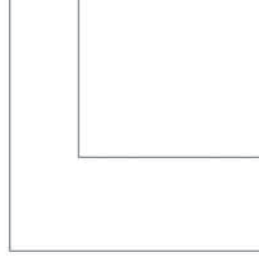
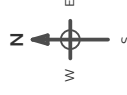
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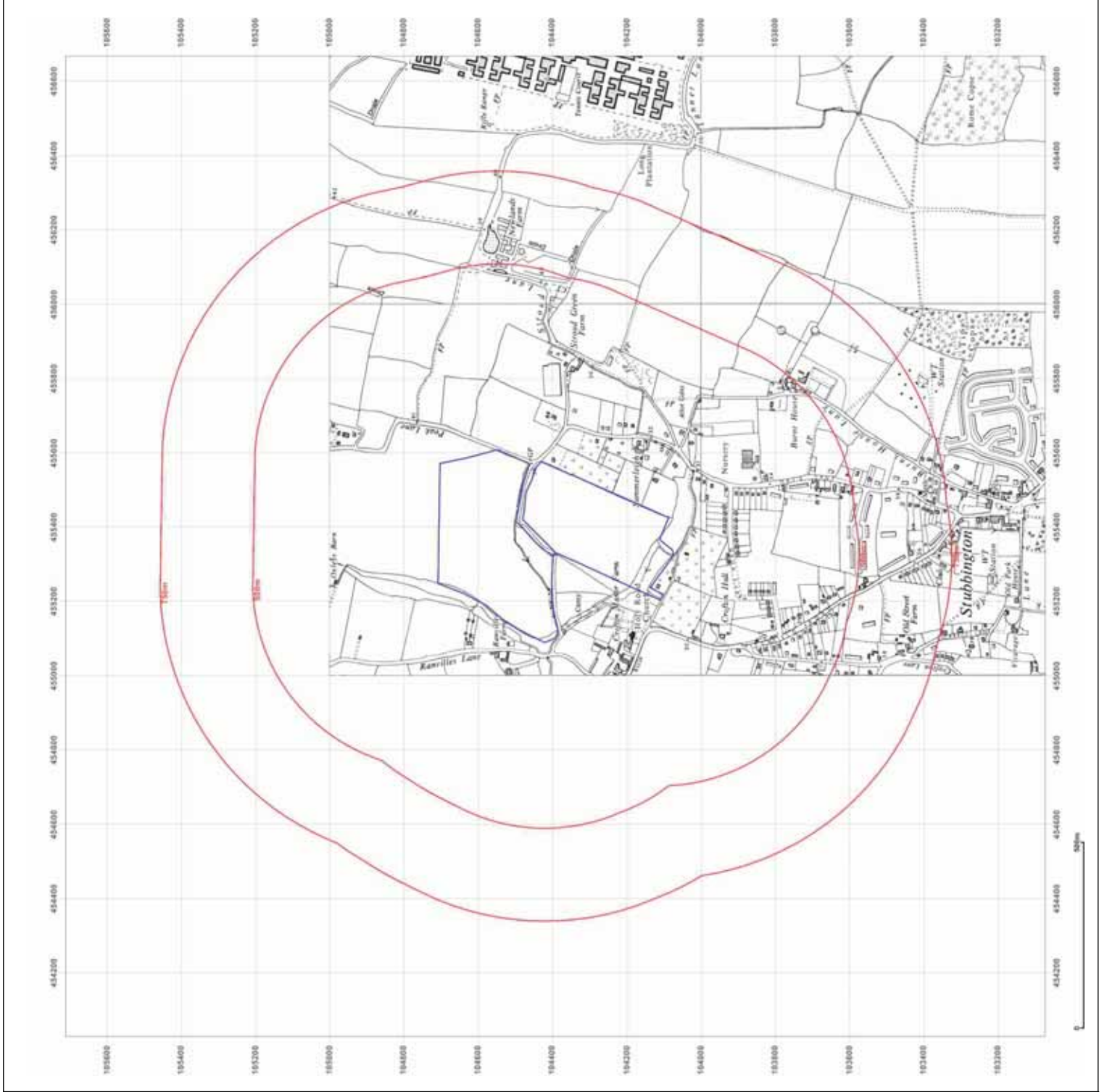
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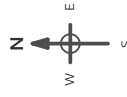
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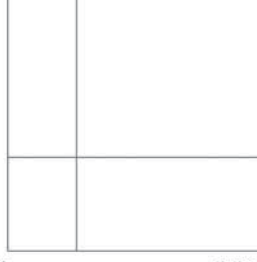
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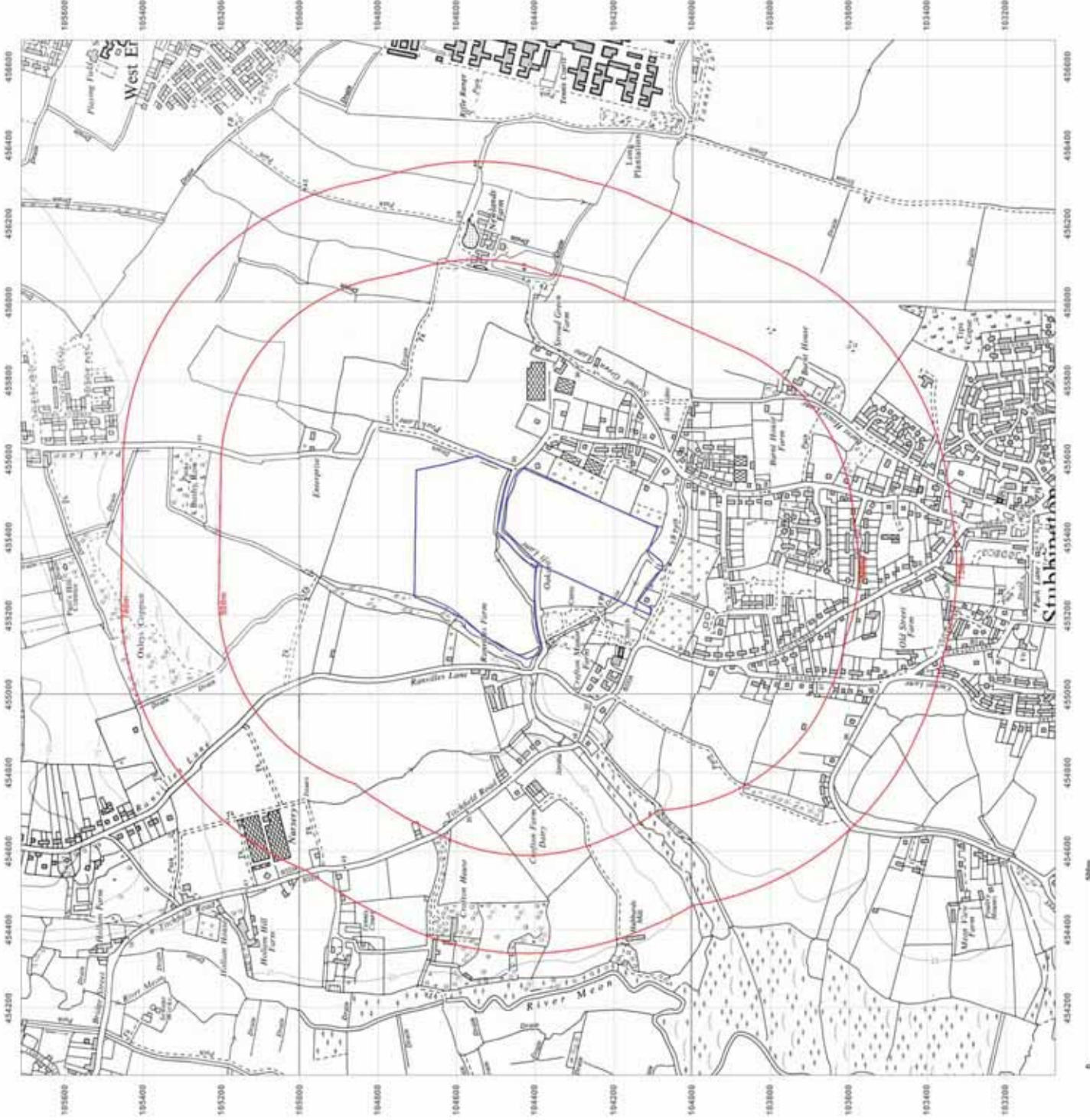
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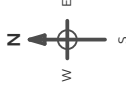
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Map Name: National Grid

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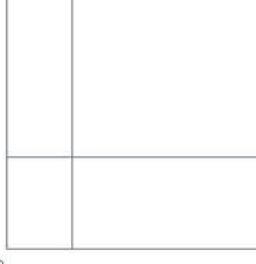
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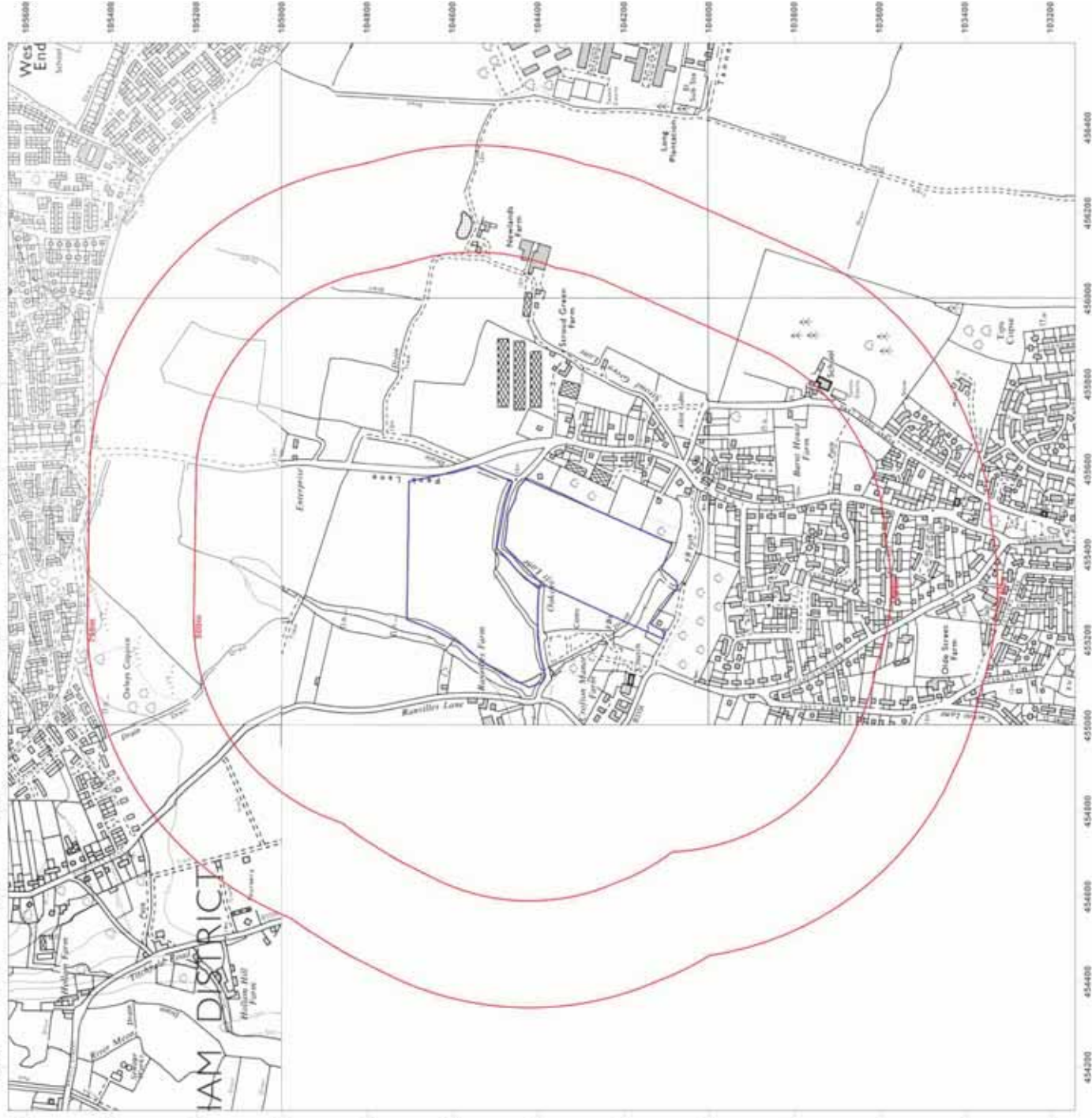
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Map Name: National Grid

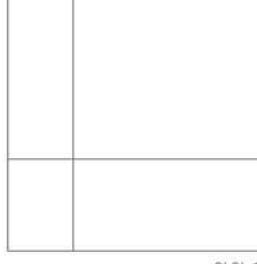
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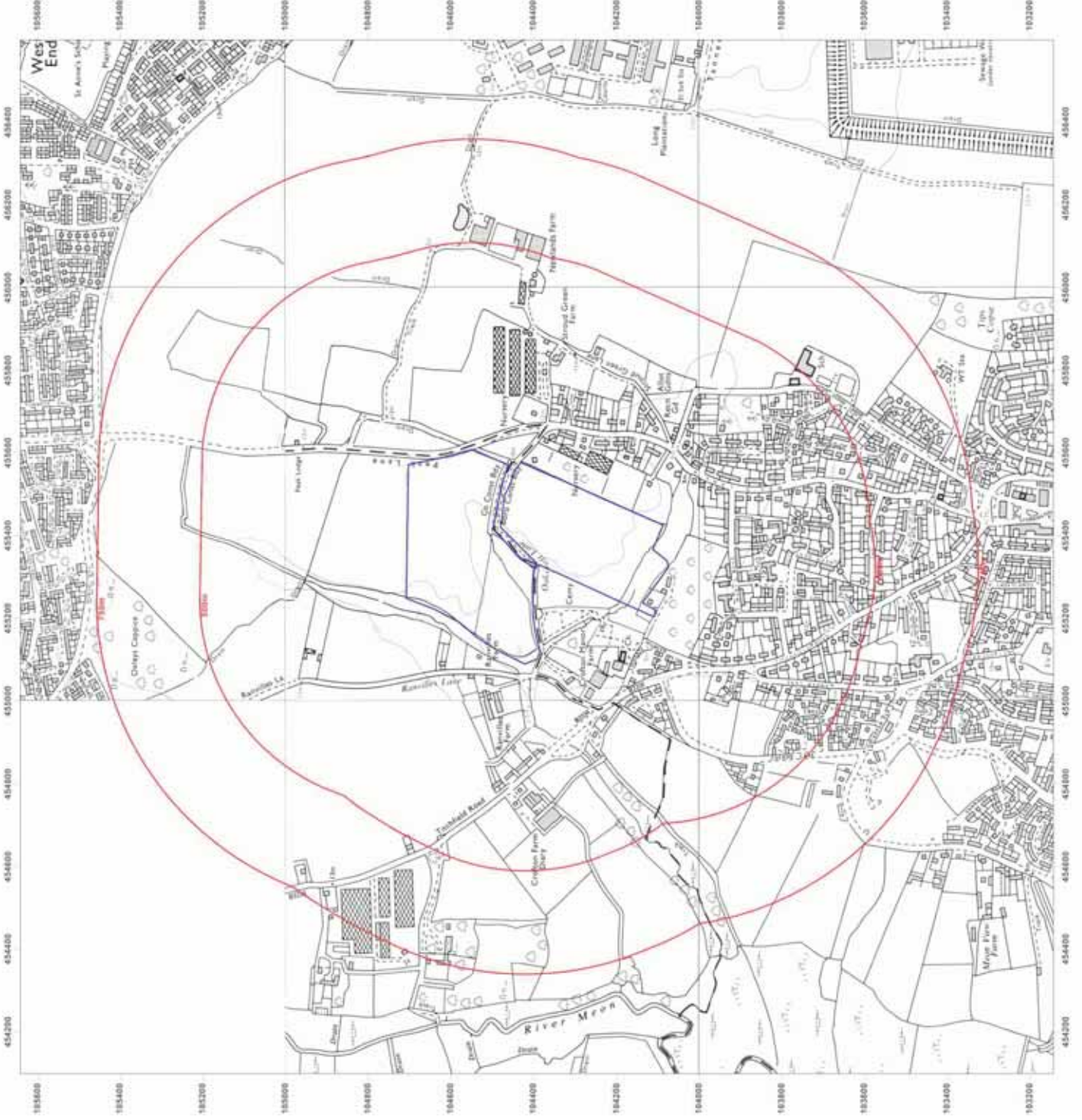
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Map Name: National Grid

Map date: 1989-1992

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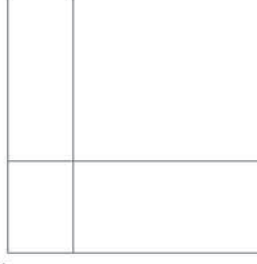
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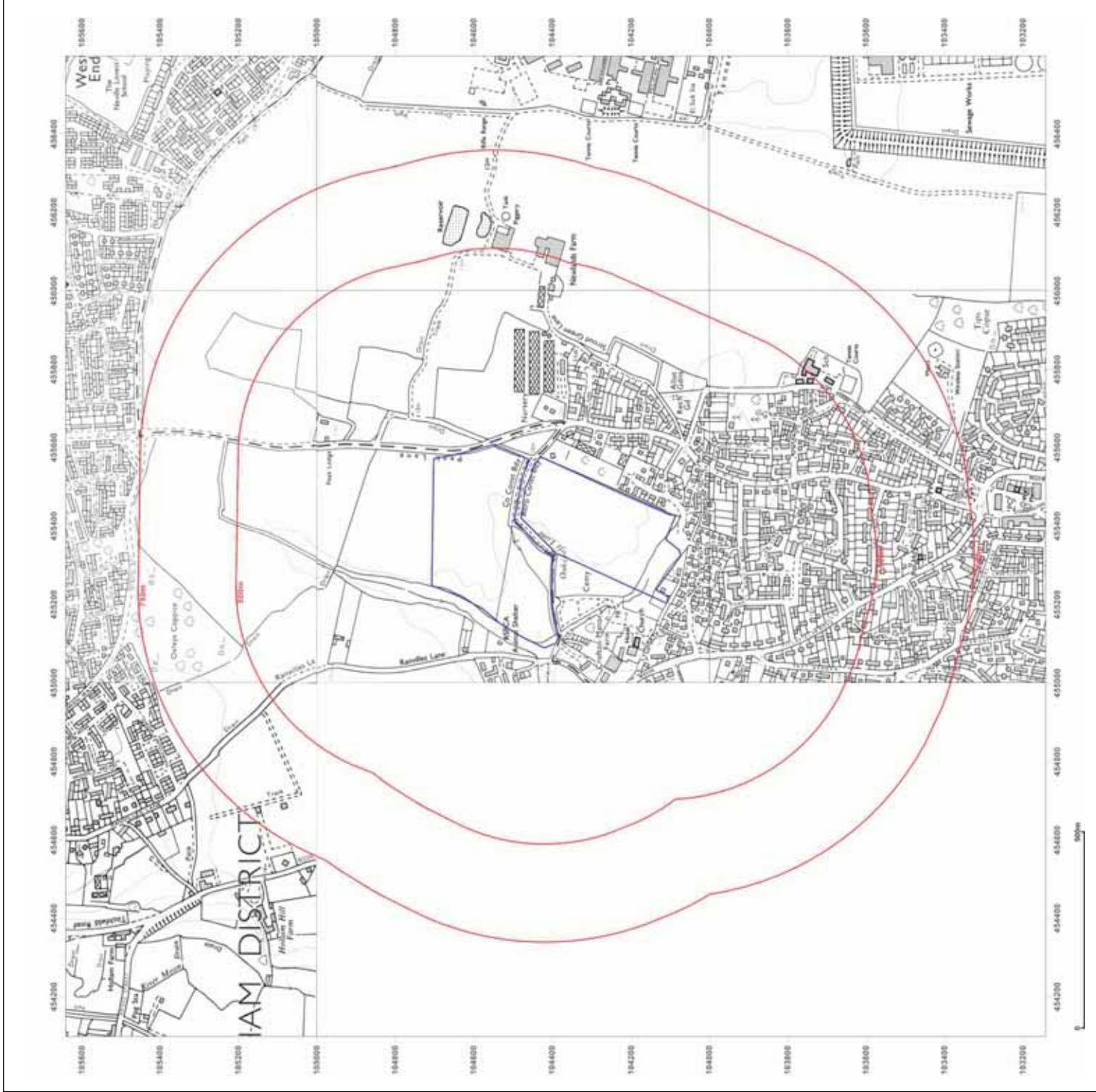
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Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



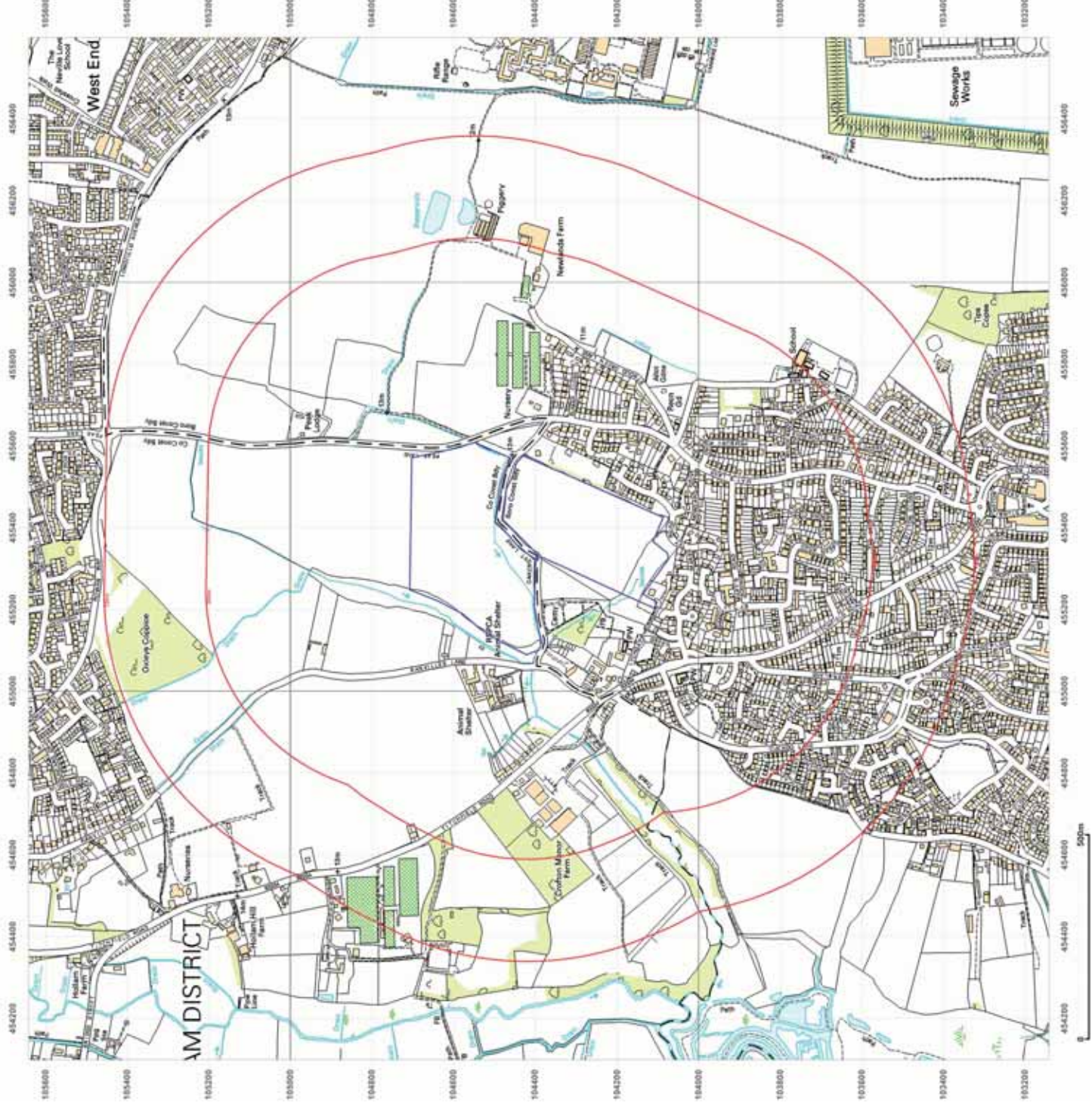
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Map Name: National Grid

Map date: 2010

Scale: 1:10,000

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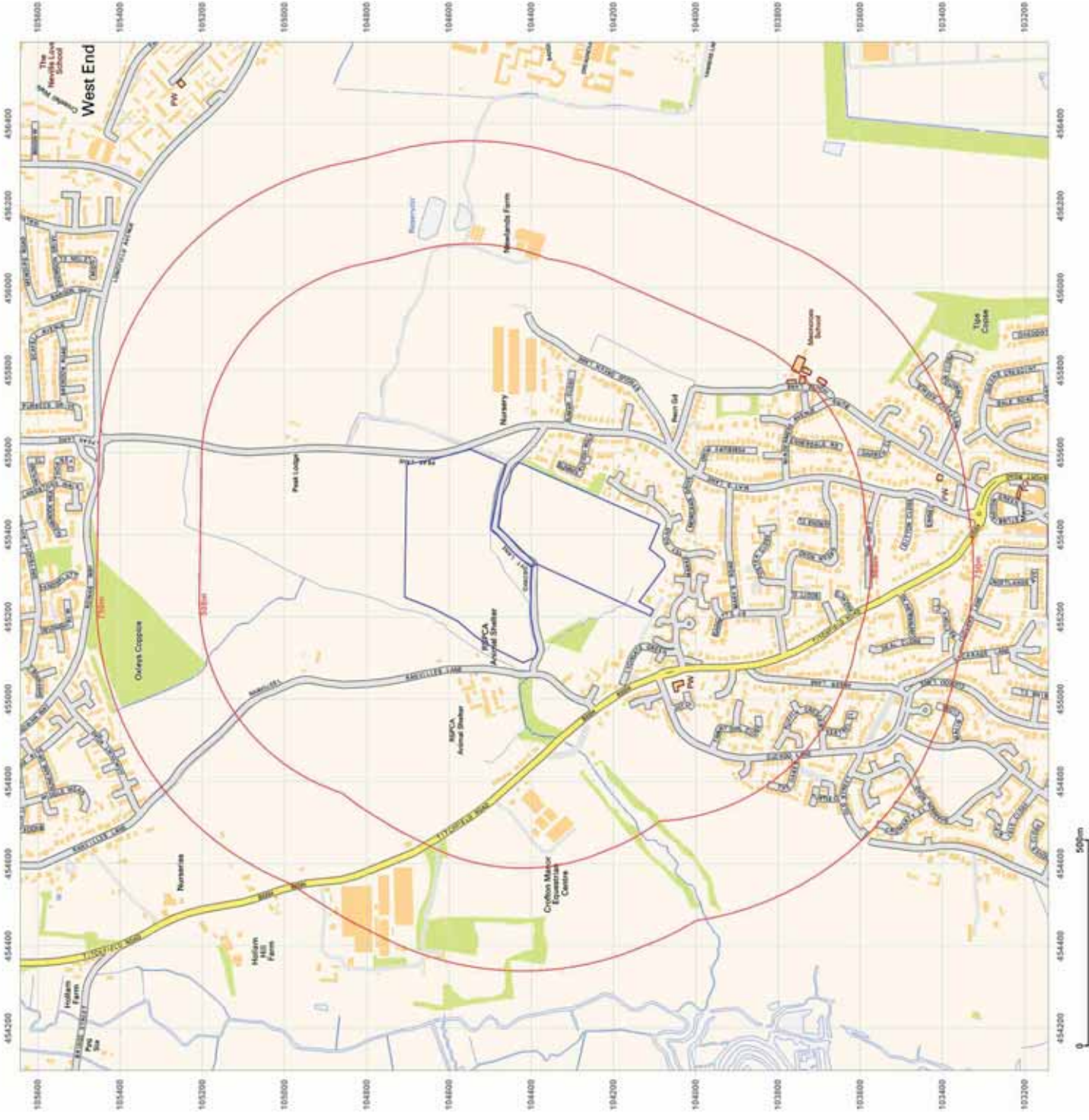
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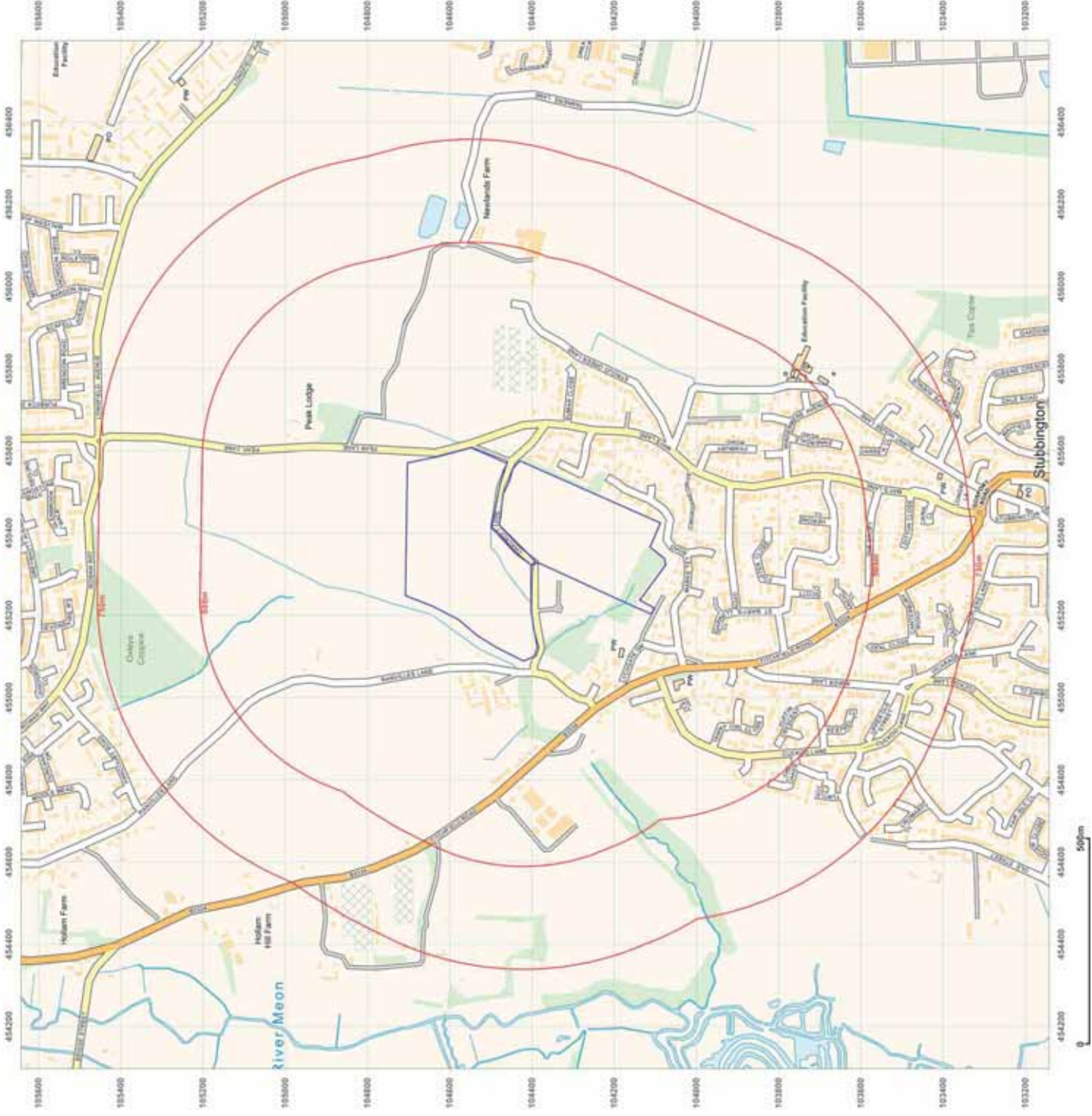
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Site Size: 19.23ha

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Overview of Findings

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Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	1	8	9	10
1.2 Additional Information – Historical Tank Database	0	0	9	5
1.3 Additional Information – Historical Energy Features Database	0	0	14	22
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	0	5	16	16

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	6
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	0
2.3.2 National Incidents Recording System, List 1	0	0	0	1
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	1	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	7	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	1	1	12
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	0	1	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	Yes	No	Yes	Yes
6.10 Detailed River Network entries within 500m of the site	4	3	9	1	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes					
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site?	Yes					
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Medium					
7.4 Are there any Flood Defences within 250m of the study site?	No					
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No					
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No					
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface					
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Low					

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	1	0	3	3
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	1	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	1	0	0	0
8.5 Records of Ramsar sites	0	0	1	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	2	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	1	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

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

Section 9: Natural Hazards

9.1 What is the maximum risk of natural ground subsidence?	Moderate
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Moderate
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Are there any coal mining areas within 75m of the study site?	No
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	No
10.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

Note: Maps

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

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

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

1. Historical Land Use



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1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 28

ID	Distance [m]	Direction	Use	Date
1H	0	On Site	Nursery	1982
2A	16	S	Cemetery	1990
3A	16	S	Cemetery	1982
4A	16	S	Cemetery	1973
5A	16	S	Cemetery	1965
6B	19	E	Nursery	1982
7B	19	E	Unspecified Commercial/Industrial	1973
8B	19	E	Nursery	1990
9T	31	SE	Old Sand Pits	1907
10C	51	NW	Cemetery	1957
11U	60	S	Old Sand Pits	1907
12C	92	NW	Grave Yard	1871
13D	92	NW	Grave Yard	1871
14D	97	NW	Grave Yard	1859
15E	153	SE	Nursery	1957
16E	153	SE	Nursery	1938
17	210	SE	Nursery	1942
18X	243	NW	Sand Pit	1931
19F	251	SW	Sand Pit	1931
20F	251	SW	Sand Pit	1942
21F	252	SW	Refuse Heap	1957
22F	254	SW	Refuse Heap	1938
23F	264	SW	Unspecified Pit	1968
24G	305	E	Unspecified Tank	1982
25G	305	E	Unspecified Tank	1990
26G	306	SE	Unspecified Tank	1982
27G	306	SE	Unspecified Tank	1990
28	308	W	Dairy	1968

1.2 Additional Information – Historical Tank Database

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

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

14

ID	Distance (m)	Direction	Use	Date
29H	61	SE	Unspecified Tank	1984
30H	62	SE	Unspecified Tank	1993
31	178	S	Unspecified Tank	1964
32I	216	E	Tanks	1993
33I	217	E	Unspecified Tank	1984
34I	218	E	Unspecified Tank	1975
35I	233	E	Tanks	1993
36I	236	E	Tanks	1975
37I	236	E	Tanks	1984
38	270	E	Unspecified Tank	1964
39G	310	E	Tanks	1984
40G	310	E	Tanks	1975
41G	311	E	Tanks	1993
42	493	E	Unspecified Tank	1993

1.3 Additional Information – Historical Energy Features Database

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

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

36

ID	Distance (m)	Direction	Use	Date
43J	65	W	Gas Governor	1975
44J	66	W	Gas Governor	1993
45J	66	W	Gas Governor	1983
46	95	SE	Electricity Substation	1993
47K	140	SW	Electricity Substation	1973
48K	143	SW	Electricity Substation	1983
49K	144	SW	Electricity Substation	1993
50K	144	SW	Electricity Substation	1983
51L	207	S	Electricity Substation	1973
52L	210	S	Electricity Substation	1983
53L	210	S	Electricity Substation	1983
54L	211	S	Electricity Substation	1993

55M	243	SW	Electricity Substation	1993
56M	243	SW	Electricity Substation	1983
57N	257	W	Electricity Substation	1993
58N	257	W	Electricity Substation	1975
59N	258	W	Electricity Substation	1983
60O	283	S	Electricity Substation	1983
61O	283	S	Electricity Substation	1983
62O	283	S	Electricity Substation	1993
63	316	SW	Electricity Substation	1994
64P	325	SE	Electricity Substation	1982
65P	326	SE	Electricity Substation	1993
66Q	380	SW	Gas Governor	1989
67Q	380	SW	Gas Governor	1983
68Q	381	SW	Gas Governor	1994
69Q	381	SW	Gas Governor	1993
70Q	382	SW	Gas Governor	1987
71R	415	S	Electricity Substation	1973
72R	418	S	Electricity Substation	1983
73R	418	S	Electricity Substation	1993
74R	418	S	Electricity Substation	1983
75S	464	S	Electricity Substation	1973
76S	466	S	Electricity Substation	1983
77S	466	S	Electricity Substation	1993
78S	466	S	Electricity Substation	1983

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

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

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

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

Database searched and no data found.

1.6 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 37

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

ID	Distance(m)	Direction	Use	Date
79A	16	S	Cemetery	1982
80A	16	S	Cemetery	1990
81A	16	S	Cemetery	1973
82A	16	S	Cemetery	1965
83T	31	SE	Old Sand Pits	1907
84C	51	NW	Cemetery	1957
85U	60	S	Old Sand Pits	1907
86D	92	NW	Grave Yard	1871
87D	92	NW	Grave Yard	1871
88D	97	NW	Grave Yard	1859
89W	143	SE	Ponds	1859
90V	165	SW	Pond	1907
91V	165	SW	Pond	1942
92V	165	SW	Pond	1931
93W	179	SE	Pond	1942
94W	179	SE	Pond	1931
95W	179	SE	Pond	1907
96I	240	E	Pond	1931
97I	240	E	Pond	1942
98I	240	E	Pond	1907
99X	243	NW	Sand Pit	1931
100F	251	SW	Sand Pit	1942
101F	251	SW	Sand Pit	1931
102F	252	SW	Refuse Heap	1957
103F	254	SW	Refuse Heap	1938
104F	264	SW	Unspecified Pit	1968
105Y	294	S	Pond	1907
106Y	294	S	Pond	1931
107Y	294	S	Pond	1942
108Z	449	SE	Pond	1942
109Z	449	SE	Pond	1931
110AA	471	E	Pond	1931
111AA	471	E	Pond	1907
112AA	471	E	Pond	1942
113AB	489	NW	Pond	1931
114AB	489	NW	Pond	1907
115AB	489	NW	Pond	1942

2. Environmental Permits, Incidents and Registers Map



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

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

6

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

ID	Distance (m)	Direction	NGR	Details
2A	256	SW	454870 104280	Address: CROFTON PUMPING STATION, CROFTON PUMPING STATION, TITCHFIELD ROAD, CROFTON, FAREHAM HAMPSHIRE Effluent Type: SEWAGE DISCHARGES - UNSPECIFIED - NOT WATER COMPANY Permit Number: H01140 Permit Version: 1 Receiving Water: SALINE ESTUARY Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 07/09/1973 Effective Date: 07-Sep-1973 Revocation Date: 31/03/1997
3A	260	SW	454870 104270	Address: CROFTON WPS, CROFTON WPS, TITCHFIELD ROAD, STUBBINGTON, FAREHAM, HAMPSHIRE, PO14 3EN Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: A00877 Permit Version: 2 Receiving Water: CROFTON STREAM Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 17/12/2001 Effective Date: 17-Dec-2001 Revocation Date: -
4A	260	SW	454870 104270	Address: CROFTON WPS, CROFTON WPS, TITCHFIELD ROAD, STUBBINGTON, FAREHAM, HAMPSHIRE, PO14 3EN Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00877 Permit Version: 1 Receiving Water: FRESHWATER RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 27/09/2001 Effective Date: 27-Sep-2001 Revocation Date: 16/12/2001
5	289	N	455650 104980	Address: PEAK LODGE, PEAK LODGE, PEAK LANE, FAREHAM, HAMPSHIRE, PO14 2EA Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: N02940 Permit Version: 1 Receiving Water: INTO LAND Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 21/08/1975 Effective Date: 21-Aug-1975 Revocation Date: 31/03/1997

ID	Distance (m)	Direction	NGR	Details	
6	294	E	455857 104345	Address: LAND BETWEEN 33 & 35, STROUD GREEN, LAND BETWEEN 33 & 35, STROUD GREEN LANE, STUBBINGTON, FAREHAM, HAMPSHIRE, PO14 2HS Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: G00581 Permit Version: 1	Receiving Water: CROFTON STREAM VIA RUMBLING DR Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/08/2005 Effective Date: 12-Aug-2005 Revocation Date: -
7	324	W	454880 104080	Address: LAND AT OLD STREET, LAND AT OLD STREET, STUBBINGTON, FAREHAM, HAMPSHIRE Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: N01292 Permit Version: 1	Receiving Water: FRESHWATER RIVER Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 08/08/1977 Effective Date: 08-Aug-1977 Revocation Date: 31/03/1997

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

0

Database searched and no data found.

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

1

The following NIRS List 1 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance(m)	Direction	NGR	Details
1	251	SW		Incident Date: 16-Sep-1999 Incident Identification: 2714.0 Catchments Name: MEON (NIRS) Water Description: RIVER STRETCH (FRESHWATER) Water Course: LOWER MEON (NIRS) Incident Substantiated: Yes Priority Description: Immediate (2 Hours) Waste Description: Not Available Water Impact: Significant Impact Land Impact: No Impact Air Impact: No Impact Action Taken: Not Available

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

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










0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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

3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

3.2 Other Waste Sites

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

0

Database searched and no data found.

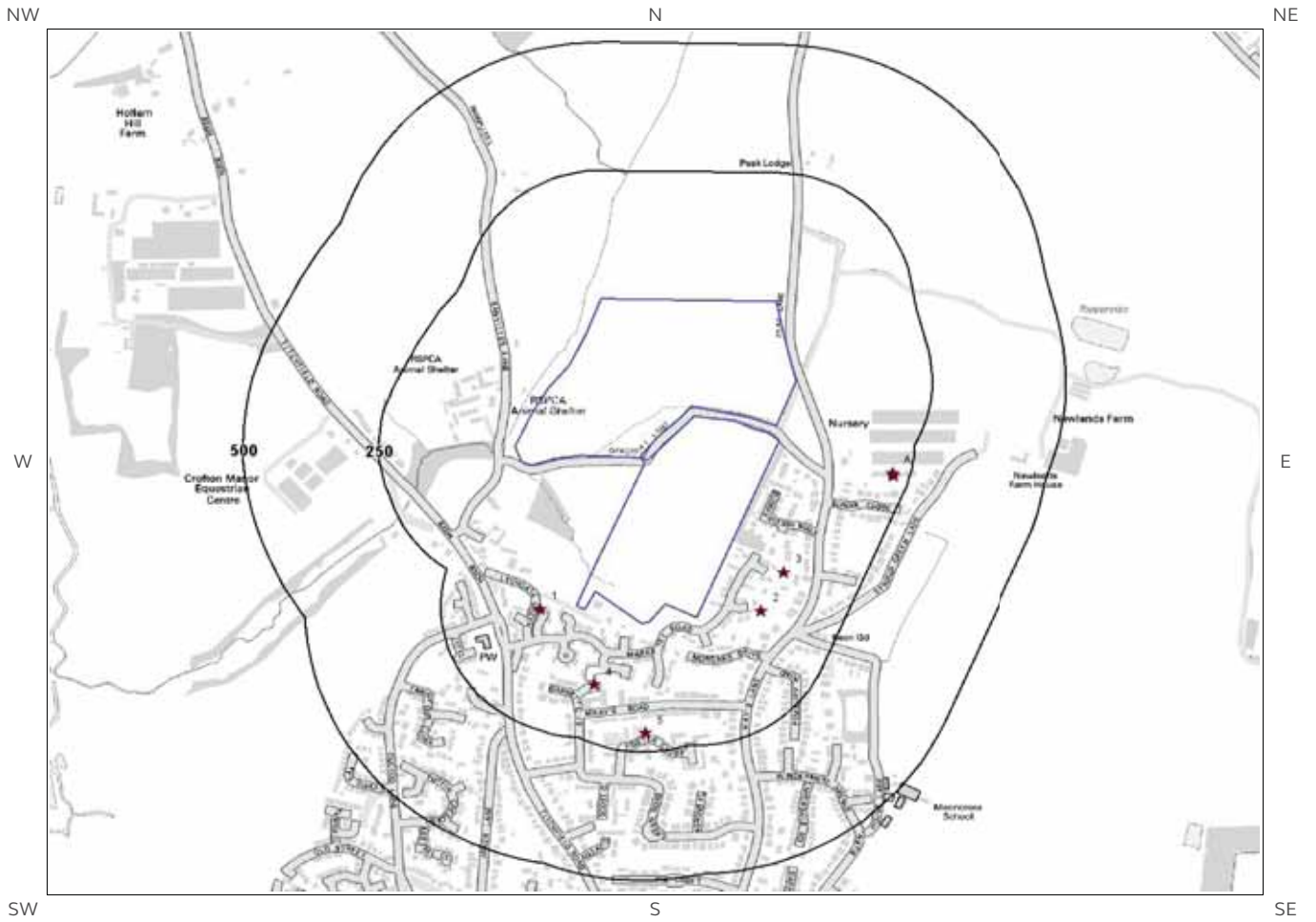
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

1

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

ID	Distance (m)	Direction	NGR	Details
1	518	E	456124 104504	<p>Site Address: Newlands Farm, Tanners Lane, Fareham, Hampshire, PO14 2HS Type: Treatment of waste to produce soil <75,000 tpy Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAY148 EPR reference: EA/EPR/EB3105CR/A001 Operator: Mayfair Developments Group Ltd Waste Management licence No: 403271 Annual Tonnage: 74999.0</p> <p>Issue Date: 31/03/2017 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Newlands Farm Correspondence Address: -</p>

4. Current Land Use Map



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

4. Current Land Uses

4.1 Current Industrial Data

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

7

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	68	W	Gas Governor Station	455135 104105	PO14	Gas Features	Infrastructure and Facilities
2	101	SE	Electricity Sub Station	455541 104101	PO14	Electrical Features	Infrastructure and Facilities
3	109	SE	Works	455583 104176	PO14	Unspecified Works Or Factories	Industrial Features
4	147	S	Electricity Sub Station	455234 103957	PO14	Electrical Features	Infrastructure and Facilities
5	212	S	Electricity Sub Station	455328 103863	PO14	Electrical Features	Infrastructure and Facilities
6A	217	E	Tank	455784 104370	PO14	Tanks (Generic)	Industrial Features
7A	220	E	Tank	455785 104364	PO14	Tanks (Generic)	Industrial Features

4.2 Petrol and Fuel Sites

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

0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
RTD2-XVSZ	RIVER TERRACE DEPOSITS, 2	GRAVEL, SAND AND SILT
RTD2-XVSZ	RIVER TERRACE DEPOSITS, 2	GRAVEL, SAND AND SILT
RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY

5.3 Bedrock and Solid Geology

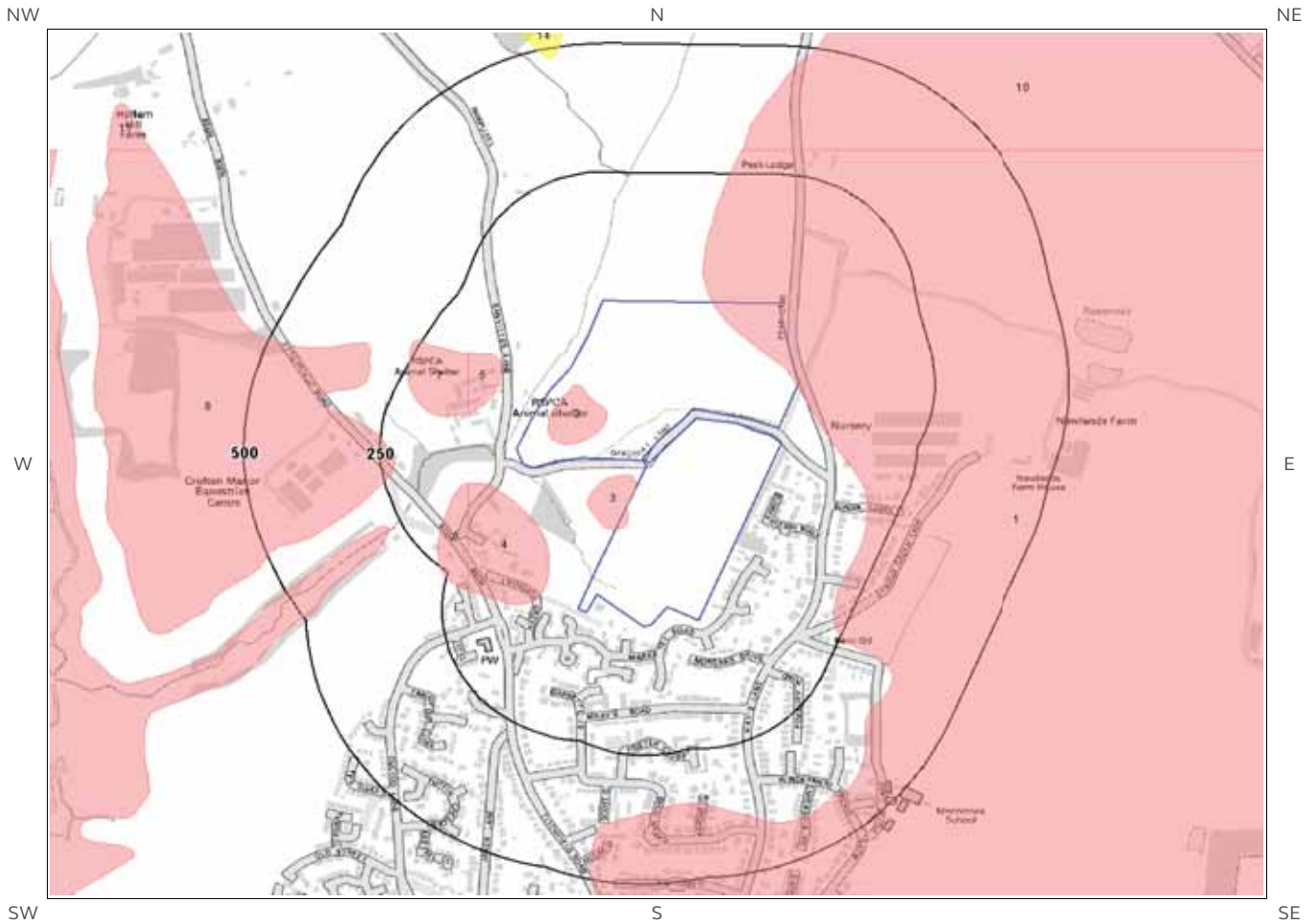
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
WHI-S	WHITECLIFF SAND MEMBER	SAND
WTT-XSZC	WITTERING FORMATION	SAND, SILT AND CLAY

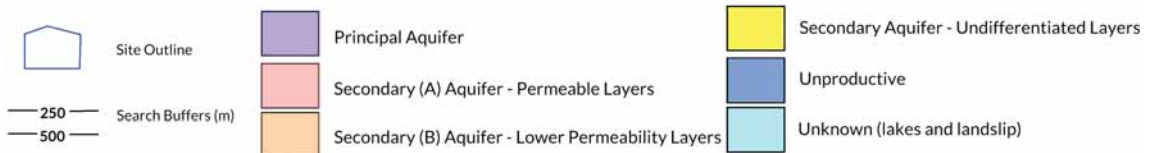
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



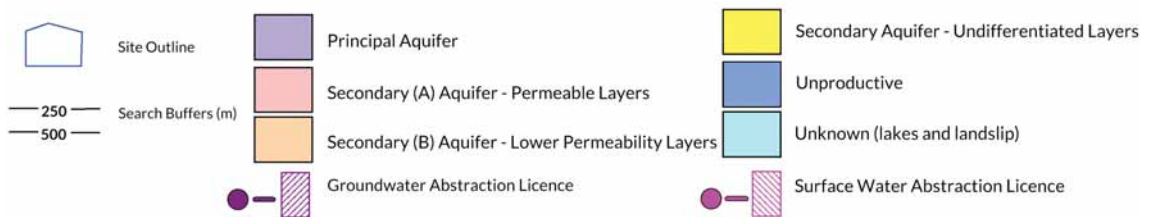
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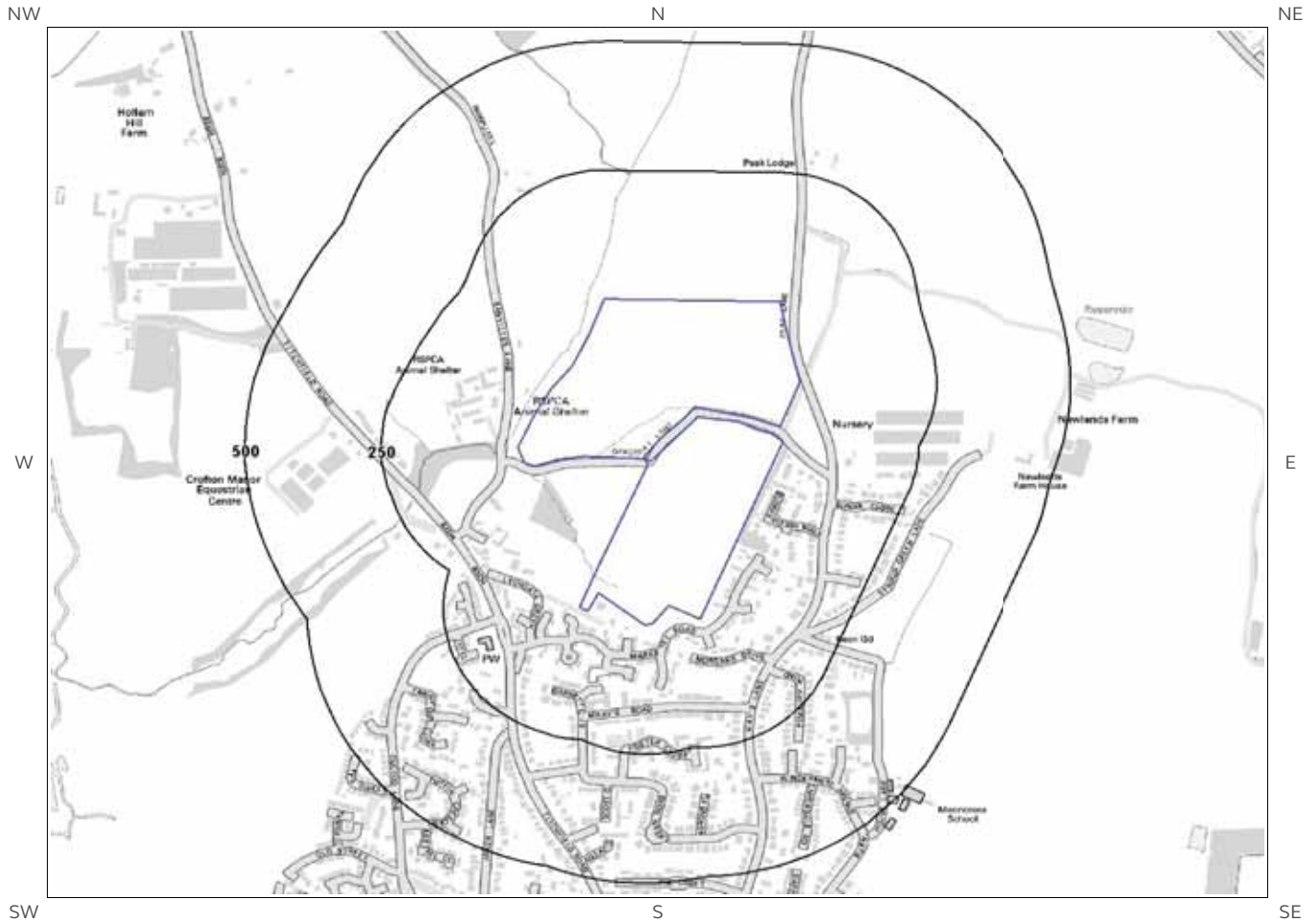
6b. Aquifer Within Bedrock Geology and Abstraction Licenses



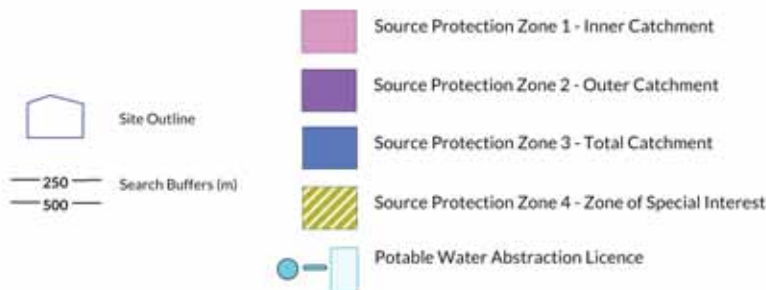
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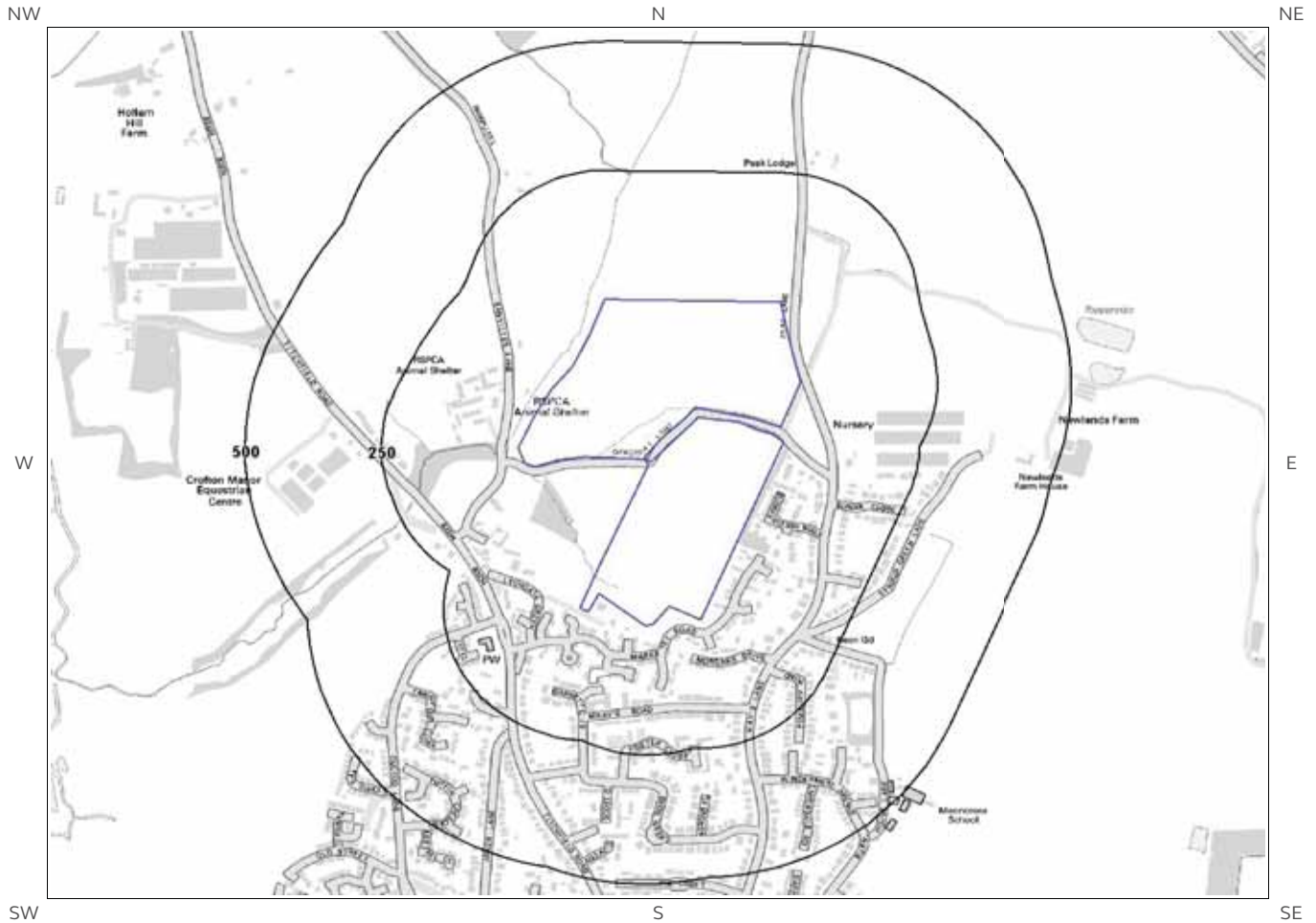
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



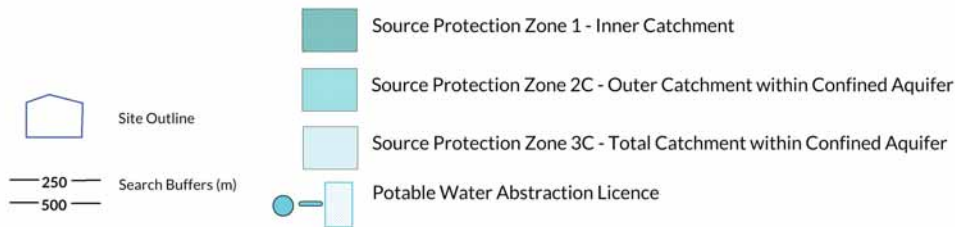
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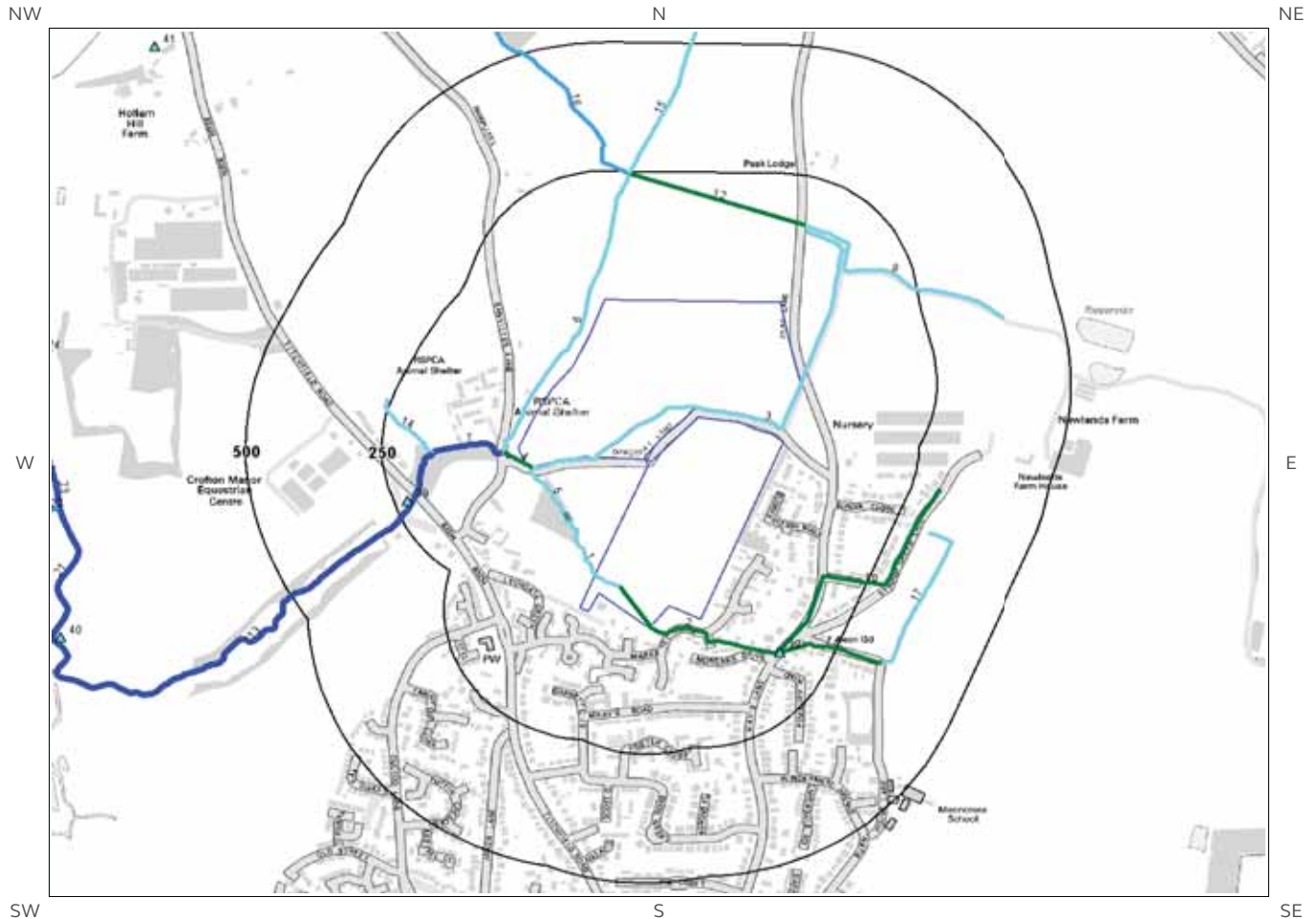
6d. Hydrogeology – Source Protection Zones within confined aquifer



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6e. Hydrology – Detailed River Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property?
Yes

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
3	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	67	SW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	83	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
6	107	W	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
7	110	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
8	224	W	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
9	275	SW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
10	296	N	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
14	482	N	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	88	W	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
9	191	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
10A	205	N	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
3A	244	N	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	246	NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	292	N	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
11	292	N	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
6	293	N	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
12	294	N	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
7	295	N	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
13	362	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
8	383	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

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1792	W	453320 104130	Status: Historical Licence No: 11/42/28.7/40 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: Meon Bye Farm Data Type: Point Name: Steve Harris Ltd	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: WR.4189 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/12/1965 Version End Date:

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

Yes

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

ID	Distance (m)	Direction	NGR	Details	
17	442	E	456040 104640	Status: Active Licence No: 11/42/30/9CA Details: Spray Irrigation - Storage Direct Source: Southern Region Surface Waters Point: Pond At Newlands Farm, Stubbington Data Type: Point Name: Basil Baird (Fareham) Ltd	Annual Volume (m ³): 31822 Max Daily Volume (m ³): 4091.4 Application No: 169/0623CA Original Start Date: 4/2/1985 Expiry Date: - Issue No: 100 Version Start Date: 11/6/2009 Version End Date:
Not shown	941	W	454190 104700	Status: Active Licence No: 29/056 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: North Fareham Farm - Point J Data Type: Point Name: Barfoot	Annual Volume (m ³): 52272.7 Max Daily Volume (m ³): 681.9 Application No: NPS/WR/020999 Original Start Date: 25/1/1999 Expiry Date: - Issue No: 102 Version Start Date: 4/12/2015 Version End Date:
Not shown	1054	NW	454150 104900	Status: Historical Licence No: 29/057 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Little Abshot Farm - Point I Data Type: Point Name: Parrett	Annual Volume (m ³): - Max Daily Volume (m ³): - Application No: 169/1662 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 25/1/1999 Version End Date:
Not shown	1054	NW	454150 104900	Status: Active Licence No: 29/056 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: North Fareham Farm - Point I Data Type: Point Name: Barfoot	Annual Volume (m ³): 52272.7 Max Daily Volume (m ³): 681.9 Application No: NPS/WR/020999 Original Start Date: 25/1/1999 Expiry Date: - Issue No: 102 Version Start Date: 4/12/2015 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1054	NW	454150 104900	Status: Active Licence No: 29/057 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Little Abshot Farm - Point I Data Type: Point Name: Parrett	Annual Volume (m ³): 29545.5 Max Daily Volume (m ³): 454.5 Application No: NPS/WR/020898 Original Start Date: 25/1/1999 Expiry Date: - Issue No: 101 Version Start Date: 17/11/2015 Version End Date:
Not shown	1070	NW	454230 105080	Status: Historical Licence No: 11/42/28.5/32 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Hollom Hill Farm Data Type: Point Name: Small Esq	Annual Volume (m ³): 1818.4 Max Daily Volume (m ³): 218.21 Application No: WR.4180 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 11/6/2009 Version End Date:
23B	1094	NW	454240 105140	Status: Historical Licence No: 11/42/28.5/30 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Hollom Nurseries Data Type: Point Name: Phillip Parrett & Co	Annual Volume (m ³): 45460 Max Daily Volume (m ³): 909.2 Application No: WR.4178 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 11/6/2009 Version End Date:
24B	1094	NW	454243 105145	Status: Active Licence No: 11/42/28.5/30 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Hollom Nurseries Data Type: Point Name: Phillip Parrett & Co	Annual Volume (m ³): 22500 Max Daily Volume (m ³): 450 Application No: NPS/WR/020894 Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: 17/11/2015 Version End Date:
Not shown	1159	W	453930 104400	Status: Active Licence No: 11/42/28.5/31 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Posbrooke Nursery Data Type: Point Name: Mrs Joan Angelides	Annual Volume (m ³): 7273.6 Max Daily Volume (m ³): 136.38 Application No: NPS/WR/020885 Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: 10/11/2015 Version End Date:
Not shown	1223	W	453940 104840	Status: Active Licence No: 29/057 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Little Abshot Farm - Point D Data Type: Point Name: Parrett	Annual Volume (m ³): 29545.5 Max Daily Volume (m ³): 454.5 Application No: NPS/WR/020898 Original Start Date: 25/1/1999 Expiry Date: - Issue No: 101 Version Start Date: 17/11/2015 Version End Date:
Not shown	1223	W	453940 104840	Status: Historical Licence No: 29/057 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Little Abshot Farm - Point D Data Type: Point Name: Parrett	Annual Volume (m ³): - Max Daily Volume (m ³): - Application No: 169/1662 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 25/1/1999 Version End Date:
Not shown	1313	W	453870 103930	Status: Active Licence No: 11/42/28.7/39 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Meon Bye & Lower Posbrooke Farms (point A) Data Type: Point Name: Steve Harris Ltd	Annual Volume (m ³): 22730 Max Daily Volume (m ³): 1136.5 Application No: NPS/WR/020895 Original Start Date: 23/12/1965 Expiry Date: - Issue No: 101 Version Start Date: 17/11/2015 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1659	NW	454330 106090	Status: Historical Licence No: 11/42/28.5/47 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Conifer Rise Nursery At Catisfield Data Type: Point Name: Chase	Annual Volume (m ³): - Max Daily Volume (m ³): - Application No: WR.4184 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 11/5/1970 Version End Date:
Not shown	1702	SW	453660 103390	Status: Active Licence No: 11/42/28.7/39 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Meon Bye & Lower Posbrooke Farms (point B) Data Type: Point Name: Steve Harris Ltd	Annual Volume (m ³): 22730 Max Daily Volume (m ³): 1136.5 Application No: NPS/WR/020895 Original Start Date: 23/12/1965 Expiry Date: - Issue No: 101 Version Start Date: 17/11/2015 Version End Date:

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site? No

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
0	On Site	Minor Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
131	SW	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
409	W	Minor Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.

6.9 River Quality

Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site? Yes

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
38	161	SE	455570 104020	River Name: Crofton Stream Reach: R. Meon Conf - 1.15 Km U/s Conf End/Start of Stretch: Start of Stretch NGR	C	B	B	B	C
39	228	W	454886 104314	River Name: Crofton Stream Reach: R. Meon Conf - 1.15 Km U/s Conf End/Start of Stretch: Sample Point NGR	C	B	B	B	C
40	916	W	454250 104050	River Name: Crofton Stream Reach: R. Meon Conf - 1.15 Km U/s Conf End/Start of Stretch: End of Stretch NGR	C	B	B	B	C
41	959	NW	454422 105196	River Name: R. Meon Reach: Mouth - Wickham End/Start of Stretch: Sample Point NGR	A	B	B	A	A
Not shown	1054	E	456650 104700	River Name: Hoeford Lake Stream Reach: Tidal Limit - Source End/Start of Stretch: Start of Stretch NGR	C	C	B	A	A

6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details	
1	0	On Site	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
2	0	On Site	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
3	0	On Site	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
4	0	SW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
5	3	S	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details	
6	19	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
7	28	W	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
8	81	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
9	132	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
10	155	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
11	155	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
12	156	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
13	157	W	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
14	157	W	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
15	244	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
16	244	N	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
17	314	SE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined

6.11 Surface Water Features

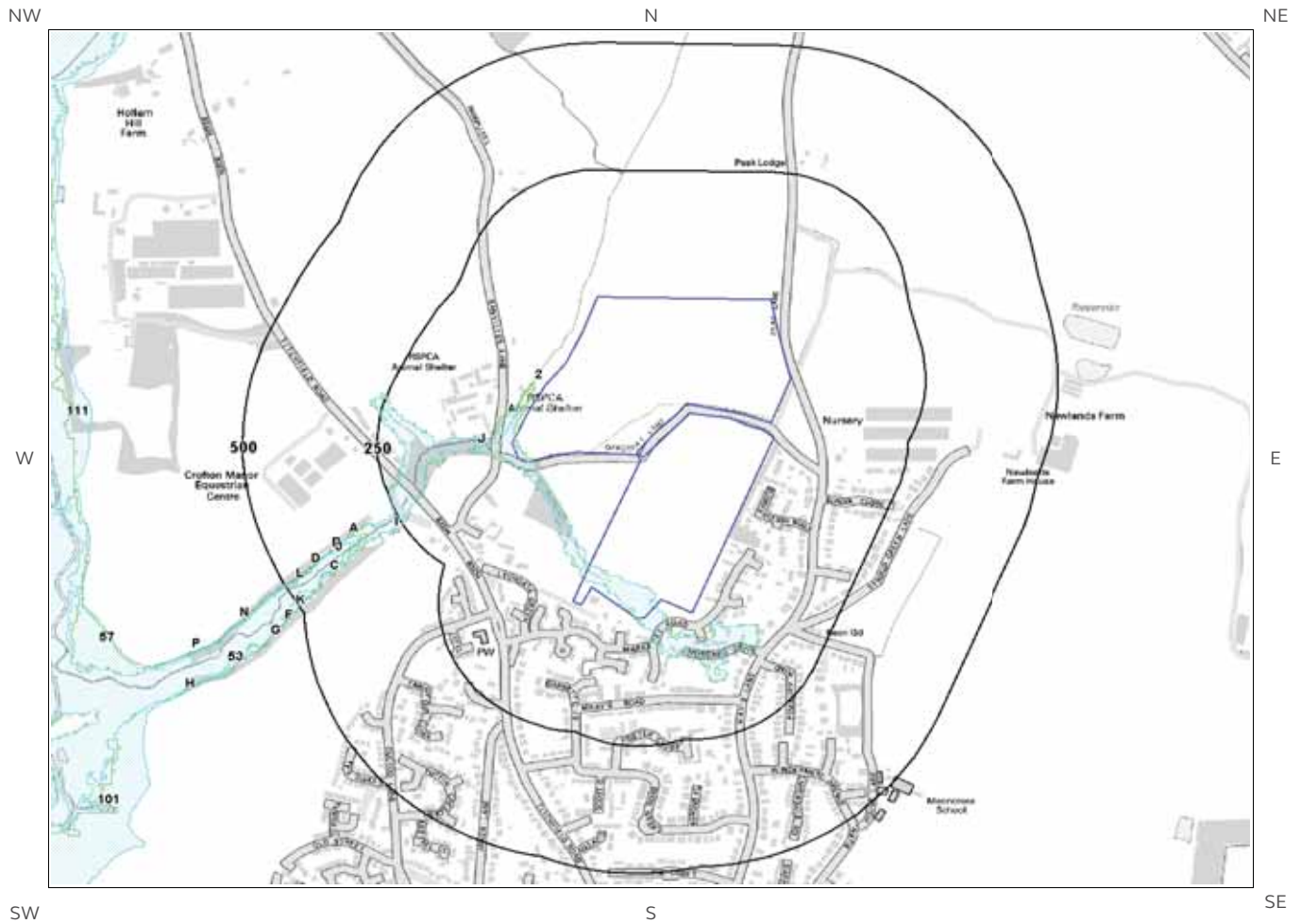
Are there any surface water features within 250m of the study site?

Yes

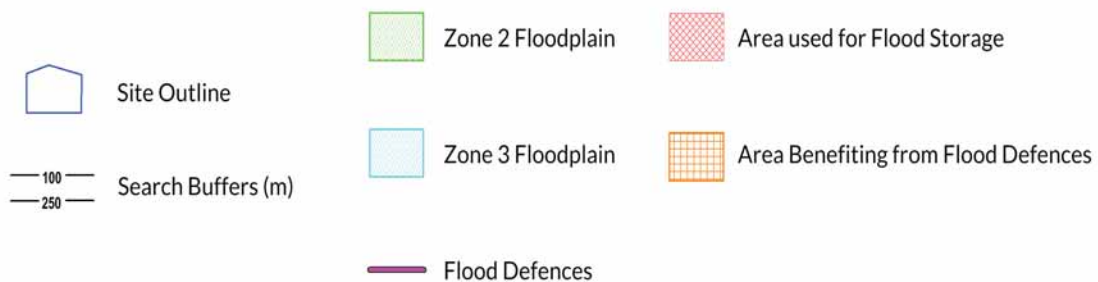
The following surface water records are not represented on mapping:

Distance (m)	Direction
0	On Site
0	On Site
2	S
2	SE
11	S
19	E
19	NW
36	S
44	N
58	NW
81	NW
125	NE
133	NE
145	N
158	W
245	N

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



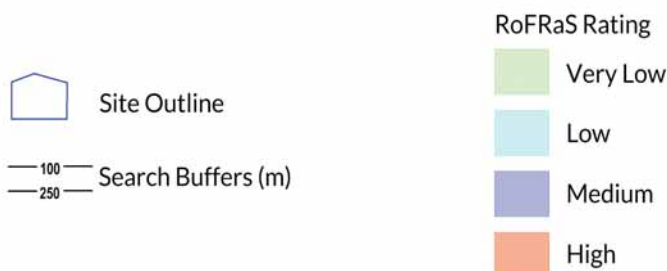
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? Yes

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

ID	Distance (m)	Direction	Update	Type
11	0	On Site	17-Aug-2017	Zone 2 - (Fluvial /Tidal Models)
2	18	NW	17-Aug-2017	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? Yes

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

ID	Distance (m)	Direction	Update	Type
11	0	On Site	22-Aug-2017	Zone 3 - (Fluvial Models)
2	64	W	22-Aug-2017	Zone 3 - (Fluvial Models)
	69	W	22-Aug-2017	Zone 3 - (Fluvial Models)

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

What is the highest risk of flooding onsite?

Medium

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

RoFRaS data for the study site indicates the property is in an area with a Medium (greater than 1 in 100 but less than 1 in 30) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRaS flood Risk
1	0.0	On Site	Medium
2	8.0	NW	Low
3	18.0	NW	Low
4	38.0	W	Low
5	43.0	S	Low

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site?

No

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site?

No

7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding?

Clearwater Flooding

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

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result?

Low

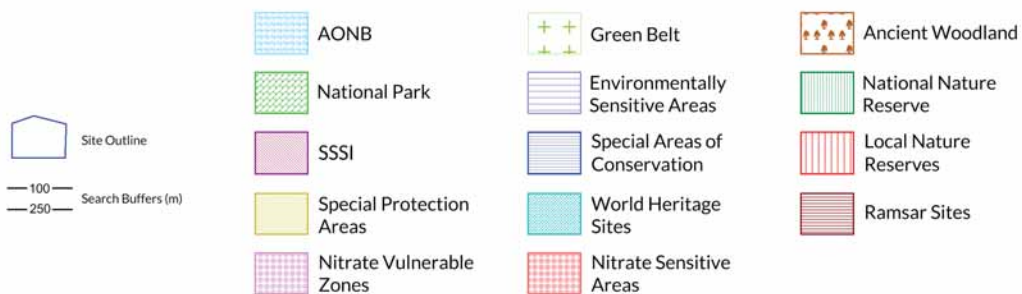
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

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

7

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

ID	Distance (m)	Direction	SSSI Name	Data Source
2	249	SW	Titchfield Haven	Natural England
3	803	W	Titchfield Haven	Natural England
4	907	W	Titchfield Haven	Natural England
5	930	SW	Titchfield Haven	Natural England
6	1237	W	Titchfield Haven	Natural England
7	1363	SW	Titchfield Haven	Natural England
Not shown	1966	SW	Titchfield Haven	Natural England

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

1

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

ID	Distance (m)	Direction	NNR Name	Data Source
10	813	W	Titchfield Haven	Natural England

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	SPA Name	Data Source
1A	249	SW	Solent & Southampton Water	Natural England

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

1

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

ID	Distance (m)	Direction	Ramsar Site Name	Ramsar Site Status	Data Source
9A	249	SW	Solent & Southampton Water	Listed	Natural England

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

2

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

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
13	507	N	UNKNOWN	Ancient and Semi-Natural Woodland
14	806	SE	UNKNOWN	Ancient and Semi-Natural Woodland

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

1

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

ID	Distance (m)	Direction	LNR Name	Data Source
11	968	SW	Titchfield Haven	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NVZ Name	Data Source
12	859	E	Existing	DEFRA

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

Database searched and no data found.

0

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? Moderate

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

Hazard
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Very Low

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

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

9.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Negligible

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

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

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

9.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? Negligible

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

Hazard

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

9.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? Low

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

Hazard

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

9.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site? Low

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

Hazard

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

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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

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

10. Mining

10.1 Coal Mining

Are there any coal mining areas within 75m of the study site? No

Database searched and no data found.

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary? No

Database searched and no data found.

10.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site? No
Guidance: No Guidance Required.

Contact Details

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Eversley, RG27 0RP

Report Reference: EMS-444398_595775

Your Reference: EMS_444398_595775

Report Date 12 Oct 2017

Report Delivery Method: Email - pdf

Geo Insight

Address: ,

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
Groundsure Geo Insight

Geo Insight

Address: ,
Date: 12 Oct 2017
Reference: EMS-444398_595775
Client: emapsite

NW N NE



SW S SE

Aerial Photograph Capture date: 04-Jun-2013
Grid Reference: 455373,104440
Site Size: 19.23ha

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Overview of Findings

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

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

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

Section 1: Geology 1:10,000 Scale

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

Section 2: Geology 1:50,000 Scale

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

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and Faults

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

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

Yes

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

No

Section 3: Radon

3. Radon

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

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	5	14	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	1	1	0	0

Section 5: Mining, Extraction & Natural Cavities

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

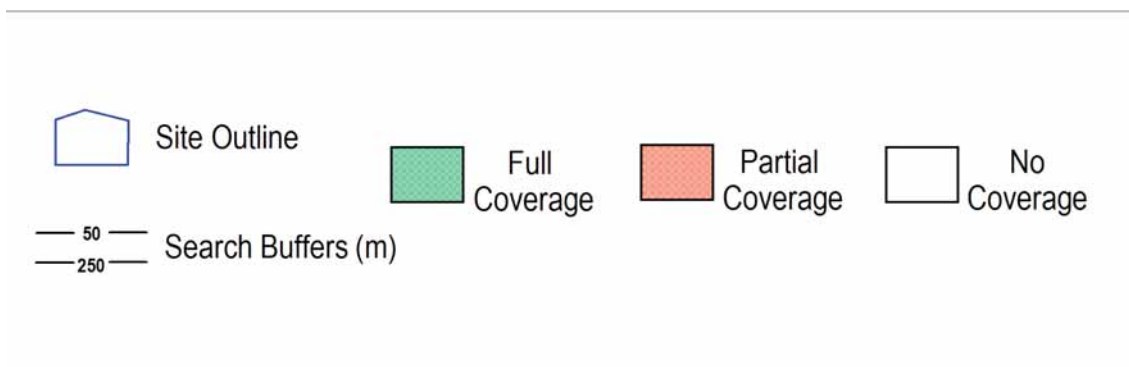
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence					
6.1 Shrink-Swell Clay	Moderate				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Low				
6.5 Running Sand	Low				
Section 7: Borehole Records					
7 BGS Recorded Boreholes	0	0	2		
Section 8: Estimated Background Soil Chemistry					
8 Records of Background Soil Chemistry	11	2	0		
Section 9: Railways and Tunnels					
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	88.0	Some deposits are mapped	Partial	Partial	No coverage
3	292.0	Some deposits are mapped	Full	Full	No coverage
4	383.0	Some deposits are mapped	Full	Full	No coverage

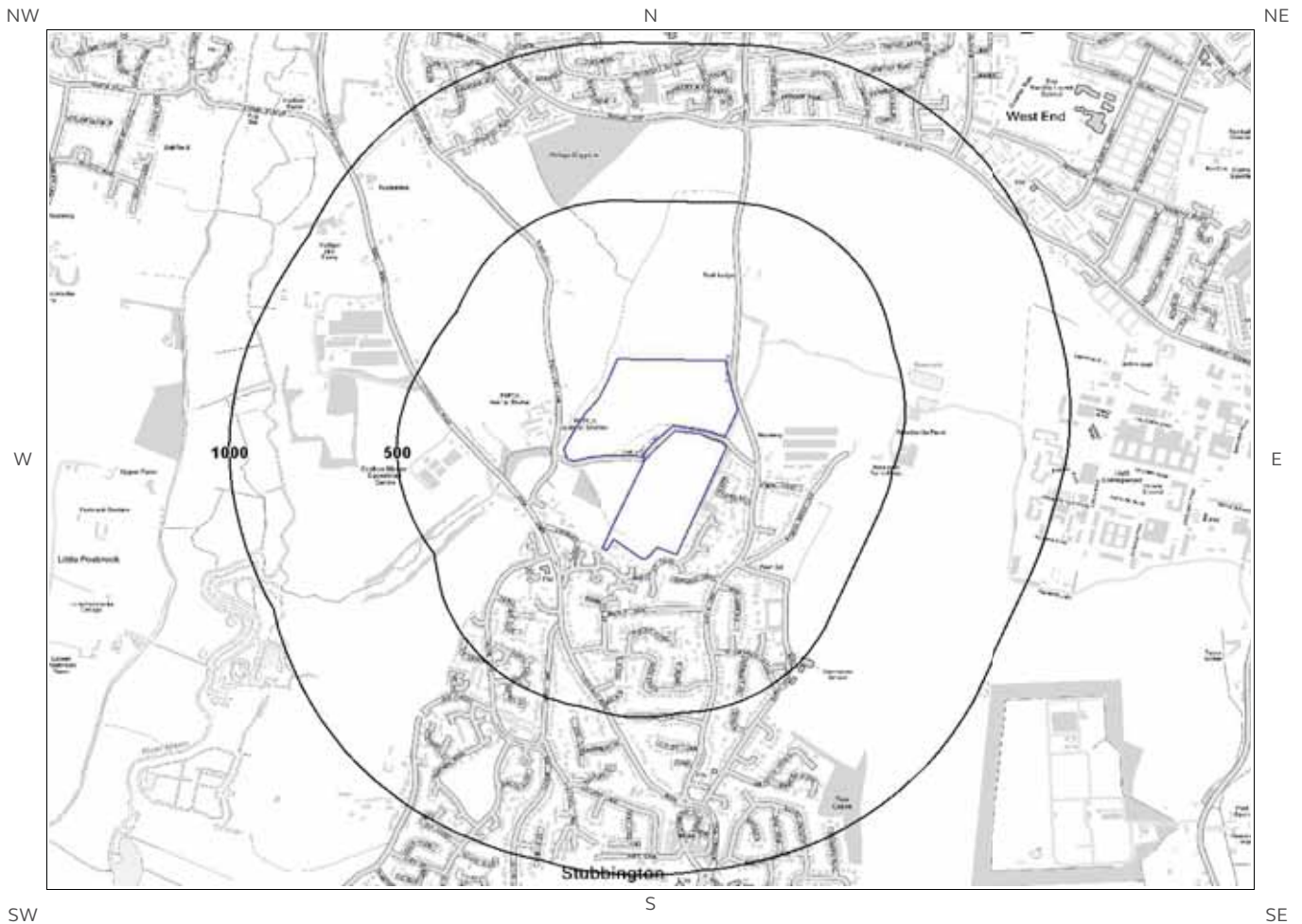
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

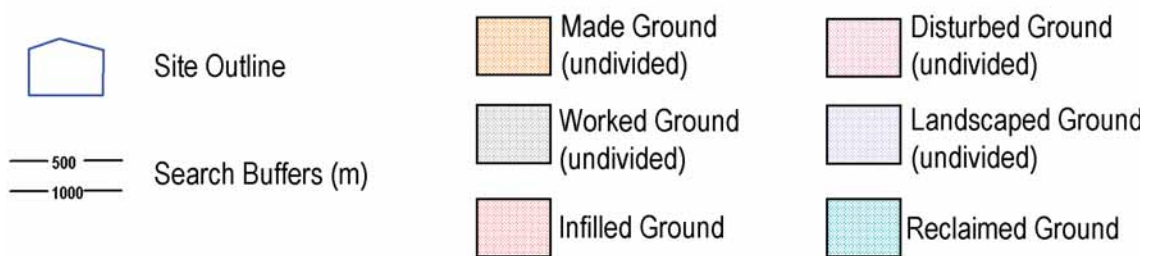
1 Geology (1:10,000 scale).

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



Artificial Ground Legend

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1. Geology 1:10,000 scale

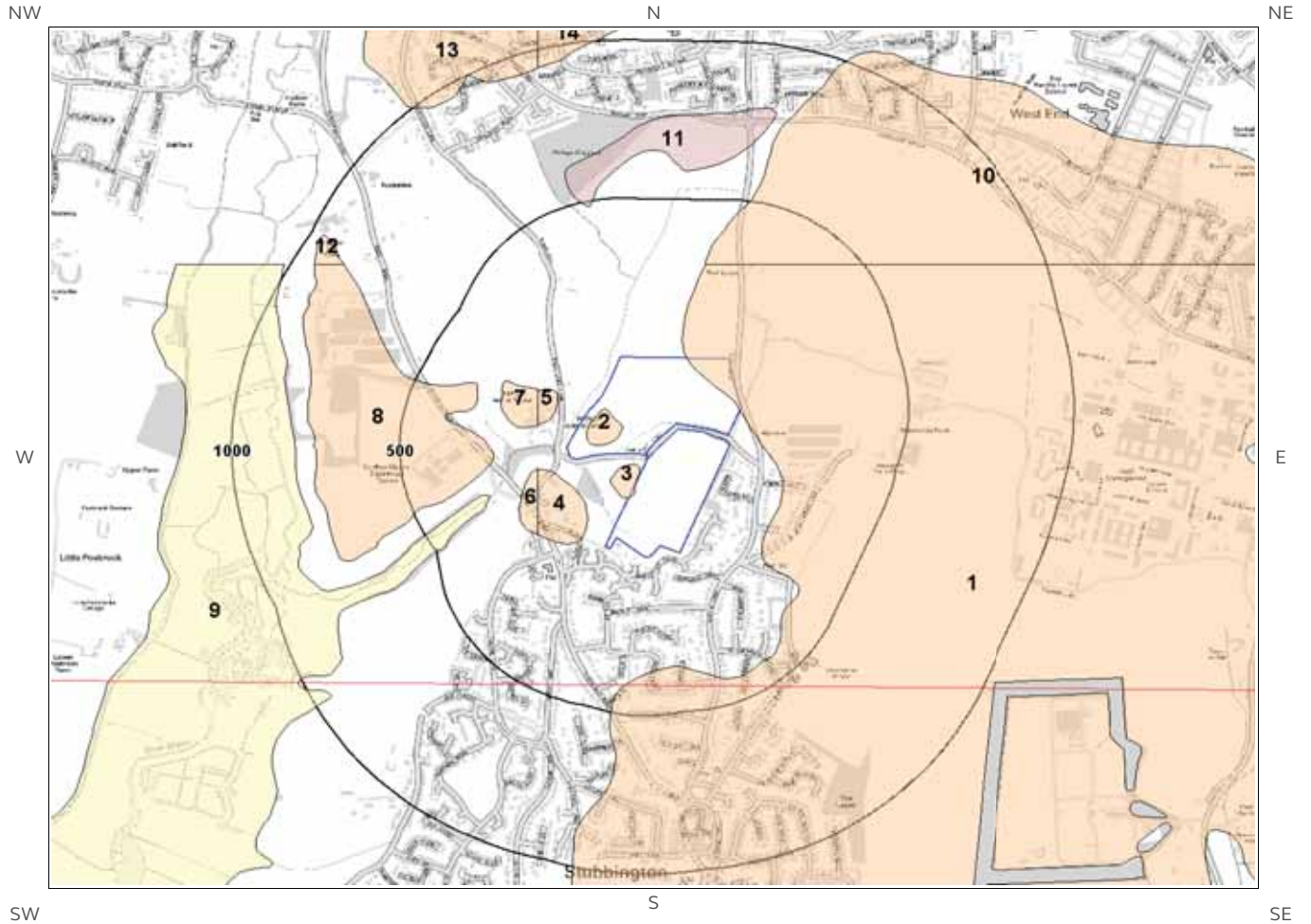
1.1 Artificial Ground

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

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

Database searched and no data found.

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



Artificial Ground Legend

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-  Site Outline
-  500
-  1000
- Search Buffers (m)

1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	RTDU-XSZC	River Terrace Deposits (undifferentiated) - Sand, Silt And Clay	Sand, Silt And Clay
2	0.0	On Site	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
3	0.0	On Site	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
4	70.0	SW	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
5	84.0	NW	RTD2-XSV	River Terrace Deposits, 2 - Sand And Gravel	Sand And Gravel
6	106.0	W	RTD2-XVSZ	River Terrace Deposits, 2 - Gravel, Sand And Silt	Gravel, Sand And Silt
7	111.0	NW	RTD2-XVSZ	River Terrace Deposits, 2 - Gravel, Sand And Silt	Gravel, Sand And Silt
8	221.0	W	RTD2-XVSZ	River Terrace Deposits, 2 - Gravel, Sand And Silt	Gravel, Sand And Silt
9	273.0	SW	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
10	296.0	N	RTDU-XSZC	River Terrace Deposits (undifferentiated) - Sand, Silt And Clay	Sand, Silt And Clay
11	484.0	N	HEAD-XCZSV	Head - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

No

Database searched and no data found.

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




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

1.3 Bedrock and Faults Map (1:10,000 scale)



Bedrock and Faults Legend

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-  Site Outline
 -  500
 -  1000
- Search Buffers (m)

1.3 Bedrock and Faults

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	WHI-SANDU	Whitecliff Sand Member - Sand	Palaeogene Period
2	0.0	On Site	WTT-SSCL	Wittering Formation - Sand, Silt And Clay	Lutetian Age - Ypresian Age
3	88.0	W	WTT-CLSISA	Wittering Formation - Clay, Silt And Sand	Lutetian Age - Ypresian Age
4	190.0	NE	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch
5A	205.0	N	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch
6	245.0	NE	PORT-SANDU	Portsmouth Sand Member - Sand	Palaeogene Period
7A	245.0	N	PORT-SANDU	Portsmouth Sand Member - Sand	Palaeogene Period
8	292.0	N	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch
9	293.0	N	WHI-SANDU	Whitecliff Sand Member - Sand	Palaeogene Period
10	293.0	N	PORT-SANDU	Portsmouth Sand Member - Sand	Palaeogene Period
11B	294.0	N	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch
12B	295.0	N	WHI-SANDU	Whitecliff Sand Member - Sand	Palaeogene Period
13	361.0	NE	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch
14	374.0	NW	WTT-CLAY	Wittering Formation - Clay	Lutetian Age - Ypresian Age
15	383.0	NW	WTT-CLSISA	Wittering Formation - Clay, Silt And Sand	Lutetian Age - Ypresian Age
16	496.0	NW	WHI-SANDU	Whitecliff Sand Member - Sand	Palaeogene Period

1.3.2 Faults

Are there any records of Faults within 500m of the study site boundary at 1:10,000 scale?

No

Database searched and no data found at this scale.

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

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

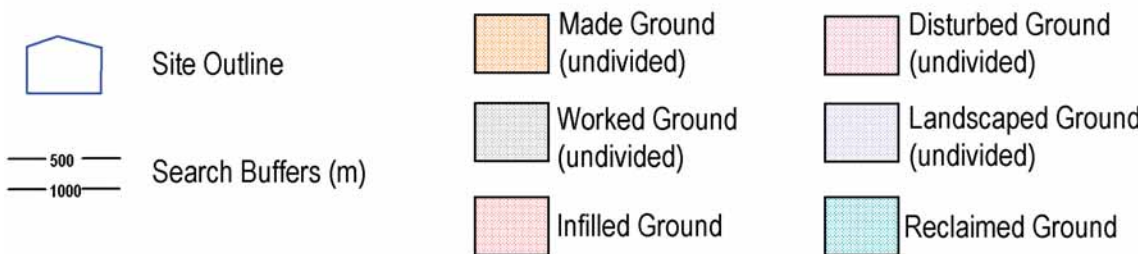
2 Geology 1:50,000 Scale

2.1 Artificial Ground Map



Ground Workings Legend

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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 316

2.1.1 Artificial/ Made Ground

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

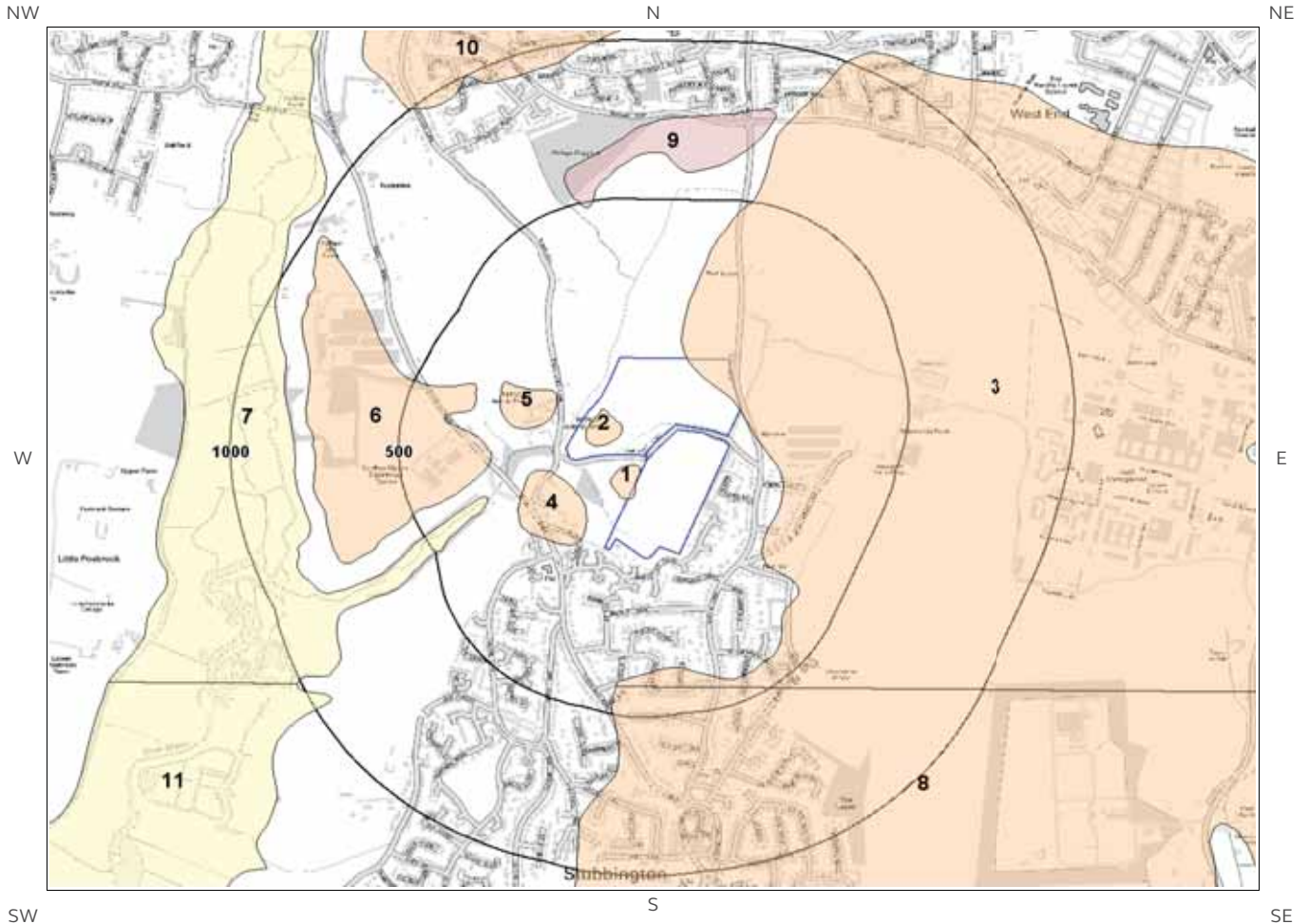
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

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



Ground Workings Legend

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-  Site Outline
-  500
-  1000
- Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	RTD2-XVSZ	RIVER TERRACE DEPOSITS, 2	GRAVEL, SAND AND SILT
2	0.0	On Site	RTD2-XVSZ	RIVER TERRACE DEPOSITS, 2	GRAVEL, SAND AND SILT
3	0.0	On Site	RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
4	67.0	SW	RTD2-XVSZ	RIVER TERRACE DEPOSITS, 2	GRAVEL, SAND AND SILT
5	83.0	NW	RTD2-XVSZ	RIVER TERRACE DEPOSITS, 2	GRAVEL, SAND AND SILT
6	224.0	W	RTD2-XVSZ	RIVER TERRACE DEPOSITS, 2	GRAVEL, SAND AND SILT
7	275.0	SW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
8	403.0	S	RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
9	482.0	N	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

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

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary?

No

Database searched and no data found.

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

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

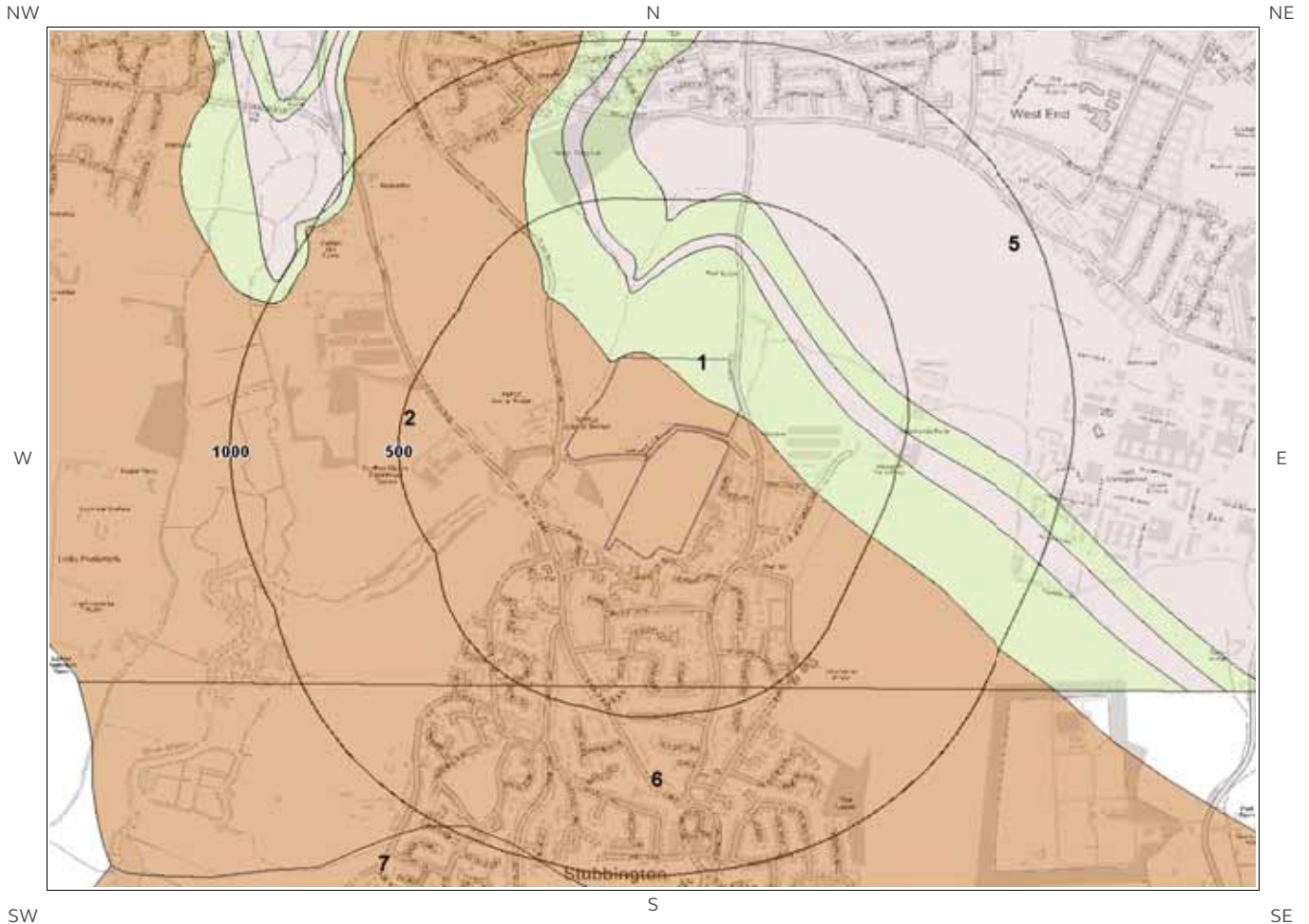
2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary?

No


Database searched and no data found.

2.3 Bedrock and Faults Map (1:50,000 scale)



Ground Workings Legend

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-  Site Outline
-  Search Buffers (m)

2.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 316

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	WHI-S	WHITECLIFF SAND MEMBER - SAND	-
2	0.0	On Site	WTT-XSZC	WITTERING FORMATION - SAND, SILT AND CLAY	YPRESIAN
3	191.0	NE	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN
4	244.0	N	PORT-S	PORTSMOUTH SAND MEMBER - SAND	-
5	328.0	NE	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN
6	403.0	S	WTT-XSZC	WITTERING FORMATION - SAND, SILT AND CLAY	YPRESIAN

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	Low
0.0	On Site	Intergranular	High	High

2.3.3 Faults

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

Database searched and no data found.

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

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

3 Radon Data

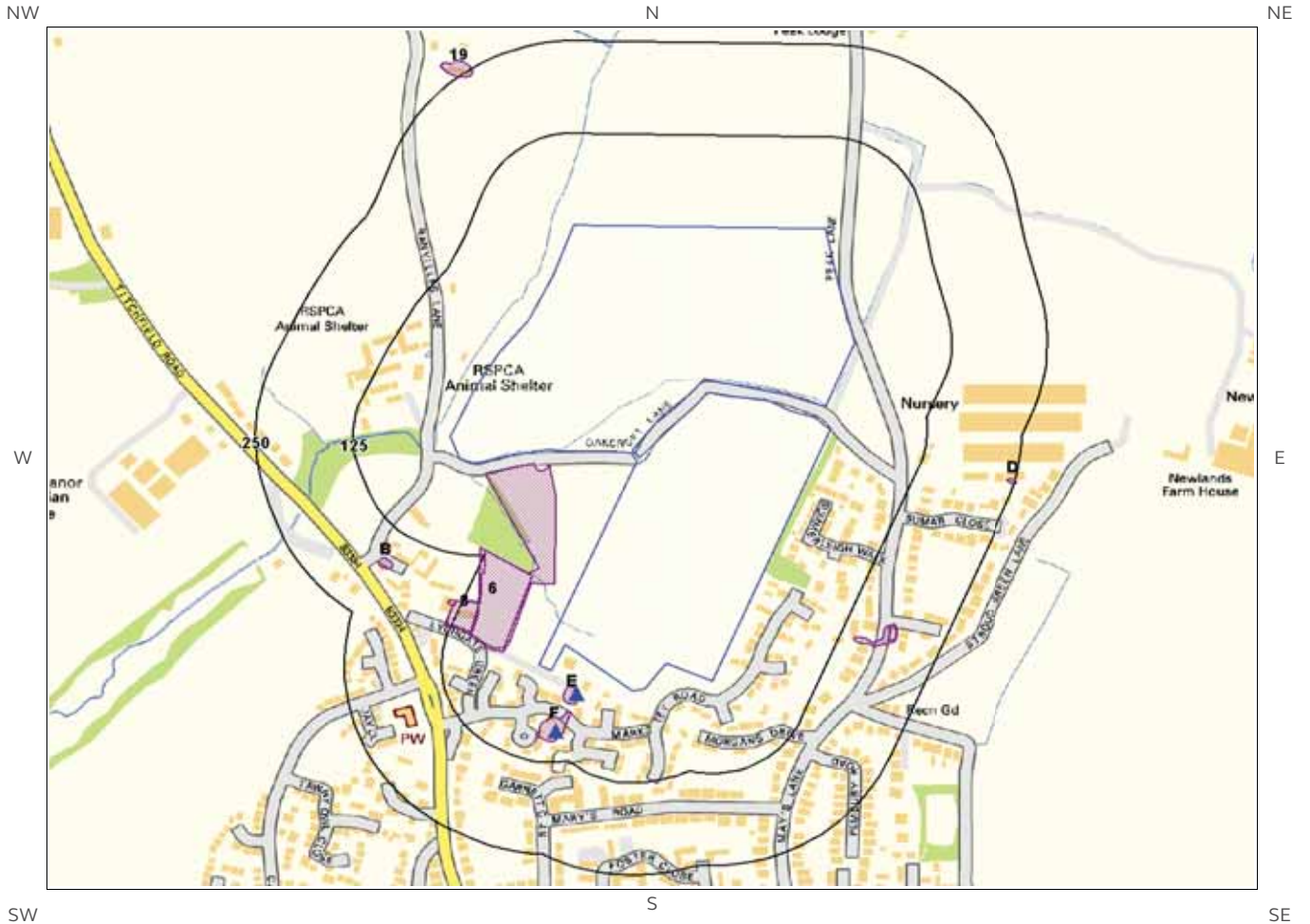
3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection



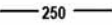



Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings Map



Ground Workings Legend

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-  Site Outline
-  125 Search Buffers (m)
-  250 Search Buffers (m)
-  Historic Surface Ground Workings
-  Historic Underground Workings
-  Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1A	16.0	S	455140 104255	Cemetery	1990
2A	16.0	S	455140 104255	Cemetery	1982
3A	16.0	S	455140 104255	Cemetery	1973
4A	16.0	S	455140 104255	Cemetery	1965
5E	31.0	SE	455244 104069	Old Sand Pits	1907
6	51.0	NW	455139 104199	Cemetery	1957
7F	60.0	S	455223 104026	Old Sand Pits	1907
8	97.0	NW	455103 104176	Grave Yard	1859
9C	143.0	SE	455653 104149	Ponds	1859
10B	165.0	SW	455006 104248	Pond	1907
11B	165.0	SW	455006 104248	Pond	1931
12B	165.0	SW	455006 104248	Pond	1942
13C	179.0	SE	455656 104154	Pond	1907
14C	179.0	SE	455656 104154	Pond	1942
15C	179.0	SE	455656 104154	Pond	1931
16D	240.0	E	455811 104359	Pond	1907
17D	240.0	E	455811 104359	Pond	1931
18D	240.0	E	455811 104359	Pond	1942
19	243.0	NW	455097 104920	Sand Pit	1931

4.2 Historical Underground Working Features derived from Historical Mapping

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

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

Database searched and no data found.

4.3 Current Ground Workings

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

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

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
20E	45.0	SE	455250 104071	Sand	Anchor Sand Pits	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
21F	83.0	S	455223 104020	Sand	Anchor Sand Pits	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

Database searched and no data found.

5.2 Coal Mining

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

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

Database searched and no data found.

5.3 Johnson Poole and Bloomer

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

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

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

5.4 Non-Coal Mining

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

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

Database searched and no data found.

5.5 Non-Coal Mining Cavities

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

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

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

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

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

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

Database searched and no data found.

5.8 Gypsum Extraction

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

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

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

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

Database searched and no data found.

5.10 Clay Mining

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

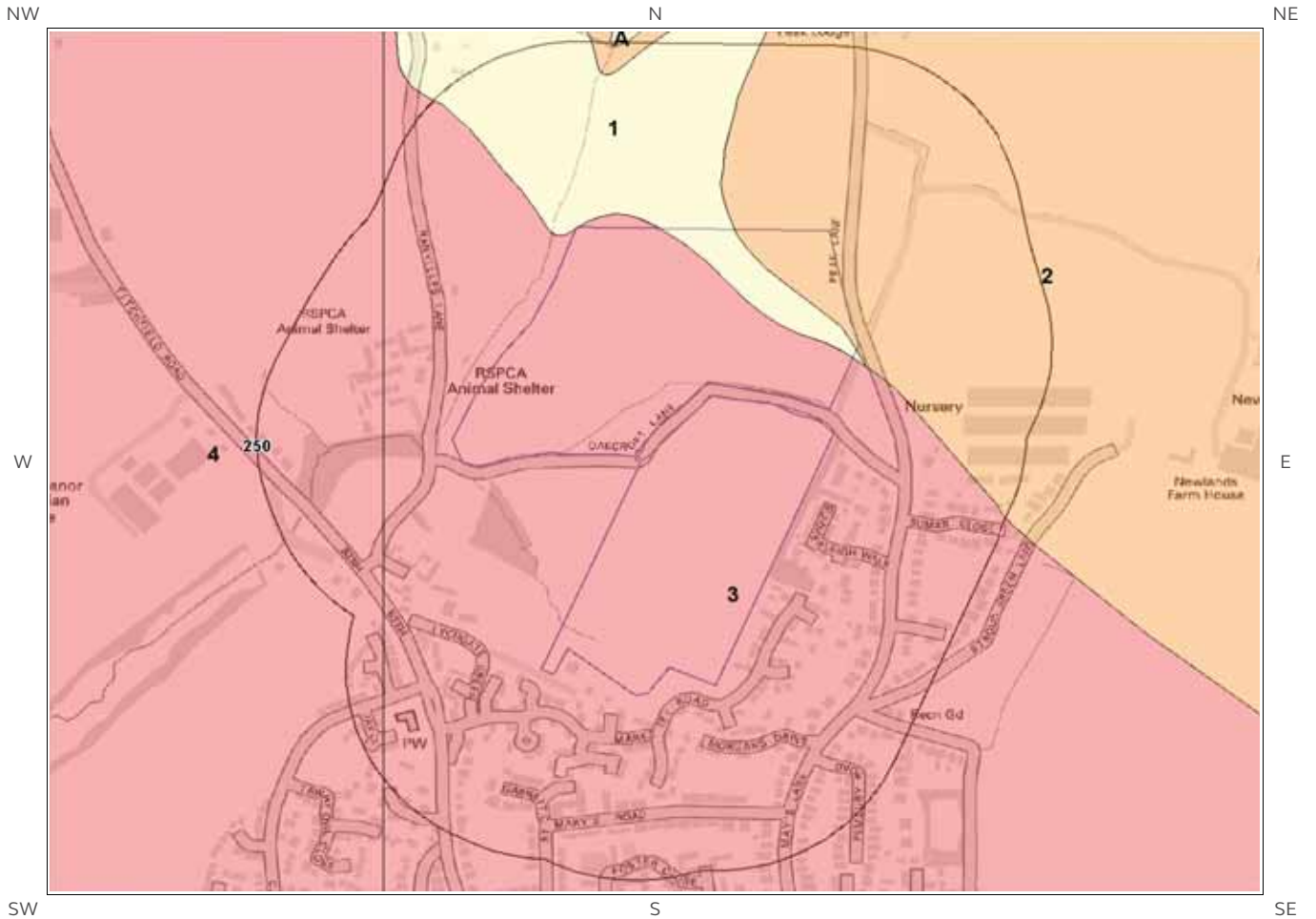
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

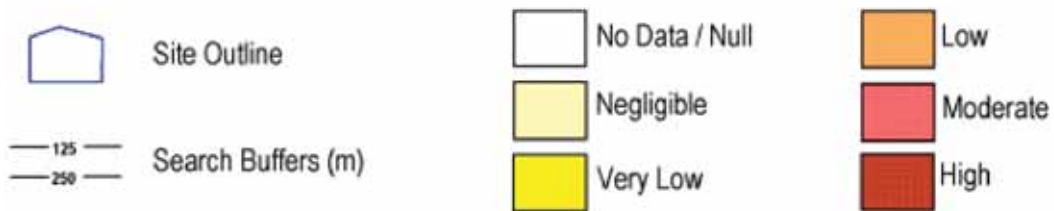
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay Map

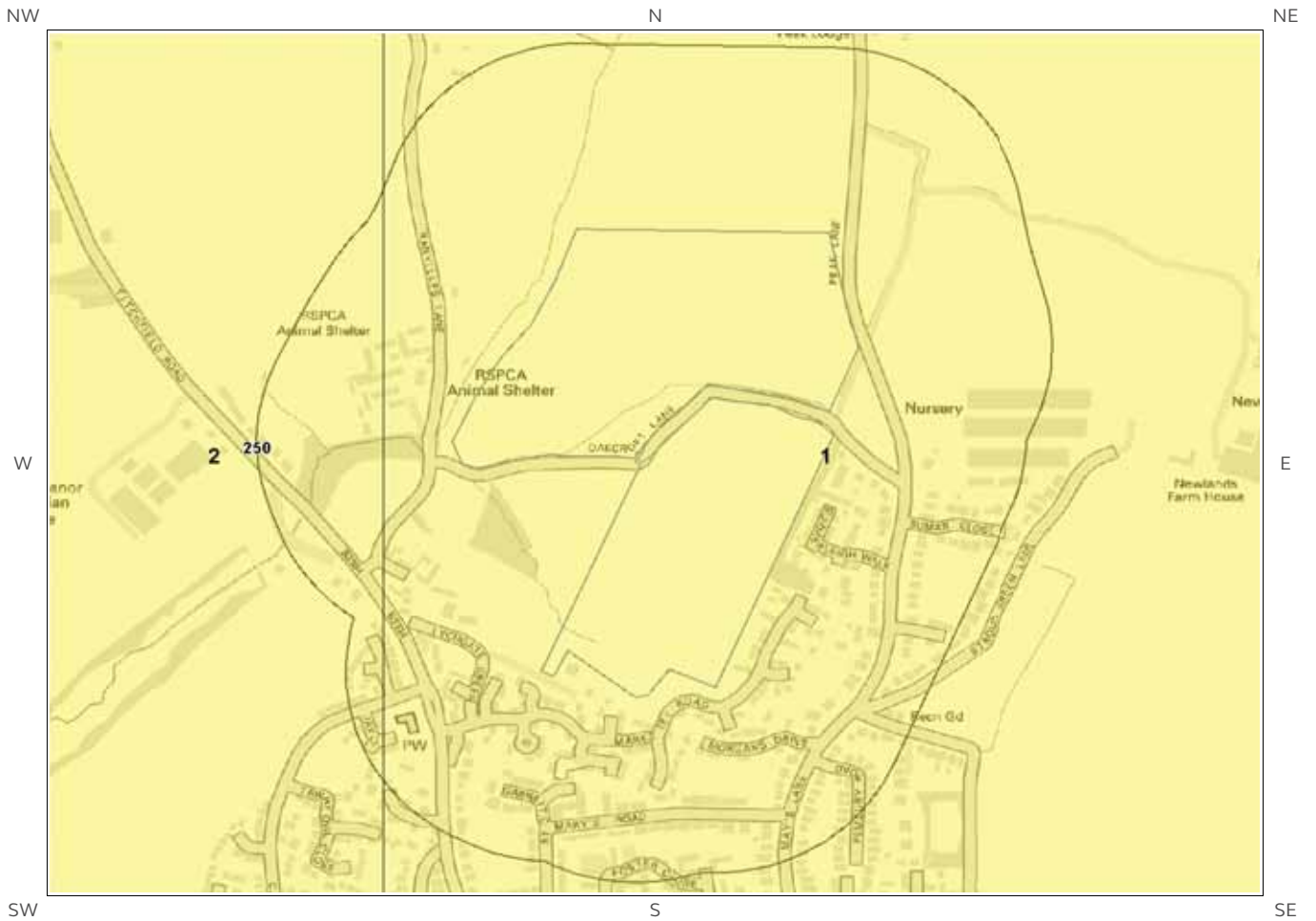


Shrink Swell Clay Legend

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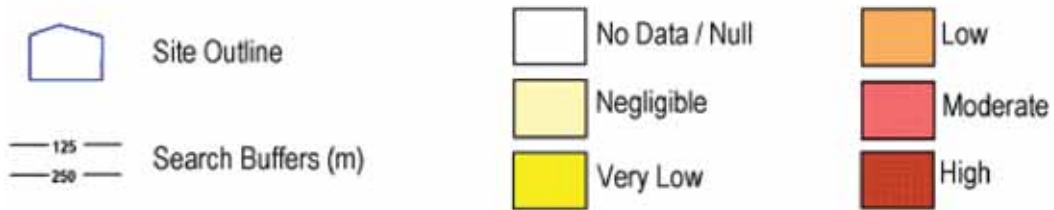


6.2 Landslides Map



Landslides Legend

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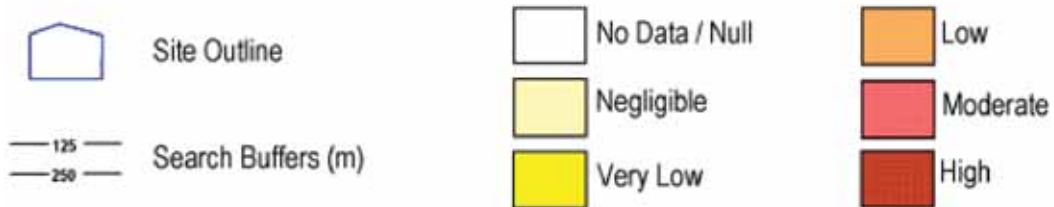


6.3 Ground Dissolution of Soluble Rocks Map

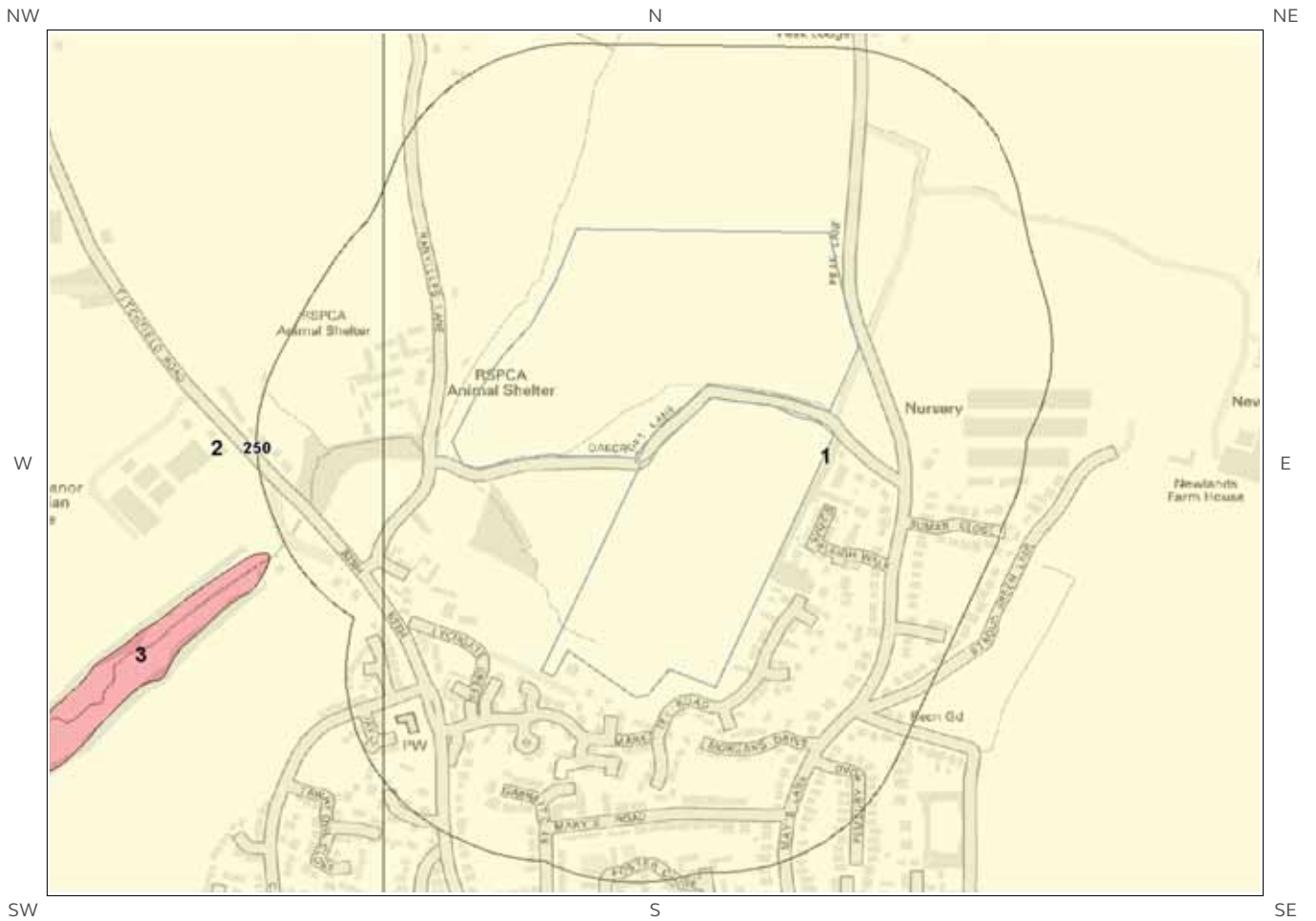


Ground Dissolution Soluble Rocks Legend

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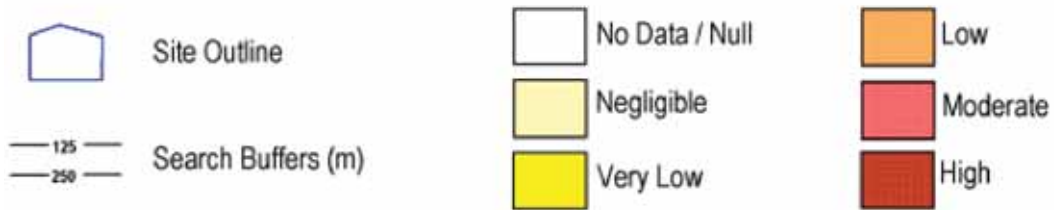


6.4 Compressible Deposits Map

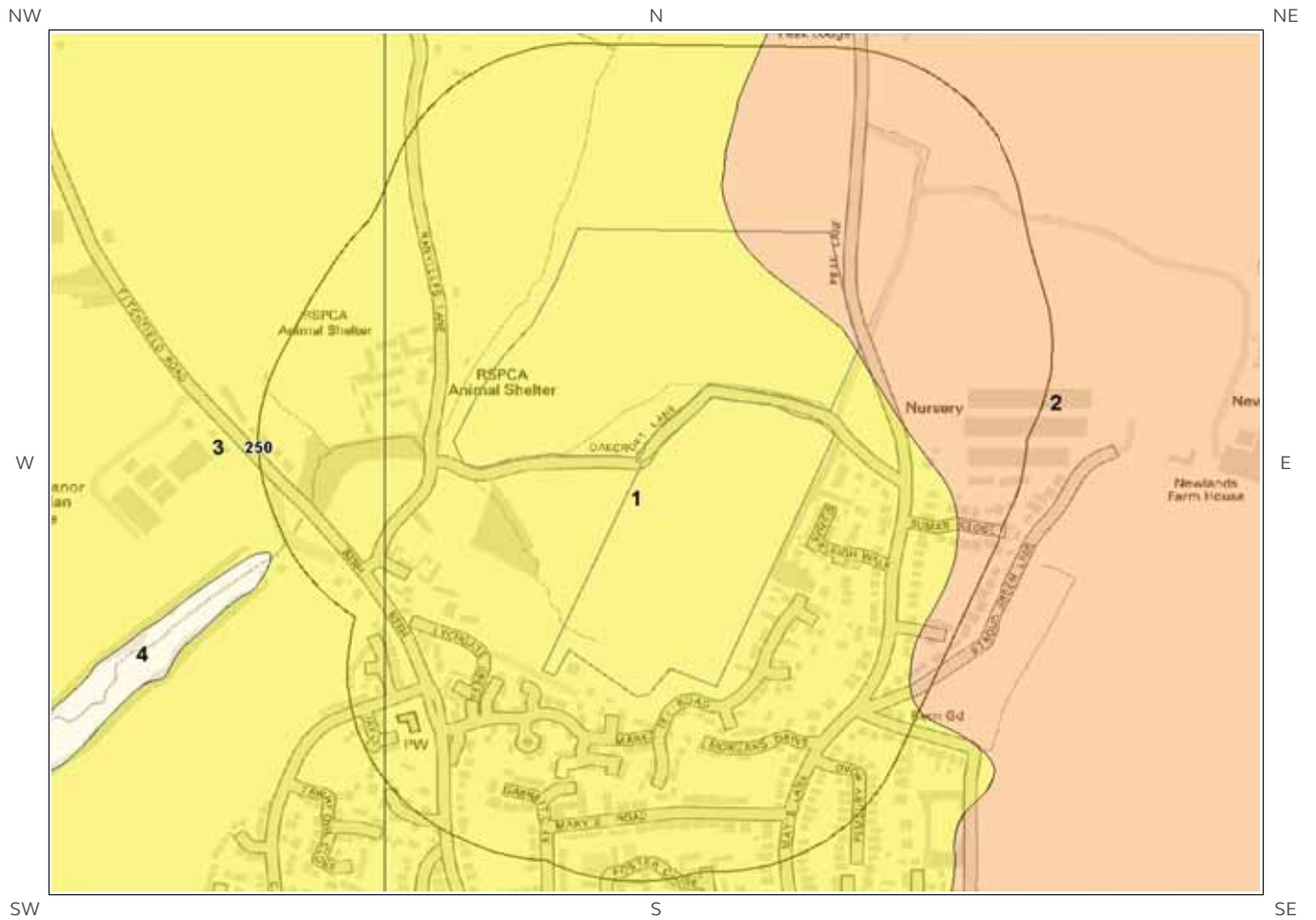


Compressible Deposits Legend

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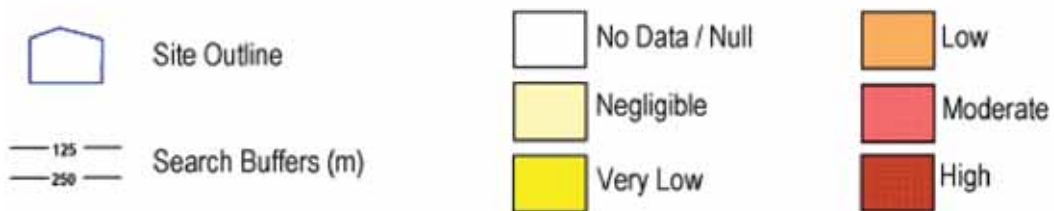


6.5 Collapsible Deposits Map

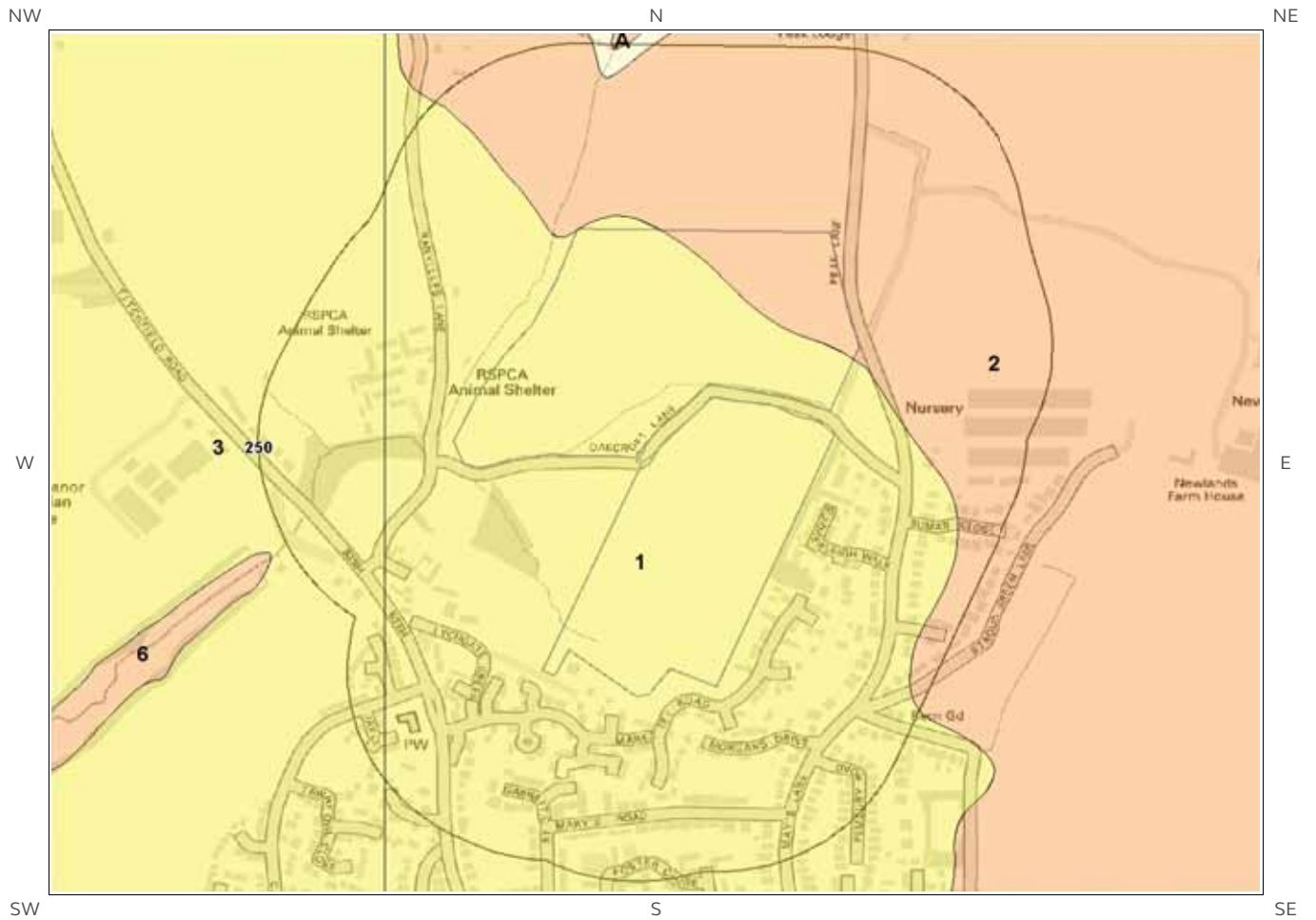


Collapsible Deposits Legend

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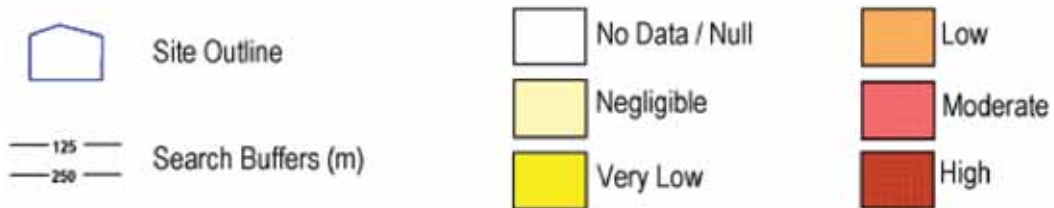


6.6 Running Sand Map



Running Sand Legend

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6 Natural Ground Subsidence

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

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

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

6.1 Shrink-Swell Clays

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
2	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.
3	0.0	On Site	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

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

The following Landslides information provided by the British Geological Survey:

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

6.3 Ground Dissolution of Soluble Rocks

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

6.4 Compressible Deposits

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

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

6.5 Collapsible Deposits

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

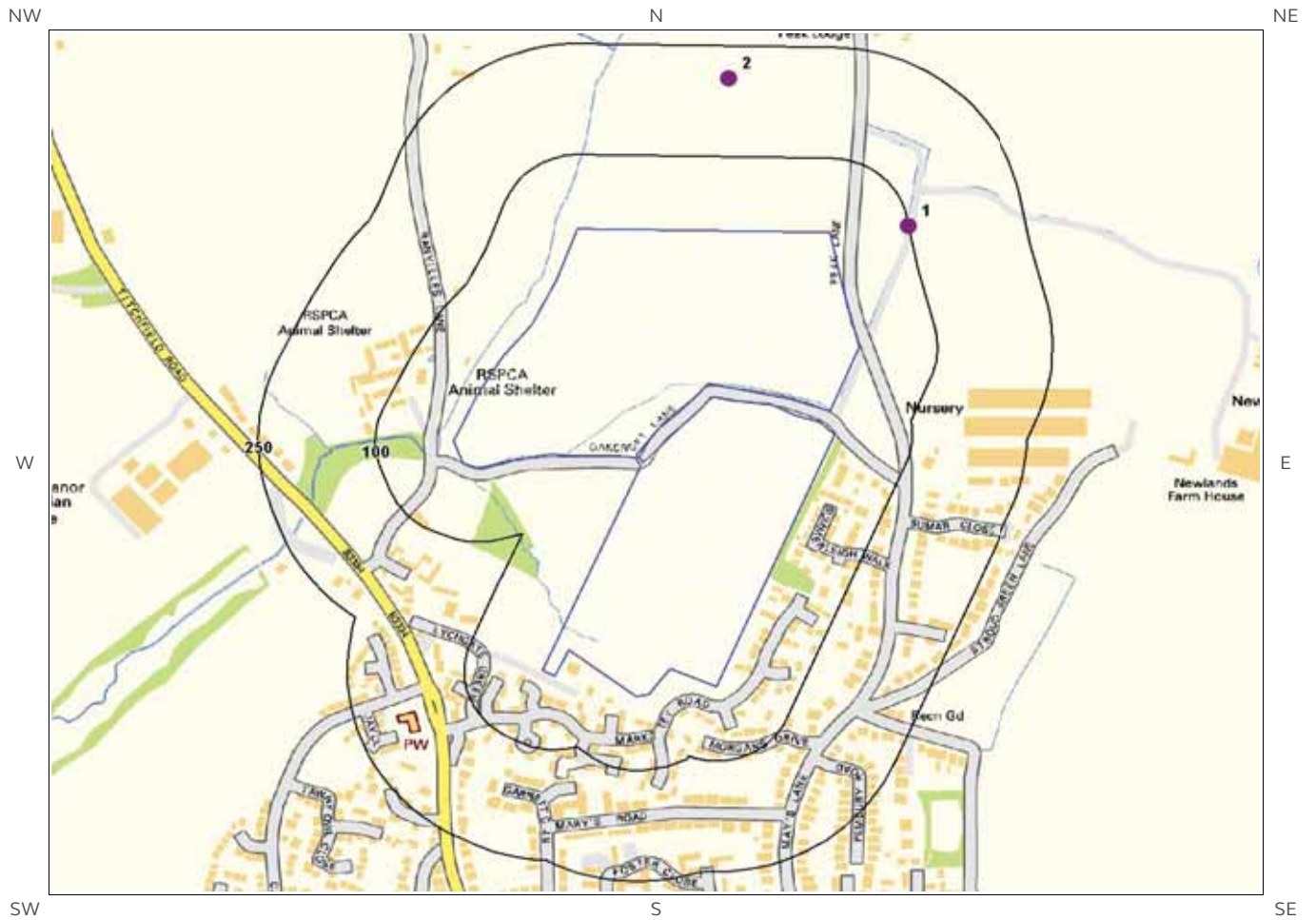
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	0.0	On Site	Low	Slight possibility for collapsible deposit problems after major changes in loading or groundwater conditions. Normal maintenance to avoid large amounts of water entering the ground through pipe leakage or soak-aways should reduce the likelihood of problems due to collapsible deposits. For new build, assess the possibility of collapsible (loessic) deposits in ground investigation. For existing property, no significant increase in insurance risk from collapsible deposits is likely.

6.6 Running Sands

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.

7 Borehole Records Map



Borehole Records Legend

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7 Borehole Records

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

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

2

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	99.0	E	455670 104710	SU50SE197	11.5	GOSPORT & FARMHAM 7
2	205.0	N	455440 104910	SU50SE198	10.0	GOSPORT & FARMHAM 9

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/416048

#2: scans.bgs.ac.uk/sobi_scans/boreholes/416049

8 Estimated Background Soil Chemistry

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

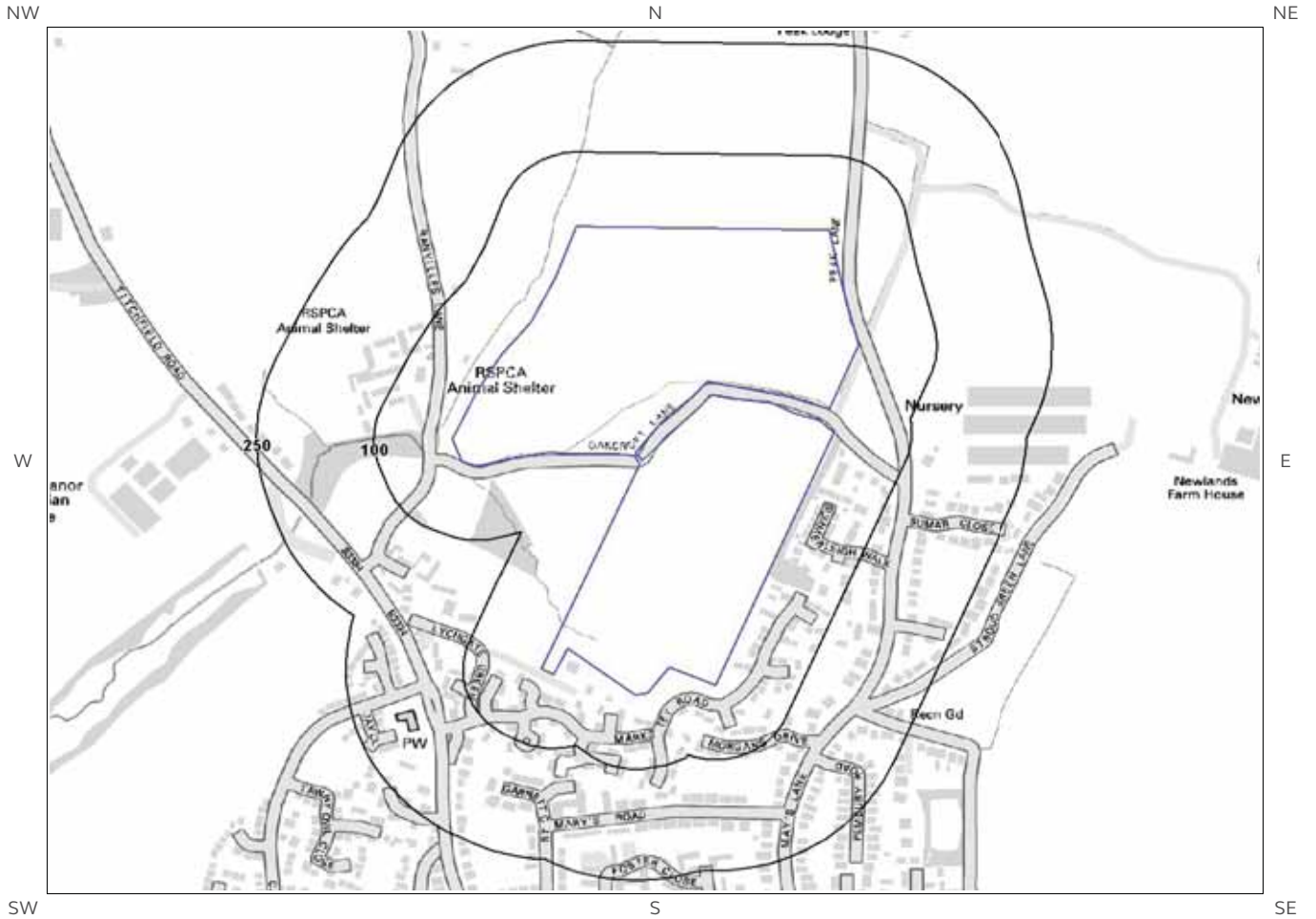
13

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

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

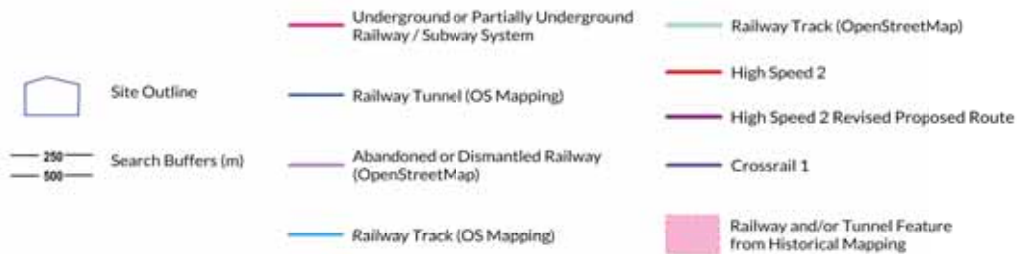
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels Map



Railways and Tunnels Legend

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9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

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

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

Database searched and no data found.

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

9.3 Historical Railways

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

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

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

Database searched and no data found.

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

9.4 Active Railways

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

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

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

Database searched and no data found.

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

9.5 Railway Projects

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

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

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

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

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

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

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BGS Geological Hazards Reports and general geological enquiries

British Gypsum

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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP01
Job No CRM.1033.030	Dates Start 16-10-17 Finish 16-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0	
					0.80		Firm orangish brown mottled grey very sandy CLAY.		
					1.50		Orangish brown and grey silty fine and medium SAND.	1	
					2.70		Firm orangish brown and grey very sandy CLAY.	2	
					3.00		Stiff fissured bluish grey CLAY with reddish brown staining on fissures and rare fine and medium gravel sized pockets of black organic silt.	3	
					{8.00}		Borehole completed at 3.00m.	4 5 6 7 8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Job No CRM.1033.030	Dates Start 16-10-17 Finish 16-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0	
					0.70		Firm light orangish brown slightly gravelly sandy CLAY. Gravel is subrounded to rounded fine to coarse flint.		
							Firm orangish brown and bluish grey slightly sandy silty CLAY.	1	
					2.80			2	
					3.20		Stiff fissured bluish grey, orangish brown and reddish brown slightly sandy silty CLAY.	3	
							Borehole completed at 3.20m.	4	
								5	
								6	
								7	
					{8.00}			8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.		0
					0.80		Orangish brown and grey silty fine and medium SAND.		
					2.00		Orangish brown and bluish grey slightly sandy clayey SILT.		1
					2.80		Orangish brown and bluish grey slightly sandy silty CLAY.		2
					3.10		Hard fissured friable fissured bluish grey and orangish brown SILT locally tending to extremely weak siltstone.		3
					{8.00}		Borehole completed at 3.10m.		4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site
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TP04

Job No: CRM.1033.030
 Dates: Start 16-10-17, Finish 16-10-17
 Ground Level (m)
 Co-Ordinates

Client: Persimmon Homes
 Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.40		Brown slightly sandy gravelly SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0	
					1.60		Orangish brown and bluish grey clayey fine and medium SAND.	1	
					2.50		Firm bluish grey, orangish brown mottled reddish brown very sandy CLAY.	2	
					3.10		Orangish brown and grey silty fine and medium SAND.	3	
					{8.00}		Borehole completed at 3.10m.	4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:50
 Logged By: ED

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Job No CRM.1033.030	Dates Start 16-10-17 Finish 16-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Brown slightly silty gravelly fine and medium SAND with a low subrounded flint cobble content and frequent rootlets and roots (<10mm).	0	
					1.10		Yellowish brown fine and medium SAND.	1	
					2.80		Brown, grey and orangish brown laminated slightly silty fine to coarse SAND.	2	
					3.10		Bluish grey slightly silty fine to coarse SAND.	3	
					{8.00}		Borehole completed at 3.10m.	4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Job No CRM.1033.030	Dates Start 16-10-17 Finish 16-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular and subrounded fine to coarse flint.	0	
					1.50		Firm fissured orangish brown and bluish grey slightly sandy silty CLAY.	1	
					3.10		Orangish brown and bluish grey fine to coarse silty fine and medium SAND.	2	
					{8.00}		Borehole completed at 3.10m.	3	
								4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
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All dimensions in metres Scale 1:50	Logged By ED
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
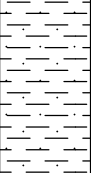
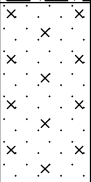

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Job No CRM.1033.030	Dates Start 16-10-17 Finish 16-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20		 Brown angular to subrounded fine to coarse flint GRAVEL with frequent rootlets.  Firm orangish brown and grey very sandy CLAY.		0 1
					1.60		 Yellowish brown, orangish brown and grey laminated silty fine and medium SAND.		2
					2.80		 Bluish grey fine and medium SAND with frequent clay laminae (<5mm) and rare coarse gravel sized greenish grey fine to coarse sand pockets.		3
					3.20			Borehole completed at 3.20m.	4 5 6 7 8
					{8.00}				

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

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Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30			Brown slightly sandy gravelly SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0
					0.80			Firm light brown mottled orangish brown slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse flint.	
					1.70			Stiff fissured bluish grey mottled orangish brown silty CLAY.	1
					2.80			Orangish brown and grey silty fine and medium SAND.	2
					3.00			Bluish grey and orangish brown thinly laminated sandy SILT.	3
					{8.00}			Borehole completed at 3.00m.	4 5 6 7 8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.40		Brown slightly silty gravelly fine and medium SAND with a low subrounded flint cobble content and frequent rootlets and roots (<10mm).	0	
							Firm thinly locally thickly laminated orangish brown and light grey very sandy CLAY with frequent fine to coarse gravel sized pockets of orangish brown sand.	1	
					2.80			2	
					3.20		Bluish grey and greenish grey fine and medium SAND with frequent thick laminae of bluish grey clay.	3	
							Borehole completed at 3.20m.	4	
								5	
								6	
								7	
					{8.00}			8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0	
					0.50		Light brown slightly gravelly sandy CLAY with rare rootlets. Gravel is subangular and subrounded fine to coarse flint.		
					1.80		Firm fissured orangish brown mottled bluish grey silty CLAY.	1	
					3.00		Firm fissured orangish brown mottled bluish grey clayey SILT.	2	
					{8.00}		Borehole completed at 3.00m.	3	
								4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20			Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0
					0.40			Brown gravelly SILT. Gravel is subangular to subrounded fine to coarse flint.	
								Firm fissured orangish brown and bluish grey silty CLAY with frequent roots (<10mm) and rootlets.	1
					2.00			Hard friable fissured orangish brown and bluish grey slightly sandy silty CLAY with rare rootlets.	2
					3.30			Borehole completed at 3.30m.	3
					{8.00}				4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:50

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Job No CRM.1033.030	Dates Start 17-10-17 Finish 17-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									0
					0.30			Brown slightly sandy slightly gravelly clayey SILT with frequent rootlets. Gravel is subangular and subrounded fine to coarse flint.	
					0.50			Firm orangish brown and bluish grey gravelly CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	
								Firm fissured orangish brown and bluish grey silty CLAY.	1
					2.00			Stiff fissured brown, orangish brown and bluish grey silty CLAY with rare brown staining on fissures.	2
					3.00			Borehole completed at 3.00m.	3
					{8.00}				4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0	
					0.80		Firm orangish brown and grey sandy CLAY.		
					1.80		Orangish brown and grey silty fine and medium SAND.	1	
					2.80		Grey mottled orangish brown slightly sandy clayey SILT.	2	
					3.00		Bluish grey and reddish brown clayey fine and medium SAND.	3	
					{8.00}		Borehole completed at 3.00m.	4 5 6 7 8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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
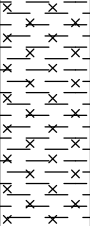

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Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.10		 Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.		0
					0.80		 Light brown silty subangular and subrounded fine to coarse flint GRAVEL.		
					2.70		 Stiff friable orangish brown silty CLAY.		1
					3.20		 Stiff bluish grey silty CLAY.		2
					{8.00}		Borehole completed at 3.20m.		3
									4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Job No CRM.1033.030	Dates Start 17-10-17 Finish 17-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30			Brown slightly sandy gravelly SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0
					0.60			Light brown gravelly fine and medium SAND. Gravel is subrounded to well rounded fine to coarse flint.	
					0.80			Orangish brown sandy subrounded to well rounded fine to coarse flint GRAVEL.	1
					1.80			Orangish brown and grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subrounded to well rounded fine to coarse flint.	
					2.70			Orangish brown and bluish grey fine to coarse SAND with frequent clay laminae (<5mm).	2
					3.10			Bluish grey, orangish brown and greenish grey thickly laminated silty fine to coarse SAND.	3
					{8.00}			Borehole completed at 3.10m.	4 5 6 7 8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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1.0 ENZYGO BH LOG CRM1033.030 STUBBINGTON.GPJ GINT STD.AGS.3_1 ENZYGO.GPJ 14/11/17



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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP16
Job No CRM.1033.030	Dates Start 17-10-17 Finish 17-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular and subrounded fine to coarse flint.		0
					0.80		Firm light orangish brown and grey slightly sandy gravelly CLAY. Gravel is subrounded to well rounded fine to coarse flint.		
					1.70		Stiff bluish grey mottled orangish brown locally mottled reddish brown silty CLAY.		1
					2.80		Grey and orangish brown fine and medium SAND interbedded with firm grey CLAY.		2
					3.20		Grey thickly laminated silty fine and medium SAND. Laminae are undulating.		3
					{8.00}		Borehole completed at 3.20m.		4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP17
Job No CRM.1033.030	Dates Start 18-10-17 Finish 18-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20			Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0
					0.40			Firm brown mottled orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse flint.	
					0.50			Orangish brown slightly silty subangular to subrounded fine to coarse flint GRAVEL.	1
								Firm fissured orangish brown and bluish grey silty CLAY.	
					2.80			Orangish brown and brown silty fine and medium SAND.	3
					3.10			Borehole completed at 3.10m.	
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP18
Job No CRM.1033.030	Dates Start 18-10-17 Finish 18-10-17	Ground Level (m) Co-Ordinates	
Client Persimmon Homes			Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0	
					1.60		Firm grey mottled orangish brown sandy CLAY.	1	
					2.90		Firm orangish brown and grey very sandy CLAY.	2	
					3.00		Very stiff bluish grey slightly sandy clayey SILT.	3	
					{8.00}		Borehole completed at 3.00m.	4 5 6 7 8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)



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Job No CRM.1033.030	Dates Start 18-10-17 Finish 18-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20			Firm brown mottled orangish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse flint.	0
					0.50			Firm orangish brown and brown slightly sandy gravelly CLAY. Gravel is subangular and subrounded fine to coarse flint.	
					1.70			Firm orangish brown and grey very sandy CLAY.	1
					2.80			Stiff fissured orangish brown and grey mottled reddish brown silty CLAY.	2
					3.10			Brownish grey and orangish brown silty fine and medium SAND.	3
					{8.00}			Borehole completed at 3.10m.	4 5 6 7 8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP20
Job No CRM.1033.030	Dates Start 18-10-17 Finish 18-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30			Brown slightly sandy gravelly SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0
					0.80			Firm light brown mottled orangish brown slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse flint.	
					1.70			Stiff fissured bluish grey mottled orangish brown silty CLAY.	1
					2.80			Orangish brown and grey silty fine and medium SAND.	2
					3.00			Orangish brown and grey locally yellowish brown very sandy CLAY.	3
					{8.00}			Borehole completed at 3.00m.	4 5 6 7 8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP21
Job No CRM.1033.030	Dates Start 18-10-17 Finish 18-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.40		Brown slightly sandy slightly gravelly clayey SILT with frequent rootlets. Gravel is subangular and subrounded fine to coarse flint.	0	
					0.70		Firm orangish brown sandy CLAY with rare rootlets.		
					1.50		Firm orangish brown sandy CLAY.	1	
					2.50		Firm grey mottled orangish brown very sandy CLAY with rare subangular fine and medium gravel sized organic fragments.	2	
					3.10		Stiff fissured orangish brown and grey slightly sandy clayey SILT.	3	
					{8.00}		Borehole completed at 3.10m.	4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP22
Job No CRM.1033.030	Dates Start 18-10-17 Finish 18-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Brown slightly sandy slightly gravelly clayey SILT with frequent rootlets. Gravel is subangular and subrounded fine to coarse flint.	0	
					0.80		Firm grey and orangish brown slightly gravelly sandy CLAY. Gravel is subangular and subrounded fine to coarse flint.		
							Firm mottled orangish brown slightly sandy silty CLAY.	1	
					2.80			2	
					3.00		Stiff bluish grey slightly sandy clayey SILT with rare fine and medium gravel sized shell fragments.	3	
							Borehole completed at 3.00m.		
					{8.00}			4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP23
Job No CRM.1033.030	Dates Start 18-10-17 Finish 18-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.15		x o x x	Brown slightly gravelly sandy SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0
					0.50		x x x x	Firm orangish brown mottled grey silty CLAY.	
					0.80		x x x x	Firm orangish brown and grey very gravelly CLAY. Gravel is subrounded to well rounded fine to coarse flint.	1
							x x x x	Firm fissured orangish brown and bluish grey locally mottled brown slightly sandy silty CLAY. 1.6-2.6m Bluish grey and orangish brown.	2
					2.60		x x x x	Bluish grey slightly sandy clayey SILT with rare fine and medium gravel sized shell fragments.	3
					3.20		x x x x	Borehole completed at 3.20m.	4
					{8.00}				5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Job No CRM.1033.030	Dates Start 18-10-17 Finish 18-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20			Soft brown gravelly CLAY with frequent. Gravel is angular to subrounded fine to coarse flint.	0
					0.40			Brown slightly sandy slightly gravelly clayey SILT. Gravel is subangular and subrounded fine to coarse flint.	
					0.70			Firm fissured light brown silty CLAY.	
								Stiff bluish grey and orangish brown slightly sandy silty CLAY with frequent angular black subangular fine organic fragments.	1
									2
					2.70				
					3.10			Stiff fissured bluish grey, brown and orangish brown slightly sandy clayey SILT.	3
								Borehole completed at 3.10m.	4
									5
									6
									7
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP25
Job No CRM.1033.030	Dates Start 19-10-17 Finish 19-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.		0
					0.70		Firm indistinctly thinly laminated orangish brown mottled grey slightly sandy silty CLAY.		
							Firm bluish grey mottled grey locally mottled dark brown silty CLAY.		1
					2.60		Stiff bluish grey slightly sandy silty CLAY.		2
					3.20		Borehole completed at 3.20m.		3
					{8.00}				4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP26
Job No CRM.1033.030	Dates Start 19-10-17 Finish 19-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									0
					0.50			Brown slightly gravelly sandy SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	
					0.90			Orangish brown and grey very clayey subrounded to rounded fine to coarse flint GRAVEL.	
					1.70			Firm orangish brown and grey very gravelly CLAY. Gravel is subrounded to rounded fine to coarse flint.	1
					2.60			Firm bluish grey and greenish grey silty CLAY with rare part decomposed plant remains (<5mm).	2
					2.90			Firm bluish grey rarely mottled greenish grey silty CLAY.	
	▽				3.00			Bluish grey slightly silty slightly sandy subrounded to well rounded fine to coarse flint GRAVEL. Borehole completed at 3.00m.	3
					{8.00}				4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	19/10/17	2.90		

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP27
Job No CRM.1033.030	Dates Start 19-10-17 Finish 19-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.40		Firm brown mottled orangish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse flint.	0	
							Firm light orangish brown and light grey silty CLAY.	1	
					2.70			2	
	▽				3.10		Orangish brown slightly clayey very gravelly fine and medium SAND. Gravel is subrounded to rounded fine to coarse flint.	3	
							Borehole completed at 3.10m.	4	
								5	
								6	
								7	
					{8.00}			8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	19/10/17	2.70		

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP28
Job No CRM.1033.030	Dates Start 19-10-17 Finish 19-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Firm grey mottled brown slightly gravelly sandy CLAY with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0	
							Firm orangish brown and grey very gravelly CLAY. Gravel is subrounded to rounded fine to coarse flint.	1	
					1.50				
							Stiff brown and bluish grey very sandy CLAY with occasional part decomposed plant remains (<10mm).	2	
	▽				2.30		Bluish grey gravelly fine to coarse SAND. Gravel is subrounded to well rounded fine to coarse flint.	3	
					3.10			3	
							Borehole completed at 3.10m.	4	
								5	
								6	
								7	
								8	
					{8.00}				

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	19/10/17	2.30		

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP29
Job No CRM.1033.030	Dates Start 19-10-17 Finish 19-10-17	Ground Level (m)	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.40		Crop over brown brown slightly gravelly sandy SILT with frequent roots (<5mm diam) and rootlets. Gravel is subangular to rounded fine to coarse flint.	0	
					1.70		Firm orangish brown and grey silty CLAY.	1	
					2.80		Firm thinly laminated bluish grey and orangish brown sandy CLAY with frequent orangish brown fine and medium sand laminae (<5mm) and rare part decomposed plant remains (<5mm).	2	
					3.00		Firm thinly laminated bluish grey sandy CLAY with frequent fine and medium sand laminae (<5mm).	3	
					{8.00}		Borehole completed at 3.00m.	4 5 6 7 8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP30
Job No CRM.1033.030	Dates Start 19-10-17 Finish 19-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30			Brown brown slightly gravelly sandy SILT with frequent rootlets. Gravel is subangular to rounded fine to coarse flint.	0
					0.70			Firm light orangish brown slightly gravelly sandy CLAY. Gravel is subrounded to rounded fine to coarse flint.	
					1.50			Firm orangish brown and light grey very sandy CLAY.	1
					2.50			Firm orangish brown and light grey locally mottled brown very sandy CLAY.	2
					2.80			Orangish brown silty fine and medium SAND.	
					3.20			Firm thinly laminated bluish grey sandy CLAY with frequent fine and medium sand laminae (<5mm).	3
					{8.00}			Borehole completed at 3.20m.	4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP31
Job No CRM.1033.030	Dates Start 19-10-17 Finish 19-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30			Brown slightly sandy gravelly SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint and rare subangular fine and medium brick.	0
					0.80			Brown sandy subrounded to well rounded fine to coarse flint GRAVEL.	
					1.50			Yellowish brown sandy subrounded to well rounded fine to coarse flint GRAVEL with a low subrounded flint cobble content. 0.4-0.5m With black staining.	1
					2.50			Firm bluish grey and orangish brown very sandy CLAY with rare fine to coarse gravel sized pockets of fine and medium sand (<5mm).	2
					3.00			Bluish grey thickly laminated very sandy CLAY interbedded with light grey fine to coarse SAND.	3
					{8.00}			Borehole completed at 3.00m.	4 5 6 7 8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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1.0 ENZYGO BH LOG CRM1033.030 STUBBINGTON.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 14/11/17



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TP32

Job No
 CRM.1033.030



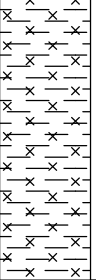


Dates
 Start 19-10-17
 Finish 19-10-17

Ground Level (m)

Co-Ordinates

Client
 Persimmon Homes

Sheet
 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.50			Brown slightly sandy gravelly SILT with rare black angular fine and medium ash fragments and frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0
					0.60			Firm light orangish brown slightly gravelly sandy CLAY. Gravel is subrounded to rounded fine to coarse flint.	
								Stiff bluish grey mottled orangish brown silty CLAY with rare fine and medium gravel sized pockets of light grey fine and medium sand. Frequent brown staining on fissure surfaces 1.8m - 2.8m.	1
					2.80			Firm orangish brown and grey slightly sandy very gravelly CLAY. Gravel is subrounded to rounded fine to coarse flint. Slight groundwater seepage at 2.8m.	3
					3.10			Borehole completed at 3.10m.	
					{8.00}				8



General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	19/10/17	2.80		

All dimensions in metres
 Scale 1:50

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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP33
Job No CRM.1033.030	Dates Start 20-10-17 Finish 20-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Firm brown slightly sandy slightly gravelly clayey SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint. Firm fissured orangish brown and bluish grey slightly sandy silty CLAY.	0	
					2.80			1	
					3.00		Stiff bluish grey slightly sandy clayey SILT.	2	
	▽				{8.00}		Borehole completed at 3.00m.	3	
								4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	20/10/17	2.80		

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP34
Job No CRM.1033.030	Dates Start 20-10-17 Finish 20-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									0
					0.35			Brown slightly sandy gravelly SILT with rare black angular fine and medium ash fragments and frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	
					0.50			Light brown mottled brown sandy SILT.	
					1.50			Firm slightly gravelly slightly sandy clayey SILT. Gravel is subrounded to well rounded fine to coarse flint. Gravelly 1.2m - 1.4m. Gravel is subrounded to well rounded fine to coarse flint.	1
					2.80			Firm orangish brown and bluish grey very sandy CLAY.	2
	▽				3.20			Brown, reddish brown mottled black slightly silty fine and medium SAND with rare part decomposed plant remains (5x10mm).	3
					{8.00}			Borehole completed at 3.20m.	4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	20/10/17	2.80		

All dimensions in metres Scale 1:50	Logged By ED
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
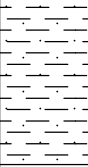
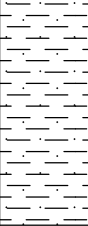

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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP35
Job No CRM.1033.030	Dates Start 20-10-17 Finish 20-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20		 Firm brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse flint.		0
							 Firm orangish brown mottled bluish grey very sandy CLAY.		1
					1.50		 Firm fissured orangish brown mottled bluish grey very sandy CLAY with rare fine and medium gravel sized pockets of yellowish brown fine and medium sand. From 2.8m to 3m the clay is bluish grey and brown mottled orangish brown.		2
					3.00		 Borehole completed at 3.00m.		3
					{8.00}				4 5 6 7 8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP36
Job No CRM.1033.030	Dates Start 20-10-17 Finish 20-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Firm brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse flint.		0
					0.50		Light brown slightly gravelly sandy CLAY with rare rootlets. Gravel is subangular and subrounded fine to coarse flint.		
							Firm orangish brown and bluish grey silty CLAY. Locally mottled brown 2m-2.7m.		1
					2.70				2
					2.90		Hard orangish brown SILT locally tending to extremely weak siltstone.		
					3.10		Bluish grey slightly sandy clayey SILT.		3
							Borehole completed at 3.10m.		4
									5
									6
									7
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP37
Job No CRM.1033.030	Dates Start 20-10-17 Finish 20-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									0
					0.40			Brown slightly gravelly sandy SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	
					0.80			Firm orangish brown slightly gravelly silty CLAY. Gravel is subrounded to rounded fine to coarse flint.	
								Firm fissured orangish brown and bluish grey slightly sandy silty CLAY.	1
					2.50				2
	▽				2.80			Firm light orangish brown and grey very gravelly CLAY. Gravel is subangular to well rounded fine to coarse flint.	
					3.10			Orangish brown and grey gravelly fine to coarse SAND with a low subrounded flint cobble content. Gravel is subrounded to well rounded fine to coarse flint. Slight groundwater seepage at 2.80m.	3
								Borehole completed at 3.10m.	4
									5
									6
									7
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	20/10/17	2.80		

All dimensions in metres Scale 1:50	Logged By ED
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Job No CRM.1033.030	Dates Start 20-10-17 Finish 20-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									0
					0.40			Brown slightly silty gravelly SAND with a low subrounded flint cobble content and frequent rootlets.	
					0.80			Brown sandy subrounded to well rounded fine to coarse flint GRAVEL.	
					1.50			Firm orangish brown mottled light grey slightly sandy silty CLAY with rare rootlets.	1
					2.70			Stiff thinly laminated orangish brown and bluish grey silty CLAY.	2
					3.00			Bluish grey silty fine and medium SAND with frequent firm bluish grey clay laminae (<5mm).	3
					{8.00}			Borehole completed at 3.00m.	4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP39
Job No CRM.1033.030	Dates Start 20-10-17 Finish 20-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									0
					0.30			Brown slightly sandy gravelly SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	
					0.50			Firm orangish brown slightly gravelly clayey SILT. Gravel is subrounded to rounded fine to coarse flint.	
								Stiff fissured orangish brown and bluish grey silty CLAY.	1
					1.70			Stiff fissured orangish brown and bluish grey locally mottled brown sandy CLAY.	2
					2.40			Firm light orangish brown and grey very gravelly CLAY. Gravel is subangular to well rounded fine to coarse flint.	
					2.60			Soft very sandy CLAY locally clayey sand.	
					2.90			Brown sandy subrounded to well rounded fine to coarse flint GRAVEL and COBBLES.	3
					3.00			Borehole completed at 3.00m.	
					{8.00}				4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	20/10/17	2.80		

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP40
Job No CRM.1033.030	Dates Start 20-10-17 Finish 20-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									0
					0.40			Firm brown mottled orangish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse flint.	
					0.70			Firm light orangish brown and light grey slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse flint.	
					1.50			Firm light orangish brown and light grey slightly sandy CLAY.	1
					2.30			Firm thinly laminated bluish grey and orangish brown sandy CLAY with frequent orangish brown fine and medium sand laminae (<5mm) and rare part decomposed plant remains (<5mm).	2
					2.50			Brown, orangish brown, bluish grey interbedded SAND and CLAY.	
					3.00			Bluish grey silty fine and medium SAND with rare clay laminae (<5mm).	
					{8.00}			Borehole completed at 3.00m.	3
									4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:50

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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP41
Job No CRM.1033.030	Dates Start 23-10-17 Finish 23-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		x . x . x . x . x . x . x . x . x .	Brown slightly gravelly sandy SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0
					0.80		x . x .	Orangish brown locally mottled bluish grey slightly gravelly sandy SILT. Gravel is subrounded to rounded fine to coarse flint.	1
					2.80			Stiff fissured orangish brown and bluish grey silty CLAY with rare rootlets.	2
					3.00		x . x . x .	Hard fissured orangish brown and grey slightly sandy clayey SILT.	3
								Borehole completed at 3.00m.	4
									5
									6
									7
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
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All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP42
Job No CRM.1033.030	Dates Start 23-10-17 Finish 23-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.25		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0	
					0.70		Firm indistinctly thinly laminated orangish brown mottled grey slightly sandy silty CLAY.		
							Firm bluish grey mottled grey locally mottled dark brown silty CLAY.	1	
					2.80			2	
					3.10		Stiff bluish grey slightly sandy silty CLAY.	3	
							Borehole completed at 3.10m.	4	
								5	
								6	
								7	
					{8.00}			8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP43
Job No CRM.1033.030	Dates Start 23-10-17 Finish 23-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Firm brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse flint.	0	
					0.50		Light brown slightly gravelly sandy CLAY with rare rootlets. Gravel is subangular and subrounded fine to coarse flint.		
							Firm orangish brown and bluish grey silty CLAY. Terracotta land drain (<100mm diam) at 1m - 2.5m, running north west to south east.	1	
					2.50			2	
					3.00		Stiff fissured bluish grey slightly sandy clayey SILT with brown staining on fissure surfaces.	3	
							Borehole completed at 3.00m.	4	
								5	
								6	
								7	
					{8.00}			8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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




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Job No CRM.1033.030	Dates Start 23-10-17 Finish 23-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
							 Brown slightly gravelly sandy SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0	
					0.40		 Brown sandy subrounded to well rounded fine to coarse flint GRAVEL.		
					0.80		 Bluish grey and orangish brown very sandy subangular to well rounded fine to coarse flint GRAVEL.	1	
					1.80		 Orangish brown and grey interbedded fine to coarse SAND and CLAY.	2	
					2.40		 Bluish grey thickly laminated very sandy CLAY with frequent light grey fine to coarse sand laminae (<5mm).		
					3.00		Borehole completed at 3.00m.	3	
					{8.00}			4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ				TP45
Job No CRM.1033.030	Dates Start 23-10-17 Finish 23-10-17	Ground Level (m)	Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30			Brown slightly sandy gravelly SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0
					0.70			Brown sandy subrounded to well rounded fine to coarse flint GRAVEL.	
					3.00			Orangish brown and yellowish brown slightly silty fine and medium SAND. Gravelly with a low subrounded cobble content between 1.5 and 1.8m. Very gravelly 2.5m to 3m. Gravel is subrounded to well rounded fine to coarse flint.	1
					{8.00}			Borehole completed at 3.00m.	3

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP46
Job No CRM.1033.030	Dates Start 23-10-17 Finish 23-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Firm brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse flint.		0
					0.50		Light brown slightly gravelly sandy CLAY with rare rootlets. Gravel is subangular and subrounded fine to coarse flint.		
							Firm fissured orangish brown and bluish grey silty CLAY.		1
					2.90				2
					3.10		Hard fissured bluish grey and orangish brown slightly sandy clayey SILT.		3
							Borehole completed at 3.10m.		4
									5
									6
									7
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP47
Job No CRM.1033.030	Dates Start 23-10-17 Finish 23-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Brown slightly silty clayey angular to subrounded fine to coarse flint GRAVEL with frequent rootlets.	0	
					0.80		Yellowish brown slightly silty sandy subangular to subrounded fine to coarse flint GRAVEL.		
					1.80		Firm greyish brown mottled orangish brown sandy CLAY.	1	
					2.70		Firm orangish brown mottled grey very sandy CLAY.	2	
					3.00		Firm fissured orangish brown and bluish grey CLAY with dark brown staining on fissure surfaces.	3	
					{8.00}		Borehole completed at 3.00m.	4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site
 Oakcroft Lane, Stubbington, Fream, Hampshire, PO14 3EZ

TP48

Job No CRM.1033.030
 Dates Start 23-10-17 Finish 23-10-17
 Ground Level (m)
 Co-Ordinates

Client Persimmon Homes
 Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30		Firm brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse flint.	0	
							Firm orangish brown and mottled grey very sandy CLAY. Locally mottled dark brown 1.8m - 2.8m.	1	
					2.80			2	
					3.10		Stiff fissured bluish grey slightly sandy clayey SILT with dark orangish brown staining on fissures.	3	
							Borehole completed at 3.10m.	4	
								5	
								6	
								7	
					{8.00}			8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:50
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP49
Job No CRM.1033.030	Dates Start 24-10-17 Finish 24-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20			Brown slightly sandy gravelly SILT with rare black angular fine and medium ash fragments and frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	0
					0.80			Firm orangish brown and brown slightly sandy gravelly CLAY. Gravel is subangular and subrounded fine to coarse flint.	
								Stiff fissured orangish brown and grey very sandy CLAY.	1
					2.50			Stiff brown and bluish grey very sandy CLAY.	2
					3.10			Borehole completed at 3.10m.	3
					{8.00}				4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP50
Job No CRM.1033.030	Dates Start 24-10-17 Finish 24-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									0
					0.40			Brown slightly sandy gravelly SILT with frequent rootlets. Gravel is subrounded to rounded fine to coarse flint.	
					0.70			Orangish brown and grey slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse flint.	
					1.50			Firm fissured orangish brown and bluish grey slightly sandy slightly gravelly CLAY with rare rootlets. Gravel is subrounded to rounded fine to coarse flint.	1
					2.70			Firm dark bluish grey and orangish brown slightly sandy CLAY with occasional part decomposed plant remains (<10mm).	2
	▽				3.00			Bluish grey and brown very clayey subrounded to well rounded fine to coarse flint GRAVEL. Slight groundwater seepage from 2.70m.	3
								Borehole completed at 3.00m.	4
									5
									6
									7
									8
					{8.00}				

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	24/10/17	2.70		

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP51
Job No CRM.1033.030	Dates Start 24-10-17 Finish 24-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.10		Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.		0
					0.80		Light brown silty subangular and subrounded fine to coarse flint GRAVEL.		
							Stiff friable orangish brown silty CLAY. With rare black fine and medium sized organic fragments at 2m.		1
					2.70				2
					2.90		Stiff thickly laminated orangish brown and bluish grey slightly gravelly silty CLAY. Gravel is subrounded and subangular fine to coarse ironstone.		3
					3.00		Stiff bluish grey silty CLAY.		
							Borehole completed at 3.00m.		
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP52
Job No CRM.1033.030	Dates Start 24-10-17 Finish 24-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30			Soft brown slightly gravelly silty CLAY with frequent roots (<10mm diam) and rootlets. Gravel is angular to subrounded fine to coarse flint.	0
					0.80			Light brown silty subangular and subrounded fine to coarse flint GRAVEL with frequent roots (<10mm diam) and rootlets.	
					3.10			Very stiff friable orangish brown silty CLAY with frequent roots (<10mm diam) and rootlets. Becoming fissured 2m - 3.1m, with rootlets in between fissures. With frequent light grey and yellowish brown fine and medium sand partings (<1mm) between 2.5m and 3.1m. Terracotta land drain (<100mm diam) at 1m, running east to west.	1
					{8.00}			Borehole completed at 3.10m.	3

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:50

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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP53
Job No CRM.1033.030	Dates Start 24-10-17 Finish 24-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20			Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0
					0.40			Light brown mottled brown sandy SILT.	
					0.80			Light orangish brown slightly sandy silty subangular and subrounded fine to coarse flint GRAVEL with frequent roots (<10mm) and rootlets.	1
					1.80			Stiff friable orangish brown slightly sandy silty CLAY with frequent roots (<10mm) and rootlets.	
					2.90			Stiff friable fissured orangish brown and bluish grey very sandy CLAY.	2
					3.00			Stiff bluish grey slightly sandy clayey SILT.	3
								Borehole completed at 3.00m.	4
									5
									6
									7
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			TP54
Job No CRM.1033.030	Dates Start 24-10-17 Finish 24-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.20			Soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse flint.	0
					0.40			Soft grey rarely mottled orangish brown slightly gravelly sandy CLAY. Gravel is subangular and subrounded fine and medium flint.	
					1.50			Orangish brown sandy subangular and subrounded fine to coarse flint GRAVEL.	1
					1.80			Orangish brown and grey silty fine and medium SAND.	
					2.80			Soft orangish brown and grey locally slightly gravelly very sandy CLAY. Gravel is subangular and subrounded fine and medium flint.	2
					3.00			Firm bluish grey very sandy clayey SILT.	3
					{8.00}			Borehole completed at 3.00m.	4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Job No CRM.1033.030	Dates Start 24-10-17 Finish 24-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.40		Brown slightly silty gravelly fine and medium SAND with a low subrounded flint cobble content and frequent rootlets and roots (<10mm).	0	
					0.80		Firm orangish brown mottled grey very sandy gravelly CLAY. Gravel is subrounded and rounded fine to coarse flint.		
					1.80		Firm orangish brown and light grey very sandy CLAY with frequent fine and medium sand laminae (<10 mm).	1	
					2.40		Orangish brown mottled grey very clayey sandy subrounded and rounded fine to coarse flint GRAVEL.	2	
					2.70		Orangish brown, brown and grey silty fine and medium SAND with occasional clay laminae (<5mm).		
					3.00		Bluish grey slightly silty fine to coarse SAND.	3	
					{8.00}		Borehole completed at 3.00m.	4 5 6 7 8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By ED
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ				WS1
Job No CRM.1033.030	Dates Start 25-10-17 Finish 25-10-17	Ground Level (m)	Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
							Gravelly TOPSOIL over subsoil.		0
					0.60		Orange-brown very silty CLAY with partings of dark grey silt.		1
					2.60		Grey very silty sandy CLAY with partings of pale grey sand.		3
					4.00		Borehole completed at 4.00m.		4
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By NM
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			WS10
Job No CRM.1033.030	Dates Start 26-10-17 Finish 26-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.60		Gravelly TOPSOIL over subsoil.	0	
					2.40		Brown and grey mottled very silty sandy CLAY with fine gravel observed to 1m, and roots to 2m.	1	
					4.00		Grey sandy CLAY with partings/laminae of pale grey fine sand.	2	
					{8.00}		Borehole completed at 4.00m.	3	
								4	
								5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By NM
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			WS2
Job No CRM.1033.030	Dates Start 25-10-17 Finish 25-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
							Brown gravelly TOPSOIL.		0
					0.35				
					0.60		Pale greyish brown clayey SAND with fine to coarse GRAVEL.		
							Orange-brown sandy CLAY with fine gravel and partings of dark grey silt/fine sand.		1
	▽				1.80		Brown clayey SAND with frequent black fine rounded gravel. Sandy clay in parts.		2
					2.60		Grey interlaminated CLAY and fine sand.		3
					4.00		Borehole completed at 4.00m.		4
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	25/10/17	1.80		

All dimensions in metres Scale 1:50	Logged By NM
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			WS4
Job No CRM.1033.030	Dates Start 25-10-17 Finish 25-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
							Brown gravelly TOPSOIL.		0
					0.35				
					0.70		Pale brown clayey gravelly SILT/SAND.		
							Orange-brown/grey mottled sandy CLAY with partings of dark orange silt.		1
									2
					2.95		Dark grey very sandy CLAY with partings of silt/fine sand.		3
					4.00		Borehole completed at 4.00m.		4
									5
									6
									7
					{8.00}				8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By NM
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			WS5
Job No CRM.1033.030	Dates Start 25-10-17 Finish 25-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.40		Brown gravelly TOPSOIL.		0
							Orange-brown and grey mottled very silty/sandy CLAY with partings of dark orange silt/fine sand.		1
					3.70				2
					4.00		Dark grey sandy CLAY with partings of fine silt/sand.		3
							Borehole completed at 4.00m.		4
					{8.00}				5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By NM
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			WS7
Job No CRM.1033.030	Dates Start 26-10-17 Finish 26-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
							Brown gravelly TOPSOIL.		0
					0.40			Orange-brown very silty/sandy(f) CLAY with partings of fine sand/silt.	
					1.90			Pale grey/brown silty SAND and laminations of clay.	
	▽				3.40			Dark grey interlaminated CLAY/SAND.	
					4.00			Borehole completed at 4.00m.	
					{8.00}				

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	26/10/17	2.20		

All dimensions in metres Scale 1:50	Logged By NM
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			WS8
Job No CRM.1033.030	Dates Start 26-10-17 Finish 26-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.40		Brown gravelly TOPSOIL.		0
					1.45		Orange-brown very silty/sandy(f) CLAY with gravel at 1m.		1
					3.60		Pale greenish-grey very silty SAND with inclusions of orange silt and laminae/thin beds of brown clay.		2
					4.00		Dark grey sandy CLAY (clayey sand in parts).		3
					{8.00}		Borehole completed at 4.00m.		4
									5
									6
									7
									8

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:50	Logged By NM
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Site Oakcroft Lane, Stubbington, Freham, Hampshire, PO14 3EZ			WS9
Job No CRM.1033.030	Dates Start 26-10-17 Finish 26-10-17	Ground Level (m) Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
	▽				0.35		Brown gravelly TOPSOIL.	0	
							Orange-brown and grey mottled sandy CLAY/clayey SAND with gravel noted to 2m. Interlaminations of clay/silt/sand.	1	
					2.80		Dark grey interlaminated CLAY/fine SAND.	3	
					4.00		Borehole completed at 4.00m.	4	
					{8.00}			5	
								6	
								7	
								8	

General Remarks

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	26/10/17	1.90		

All dimensions in metres Scale 1:50	Logged By NM
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Analytical Report Number: 17-65751

Project / Site name: Stubbington

Lab Sample Number	846748			846749			846750			846751			846752		
Sample Reference	TP34			TP14			TP8			TP44			TP24		
Sample Number	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Depth (m)	0.30			0.20			0.20			0.30			0.20		
Date Sampled	19/10/2017			23/10/2017			19/10/2017			17/10/2017			20/10/2017		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status												
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	19	19	19	19	19	19	
Moisture Content	%	N/A	NONE	15	8.7	12	6.7	15	15	15	15	15	15	15	
Total mass of sample received	kg	0.001	NONE	2.0	0.58	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	6.2	6.4	6.4	6.6
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.2	1.5	1.1	1.0	1.3

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.25	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.22	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.13	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.17	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.8	7.7	6.2	4.4	6.7
Boron (water soluble)	mg/kg	0.2	MCERTS	1.0	0.7	0.7	0.7	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	17	15	12	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	22	15	11	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	35	56	34	24	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.5	8.7	7.7	7.5	8.4
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	30	25	25	19	29

Analytical Report Number: 17-65751

Project / Site name: Stubbington

Lab Sample Number	846748			846749			846750			846751			846752			
Sample Reference	TP34			TP14			TP8			TP44			TP24			
Sample Number	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied			
Depth (m)	0.30			0.20			0.20			0.30			0.20			
Date Sampled	19/10/2017			23/10/2017			19/10/2017			17/10/2017			20/10/2017			
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status													

Petroleum Hydrocarbons

Parameter	Units	Limit of detection	Accreditation Status	846748	846749	846750	846751	846752
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

Parameter	Units	Limit of detection	Accreditation Status	846748	846749	846750	846751	846752
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

Parameter	Units	Limit of detection	Accreditation Status	846748	846749	846750	846751	846752
TPH (C>5 - C7)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C>7 - C8)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	5.8	3.5	2.7	2.5
TPH (C35 - C44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C44	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

Pesticide and Herbicide Screen

Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-	Absent	-

Analytical Report Number: 17-65751

Project / Site name: Stubbington

Lab Sample Number				846753	846754	846755	846756	846757
Sample Reference				TP16	TP6	TP32	TP50	TP38
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.20	0.30	0.10
Date Sampled				Deviating	18/10/2017	19/10/2017	16/10/2017	19/10/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	12	< 0.1	24
Moisture Content	%	N/A	NONE	13	12	13	14	7.9
Total mass of sample received	kg	0.001	NONE	2.0	2.0	1.9	2.0	2.0

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.7	6.3	6.5	7.2	7.0
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.9	1.1	0.9	1.6	1.2

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.5	5.7	7.8	7.1	6.0
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.5	0.9	1.2	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	13	18	19	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	14	12	12	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	41	31	26	26	40
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	6.5	7.3	9.3	8.9	7.0
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	22	24	27	29	21

Analytical Report Number: 17-65751

Project / Site name: Stubbington

Lab Sample Number	846753			846754			846755			846756			846757		
Sample Reference	TP16			TP6			TP32			TP50			TP38		
Sample Number	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Depth (m)	0.10			0.20			0.20			0.30			0.10		
Date Sampled	Deviating			18/10/2017			19/10/2017			16/10/2017			19/10/2017		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status												

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH (C>5 - C7)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C>7 - C8)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	1.9	3.8	4.8	2.0	12
TPH (C35 - C44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C44	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

Pesticide and Herbicide Screen

Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-	-	-



Analytical Report Number : 17-65751

Project / Site name: Stubbington

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
846748	TP34	None Supplied	0.30	Brown loam and clay with gravel and vegetation.
846749	TP14	None Supplied	0.20	Brown loam and clay with gravel and vegetation.
846750	TP8	None Supplied	0.20	Brown loam and clay with gravel.
846751	TP44	None Supplied	0.30	Brown loam and sand with gravel and stones.
846752	TP24	None Supplied	0.20	Brown loam and clay with gravel and stones.
846753	TP16	None Supplied	0.10	Brown loam and clay with gravel.
846754	TP6	None Supplied	0.20	Brown loam and clay with gravel and vegetation.
846755	TP32	None Supplied	0.20	Brown loam and clay with stones and gravel
846756	TP50	None Supplied	0.30	Brown loam and clay with gravel.
846757	TP38	None Supplied	0.10	Brown loam and sand with stones and vegetation.

Analytical Report Number : 17-65751

Project / Site name: Stubbington

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Pesticides and Herbicides in soil screening	In-house method	In-house method		W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests"	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 17-65755

Project / Site name:	Stubbington	Samples received on:	24/10/2017
Your job number:	CRM.1033.030	Samples instructed on:	31/10/2017
Your order number:		Analysis completed by:	08/11/2017
Report Issue Number:	1	Report issued on:	09/11/2017
Samples Analysed:	3 wac multi samples		

Signed: 

Dr Claire Stone
Quality Manager

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Waste Acceptance Criteria Analytical Results							
Report No:	17-65755						
				Client: ENZYGOGEO			
Location	Stubbington						
Lab Reference (Sample Number)	846772			Landfill Waste Acceptance Criteria			
Sampling Date	19/10/2017			Limits			
Sample ID	TP4			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	0.8			3%	5%	6%	
Loss on Ignition (%) **	2.2			--	--	10%	
BTEX (µg/kg) **	< 10			6000	--	--	
Sum of PCBs (mg/kg) **	< 0.30			1	--	--	
Mineral Oil (mg/kg) #	< 10			500	--	--	
Total PAH (WAC-17) (mg/kg)	< 0.9			100	--	--	
pH (units)**	6.1			--	>6	--	
Acid Neutralisation Capacity (mol / kg)	-4.5			--	To be evaluated	To be evaluated	
Eluate Analysis							
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	< 0.0050	0.0089		0.086	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0011	0.0022		0.022	0.5	10	70
Copper *	0.037	0.013		0.15	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	< 0.0030	< 0.0030		< 0.020	0.5	10	30
Nickel *	< 0.0010	< 0.0010		0.0075	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.027	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0074	0.0072		0.072	4	50	200
Chloride *	< 4.0	< 4.0		20	800	4000	25000
Fluoride	0.48	0.49		4.9	10	150	500
Sulphate *	2.6	2.1		21	1000	20000	50000
TDS	29	22		230	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	10	7.6		78	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.9						
Dry Matter (%)	88						
Moisture (%)	12						
Stage 1							
Volume Eluate L2 (litres)	0.32						
Filtered Eluate VE1 (litres)	0.13						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3. This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							

Iss No 17-65755-1 Stubbington CRM.1033.030

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The results included within the report are representative of the samples submitted for analysis.

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Waste Acceptance Criteria Analytical Results							
Report No:	17-65755						
				Client: ENZYGOGEO			
Location		Stubbington					
Lab Reference (Sample Number)		846773			Landfill Waste Acceptance Criteria		
Sampling Date		23/10/2017			Limits		
Sample ID		TP10			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)		0.10					
Solid Waste Analysis							
TOC (%)**	1.4				3%	5%	6%
Loss on Ignition (%) **	4.0				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	6.7				--	>6	--
Acid Neutralisation Capacity (mol / kg)	-1.2				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	< 0.0050	0.0064		0.062	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0012	0.0016		0.016	0.5	10	70
Copper *	0.046	0.014		0.16	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	< 0.0030	< 0.0030		< 0.020	0.5	10	30
Nickel *	0.0016	< 0.0010		0.0067	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.034	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0054	0.0057		0.057	4	50	200
Chloride *	< 4.0	< 4.0		19	800	4000	25000
Fluoride	0.81	0.65		6.6	10	150	500
Sulphate *	2.7	2.8		28	1000	20000	50000
TDS	37	32		320	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	11	6.6		70	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2.0						
Dry Matter (%)	84						
Moisture (%)	16						
Stage 1							
Volume Eluate L2 (litres)	0.31						
Filtered Eluate VE1 (litres)	0.12						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited							

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Waste Acceptance Criteria Analytical Results							
Report No:	17-65755						
							Client: ENZYGO GEO
Location	Stubbington						
Lab Reference (Sample Number)	846774						
Sampling Date	20/10/2017						
Sample ID	TP48						
Depth (m)	0.20						
					Landfill Waste Acceptance Criteria		
					Limits		
					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Solid Waste Analysis							
TOC (%)**	0.9				3%	5%	6%
Loss on Ignition (%) **	3.2				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	6.6				--	>6	--
Acid Neutralisation Capacity (mol / kg)	-1.1				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	< 0.0050	0.0063		0.062	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0023	0.0021		0.021	0.5	10	70
Copper *	0.035	0.0082		0.099	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	< 0.0030	< 0.0030		< 0.020	0.5	10	30
Nickel *	0.0011	< 0.0010		< 0.0050	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.024	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0066	0.0029		0.032	4	50	200
Chloride *	< 4.0	< 4.0		17	800	4000	25000
Fluoride	0.83	0.64		6.5	10	150	500
Sulphate *	2.0	2.7		26	1000	20000	50000
TDS	27	26		260	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	12	5.8		62	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.7						
Dry Matter (%)	86						
Moisture (%)	14						
Stage 1							
Volume Eluate L2 (litres)	0.31						
Filtered Eluate VE1 (litres)	0.11						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. * = UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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The results included within the report are representative of the samples submitted for analysis.



Analytical Report Number : 17-65755

Project / Site name: Stubbington

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
846772	TP4	None Supplied	0.20	Brown loam and clay with gravel and vegetation.
846773	TP10	None Supplied	0.10	Brown loam and clay with gravel and vegetation.
846774	TP48	None Supplied	0.20	Brown loam and clay with gravel and vegetation.



Analytical Report Number : 17-65755

Project / Site name: Stubbington

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Human Health Assessment Reference Values

Determinant	Units	GAC Value Residential					
		With Plant Uptake			Without Plant Uptake		
Arsenic	mg/kg	37			40		
Cadmium	mg/kg	11			85		
Chromium	mg/kg	910			910		
Chromium VI	mg/kg	6			6		
Lead	mg/kg	200			310		
Mercury	mg/kg	40			56		
Nickel	mg/kg	130			180		
Selenium	mg/kg	250			430		
Copper	mg/kg	2400			7100		
Zinc	mg/kg	3700			40000		
Cyanide	mg/kg	791			800		
SOM							
	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	120	200	380	440	690	1200
Napthalene	mg/kg	2.3	5.6	13	2.3	5.6	13
Acenaphtylene	mg/kg	170	420	920	2900	4600	6000
Acenaphthene	mg/kg	210	510	1100	3000	4700	6000
Flourene	mg/kg	170	400	860	2800	3800	4500
Phenanthrene	mg/kg	95	220	440	1300	1500	1500
Anthracene	mg/kg	2400	5400	11000	31000	35000	37000
Fluoranthene	mg/kg	280	560	890	1500	1600	1600
Pyrene	mg/kg	620	1200	2000	3700	3800	3800
Benzo(a)Anthracene	mg/kg	7.2	11	13	11	14	15
Chrysene	mg/kg	15	22	27	30	31	32
Benzo(b)Flouranthene	mg/kg	2.6	3.3	3.7	3.9	4.0	4.0
Benzo(k)Flouranthene	mg/kg	77	93	100	110	110	110
Benzo(a)Pyrene	mg/kg	2.2	2.7	3.0	3.2	3.2	3.2
Indeno(123-cd)Pyrene	mg/kg	27	36	41	45	46	46
Dibenzo(a,h)Anthracene	mg/kg	0.24	0.28	0.3	0.31	0.32	0.32
Benzo(ghi)Perylene	mg/kg	320	340	350	360	360	360
TPH C₅-C₆ Aliphatic							
	mg/kg	42	78	160	42	78	160
TPH C₆-C₈ Aliphatic							
	mg/kg	100	230	530	100	230	530
TPH C₈-C₁₀ Aliphatic							
	mg/kg	27	65	150	27	65	150
TPH C₁₀-C₁₂ Aliphatic							
	mg/kg	130	330	760	130	330	770
TPH C₁₂-C₁₆ Aliphatic							
	mg/kg	1100	2400	4300	1100	2400	4400
TPH C₁₆-C₃₅ Aliphatic							
	mg/kg	65000	92000	110000	65000	92000	110000
TPH C₃₅-C₄₄ Aliphatic							
	mg/kg	65000	92000	110000	65000	92000	110000
TPH C₅-C₇ Aromatic							
	mg/kg	70	140	300	370	690	1400
TPH C₇-C₈ Aromatic							
	mg/kg	130	290	660	860	1800	3900
TPH C₈-C₁₀ Aromatic							
	mg/kg	34	83	190	47	110	270
TPH C₁₀-C₁₂ Aromatic							
	mg/kg	74	180	380	250	590	1200
TPH C₁₂-C₁₆ Aromatic							
	mg/kg	140	330	660	1800	2300	2500
TPH C₁₆-C₂₁ Aromatic							
	mg/kg	260	540	930	1900	1900	1900
TPH C₂₁-C₃₅ Aromatic							
	mg/kg	1100	1500	1700	1900	1900	1900
TPH C₃₅-C₄₄ Aromatic							
	mg/kg	1100	1500	1700	1900	1900	1900
Benzene							
	mg/kg	0.087	0.17	0.37	0.38	0.70	1.4
Toluene							
	mg/kg	130	290	660	880	1900	3900
Ethylbenzene							
	mg/kg	47	110	260	83	190	440
Xylene							
	mg/kg	56	130	310	79	180	430

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Determinant	Units	GAC Value					
		Residential POS			Commercial		
Arsenic	mg/kg	79			640		
Cadmium	mg/kg	120			190		
Chromium	mg/kg	1500			8600		
Chromium VI	mg/kg	7.7			33		
Lead	mg/kg	630			2330		
Mercury	mg/kg	120			1100		
Nickel	mg/kg	230			980		
Selenium	mg/kg	1100			12000		
Copper	mg/kg	12000			68000		
Zinc	mg/kg	81000			730000		
Cyanide	mg/kg	N/A			16200		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	760	1500	3200	760	1500	3200
Napthalene	mg/kg	4900	4900	4900	190	460	1100
Acenaphtylene	mg/kg	15000	15000	15000	83000	97000	100000
Acenaphthene	mg/kg	15000	15000	15000	84000	97000	100000
Flourene	mg/kg	9900	9900	9900	63000	68000	71000
Phenanthrene	mg/kg	3100	3100	3100	22000	22000	23000
Anthracene	mg/kg	74000	74000	74000	520000	540000	540000
Fluoranthene	mg/kg	3100	3100	3100	23000	23000	23000
Pyrene	mg/kg	7400	7400	7400	54000	54000	54000
Benzo(a)Anthracene	mg/kg	29	29	29	170	170	180
Chrysene	mg/kg	57	57	57	350	350	350
Benzo(b)Flouranthene	mg/kg	7.1	7.2	7.2	44	44	45
Benzo(k)Flouranthene	mg/kg	190	190	190	1200	1200	1200
Benzo(a)Pyrene	mg/kg	5.7	5.7	5.7	35	35	36
Indeno(123-cd)Pyrene	mg/kg	82	82	82	500	510	510
Dibenzo(a,h)Anthracene	mg/kg	0.57	0.57	0.58	3.5	3.6	3.6
Benzo(ghi)Perylene	mg/kg	640	640	640	3900	4000	4000
TPH C ₅ -C ₆ Aliphatic	mg/kg	570000	590000	600000	3200	5900	12000
TPH C ₆ -C ₈ Aliphatic	mg/kg	600000	610000	620000	7800	17000	40000
TPH C ₈ -C ₁₀ Aliphatic	mg/kg	13000	13000	13000	2000	4800	11000
TPH C ₁₀ -C ₁₂ Aliphatic	mg/kg	13000	13000	13000	9700	23000	47000
TPH C ₁₂ -C ₁₆ Aliphatic	mg/kg	13000	13000	13000	59000	82000	90000
TPH C ₁₆ -C ₃₅ Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C ₃₅ -C ₄₄ Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C ₅ -C ₇ Aromatic	mg/kg	56000	56000	56000	26000	46000	86000
TPH C ₇ -C ₈ Aromatic	mg/kg	56000	56000	56000	56000	110000	180000
TPH C ₈ -C ₁₀ Aromatic	mg/kg	5000	5000	5000	3500	8100	17000
TPH C ₁₀ -C ₁₂ Aromatic	mg/kg	5000	5000	5000	16000	28000	34000
TPH C ₁₂ -C ₁₆ Aromatic	mg/kg	5100	5100	5000	36000	37000	38000
TPH C ₁₆ -C ₂₁ Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
TPH C ₂₁ -C ₃₅ Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
TPH C ₃₅ -C ₄₄ Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
Benzene	mg/kg	72	72	73	27	47	90
Toluene	mg/kg	56000	56000	56000	56000	110000	180000
Ethylbenzene	mg/kg	24000	24000	25000	5700	13000	27000
Xylene	mg/kg	41000	42000	43000	5900	14000	30000

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Determinant	Units	GAC Value					
		Park POS			Allotments		
Arsenic	mg/kg	170			43		
Cadmium	mg/kg	532			1.9		
Chromium	mg/kg	33000			18000		
Chromium VI	mg/kg	220			1.8		
Lead	mg/kg	1300			80		
Mercury	mg/kg	240			19		
Nickel	mg/kg	800			53		
Selenium	mg/kg	1800			88		
Copper	mg/kg	44000			520		
Zinc	mg/kg	170000			620		
Cyanide	mg/kg						
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	760	1500	3200	66	140	280
Napthalene	mg/kg	1200	1900	3000	4.1	10	24
Acenaphtylene	mg/kg	29000	30000	30000	28	69	160
Acenaphthene	mg/kg	29000	30000	30000	34	85	200
Flourene	mg/kg	20000	20000	20000	27	67	160
Phenanthrene	mg/kg	6200	6200	6300	15	38	90
Anthracene	mg/kg	150000	150000	150000	380	950	2200
Fluoranthene	mg/kg	6300	6300	6400	52	130	290
Pyrene	mg/kg	15000	15000	15000	110	270	620
Benzo(a)Anthracene	mg/kg	49	56	62	2.9	6.5	13
Chrysene	mg/kg	93	110	120	4.1	9.4	19
Benzo(b)Flouranthene	mg/kg	13	15	16	0.99	2.1	3.9
Benzo(k)Flouranthene	mg/kg	370	410	440	37	75	130
Benzo(a)Pyrene	mg/kg	11	12	13	0.97	2.0	3.5
Indeno(123-cd)Pyrene	mg/kg	150	170	180	9.5	21	39
Dibenzo(a,h)Anthracene	mg/kg	1.1	1.3	1.4	0.14	0.27	0.43
Benzo(ghi)Perylene	mg/kg	1400	1500	1600	290	470	640
TPH C ₅ -C ₆ Aliphatic	mg/kg	95000	130000	180000	730	1700	3900
TPH C ₆ -C ₈ Aliphatic	mg/kg	150000	220000	320000	2300	5600	13000
TPH C ₈ -C ₁₀ Aliphatic	mg/kg	14000	18000	21000	320	770	1700
TPH C ₁₀ -C ₁₂ Aliphatic	mg/kg	21000	23000	24000	2200	4400	7300
TPH C ₁₂ -C ₁₆ Aliphatic	mg/kg	25000	25000	26000	11000	13000	13000
TPH C ₁₆ -C ₃₅ Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C ₃₅ -C ₄₄ Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C ₅ -C ₇ Aromatic	mg/kg	76000	84000	92000	13	27	57
TPH C ₇ -C ₈ Aromatic	mg/kg	87000	95000	100000	22	51	120
TPH C ₈ -C ₁₀ Aromatic	mg/kg	7200	8500	9300	8.6	21	51
TPH C ₁₀ -C ₁₂ Aromatic	mg/kg	9200	9700	10000	13	31	74
TPH C ₁₂ -C ₁₆ Aromatic	mg/kg	10000	10000	10000	23	57	130
TPH C ₁₆ -C ₂₁ Aromatic	mg/kg	7600	7700	7800	46	110	260
TPH C ₂₁ -C ₃₅ Aromatic	mg/kg	7800	7800	7900	370	820	1600
TPH C ₃₅ -C ₄₄ Aromatic	mg/kg	7800	7800	7900	370	820	1600
Benzene	mg/kg	90	100	110	0.017	0.034	0.075
Toluene	mg/kg	87000	95000	100000	22	51	120
Ethylbenzene	mg/kg	17000	22000	27000	16	39	91
Xylene	mg/kg	17000	23000	31000	28	67	160

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Controlled Waters Assessment Reference Values

Determinant	Unit	EQS Freshwater						Uk DWS	WHO
		0-50	50-100	100-150	150-200	200-250	>250		
Hardness	mg/l	0-50	50-100	100-150	150-200	200-250	>250		
Arsenic	ug/l	50						10	10
Boron	ug/l	2000						1000	0.3
Cadmium	ug/l	5						5	3
Chromium	ug/l	2	10	10	20	20	20	50	50
Lead	ug/l	4	10	10	20	20	20	10	10
Mercury	ug/l	1						1	1
Selenium	ug/l							10	10
Copper	ug/l	0.5	3	3	3	8	12	20000	2000
Nickel	ug/l	8	20	20	40	40	40	20	70
Zinc	ug/l	8	15	15	50	50	50	5000	3000
Sulphate	mg/l	400						250	250
PAH	ug/l							0.1	
Anthracene	ug/l	0.02							
Napthalene	ug/l	10							
Benzo(a)Pyrene	ug/l	0.03							0.01
Fluoranthene	ug/l	0.02							
Benzene	ug/l	30						1	10
Toluene	ug/l	50							
Ethylebenzene	ug/l	20							
Xylene	ug/l	30							
C ₅ – C ₆ Aliphatic	ug/l								15000
C ₆ – C ₈ Aliphatic	ug/l								15000
C ₈ – C ₁₀ Aliphatic	ug/l								300
C ₁₀ – C ₁₂ Aliphatic	ug/l								300
C ₁₂ – C ₁₆ Aliphatic	ug/l								300
C ₁₆ – C ₃₆ Aliphatic	ug/l								N/A
C ₆ – C ₇ Aromatic	ug/l								10
C ₇ – C ₈ Aromatic	ug/l	50							10
C ₈ – C ₁₀ Aromatic	ug/l	20							300
C ₁₀ – C ₁₂ Aromatic	ug/l								1000
C ₁₂ – C ₁₆ Aromatic	ug/l								1000
C ₁₆ – C ₂₁ Aromatic	ug/l								90
C ₂₁ – C ₃₅ Aromatic	ug/l								90



Steve Rhodes

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t: 01923 225404

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e: reception@i2analytical.com

e: steve.rhodes@enzygo.com

Analytical Report Number : 17-65861

Project / Site name:	Stubbington	Samples received on:	27/10/2017
Your job number:	CRM.1033.030	Samples instructed on:	27/10/2017
Your order number:		Analysis completed by:	09/11/2017
Report Issue Number:	1	Report issued on:	09/11/2017
Samples Analysed:	4 soil samples		

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-65861

Project / Site name: Stubbington

Lab Sample Number	847339			847340			847341			847342		
Sample Reference	TP35			TP35			TP52			TP52		
Sample Number	None Supplied			None Supplied			None Supplied			None Supplied		
Depth (m)	1.00			2.00			1.00			2.00		
Date Sampled	24/10/2017			24/10/2017			24/10/2017			24/10/2017		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status									
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	18	21	13	12	13	12	12	12	
Total mass of sample received	kg	0.001	NONE	0.38	0.38	0.42	0.41	0.42	0.41	0.41	0.41	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.4	7.3	7.4	7.3
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.011	0.023	0.033	0.13



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

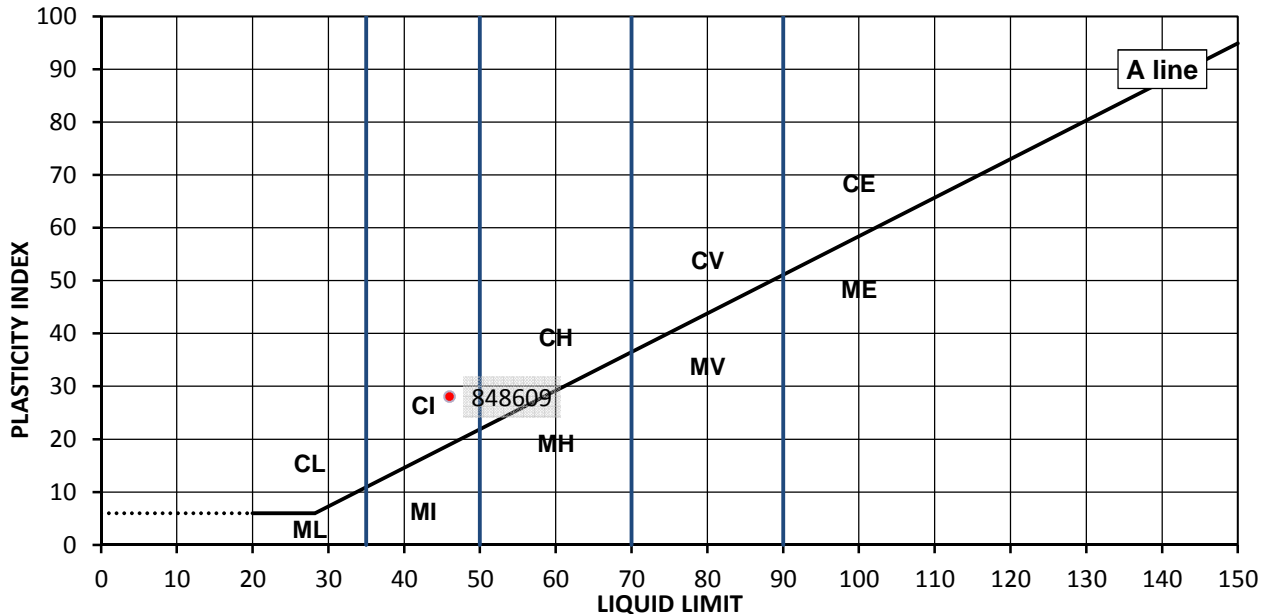
TEST RESULTS

Laboratory Reference: 848609
Sample Reference: Not Given

Description: Yellowish brown slightly sandy CLAY
Location: TP42
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 0.50
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
23	46	18	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section
Date Reported: 14/11/2017

Signed:

Mark Beastall
Geotechnical Commercial
Manager

for and on behalf of i2 Analytical Ltd

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Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
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Date Sampled: 24/10/2017
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Date Tested: 08/11/2017
Sampled By: Not Given

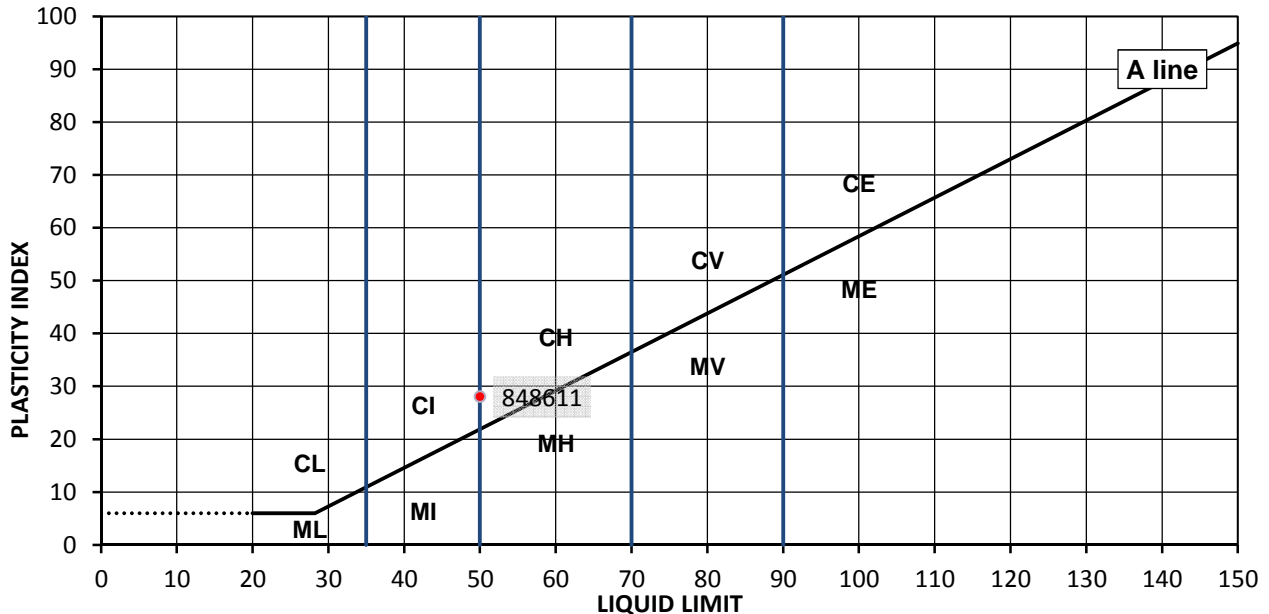
TEST RESULTS

Laboratory Reference: 848611
Sample Reference: Not Given

Description: Yellowish brown slightly sandy CLAY
Location: TP35
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 1.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	50	22	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)			

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section
Date Reported: 14/11/2017

Signed:

Mark Beastall
Geotechnical Commercial
Manager

for and on behalf of i2 Analytical Ltd

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Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
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GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
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Date Tested: 08/11/2017
Sampled By: Not Given

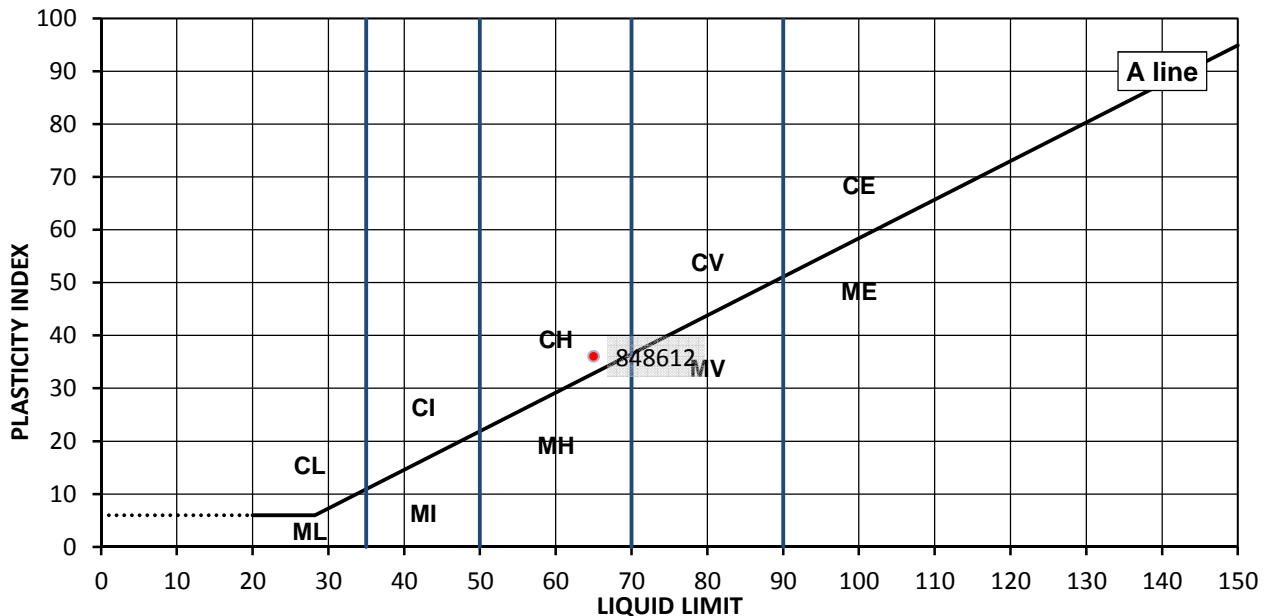
TEST RESULTS

Laboratory Reference: 848612
Sample Reference: Not Given

Description: Yellowish brown CLAY
Location: TP35
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
30	65	29	36	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)			

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section

Date Reported: 14/11/2017

Signed:

Mark Beastall
Geotechnical Commercial
Manager

for and on behalf of i2 Analytical Ltd

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Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
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GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

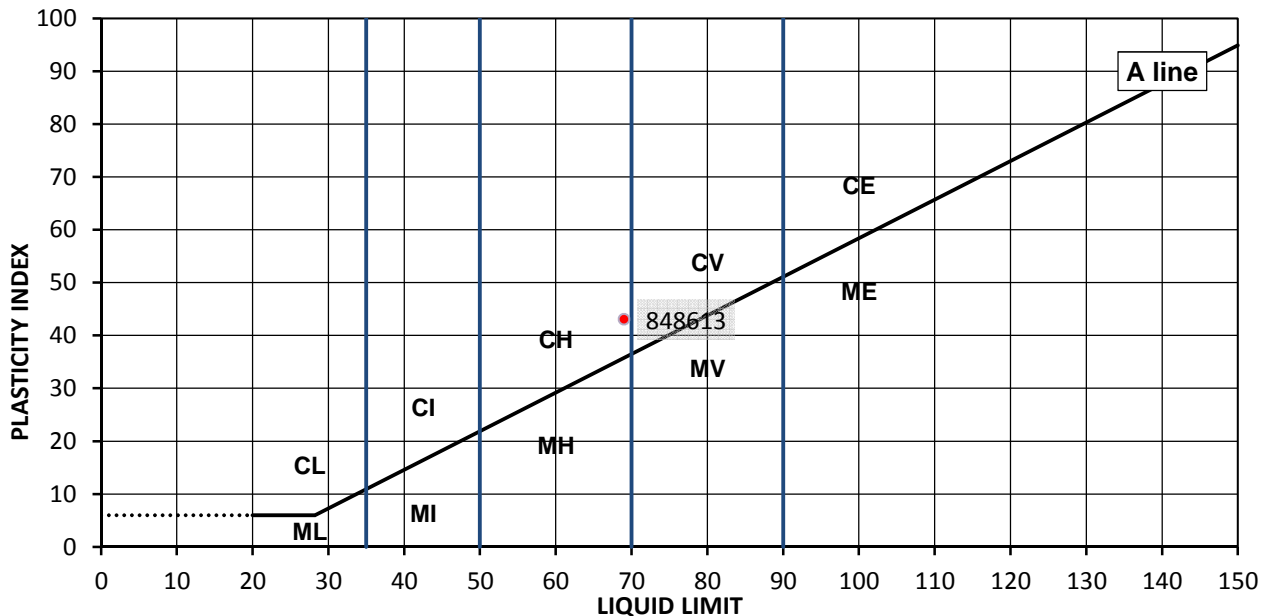
TEST RESULTS

Laboratory Reference: 848613
Sample Reference: Not Given

Description: Yellowish brown CLAY
Location: TP37
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 1.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
23	69	26	43	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
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Section
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GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

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Job Number: 17-66107
Date Sampled: 24/10/2017
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Date Tested: 08/11/2017
Sampled By: Not Given

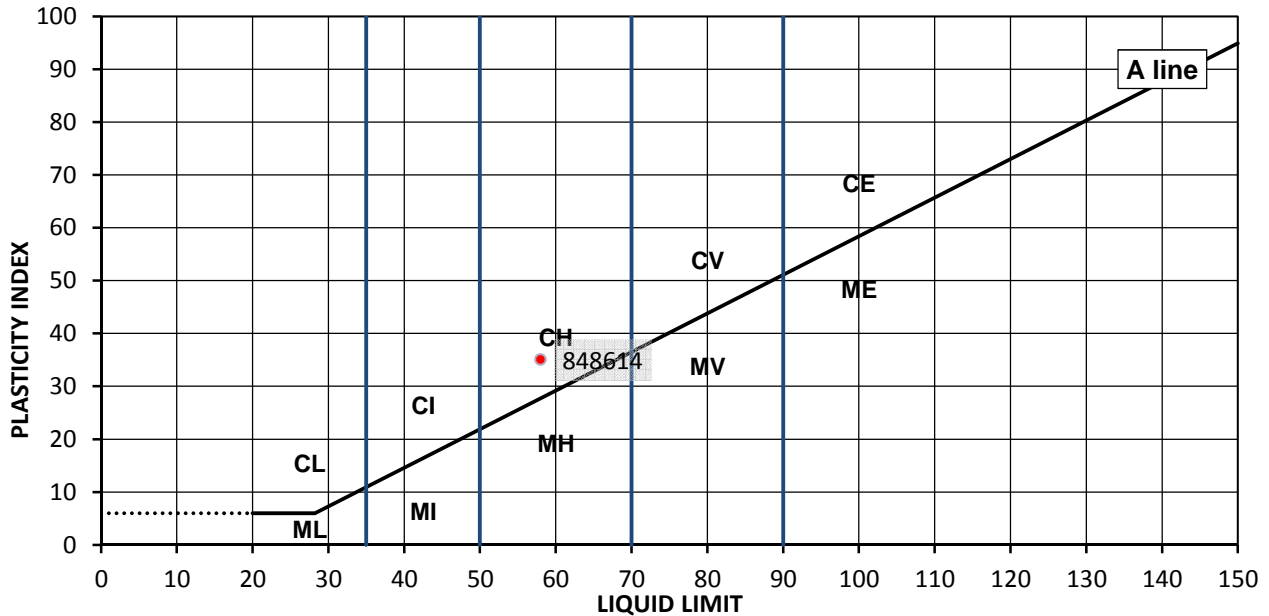
TEST RESULTS

Laboratory Reference: 848614
Sample Reference: Not Given

Description: Yellowish brown slightly sandy CLAY
Location: TP37
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
24	58	23	35	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

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Date Reported: 14/11/2017

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Manager

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Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
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Date Sampled: 24/10/2017
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Sampled By: Not Given

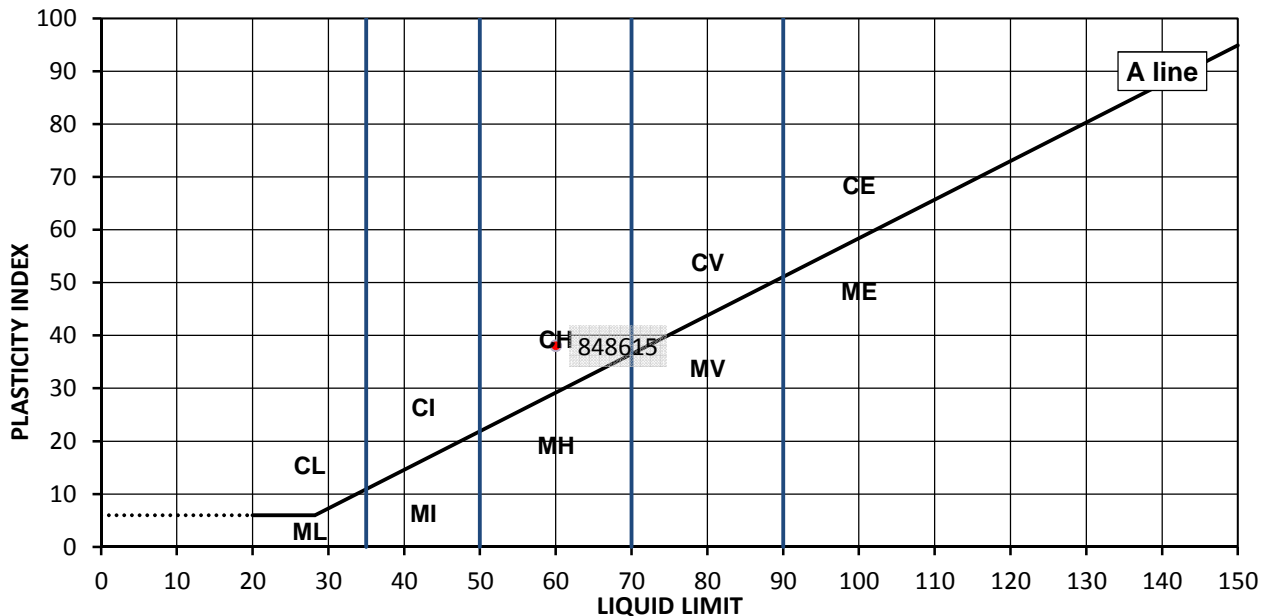
TEST RESULTS

Laboratory Reference: 848615
Sample Reference: Not Given

Description: Yellowish brown slightly sandy CLAY
Location: TP43
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 1.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	60	22	38	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section
Date Reported: 14/11/2017

Signed:

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Geotechnical Commercial
Manager

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Site Name: Stubbington
Site Address: Not Given

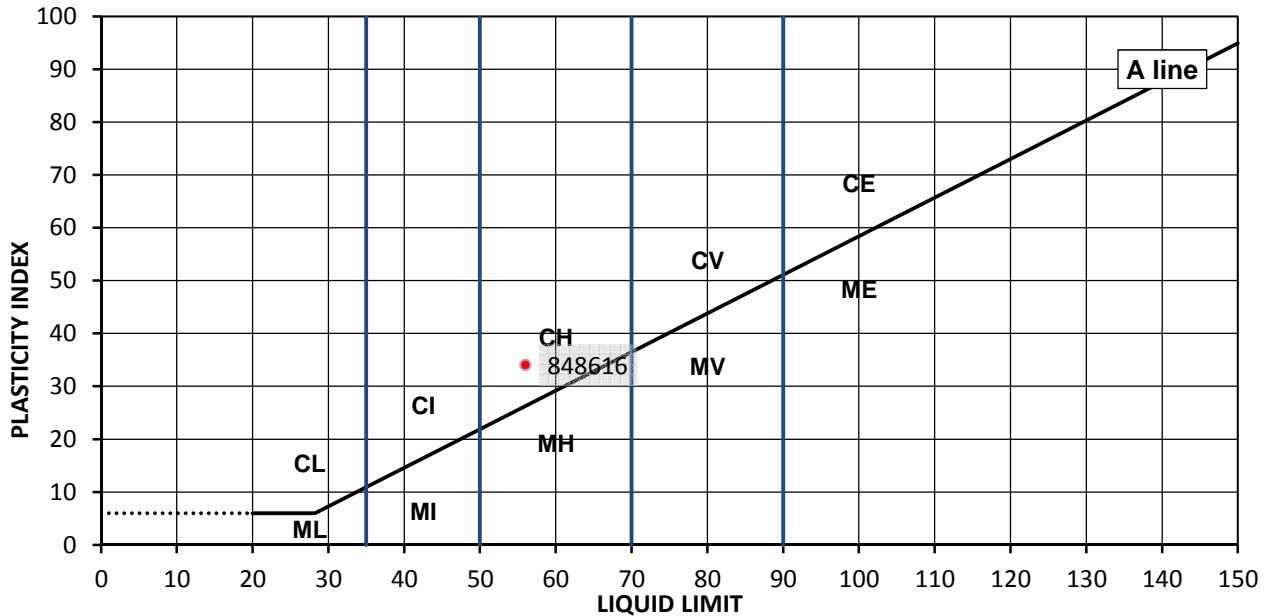
Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 848616
Sample Reference: Not Given

Description: Yellowish brown CLAY
Location: TP43
Sample Preparation: Tested in natural condition
Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
25	56	22	34	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section
Date Reported: 14/11/2017

Signed:

Mark Beastall
Geotechnical Commercial
Manager

for and on behalf of i2 Analytical Ltd

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Site Address: Not Given

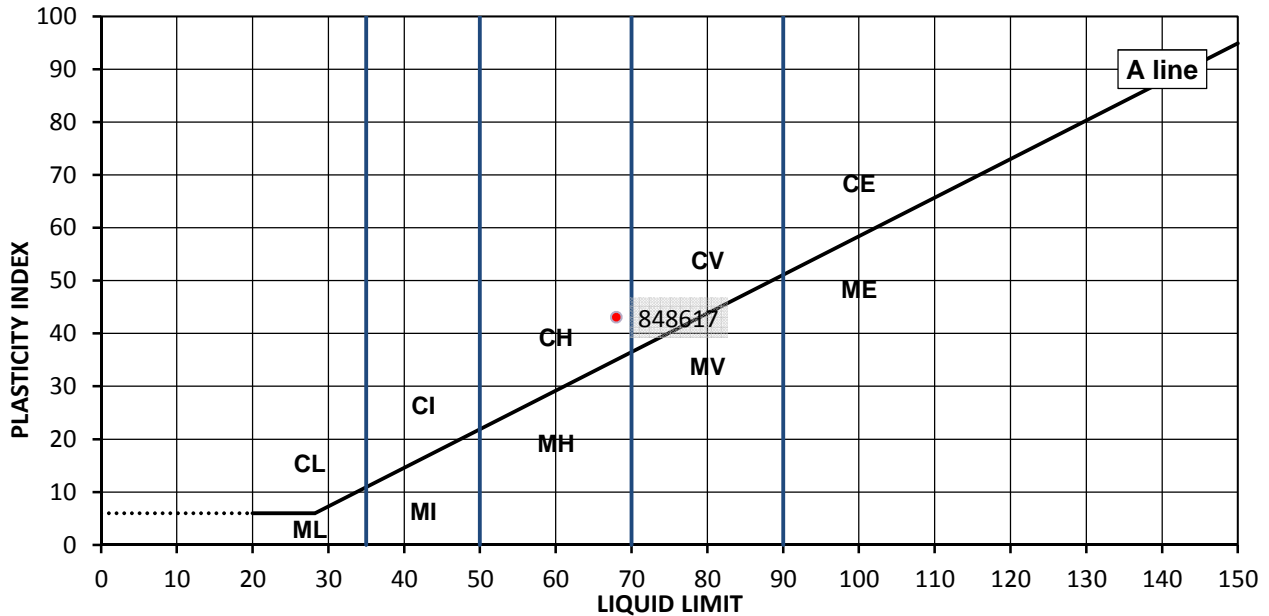
Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 848617
Sample Reference: Not Given

Description: Yellowish CLAY
Location: TP52
Sample Preparation: Tested in natural condition
Sample Type: D
Depth Top [m]: 1.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
19	68	25	43	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

Signed:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section
Date Reported: 14/11/2017

Mark Beastall
Geotechnical Commercial
Manager

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

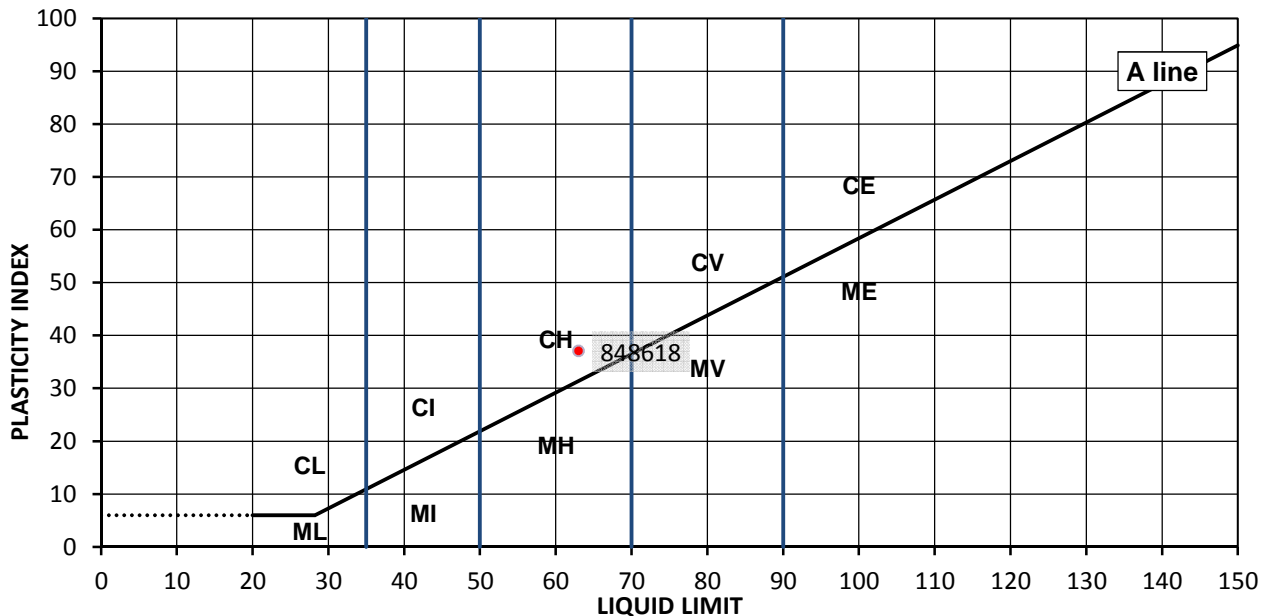
TEST RESULTS

Laboratory Reference: 848618
Sample Reference: Not Given

Description: Yellowish brown CLAY
Location: TP52
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	63	26	37	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section
Date Reported: 14/11/2017

Signed:

Mark Beastall
Geotechnical Commercial
Manager

for and on behalf of i2 Analytical Ltd

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Gloucestershire
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Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
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Sampled By: Not Given

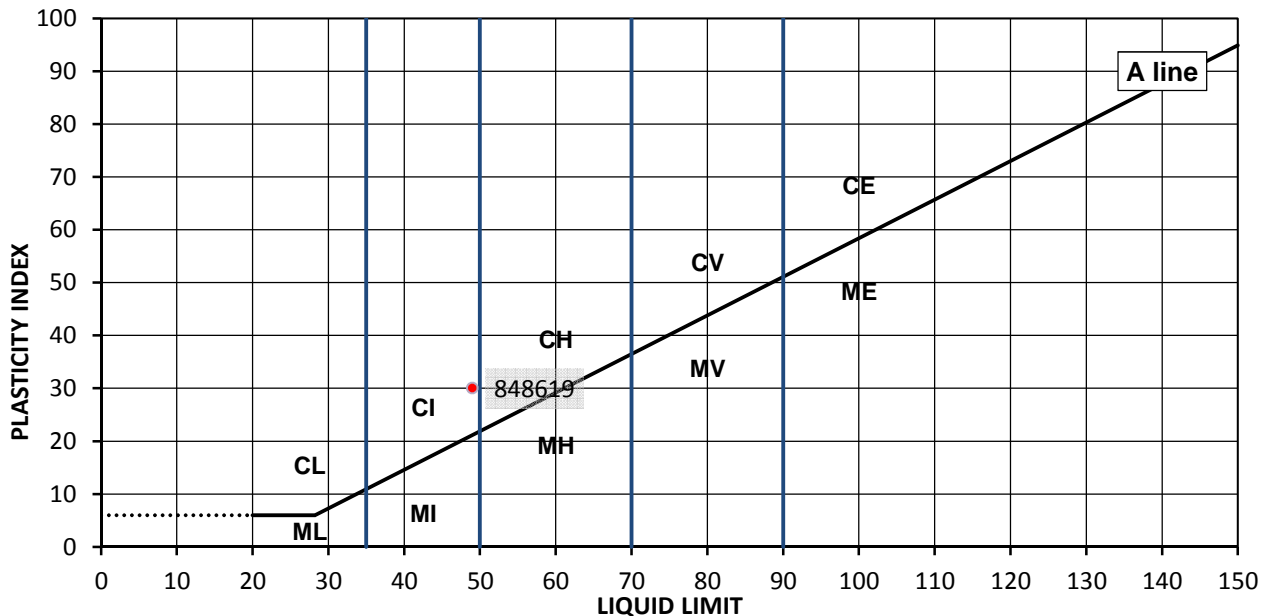
TEST RESULTS

Laboratory Reference: 848619
Sample Reference: Not Given

Description: Yellowish brown slightly sandy CLAY
Location: TP11
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 1.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	49	19	30	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

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Manager Geotechnical
Section
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Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
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Sampled By: Not Given

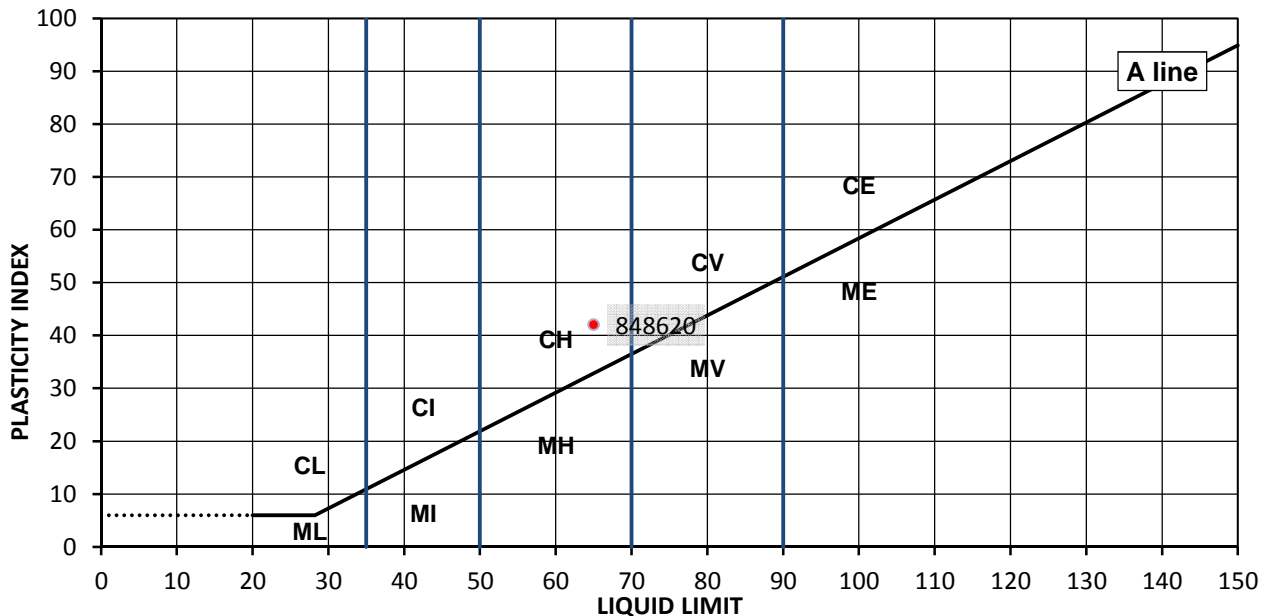
TEST RESULTS

Laboratory Reference: 848620
Sample Reference: Not Given

Description: Yellowish brown CLAY
Location: TP11
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	65	23	42	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)			

Remarks

Approved:

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PL Laboratory
Manager Geotechnical
Section

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Determination of Liquid and Plastic Limits

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Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
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Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
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Date Tested: 08/11/2017
Sampled By: Not Given

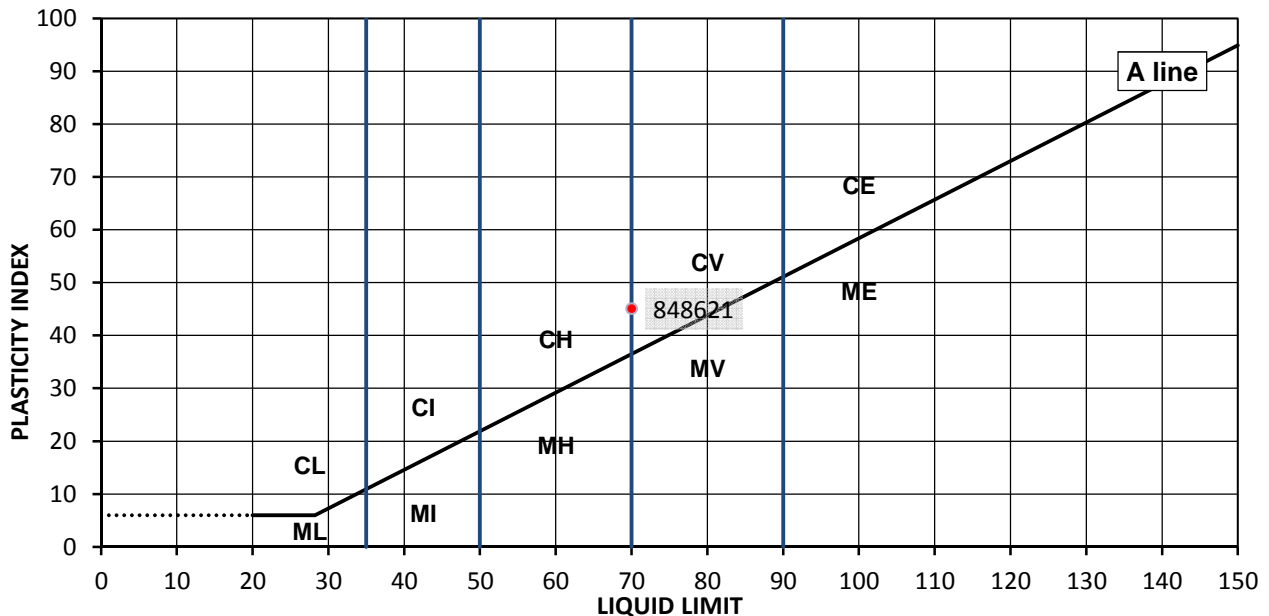
TEST RESULTS

Laboratory Reference: 848621
Sample Reference: Not Given

Description: Yellowish brown slightly gravelly CLAY
Location: TP28
Sample Preparation: Tested after >425um removed by hand

Sample Type: D
Depth Top [m]: 1.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
44	70	25	45	99



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section

Date Reported: 14/11/2017

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Geotechnical Commercial
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Determination of Liquid and Plastic Limits

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Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
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Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

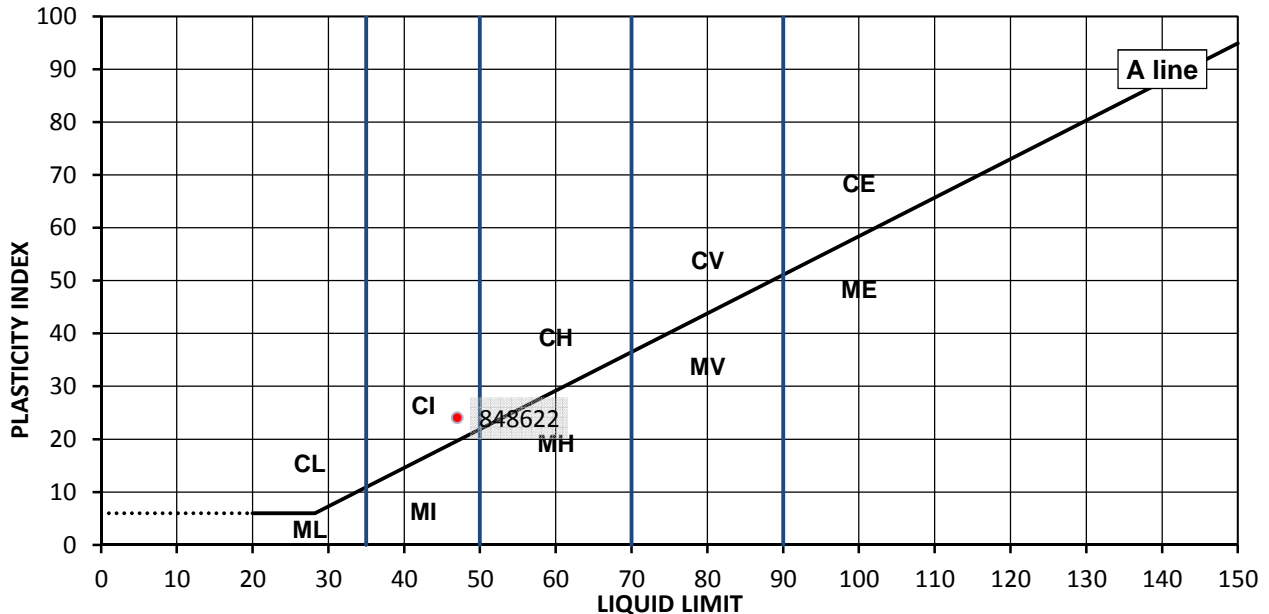
TEST RESULTS

Laboratory Reference: 848622
Sample Reference: Not Given

Description: Brown slightly sandy CLAY
Location: TP28
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	47	23	24	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

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Dariusz Piotrowski
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Section
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Site Address: Not Given

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Job Number: 17-66107
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Date Tested: 08/11/2017
Sampled By: Not Given

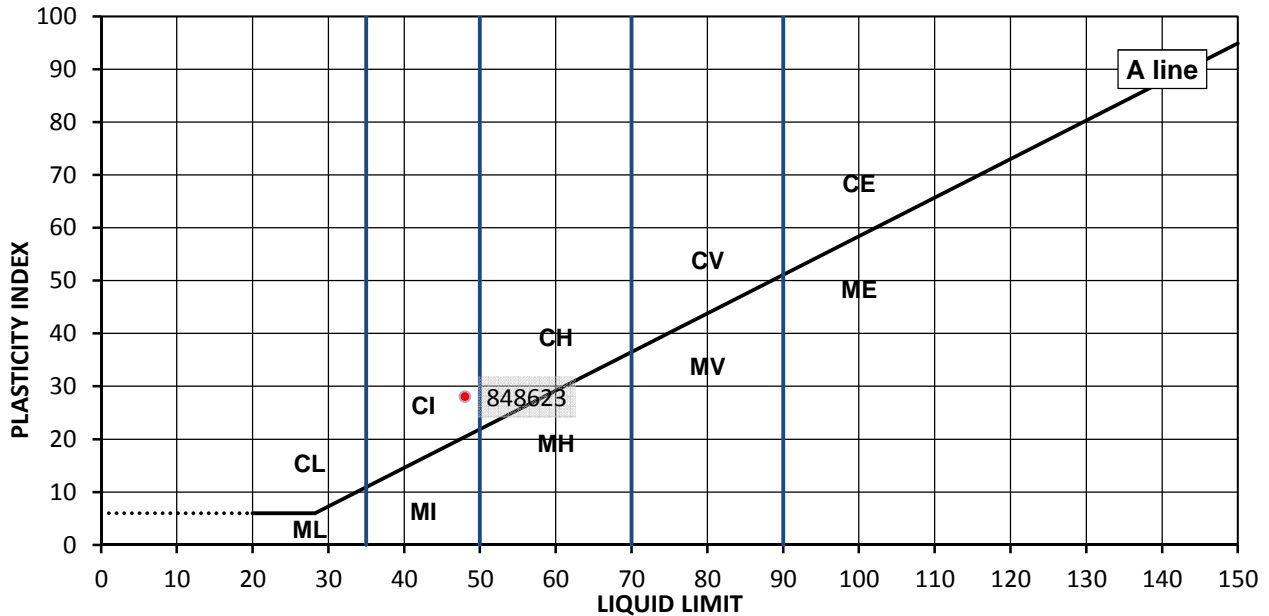
TEST RESULTS

Laboratory Reference: 848623
Sample Reference: Not Given

Description: Yellowish brown slightly sandy CLAY
Location: TP4
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 1.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
19	48	20	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

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Dariusz Piotrowski
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Section
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Contact: Steve Rhodes
Site Name: Stubbington
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Date Tested: 08/11/2017
Sampled By: Not Given

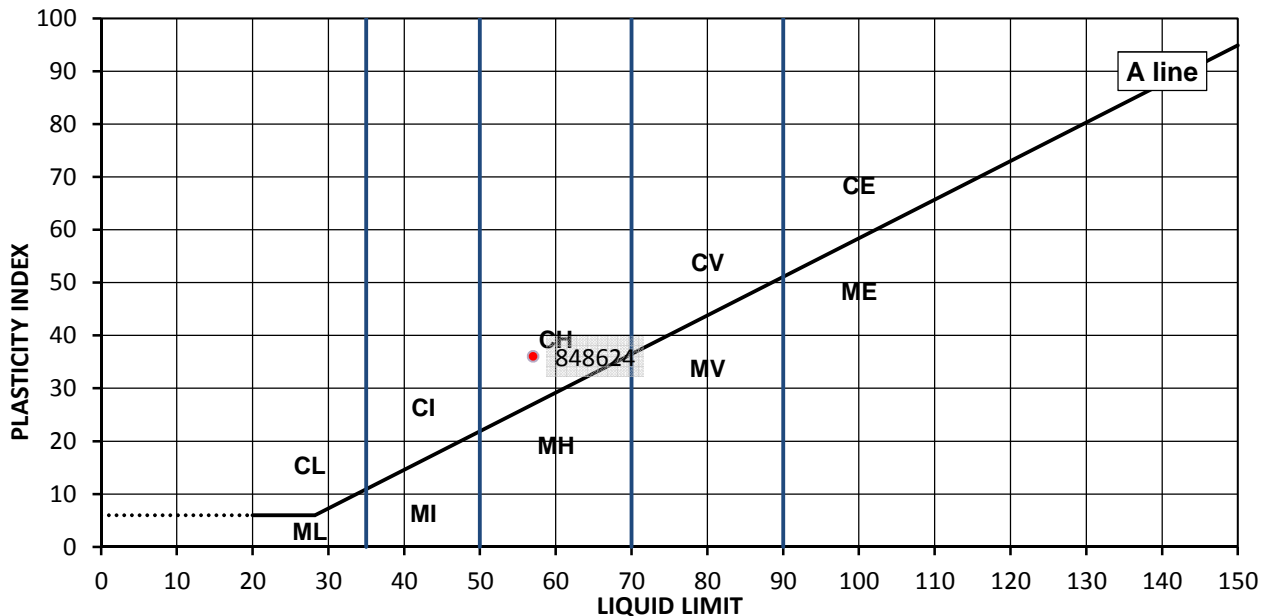
TEST RESULTS

Laboratory Reference: 848624
Sample Reference: Not Given

Description: Yellowish brown slightly sandy CLAY
Location: TP4
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	57	21	36	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)			

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
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Section
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Watford Herts WD18 8YS



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Client Address: The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

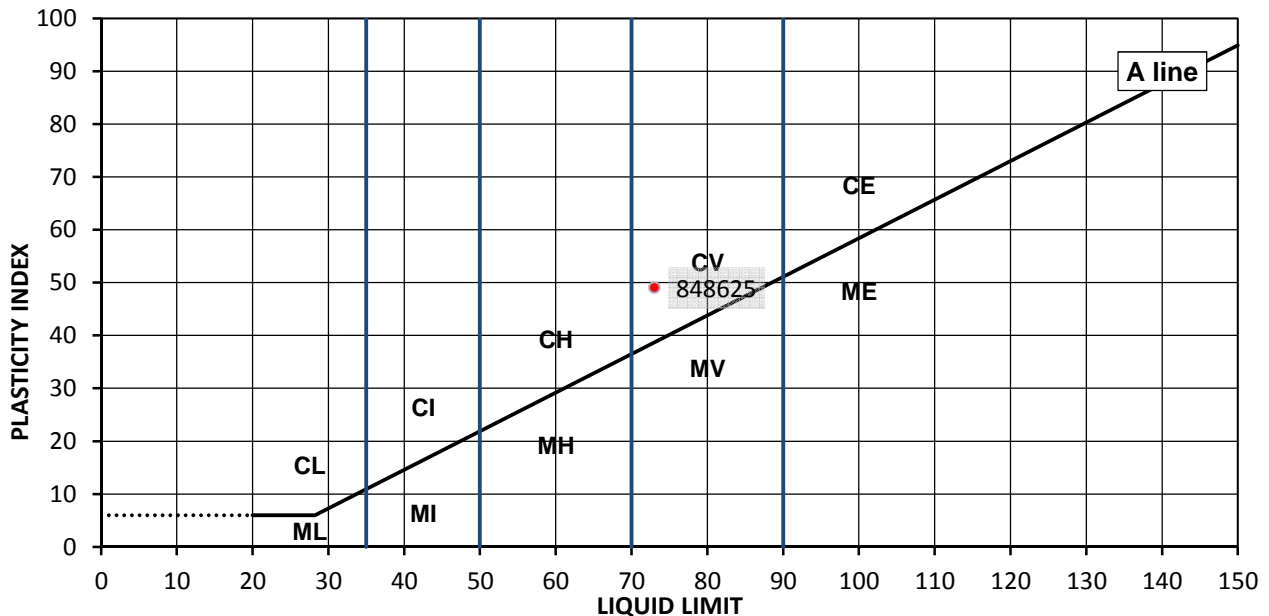
TEST RESULTS

Laboratory Reference: 848625
Sample Reference: Not Given

Description: Yellowish brown CLAY
Location: TP16
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 1.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	73	24	49	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

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Dariusz Piotrowski
PL Laboratory
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Section
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Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
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Sampled By: Not Given

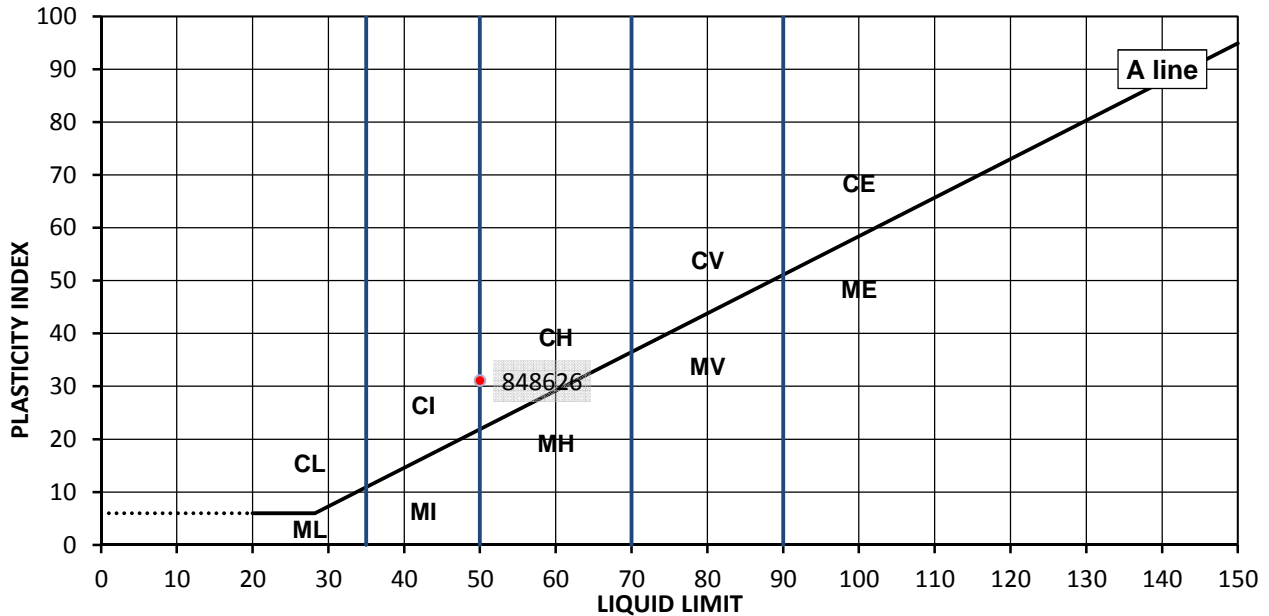
TEST RESULTS

Laboratory Reference: 848626
Sample Reference: Not Given

Description: Yellowish brown slightly sandy CLAY
Location: TP16
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
28	50	19	31	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	L	Low	Liquid Limit	below 35
M	Silt	I	Medium		35 to 50
		H	High		50 to 70
		V	Very high		70 to 90
		E	Extremely high		exceeding 90
	Organic	O	append to classification for organic material (eg CHO)		

Remarks

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Dariusz Piotrowski
PL Laboratory
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Section
Date Reported: 14/11/2017

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TEST CERTIFICATE

Summary of Classification Test Results

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Client: Enzygo Geoenvironmental Ltd
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GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C %	Atterberg				PD Mg/m3
		Reference	Top depth [m]	Base depth [m]	Type		bulk	dry		% Passing 425um %	LL %	PL %	PI %	
							Mg/m3	Mg/m3						
848619	TP11	Not Given	1.00	Not Given	D	Yellowish brown slightly sandy CLAY			14	100	49	19	30	
848620	TP11	Not Given	2.00	Not Given	D	Yellowish brown CLAY			22	100	65	23	42	
848625	TP16	Not Given	1.00	Not Given	D	Yellowish brown CLAY			27	100	73	24	49	
848626	TP16	Not Given	2.00	Not Given	D	Yellowish brown slightly sandy CLAY			28	100	50	19	31	
848621	TP28	Not Given	1.00	Not Given	D	Yellowish brown CLAY			44	99	70	25	45	
848622	TP28	Not Given	2.00	Not Given	D	Brown slightly sandy CLAY			26	100	47	23	24	
848611	TP35	Not Given	1.00	Not Given	D	Yellowish brown slightly sandy CLAY			26	100	50	22	28	
848612	TP35	Not Given	2.00	Not Given	D	Yellowish brown CLAY			30	100	65	29	36	
848613	TP37	Not Given	1.00	Not Given	D	Yellowish brown CLAY			23	100	69	26	43	
848614	TP37	Not Given	2.00	Not Given	D	Yellowish brown slightly sandy CLAY			24	100	58	23	35	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 14/11/2017

Signed:

Mark Beastall
Geotechnical Commercial Manager

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Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk	dry		% Passing 425um	LL	PL	PI	
							Mg/m3	Mg/m3						
848623	TP4	Not Given	1.00	Not Given	D	Yellowish brown slightly sandy CLAY			19	100	48	20	28	
848624	TP4	Not Given	2.00	Not Given	D	Yellowish brown slightly sandy CLAY			26	100	57	21	36	
848609	TP42	Not Given	0.50	Not Given	D	Yellowish brown slightly sandy CLAY			23	100	46	18	28	
848615	TP43	Not Given	1.00	Not Given	D	Yellowish brown slightly sandy CLAY			22	100	60	22	38	
848616	TP43	Not Given	2.00	Not Given	D	Yellowish brown CLAY			25	100	56	22	34	
848617	TP52	Not Given	1.00	Not Given	D	Yellowish CLAY			19	100	68	25	43	
848618	TP52	Not Given	2.00	Not Given	D	Yellowish brown CLAY			18	100	63	26	37	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 14/11/2017

Signed:

Mark Beastall
Geotechnical Commercial Manager

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TEST CERTIFICATE

Determination of California Bearing Ratio

Tested in Accordance with BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
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Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

Test Results:

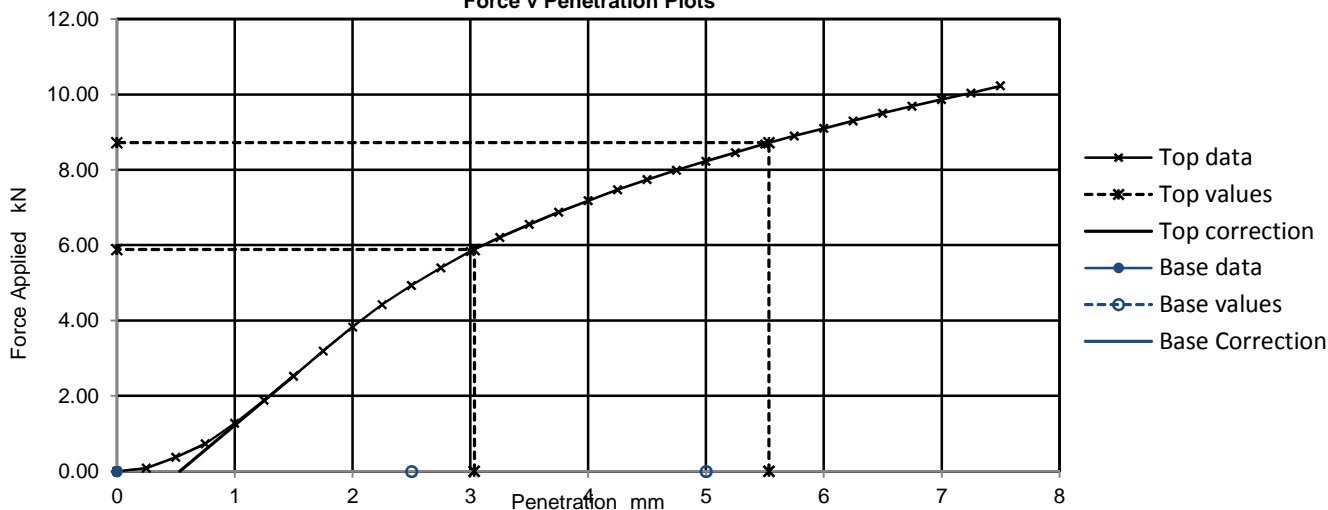
Laboratory Reference: 848608
Hole No.: TP53
Sample Reference: Not Given

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
Sample Description:	Brown gravelly sandy CLAY	Time to surface	days
Material retained on 20mm sieve removed	13 %	Amount of swell recorded	mm
Initial Specimen details	Bulk density 1.91 Mg/m3	Dry density after soaking	Mg/m3
	Dry density 1.77 Mg/m3	Surcharge applied	8 kg
	Moisture content 7.9 %		4.8 kPa

Force v Penetration Plots



Results

Curve correction applied	CBR Values, %				Moisture Content %
	2.5mm	5mm	Highest	Average	
TOP	Yes	45.0	44.0	45.0	7.6
BASE					

Remarks:

Test/ Specimen specific remarks:

Approved:

Signed:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Darren Berrill
Geotechnical General Manager

Date Reported: 14/11/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of California Bearing Ratio

Tested in Accordance with BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 08/11/2017
Sampled By: Not Given

Test Results:

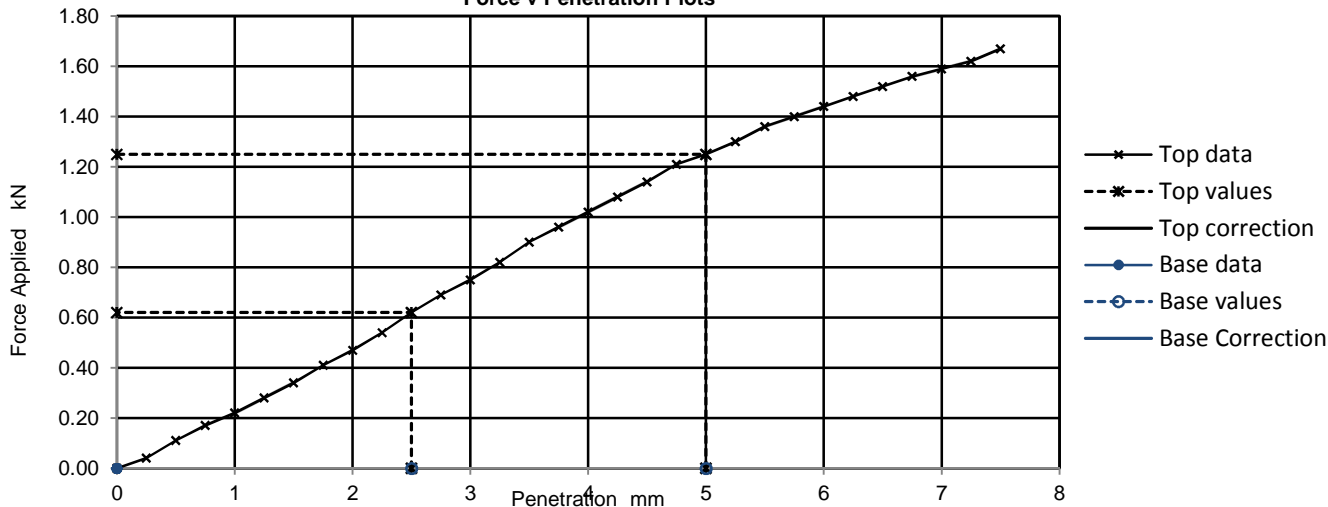
Laboratory Reference: 848609
Hole No.: TP42
Sample Reference: Not Given

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: D

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
Sample Description:	Yellowish brown slightly sandy CLAY	Time to surface	days
Material retained on 20mm sieve removed	0 %	Amount of swell recorded	mm
Initial Specimen details	Bulk density 1.97 Mg/m3	Dry density after soaking	Mg/m3
	Dry density 1.64 Mg/m3	Surcharge applied	16 kg
	Moisture content 20 %		9.7 kPa

Force v Penetration Plots



Results

Curve correction applied	CBR Values, %				Moisture Content %
	2.5mm	5mm	Highest	Average	
TOP	No	4.7	6.3	6.3	19
BASE					

Remarks: Insufficient amount of material - test carried out on not fully compacted CBR Mould

Test/ Specimen specific remarks:

Approved:

Signed:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Darren Berrill
Geotechnical General Manager

Date Reported: 14/11/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of California Bearing Ratio

Tested in Accordance with BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA
Contact: Steve Rhodes
Site Name: Stubbington
Site Address: Not Given

Client Reference: CRM.1033.030
Job Number: 17-66107
Date Sampled: 24/10/2017
Date Received: 30/10/2017
Date Tested: 09/11/2017
Sampled By: Not Given

Test Results:

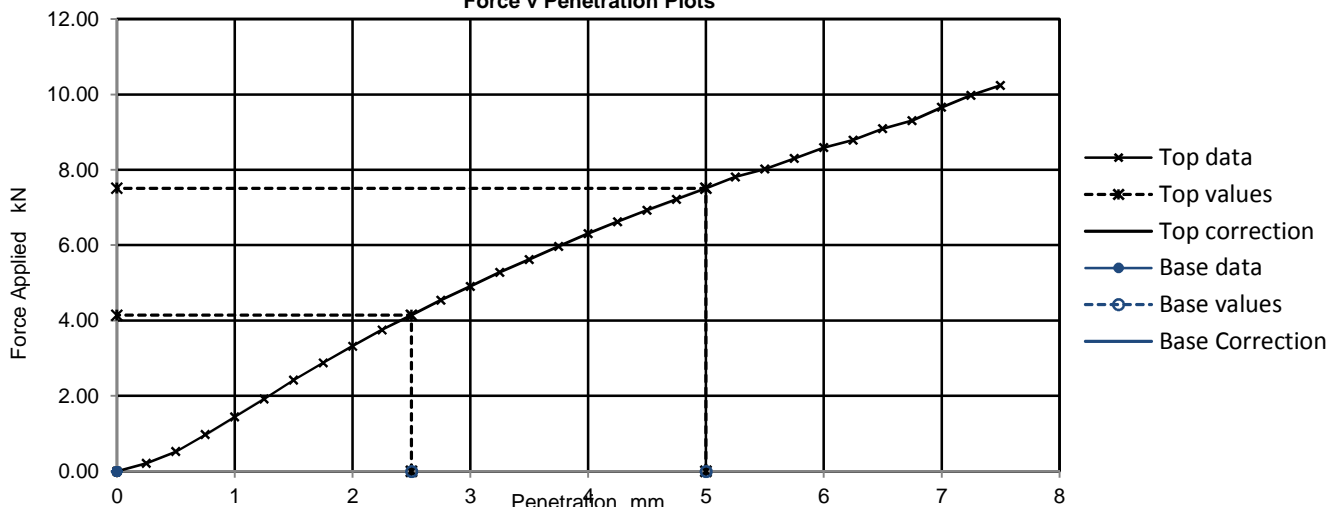
Laboratory Reference: 848610
Hole No.: TP44
Sample Reference: Not Given

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
Sample Description:	Dark brown gravelly CLAY	Time to surface	days
Material retained on 20mm sieve removed	42 %	Amount of swell recorded	mm
Initial Specimen details	Bulk density 2.21 Mg/m3	Dry density after soaking	Mg/m3
	Dry density 2.07 Mg/m3	Surcharge applied	16 kg
	Moisture content 6.7 %		9.7 kPa

Force v Penetration Plots



Results

Curve correction applied	CBR Values, %				Moisture Content %
	2.5mm	5mm	Highest	Average	
TOP	No	31.0	38.0	38.0	7.2
BASE					

Remarks: Test carried out with > 25 % retained on 20mm as per clause 7.2.1.2
Test/ Specimen specific remarks:

Approved:

Signed:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Darren Berrill
Geotechnical General Manager

Date Reported: 14/11/2017

for and on behalf of i2 Analytical Ltd

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Analytical Report Number : 17-65861

Project / Site name: Stubbington

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
847339	TP35	None Supplied	1.00	Light brown clay and sand.
847340	TP35	None Supplied	2.00	Light brown clay and sand.
847341	TP52	None Supplied	1.00	Light brown clay and sand.
847342	TP52	None Supplied	2.00	Light brown clay and sand.



Analytical Report Number : 17-65861

Project / Site name: Stubbington

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Sheffield S36 2AA
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Please visit our website for more information.

enzygo.com