ERGO

ENVIRONMENTAL LTD

PHASE I PRELIMINARY RISK ASSESSMENT

Land at Timmys Lane,
Hurworth-on-Tees,
DL2 2AJ.

Prepared for:

Mr L Whitehouse

Report Ref: 23-1595-R01/RevA
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QUALITY ASSURANCE

REMARKS	Final	RevA – updated to include proposed development
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PROJECT NUMBER	23-1595	

IMS Template Reference:
QR011

EXECUTIVE SUMMARY		
Site Address	Land at Timmys Lane, Hurworth-on-Tees, DL2 2AJ.	
Grid Reference	E431253, N510301.	
Site Area	c.0.87 Hectares.	
Current Site Use/Description	The subject site comprises an irregular shaped parcel of land located in the east of Hurworth-on-Tees, Darlington. The southern site area currently comprises a residential property with associated gardens and parking areas, as well as a large barn with surrounding sheds. Whilst, the northern site area comprises undeveloped maintained grassland. The site is generally flat, however falls away suddenly to Cree Beck along the northern boundary.	
Proposed Development	ERGO understands that the client intends to redevelop the subject site for a residential end use with associated landscaping, driveway and outbuilding.	
Environmental Setting	*Drift Geology*	River Terrace Deposits - Sand & Gravel.
	Bedrock Geology	Sherwood Sandstone Group - Mudstone, Siltstone, Sandstone.
	Hydrogeology	Secondary A aquifer strata overlying a Principal Aquifer (Bedrock Geology).
	Hydrology	Cree Beck is recorded adjacent to the northern site boundary with the River Tees recorded 231m south of the site.
	Flood Risk	The northern part of the site is currently defined as a Flood Risk Zone 3; defined as land assessed as having between 1 in 100 (1%) or greater chance of flooding each year from a river. With the majority of the site recorded to be located within EA Flood Risk Zone 1. A medium potential risk for flooding to occur from rivers and coastal flooding, a localised risk of surface water flooding in the northern site area and moderate potential risk for groundwater flooding to occur at the site have also been noted.
	Ecology	The northern site area and undeveloped areas of the southern site comprised maintained grassland with dense mature and semi-mature trees and localised hedgerows noted along the northern site boundary and sporadically across the site. No invasive plant species were identified during the site walkover however this presence cannot be discounted.
Site History	Available historic mapping indicates the site comprised undeveloped agricultural land bisected by a track until c.1954 when a small structure was recorded in the south-western site area. C.1968, further development was recorded in the southern site area with Thorn Villa and adjacent structures noted alongside a bisecting overhead electricity cable in the eastern site area. Further development in the southern site area was recorded c.2012 with a further structure noted. The site remained largely unchanged to date with the exception of minor alterations to onsite structures.	
Utility Locations	A formal utility has not been completed. Overhead cables were noted to cross the site from north to south, evidence of additional services was noted within the southern area of the site.	
Landfill Sites	No landfills or wastes treatment sites are recorded within 1km of the site	
Radon	Unaffected – No special precaution required.	

EXECUTIVE SUMMARY

Mining	The Groundsure Report states the site is not within an area which may be affected by coal mining. No non-coal mining activities are recorded onsite or within the vicinity of the site

Contaminated Land Risk Assessment

Human Health

Significant Made Ground deposits are not anticipated however, parts of the site have been developed previously and wider site processes as a farm represent possible sources of heavy metals and semi-volatile Polycyclic Aromatic Hydrocarbons (PAH) and TPH compounds and asbestos.

Based on the available information the potential risk to the proposed development from contamination is at this stage considered to be low. It is recommended that this is confirmed via targeted assessment as part of any subsequent intrusive investigation works. An asbestos survey of the existing onsite structures will need to be undertaken prior to any demolition/redevelopment works take place.

Controlled Waters

Whilst the risk is considered to be low at this stage, farming activities and historic spillages/leakages may represent possible sources of mobile contamination.

The underlying aquifer resources are considered a potential receptor though absence of abstraction in the vicinity somewhat reduces the sensitivity. Whilst the adjacent Cree Beck is also a potential receptor.

The risk is considered low/moderate at this stage and should be confirmed during any subsequent intrusive investigation with adequate assessment of potential risks to Cree Beck.

Ground Gas

Made Ground underlying the site and adjacent to the site represents a potentially significant source of gas generation.

Based on the information currently available and proposed redevelopment there is considered to be a low risk, though this assessment may be revised should significant Made Ground be identified. No further assessment is considered to be required at this time.

Recommendations

Based on the desk study information, the following recommendations have been made:

- A targeted Phase II intrusive Geo-Environmental Ground Investigation should be undertaken in order to confirm the findings of the initial conceptual site model, value engineer a development solution and confirm the nature and composition of potential contamination at the site;
- Confirmation of the nature and status of all buried utilities at the site;
- An ecological survey should be undertaken to assess the potential for small mammals, nesting birds and bats; and,
- An intrusive asbestos survey of all onsite structures should be undertaken to assess potential risks and liabilities.

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APPENDICES

1. INTRODUCTION

1.1 Background

ERGO have been commissioned by Elliot Architects on behalf of their client to undertake a preliminary Phase 1 Environmental Desk Study for a parcel of land located at Timmys Lane, Hurworth-on-Tees, DL2 2AJ.

This report is required to determine potential contaminated land and geotechnical liabilities associated with a proposed future residential development.

1.2 Proposed Development

ERGO understands that the client intends to redevelop the subject site for a residential end use with associated landscaping, driveway and outbuilding.

Elliott Architects Drawing 440-1001 (Appendix III) identifies the proposed development layout. A snapshot of the proposed development is shown within Figure 1.1 below.

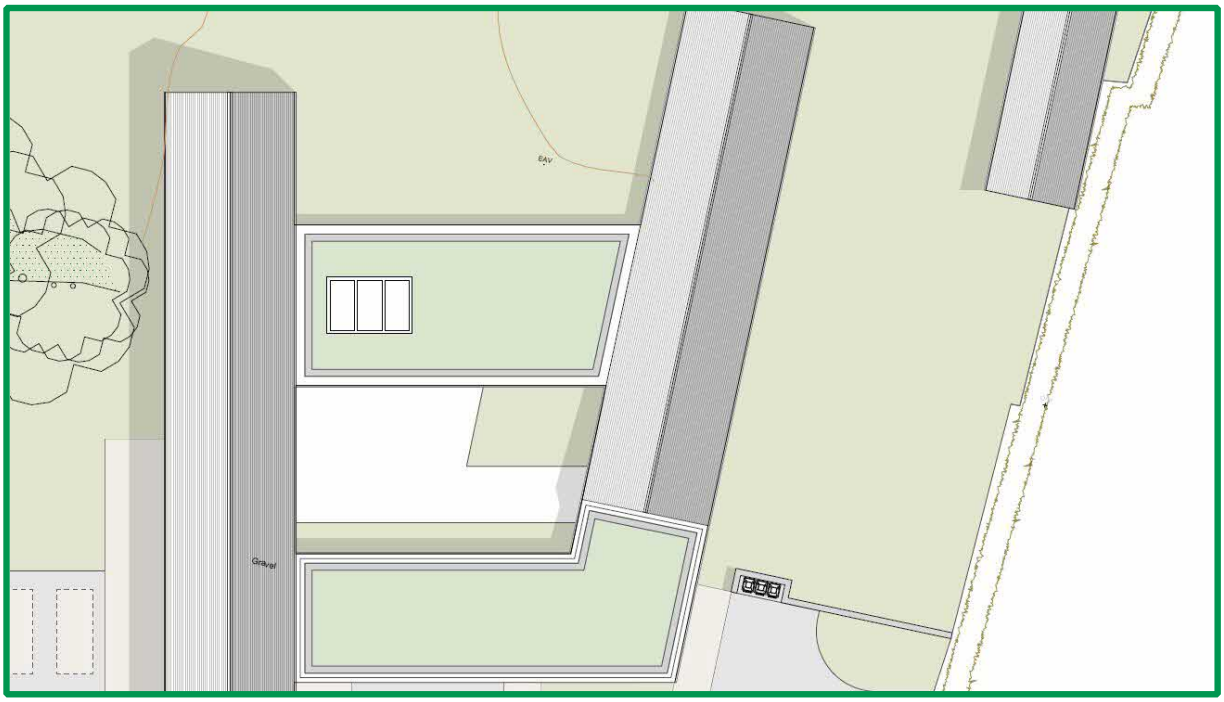


Figure 1.1 Snapshot of Proposed Development.

1.3 Objectives

The objectives of the Geo-Environmental Investigation are to:

- Review historical plans, geology, hydrogeology, site sensitivity, flood-plain issues, mining records and any local authority information available in order to complete a Desk Study in line with Environment Agency (EA) document Land Contamination Risk Management (LCRM 2021);
- 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;
- Assess the desk study information and where possible, provide preliminary recommendations in relation to foundations, pavement construction and floor slabs; and,
- Provide recommendations regarding future works required and undertake a preliminary pre-construction cost appraisal.

1.4 Limitations

The limitations of this report are presented in Appendix I.

All acronyms used within this report are defined in the Glossary presented in Appendix II.

1.5 Sources of Information

Background information was sought from the following sources:

- Groundsure Search;
- Historical mapping dated 1854 to 2023. A selection of historical maps are reproduced in Appendix V;
- Online planning records held by Darlington Borough Council;
- Magic Map;
- Radon: Guidance on protective measures for new buildings (BRE Document BR 211, 2007); and,
- British Geological Survey Map.

1.6 Confidentiality

ERGO has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from ERGO; a charge may be levied against such approval.

2. SITE SETTING

2.1 Site Details

Site Address	Land at Timmys Lane, Hurworth-on-Tees, DL2 2AJ.
National Grid Reference	E431253, N510301.
Site Area	c.0.87 Hectares.

A site location map is presented in Appendix III as Drawing 23-1595-001.

2.2 Current Site Use

ERGO has undertaken a site walkover of the entire site and a description of the key findings is summarised in Table 2.1. Photos have not been included at the request of the landowner.

Table 2.1 Site Description

Occupancy/ use	The subject site comprises an irregular shaped parcel of land located in the east of Hurworth-on-Tees, Darlington. The southern area of the site comprises a residential property with associated gardens and parking areas, as well as a large barn with surrounding sheds. The northern area of the site is comprised of maintained grassland.	
Structures	Several structures are present within the southern part of the site, including a two-storey residential property and a large barn with surrounding sheds.	
Access	Access to the site is possible via Timmy's Lane off Strait Lane to the west.	
Slope	The site was generally noted to be flat with no significant topographic features noted though a steep bank was noted to Cree Beck on the northern site boundary.	
Retaining structures	No retaining structures were noted within the site boundary.	
Surface Cover (%)	Buildings:	20%
	Hardstand:	5%
	Soft cover:	75%
Vegetation/ Ecology	The northern site area comprises maintained grassland with dense mature and semi-mature trees noted along the northern site boundary, adjacent to Cree Beck. Sporadic saplings and semi-mature trees were noted across the site, particularly around the residential property. Maintained grasses and hedgerows present within undeveloped areas within the southern site area. A Habitat Survey may be required to support the planning application.	
Hazardous Material Storage	No Above Ground Storage Tanks (AST) or Underground Storage Tanks (USTs) were noted during the site walkover.	
Asbestos Containing Material (ACM)	No evidence of ACM was noted during the site walkover. Due to the age of the onsite structures, it is possible that asbestos may be present within the fabric of the buildings.	
Polychlorinated Biphenyls (PCBs)	There is no equipment that was identified onsite considered likely to contain PCBs.	
Waste Storage	A stockpile of waste material was noted in the central site area, evidence of ash and burnt material was noted around the stockpile.	
Utilities	A formal utility has not been completed. Overhead cables were noted to cross the site from north to south, evidence of additional services was noted within the southern area of the site.	

2.3 Surrounding Area

The surrounding area land uses are summarised in Table 2.2.

Table 2.2 Surrounding Land Uses

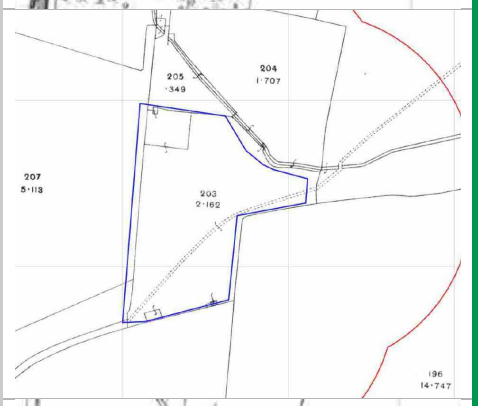
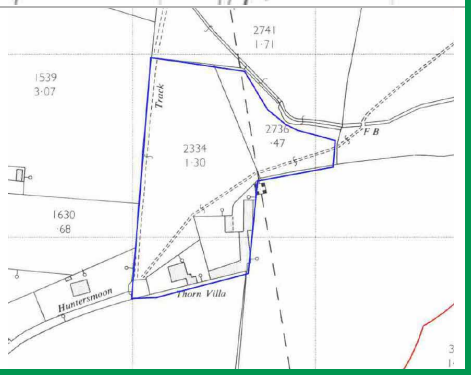
DIRECTION	LAND USE
North	Brookside Farm.
East	Agricultural land.
South	Agricultural land.
West	Residential properties and Agricultural land.

3. SITE HISTORY

3.1 Onsite Historic Development

A review of available historic mapping pertinent to the site is summarised in Table 3.1 below.

Table 3.1 Site Historical Development

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
Pre 1854 - Pre 1914	The site is shown to comprise undeveloped land bisected by a footpath extending south-west to north-east. Cree Beck is recorded along the north-eastern site boundary.	
Pre 1914 - Pre 1954	The site remains largely unchanged with 2no. small areas within the north-western and south-western site areas now enclosed.	
Pre 1954 - Pre 1968	A small structure is recorded within the southern site area. An overhead electricity cable is recorded within the eastern site area.	
Pre 1968 - Pre 2012	Additional structures and field boundaries are noted within the southern site area including 'Thorn Villa' with a long structure to the east. A track is recorded along the western site boundary. An electricity cable is noted adjacent to the eastern site boundary.	

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
Pre 2012 - Pre 2023	Further development is recorded in the southern site area with a further large structure noted adjacent to 'Thorn Villa'.	
Pre 2023 - Present	The site is shown to be in roughly the same arrangement until present day.	

3.2 Off-Site Historical Development

A review of potentially contaminative uses identified on historical Ordnance Survey maps within a 250m radius of the site is summarised below in Table 3.2.

Table 3.2 Surrounding Potentially Contaminative Land Uses.

SURROUNDING FEATURE	DISTANCE	DATES	DIRECTION
Smith *Then* unrecorded	150m	Pre 1897 - Pre 1968	Southwest
Allotment Gardens	130m	Pre 1968 - Present	West
Sewage Works Then unrecorded	250m	Pre 1968 - Pre 2003 Pre 2003 - Present	South
Electric Sub Station	100m	Pre 1973 - Present	Southwest

3.3 Planning History

ERGO has undertaken a detailed search of online planning records held by Darlington Borough County Council which has not identified any planning application information pertinent to the site.

4. ENVIRONMENTAL SETTING

4.1 Geology and Hydrogeology

The British Geological Survey (BGS) map for the site, (1:50,000, Solid & Drift edition) and online records indicates the site is underlain by the geological sequence presented in Table 4.1, this information is corroborated by records from BGS boreholes in the vicinity summarised in Table 4.2.

Table 4.1 Summary of Underlying Geology

GEOLOGICAL UNIT	CLASSIFICATION	DESCRIPTION	AQUIFER CLASSIFICATION
Drift	River Terrace Deposits	Sand and Gravel	Secondary A Aquifer
Solid	Sherwood Sandstone Group	Mudstone, Siltstone & Sandstone	Principal Aquifer

Table 4.2 Summary of BGS Borehole Records

LOCATION	MADE GROUND	DRIFT	SOLID
226m NE	0.00-0.50m - Soil	0.50-1.50 - Sandy gravel 1.50-7.50m - Clay	7.00-7.50m Sandstone
243m E	-	0.00-9.91m - Sand and gravel	9.91-104.24m Sandstone and Mudstone

No faults are indicated within the vicinity of the site.

The Groundsure Report indicates that the site is not located within a Groundwater Source Protection Zone. Furthermore, there are no recorded groundwater / potable abstractions within 1km of the site.

Based on the local topography and the location of surface watercourses within the site boundary, it is considered likely that shallow groundwater, if present, will flow in a southernly direction, following the topographical gradient towards the River Tees to the south.

4.2 Mining

The Groundsure Report states the site is not within an area which may be affected by coal mining.

No non-coal mining activities are recorded onsite or within the vicinity of the site.

4.3 Hydrology

Surface water features within 250m of the subject site are summarised in Table 4.3.

Table 4.3 Surface Water Features

SURFACE WATER FEATURE	DISTANCE (m)	DIRECTION
Cree Beck	1m	North
River Tees	191m	South

The northern area of the site is currently defined as a Flood Risk Zone 3; defined as land assessed as having between 1 in 100 (1%) or greater chance of flooding each year from a river. With the majority of the site recorded to be located within EA Flood Risk Zone 1.

In addition, the Groundsure Report states there is a medium potential for flooding to occur from rivers and coastal flooding, a localised risk of surface water flooding in the northern site area and moderate potential for groundwater flooding to occur at the site.

2no. historic flood events are noted within 250m of the site located 216m South and 234m South associated with fluvial flood events. Flood defences are recorded 231m south of the site.

4.4 Radon Risk Potential

The Groundsure Report indicates the site is situated in an area where less than 1% of homes are above the Action Level and that the BGS reports that radon protective measures are not necessary in the construction of new dwellings or extensions.

4.5 Industrial Land Uses

The site is located within a predominantly agricultural area, therefore there are limited industrial land uses recorded within the area. An electricity sub station is located 103m SW and a pump is located 172m south of the site.

4.6 Sensitive Land Uses

The closest residential properties are located c.35m south west of the site. No other environmentally sensitive land uses have been identified within close proximity to the site.

4.7 Site Sensitivity Assessment

The site is assessed to be located within a **Low/Moderate** sensitivity setting as discussed within Table 4.4.

Table 4.4 Site Sensitivity Assessment

SENSITIVITY PROFILE	DISCUSSION	RATING
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The site is not located within a Groundwater Source Protection Zone or Drinking Water Safeguard Zone.	**LOW**
Distance to the closest groundwater abstraction point.	There are no recorded groundwater abstraction points within 1km of the site.	**LOW**
Aquifer Classification in Superficial Drift Deposits.	Secondary A aquifer.	**LOW/ MODERATE**
Aquifer classification in Bedrock.	Principal aquifer.	**MODERATE**
Is the site underlain by low permeability Drift to depths in excess of 10.0m?	Historical BGS boreholes records indicate drift to be between 7.00-9.91m thick in the area comprising interbedded clays, sands and gravels.	**MODERATE**
Is the site located within 50m of a surface watercourse?	Cree Beck is located adjacent to the northern boundary.	**MODERATE**
Sensitive land uses within close proximity (e.g. residential, school, nursery, local nature reserves etc.)	The nearest residential properties are located c.35m south west of the site.	**LOW/ MODERATE**
Overall Site Environmental Sensitivity		**LOW / MODERATE**

4.8 Unexploded Ordnance

The regional unexploded bomb risk map from Zetica indicates that the site is in an area at low risk from possible Unexploded Ordnance (UXO) resulting from the Second World War. (Zetica, 2022).

5. CONSULTATIONS

5.1 Landfill Sites and Waste Treatment Sites

No landfills or waste treatment sites are recorded within 250m of the site.

5.2 Regulatory Database

The information summarised in Table 5.1 has been obtained from a commercially available environmental database. The summary table only includes records from within 250m of the subject site and not otherwise detailed in the report.

Table 5.1 Summary of Environmental Data

RECORD	ENTRIES WITHIN 250m	DETAILS
Contaminated Land Register Entries and Notices	0	None Identified (N/A).
Authorised industrial processes (IPC/IPPC/LAPPC).	0	N/A
Fuel Stations Entries	0	N/A
Licensed radioactive substances	0	N/A
Enforcements, prohibitions or prosecutions	0	N/A
Discharge Consents	4	4no. discharge consents were granted between 1989-2004 associated with sewage discharges to the River Cree and River Tees.
Pollution Incidents	0	N/A
Consents issued under the Planning (Hazardous Substances) Act 1990	0	N/A
Control of Major Accident Hazard (COMAH) sites	0	N/A

6. INITIAL CONCEPTUAL SITE MODEL

6.1 Initial CSM

In accordance with Environment Agency, LCRM (2021) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), ERGO Ltd has developed an initial CSM to identify potential contamination sources, migration pathways and receptors within the study area. This is summarised within Table 6.1.

Table 6.1 Initial Conceptual Site Model

SOURCE	PATHWAY	RECEPTOR
Human Health		
Heavy metals, Semi Volatile Organic Compounds (SVOC) associated with onsite Made Ground and agricultural activities	Dermal Contact and Ingestion Consumption of Homegrown Produce	Construction Workers Residential End Users
Discussion: Whilst considered unlikely, given the development onsite and the former agricultural activities, it is considered possible that Made Ground is present onsite and a potential source of heavy metal and PAH and TPH compound contamination within the subsurface. If present, contaminants may pose a short-term risk to construction workers who may come into contact with impacted soils during earthworks. However, this risk can be mitigated through the use of appropriate Personal Protective Equipment (PPE) and the provision of adequate welfare facilities. Future residential users may come into contact with impacted soils within any proposed landscaped areas. If impacted soils are identified then localised remediation or an appropriate cover system, designed in accordance with BRE465 (*Cover Systems for Land Regeneration),* will mitigate the risk. Based on the available information the potential risk to the proposed development from heavy metal, non-volatile PAH / hydrocarbon impact is at this stage considered to be low however, this will require confirmation via chemical testing of encountered Made Ground as part of any subsequent intrusive investigation works.		
Volatile compounds associated with onsite Made Ground and agricultural activities	Volatilisation / Accumulation Vapour Inhalation	Construction Workers Residential End Users
Discussion: Potential spillages/leakages from agricultural vehicles represent a potential source of volatile hydrocarbon compounds and VOCs. It present, these may pose a risk to construction workers if they come into contact with impacted soils. The use of appropriate PPE/ Respiratory Protective Equipment (RPE) will ensure that construction workers are at no unacceptable level of risk. Future residential end users may come into contact with impacted soil in landscaped areas and/ or via indoor inhalation of vapours if present. If present, and a potential risk is determined, localised remediation or the provision of a chemical resistant membrane within any proposed residential units impacted would provide mitigation. The risk is considered to be very low at this stage, however it is recommended that chemical analysis of soils is undertaken to determine the nature and degree of any contamination present within surficial and subsurface deposits.		
Asbestos Containing Materials (ACM) within Made Ground materials or within the fabric of the existing onsite structures	Fibre / Dust Inhalation	Construction Workers Residential End Users Third Party Property
Discussion: No ACM was identified during the site walkover. However, given the age of the current buildings situated onsite it is considered possible that ACM may be present within the fabric of the onsite		

SOURCE	PATHWAY	RECEPTOR
structures. ACM may also be present within onsite Made Ground deposits associated with previous historic site development. Disturbance of ACM may give rise to dust generation, posing a risk to adjacent site users, construction workers, and commercial end users. ACM poses a risk through fibre and dust inhalation and if present may pose a risk to construction workers during any future earthworks / demolition and to adjacent third-party property should dust be generated during those works. At present potential risks are considered low, it is recommended that confirmatory sampling is undertaken to assess potential risks and liabilities. It is recommended that a pre-demolition asbestos survey is completed within any structure proposed for clearance during redevelopment.		
Hazardous Ground Gases		
Methane and Carbon Dioxide associated with onsite Made Ground	Inhalation Accumulation	Construction Workers Residential End Users
Discussion: Made Ground underlying the site and adjacent to the site represents a potentially significant source of gas generation. Methane and Carbon Dioxide gases represent hazards from both explosions and asphyxiation respectively and present a significant hazard to any intrusive site works. Ground gas can migrate through permeable strata, foundation structures and/or service ducting and accumulate within confined spaces where they may pose a risk to site end users. Based on the information currently available and proposed redevelopment there is considered to be a low risk, though this assessment may be revised should significant Made Ground be subsequently identified. No further assessment is presently considered to be required.		
Controlled Waters		
Mobile compounds associated with previous onsite agricultural activities.	Vertical / Lateral Migration	Secondary A Aquifer Principal Aquifer Cree Beck
Discussion: Whilst the risk is considered to be low at this stage, farming activities and historic spillages/leakages may represent possible sources of mobile contamination. The underlying aquifer resources are considered a potential receptor though absence of abstraction in the vicinity somewhat reduces the sensitivity. Whilst the adjacent Cree Beck is also a potential receptor. The risk is considered low/moderate at this stage and should be confirmed during any subsequent intrusive investigation with adequate assessment of potential risks to Cree Beck.		
Buildings and Infrastructure		
pH & Sulphate within onsite Made Ground and natural deposits	Corrosion of Concrete	Foundations/Concrete
***Discussion*:** Onsite Made Ground material and natural drift deposits can give rise to elevated levels of sulphate. Sulphate (water soluble) can result in corrosion of buried concrete unless appropriately designed. Assessment should be undertaken to confirm the levels of pH and sulphate within the shallow soils and thus determine the concrete classification.		

7. RECOMMENDATIONS

Based on the desk study information, the following recommendations have been made:

- A targeted Phase II intrusive Geo-Environmental Ground Investigation should be undertaken in order to confirm the findings of the initial conceptual site model, value engineer a development solution and confirm the nature and composition of potential contamination at the site;
- Confirmation of the nature and status of all buried utilities at the site;
- An ecological survey should be undertaken to assess the potential for small mammals, nesting birds and bats; and,
- An intrusive asbestos survey of all onsite structures should be undertaken to assess potential risks and liabilities.

8. CONCLUSIONS

Site Summary	
The subject site comprises an irregular shaped parcel of land located in the east of Hurworth-on-Tees, Darlington. The southern area of the site comprises a residential property with associated gardens and parking areas, as well as a large barn with surrounding sheds. Whilst the northern area of the site is comprised undeveloped maintained grassland. The site is generally flat, however falls away suddenly to Cree Beck along the northern boundary. Available historic mapping indicates the site comprised undeveloped agricultural land bisected by a track until c.1954 when a small structure was noted in the south-western site area. C.1968, further development was recorded in the southern site area with Thorn Villa and adjacent structures noted alongside a bisecting overhead electricity cable in the eastern site area. Further development in the southern site area was recorded c.2012 with a further structure noted.	
Contamination Issues	
Human Health	Significant Made Ground deposits are not anticipated however, parts of the site have been developed previously and wider site processes as a farm represent possible sources of heavy metals and semi-volatile Polycyclic Aromatic Hydrocarbons (PAH) and TPH compounds and asbestos. Based on the available information the potential risk to the proposed development from contamination is at this stage considered to be low. It is recommended that this is confirmed via targeted assessment as part of any subsequent intrusive investigation works. An asbestos survey of the existing onsite structures will need to be undertaken prior to any demolition/redevelopment works take place
Controlled Waters	Whilst the risk is considered to be low at this stage, farming activities and historic spillages/leakages may represent possible sources of mobile contamination. The underlying aquifer resources are considered a potential receptor though absence of abstraction in the vicinity somewhat reduces the sensitivity. Whilst the adjacent Cree Beck is also a potential receptor. The risk is considered low/moderate at this stage and should be confirmed during any subsequent intrusive investigation with adequate assessment of potential risks to Cree Beck.
Ground Gas	Made Ground underlying the site and adjacent to the site represents a potentially significant source of gas generation. Based on the information currently available and proposed redevelopment there is considered to be a low risk, though this assessment may be revised should significant Made Ground be identified. No further assessment is presently considered to be required.
Recommendations	
Based on the desk study information, the following recommendations have been made: ▪ A targeted Phase II intrusive Geo-Environmental Ground Investigation should be undertaken in order to confirm the findings of the initial conceptual site model, value engineer a development solution and confirm the nature and composition of potential contamination at the site; ▪ Confirmation of the nature and status of all buried utilities at the site; ▪ An ecological survey should be undertaken to assess the potential for small mammals, nesting birds and bats; and, ▪ An intrusive asbestos survey of all onsite structures should be undertaken to assess potential risks and liabilities.	

END OF REPORT

APPENDIX I
LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between ERGO and the Client as indicated in Section 1.2.
2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
4. During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not be made known or accessible.
5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials this is for indicative purposes only and do not constitute or replace full and proper surveys.
8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
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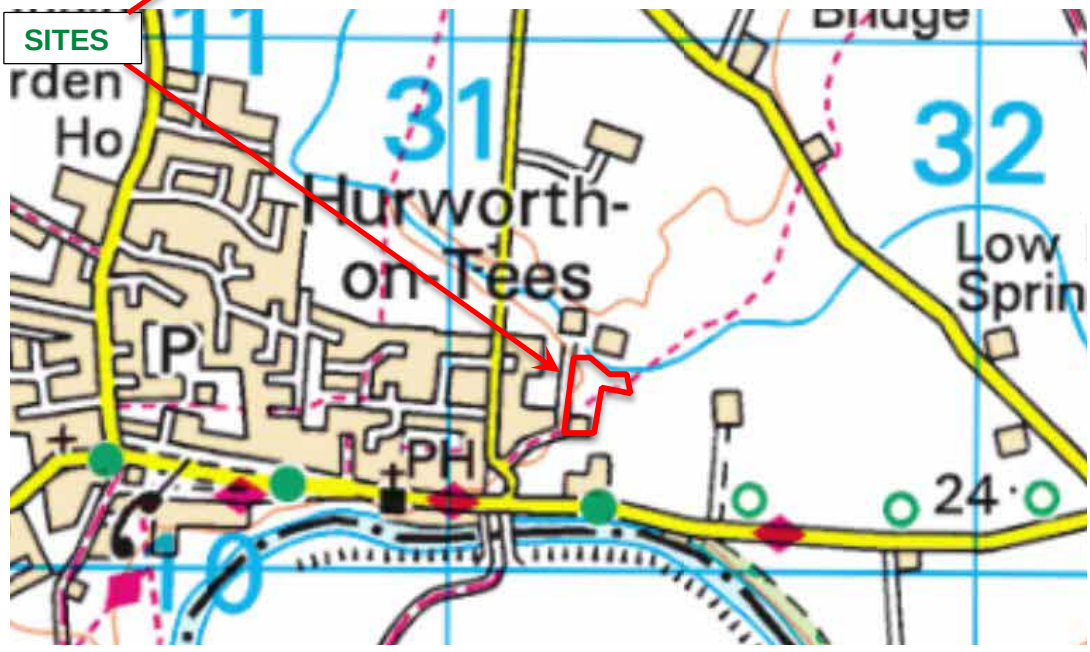
10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

APPENDIX II
GLOSSARY

TERMS

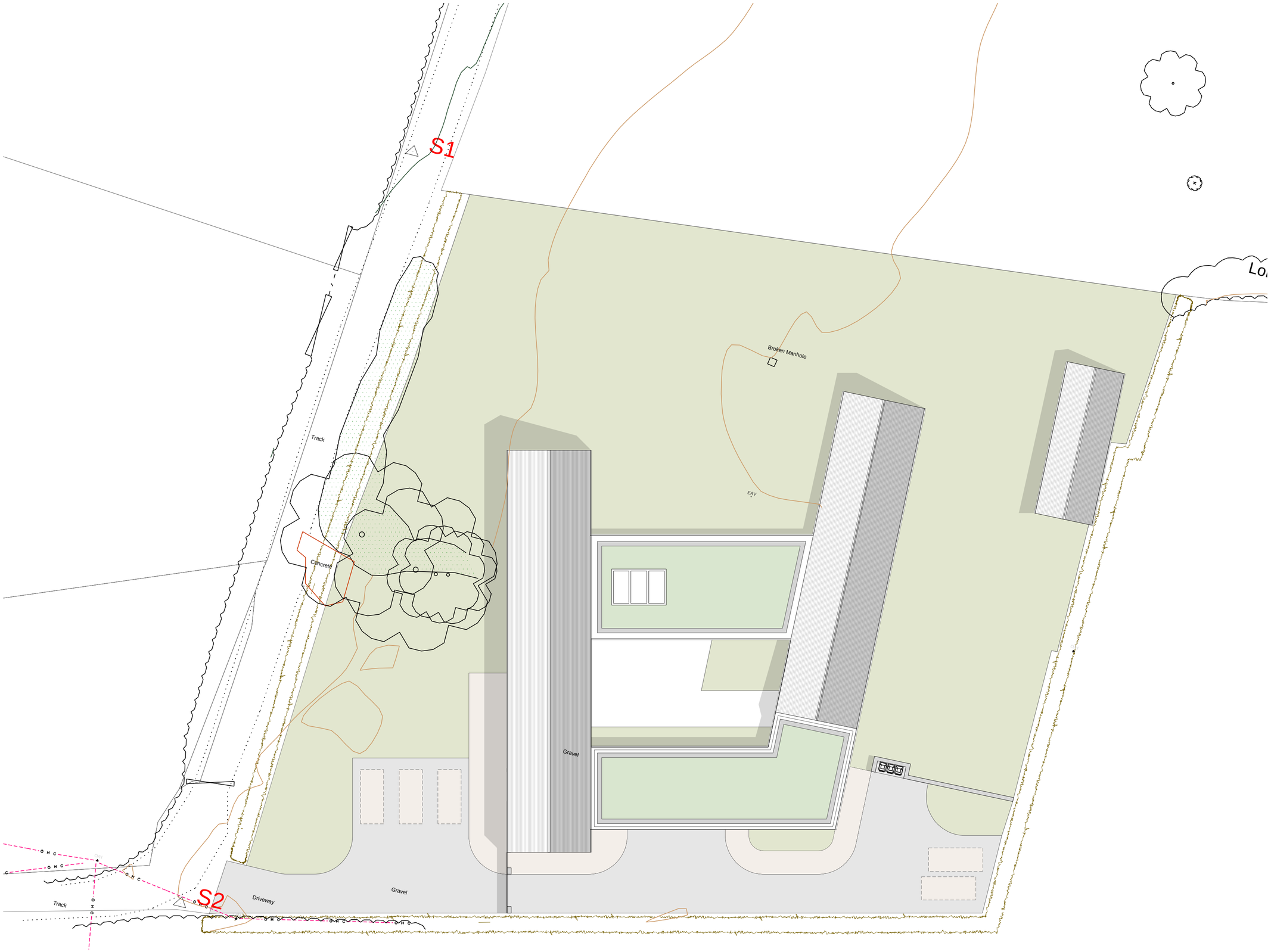
AST	Above Ground Storage Tank	**SGV**	Soil Guideline Value
BGS	British Geological Survey	**SPH**	Separate Phase Hydrocarbon
BSI	British Standards Institute	**TPH CWG**	Total Petroleum Hydrocarbon (Criteria Working Group)
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes	**SPT**	Standard Penetration Test
CIEH	Chartered Institute of Environmental Health	**SVOC**	Semi Volatile Organic Compound
CIRIA	Construction Industry Research Association	**UST**	Underground Storage Tank
CLEA	Contaminated Land Exposure Assessment	**VCCs**	Vibro Concrete Columns
CSM	Conceptual Site Model	**VOC**	Volatile Organic Compound
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)	**WTE**	Water Table Elevation
DWS	Drinking Water Standard	**m**	Metres
EA	Environment Agency	**km**	Kilometres
EQS	Environmental Quality Standard	**%**	Percent
GAC	General Assessment Criteria	**%v/v**	Percent volume in air
GL	Ground Level	**mb**	Milli Bars (atmospheric pressure)
GSV	Gas Screening Value	**l/hr**	Litres per hour
HCV	Health Criteria Value	**µg/l**	Micrograms per Litre (parts per billion)
ICSM	Initial Conceptual Site Model	**ppb**	Parts Per Billion
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)	**mg/kg**	Milligrams per kilogram (parts per million)
ND	Not Detected	**ppm**	Parts Per Million
LMRL	Lower Method Reporting Limit	**mg/m^3**	Milligram per metre cubed
NR	Not Recorded	**m bgl**	Metres Below Ground Level
PAH	Polycyclic Aromatic Hydrocarbon	**m bcl**	Metre Below Cover Level
PCB	Poly-Chlorinated Biphenyl	**mAOD**	Metres Above Ordnance Datum (sea level)
PID	Photo Ionisation Detector	**kN/m^2**	Kilo Newtons per metre squared
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances	**µm**	Micro metre
QA	Quality Assurance		
SGV	Soil Guideline Value		

APPENDIX III
DRAWINGS



Drawing 23-1595-001
Site Location Plan

ERGO



1 Proposed Site Plan
Scale: 1:200

N

0 5 10 15 M

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NOTES
- elliott architects ltd are not responsible for the accuracy of survey information
- do not scale this drawing / do not scale off dimensions
- all dimensions in mm unless stated otherwise
- all variations and supplimentary drawings to be approved by the architect
- all dimension and conditions are to be checked on site
- contractor to report any dimensional discrepancies or errors without delay

IMPORTANT: All work is to be carried out in accordance with CDM Regulations 2015.
All work to be compliant with current buildings regulations.
To be read in conjunction with structural engineer's drawings.

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Date	No.	Issue Notes

Date	No.	Revision Notes

Project
Timmy's Lane

Project Address
Rose Villa
Timmy's Lane
Hurworth
Darlington
DL2 2AJ

Sheet Title
Proposed Site Plan

Sheet Scale
1:200 @ A2

Drawn By

Reviewed by

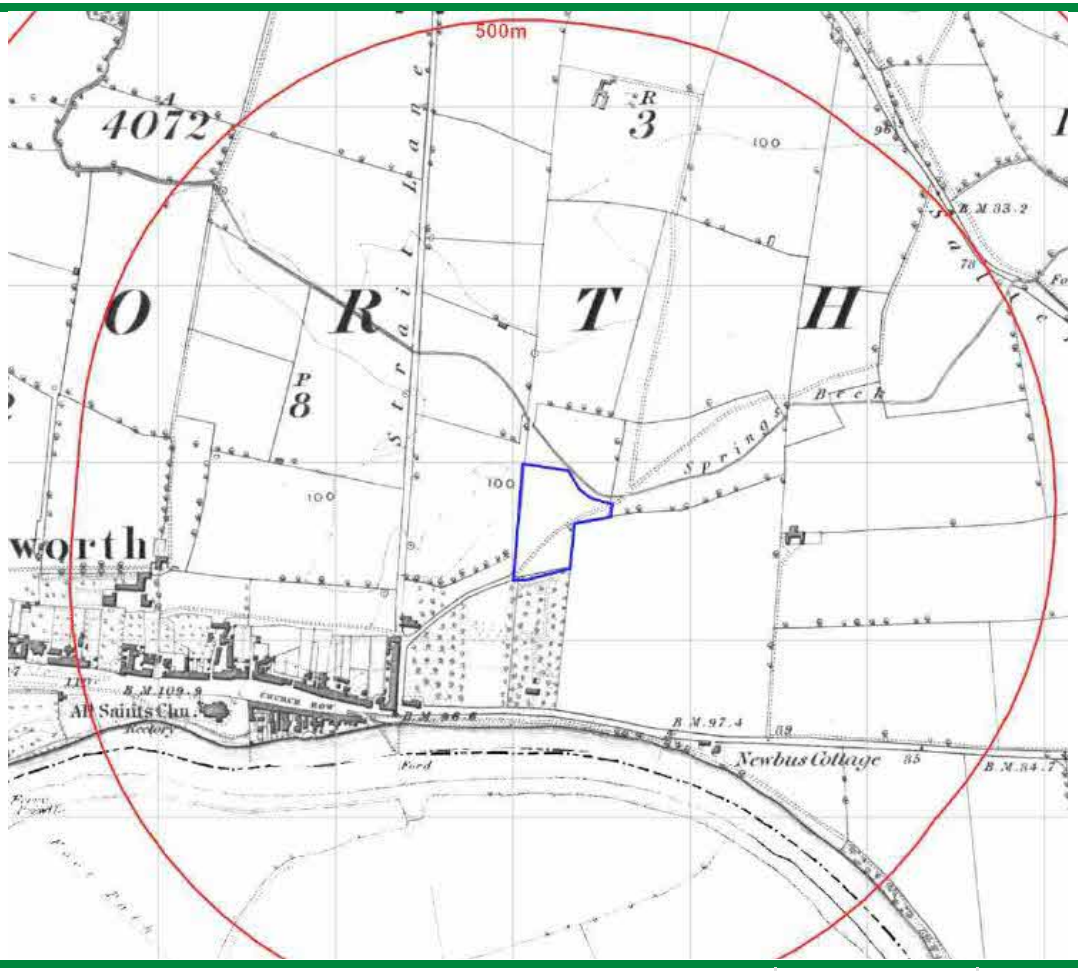
Project ID
440

Number
1001

Current Revision

Drawing Status
PLANNING

APPENDIX IV
HISTORICAL MAPS



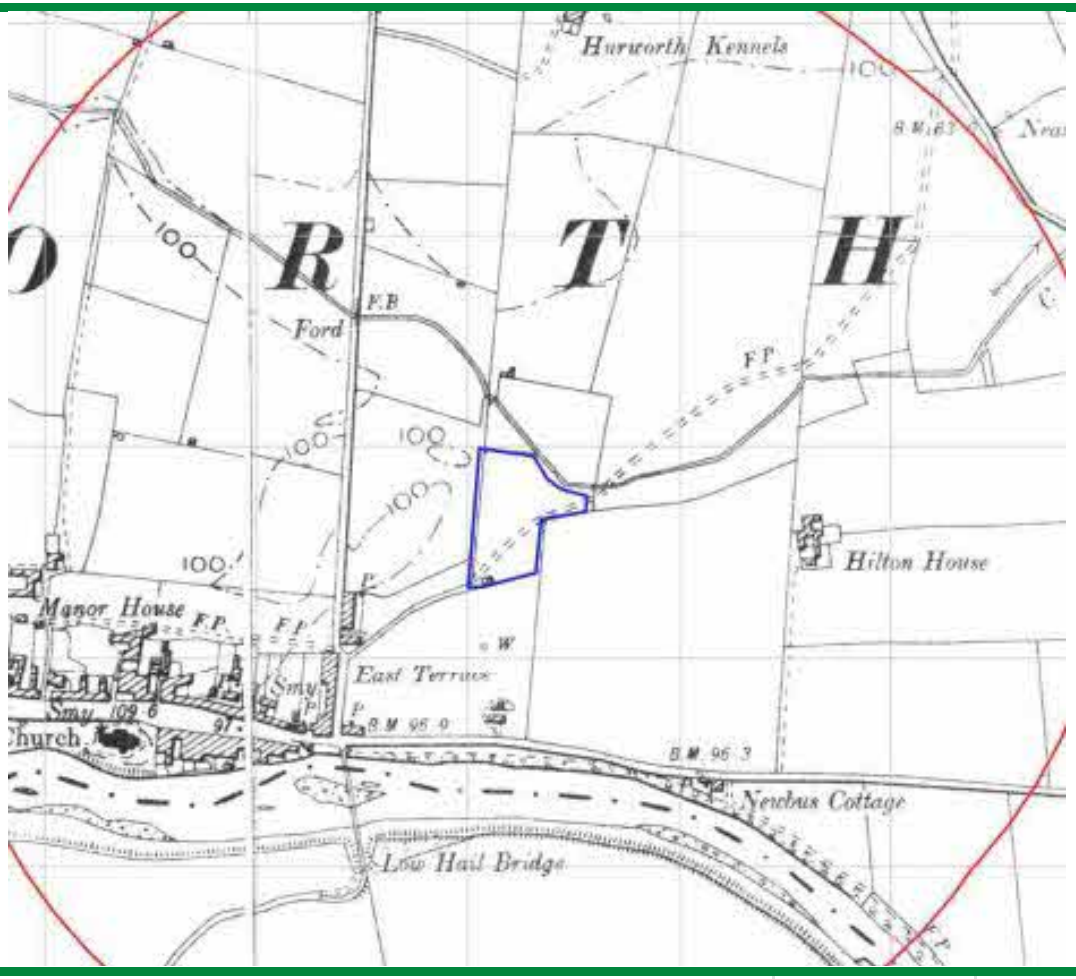
Historical Map

Dated: 1855

Original Scale: 1:10,560

North

ERGO



Historical Map

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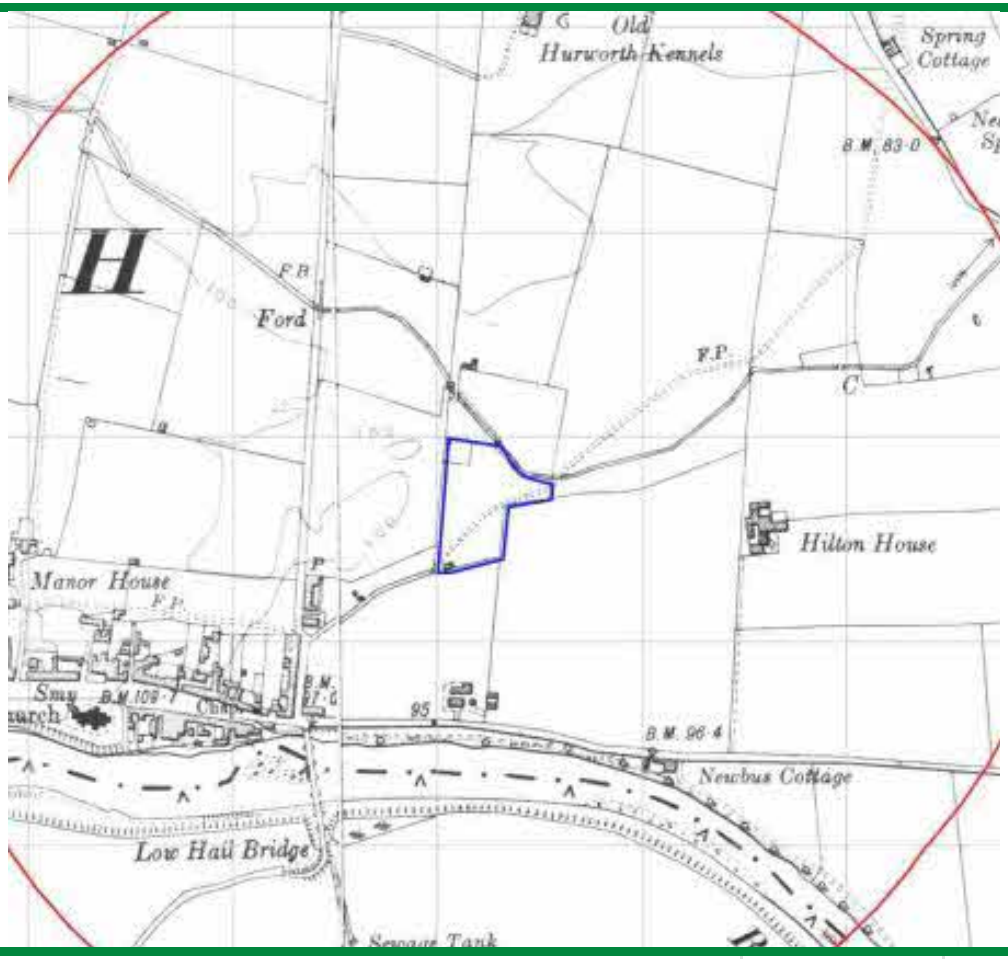
Original Scale: 1:10,560

North

ERGO



Historical Map

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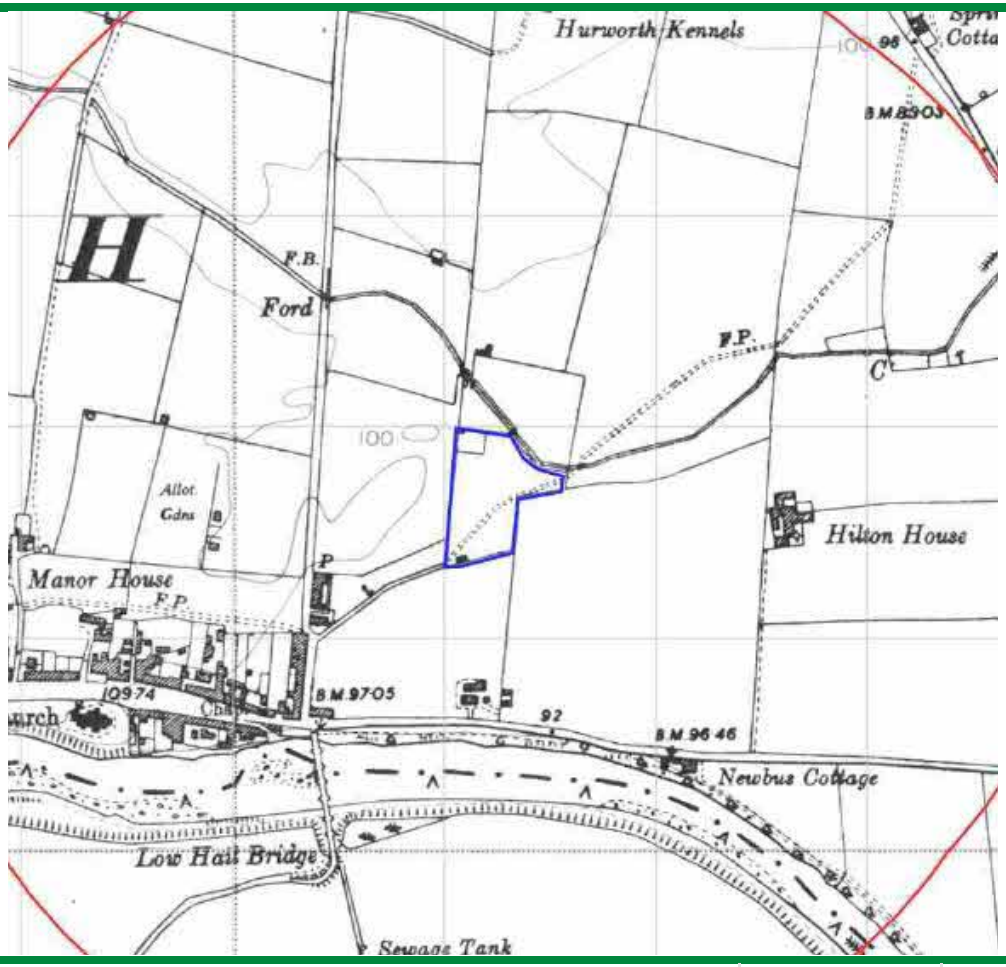
Original Scale: 1:10,560

North

ERGO



Historical Map

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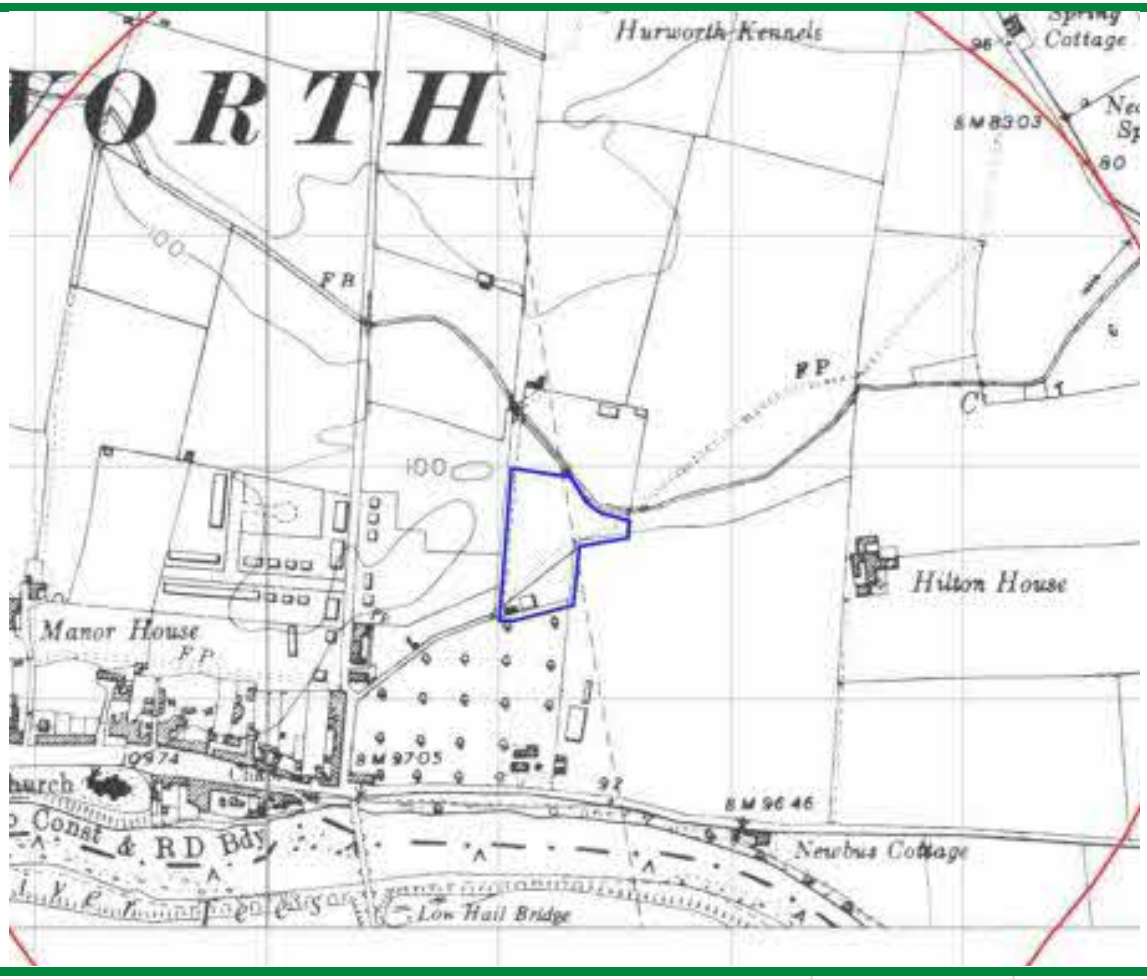
Original Scale: 1:10,560

North

ERGO



Historical Map

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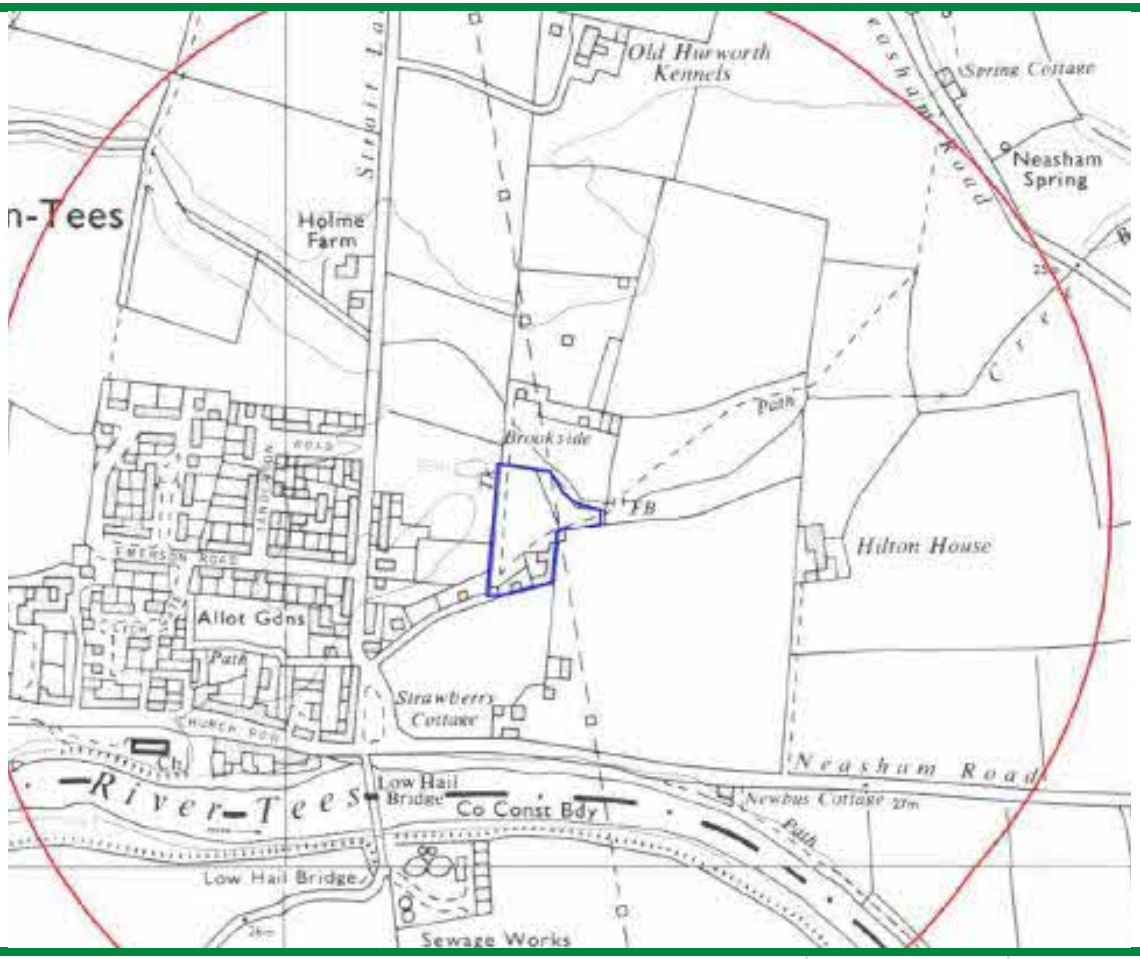
Original Scale: 1:10,560

North

ERGO



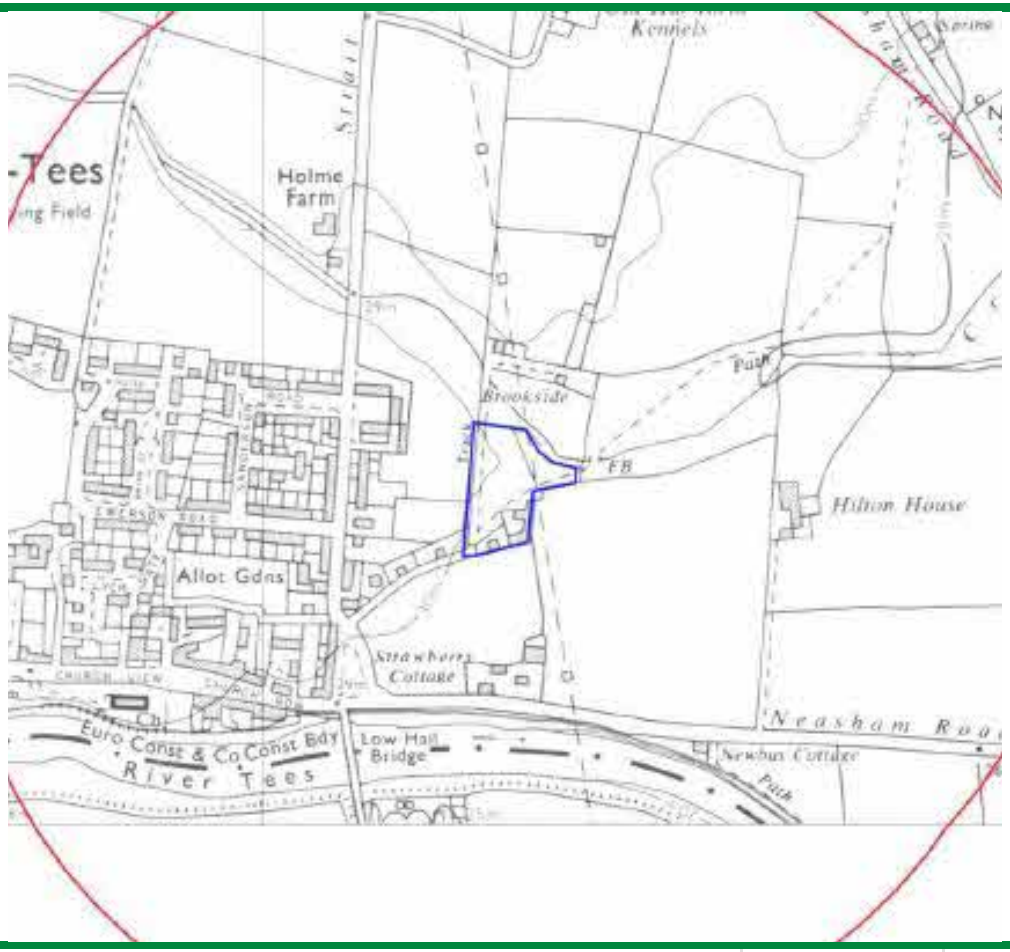
Historical Map

Dated: 1973

Original Scale: 1:10,000

North

ERGO

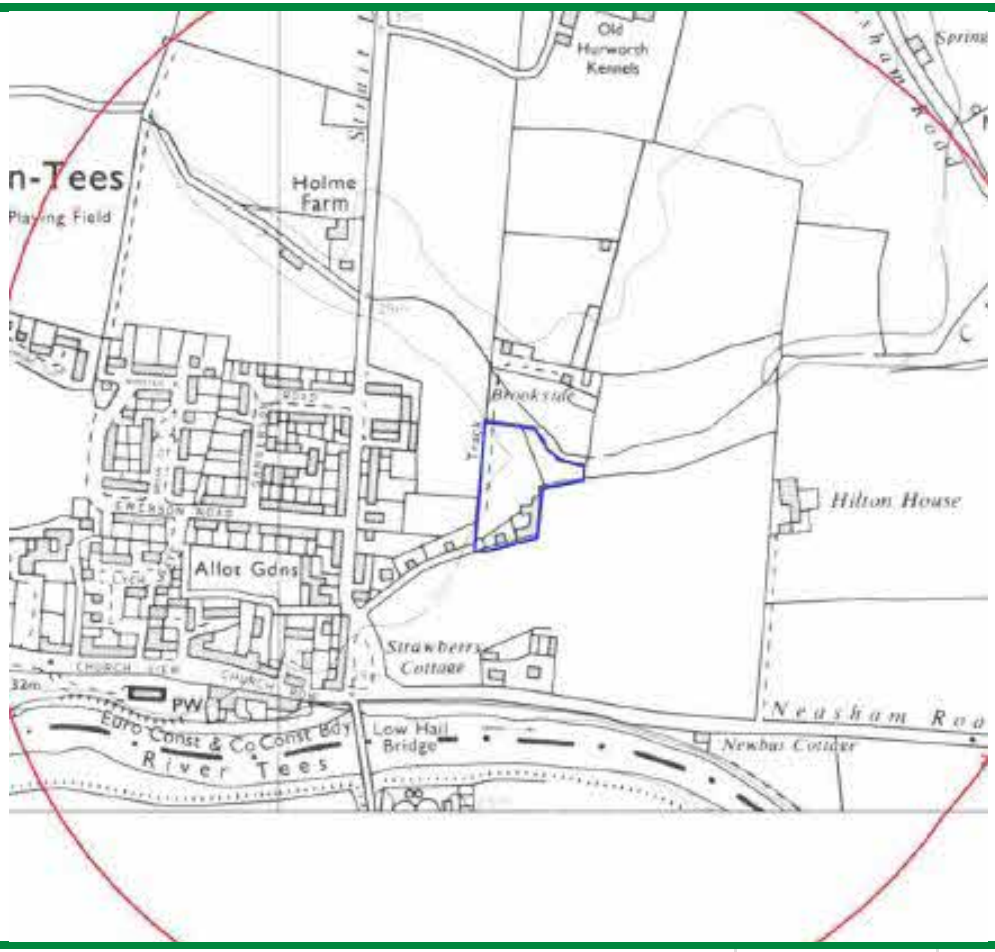


Historical Map

Dated: 1980

Original Scale: 1:10,000

North



Historical Map

Dated: 1990

Original Scale: 1:10,000

North

ERGO

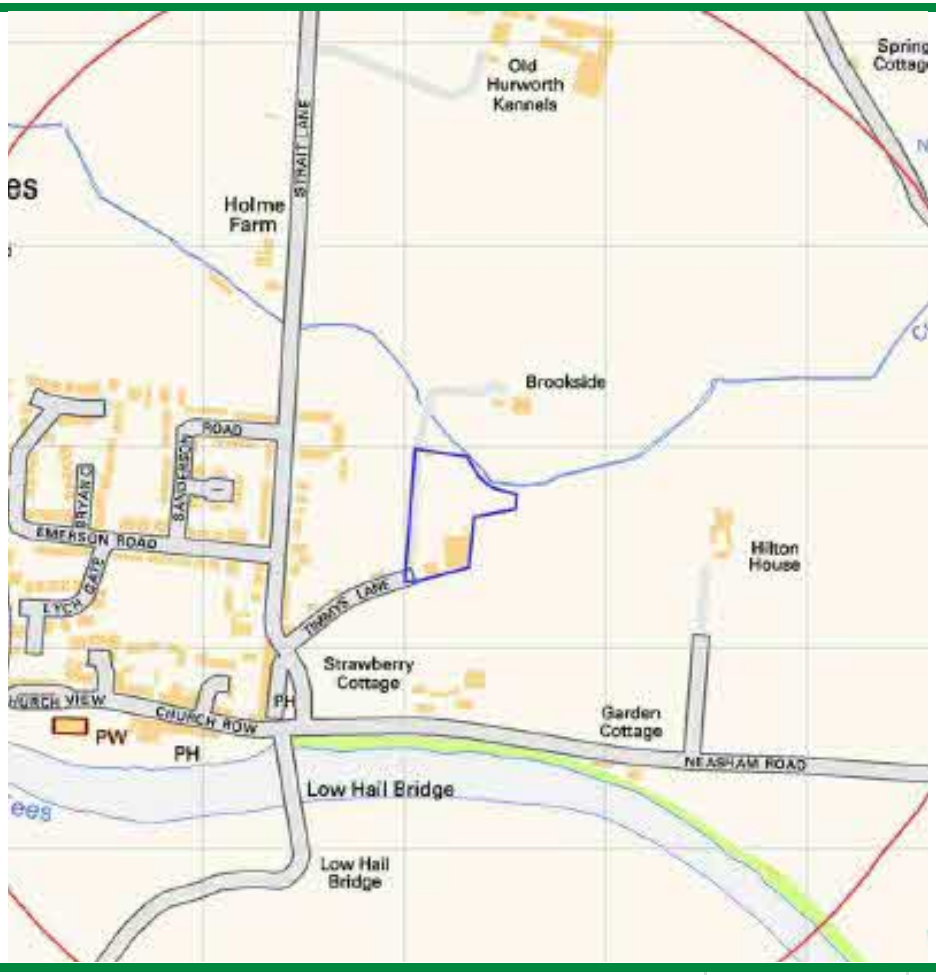
Historical Map

Dated: 2001

Original Scale: 1:10,000

North

ERGO



Historical Map

Dated: 2010

Original Scale: 1:10,000

North

ERGO

Historical Map

Dated: 20023

Original Scale: 1:10,000

North

ERGO