LUSTRE CONSULTING

BARN AT 2 HARTLEY WOOD CORNER COTTAGE, MANOR DRIVE, HARTLEY

PHASE 1 DESK STUDY

NON-TECHNICAL SUMMARY

	SUMMARY
Site	Barn at 2 Hartley Wood Corner Cottage, Manor Drive, Hartley, Longfield, Kent, DA3 8AU
Proposed Development	It is understood that current development proposals for the site involve the refurbishment of existing building to create a residential scheme. The proposed development will comprise a two-bedroom, low-rise residential dwelling with a small private garden.
Current Use	The site currently comprises a derelict, former barn and Hop Kiln and is located within a primarily residential land use area within the eastern area of the village of Hartley.
Site History	Based on historical mapping records, the following have been identified on site: A barn was labelled as a Hop Kiln on site by 1869. By 1896, the barn was no longer labelled as a hop kiln. The barn remained at the time of the site walkover survey undertaken in August 2021. An adjoining small building was present adjacent to the barn between around 1908 and 1939. An electrical sub-station had been constructed approximately 5m east of the site by 1972 (off-site).
Key Sources of Potential Contamination	The former use of the barn on site as a Hop Kiln and an agricultural barn represent a potentially contaminative land use due to the potential use of contaminative materials and the storage and use of fuels and oils. It is possible that agricultural plant and machinery may have been stored on site historically, with small scale repairs and maintenance carried out. A layer of Made Ground may be present on site. Potential contaminants include heavy metals, inorganics, TPH, PAH and asbestos. The electrical sub-station to the east, which dates to before 1972, may pose a heavy metal and PCB risk due to the proximity to the site.
Geology, Hydrogeology and Hydrology	Historical mapping records show that the site has undergone very limited periods of construction and demolition. Made Ground or reworked natural soils of limited thickness may be present beneath the site. BGS mapping records show the site to be located on the edge of an outcrop of superficial Clay-with-Flints Formation (Unproductive Strata) which are expected to underlie the site (albeit a likely limited thickness). The superficial deposits are reportedly underlain by the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) (Principal Aquifer). The site lies within a Zone III (Total Catchment) Groundwater Source Protection Zone and groundwater abstractions (potable supply) are recorded between 750m and 1km from the site.
Land Quality Conclusions and Recommendations	Given the nature of the proposed development scheme at the site (residential use), the overall risk from the site to future site users is likely to be **low to very low**. No further investigation is required to refine the risk assessment and validate the conceptual site model at this stage. Should evidence of Made Ground or contamination be encountered on site then a ground investigation at the site should be carried out. The scope of which would need to be discussed and agreed with Lustre and the Local Planning Authority. A suitable asbestos survey should be undertaken prior to the start of any refurbishment works, if not already completed.
Geotechnical Recommendations	No significant potential ground stability hazards have been identified on site. Depending on the loading requirements associated with the proposed refurbishment works, a geotechnical investigation may be required to inform foundation design on site.

PROJECT RECORD	
PROJECT NAME	BARN AT 2 HARTLEY WOOD CORNER COTTAGE, MANOR DRIVE, HARTLEY, LONGFIELD, KENT
CLIENT	ANDREW GOODWIN

REPORT DETAILS		
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REVISION	DATE	AMENDMENT DETAILS	REVISION AUTHOR	REVISION REVIEWER

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APPENDICES

1.0 INTRODUCTION

1.1 This Phase 1 Desk Study has been prepared for the prior approval (refurbishment only) of a site known as The Barn at 2 Hartley Wood Corner Cottage, located off Manor Drive, in Hartley, Longfield, Kent by Lustre Consulting Limited (Lustre) for Andrew Goodwin (the Client). The postcode for the site is DA3 8DL. The assessment has been undertaken in accordance with our fee proposal dated 23/07/2021, which was formally approved by the Client on 11/08/2021.

1.2 The site, roughly rectangular in plan, is centered at National Grid Reference 561270, 167350, and occupies an approximate area of 0.03ha as shown in Figure 1. The site currently comprises a derelict, former barn and Hop Kiln and is located within a primarily residential land use area within the eastern area of the village of Hartley. The Client requires this Phase 1 Desk Study to support redevelopment works at the site. It is understood that current development proposals for the site involve the refurbishment of the existing agricultural barn on site to create a residential scheme. The proposed development will comprise a two-bedroom low-rise residential dwelling, containing a ground and first floor, with a private garden. The property will be independent of 2 Hartley Wood Corner Cottage and will have its own access and parking area. Figure 2 illustrates the proposed development scheme.

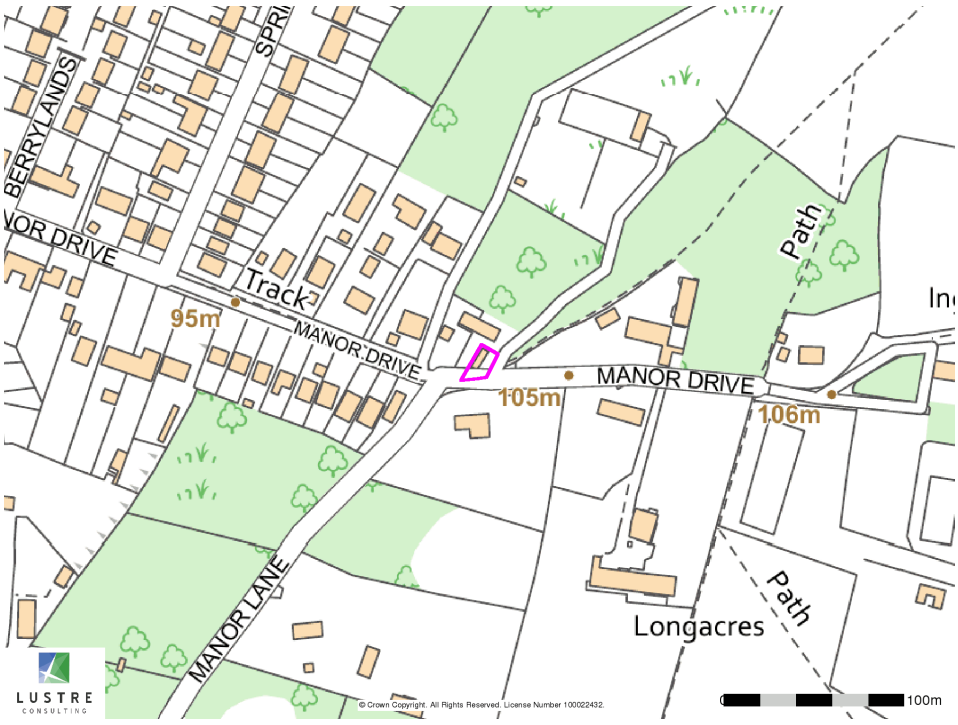

Figure 1: Site Location Plan

Figure 2: Proposed Site Layout

Objective

1.3 The objective of this Phase 1 Desk Study (also known as a Contaminated Land Assessment) is to determine the contaminative status of the site and to provide a general indication of the likely geoenvironmental issues which may be present on site or affect the site, as well as to provide guidance on any resultant liabilities. Information on likely geotechnical conditions and hazards is also to be assessed.

Scope of Works

1.4 The scope of works for the desk study is summarised below:

- Review of available historical Ordnance Survey maps (dating back to the late-1860s) of the site and surrounding areas to identify current or former potential sources of contamination both on-site and within the immediate surrounds;
- Review of published geological, hydrogeological and hydrological records to assess the environmental setting of the site and surrounding areas;

- Review of available public information and up-to-date regulatory information from relevant authorities to identify any potentially significant environmental issues at the site and surrounding areas;
- Review of any existing information and reports relating to the site and surrounding area, including any available plans, development layouts etc; and
- Development of a conceptual site model and risk assessment following the source-pathway-receptor pollution linkage.

1.5 The Phase 1 Desk Study has been prepared in keeping with best practice and current planning guidance. *The National Planning Policy Framework (NPPF)*[1] advises regulatory consultees to ensure that adequate site investigation information is provided at the initial planning stage, whilst the *Land contamination risk management guidance (LCRM[2])* requires a phased, risk-based approach when dealing with land affected by contamination in the UK.

1.6 This Phase 1 Desk Study forms the first stage of an iterative contaminated land assessment, to identify any potential sources of contamination before undertaking any further intrusive Phase 2 investigation works or remedial action, if required. The methodology adopted in this Phase 1 Desk Study is based on the source-pathway-receptor model as set out in the LCRM guidance. More information on Lustre's approach to such assessments can be found at the following link: www.lustreconsulting.com/Services/ContaminatedLandAssessment.aspx.

Asbestos Containing Materials (ACM)

1.7 Under Regulation 4 of the Control of Asbestos Regulations 2012[3], those parties ("duty holders") who have control over the maintenance or repair of non-domestic premises are required to identify and manage any asbestos or presumed asbestos found in their premises. Where asbestos is or is liable to be present, the duty holder(s) shall ensure that they have an adequate management plan, undertake, and review risk assessments and maintain an Asbestos Register detailing the probable exposure to all employees and site users. The duty holder may be the business owner, landlord, tenant, or others by virtue of a contract.

1.8 Regulation 5 requires duty holder(s) to identify asbestos prior to maintenance or any other work which exposes or is liable to expose employees to asbestos unless there has been a

[1] Department for Communities and Local Government, National Planning Policy Framework, February 2019.
[2] Land contamination risk management guidance (LCRM), October 2020
[3] Control of Asbestos Regulations (CAR) 2012

sufficient assessment. There is always a risk that asbestos will be present in soils, under hardstanding and below ground structures, and that it may spread particularly during clearance and demolition works. It is therefore essential that any asbestos or presumed asbestos is identified, managed, removed, and disposed by a licensed remover (if licensable work) in accordance with relevant HSE guidance. It is the responsibility of the duty holder under Regulation 16 to ensure measures are put in place to prevent the 'spread' of asbestos.

1.9 Where ACM in existing structures (i.e., within the building fabric) is observed during the site walkover, a brief description will be included in this report to inform our assessment of Asbestos Containing Soils (ACS) (presented in Chapter 2.0). It must be noted however, that this Phase 1 Desk Study does not include detailed identification and assessment of ACM within existing structures both above and below ground (i.e., basements, services). This should be carried out by an appropriately experienced and qualified asbestos surveyor and is outside of our agreed scope of works.

1.10 Where ACM is present on proposed development sites, there is always a risk of impacting the underlying soils, particularly during clearance and demolition works. It is therefore essential that any ACM identified by the asbestos surveyor is appropriately managed, removed and disposed offsite by specialist contractors in accordance with good practise and current guidance. It is the responsibility of the duty holder and / or client to ensure measures are put in place to prevent contamination of the soils during such works.

Reliance and Limitations

1.11 This report has been prepared using published information and information provided by the Client made available at the time of writing only. Lustre Consulting accepts no liability for any information which has become available since this time.

1.12 Lustre Consulting owes no duty of care and has no liability to any Third Party who is not authorised by Lustre Consulting to use this report. Any unauthorised Third parties using information contained in this report do so at their own risk.

1.13 Whilst this report references observations made regarding the presence of features/ issues such as invasive species, ACM, site drainage and evidence of structural abnormalities, this report does not constitute specialist surveys on these matters. Should further specialist surveys be carried out in this regard, the findings of these should be reported to Lustre so that we may determine if this has any discernible impact on the findings of this report.

1.14 Third party information which has been reviewed and used to inform the assessments presented herein, including public records held by various regulatory authorities and environmental database data has been assumed to be true and accurate.

1.15 This assessment has been carried out to determine the potential risks posed to future end users, along with other key receptors, based on the current development. Should revisions in the development proposals result in a change any assessment parameters detailed in this report, a re-assessment of the risk should be carried out.

Report Structure

1.16 The report structure generally follows the pollution linkage approach described above. Chapter 2 of the report provides information relating to the **"source(s)"** of potential contamination through a study of current and historical land uses, whilst the sensitivity and anthropology information in Chapter 3 relates to the **"receptor**" and **"pathway"** components. Report conclusions and recommendations, including a summary of the conceptual site model and risk assessment Appendix, are set out in Chapter 4.

2.0 LAND USE

Introduction

2.1 This chapter identifies and provides information on any potential on-site and off-site **"sources"** of contamination within the source-pathway-receptor model. The chapter includes a review of information obtained from photographic records, publicly recorded information on environmental issues and controls within relevant distances of the site (which may indicate the presence of potential source(s) of contamination, such as licensed landfills), available planning records obtained from regulatory websites and OS historical mapping. A summary of the identified sources and potential contaminants are given at the end of the chapter.

Site Description

2.2 A site walkover was undertaken by a qualified environmental consultant from Lustre on 19th August 2021. Access was granted to the entire site area including the building footprint and external areas. An inspection of the immediate area surrounding the site was also carried out.

Figure 3: Site Aerial Photograph

2.3 The site comprises the building footprint of a single-storey 18th Century agricultural barn and former Hop Kiln. The site itself is generally flat and level. The building was vacant and unused at the time of the site walkover and appeared to have not been used in a long time. The building

was mainly empty, except for the storage of a pile of logs and electric cables. Some wind-blown litter was noted to be present within the building.

2.4 The building itself was a wooden structure with a pitched corrugated metal roof that was noted to be rusty. The building remained intact though the roof was slightly delapidated and the guttering on the building was dipped and broken in several places. The wooden doors of the building were locked, and no windows were present. A trailer was parked in front of the barn building and a series of heras fence panels were present along the northern side of Manor Drive separating the site from the roadway.

View of the barn on site and adjacent parked trailer

View of the barn on site with 1 & 2 Hartley Wood Corner Cottages to the north

Internal view of the barn and log pile on site

View of the electrical sub-station to the east

2.5 The vegetation around the building was overgrown, mainly comprising weeds, bracken, and nettles. Some gravel and brick fragments were present, and it appeared that a small are of substrate for parking had been laid historically adjacent to the building.

2.6 The adjacent residential properties known as 1 & 2 Hartley Wood Corner Cottages were well-maintained and no evidence of contamination or fly tipping associated with these properties was seen.

Observations on Ground Stability and Structural Damage

2.7 No evidence of ground stability hazards or structural damage was observed on site. However, this report does not constitute a structural survey or similar survey.

Bulk Storage of Fuels and Hazardous Materials

2.8 Lustre has not been made aware of, or observed, any current or former bulk above ground fuel storage areas / hazardous material storage on site. During the site walkover no fuel or oil storage was seen on site. No hazardous material storage was recorded.

2.9 No evidence of spillages, leaks or other evidence of contamination were noted on site.

Asbestos Containing Soils (ACS)

2.10 ACM was commonly used in construction and refurbishment projects until their use was prohibited in 1999. Given the age of the building present on site (including any refurbishment works from the original Hop Kiln), the potential for ACM to be present within the building fabric and curtilage is possible due to the age of the structure on site, which appears to date back to at least the late-1860s. However, no ACM was observed.

2.11 Soil contamination from asbestos can be caused through inappropriate use and poor care of ACM in the building fabric and curtilage causing cross contamination during historical demolition or renovation works. ACS can also be encountered within infilled land and / or imported sub-base / fill materials associated with previous construction or renovation works (such as the construction of a new hardstanding). The potential for ACS to be present underlying the floor slab and existing hardstanding should be considered.

Waste

2.12 Based on the site use, no potentially contaminative waste streams are present on site. No fly-tipped, commercial, or domestic waste, or piles of spoil were observed on site. From the observations made, housekeeping appears to be generally good, both in and around the barn.

Drainage

2.13 Only sanitary wastewater, surface water run-off (from roof areas and hardstanding) is generated on site and within the immediate area. No evidence of activities that would require

a discharge consent was observed. Lustre has not been made aware of any oil or water interceptors on site or within the immediate area by the Client. Existing drainage plans were not made available for viewing.

2.14 No surface water features were observed on site. Formal drainage was present on site in the form of guttering and surface run-off drains.

Persistent Organic Pollutants (POPs, inc. Polychlorinated Biphenyls (PCBs))

2.15 An electricity sub-station was noted to be present during the site walkover directly east of the site boundary, on the northern side of Manor Lane. Access into the sub-station was restricted and a wooden fence was present around the sub-station perimeter. Warning signage was visible around the sub-station.

2.16 No other specific POP point sources were identified during the site inspection that could have adversely impacted soils on site.

Invasive Species

2.17 No invasive species (e.g., Japanese Knotweed, Giant Hogweed, Himalayan Balsam) were identified during the site walkover, however the site visit conducted does not constitute a full 'injurious weeds and invasive plants' survey.

Potential Off-site Sources / Points of Interest

2.18 There are no potential off-site sources of contamination which the exception of the electrical sub-station described above. The surrounding area is mainly residential in nature with some farmland and farm buildings present within the wider area. No commercial uses were identified within 250m of the site boundary.

Further Surveys

2.19 Whilst the site walkover discussion may reference observations regarding the presence of features / issues such as invasive species, ACM, site drainage and evidence of structural abnormalities, this report does not constitute specialist surveys on these matters. Should further specialist surveys be carried out in this regard, the findings of these should be reported to Lustre so that we may determine if this has any discernible impact on the findings of this report.

Public Record Information

2.20 Information on potentially significant environmental issues and controls at the site and surrounding area may be held on public records by various regulatory authorities. Information referenced in this Chapter has been sourced directly from the regulatory authorities and from the Landmark database (data summarised within relevant distances of the site centre). A copy of the Envirocheck report is attached at Appendix A. A summary of the significant environmental issues and controls in the Envirocheck report is summarised in the following table.

Public Record	Features
Environmental Permits and Controls	No Local Authority Pollution Prevention and Controls have been identified within 250m of the subject site. No IPPCs have been identified within 250m.
Pollution Incidents to Controlled Waters	No pollution incidents to controlled waters have been identified within 250m of the subject site.
Hazardous Substances	There are no hazardous substances (e.g., Control of Major Accident Hazards (COMAH), Notification of Installations Handling Hazardous Substances (NIHHS) or Planning Hazardous Substance Consents) recorded within 250m.
Landfill Sites	A BGS recorded and historical landfill site has been identified within 1km of the subject site: 643m NE located on Hartley Bottom Road. This site was operated by Southwark Borough Council (licence reference: EAHLD19379). The record states that deposited wastes included inert and commercial waste, and liquid sludge. No details on the first or last input dates are provided within the Envirocheck Report. No Local Authority Recorded Landfill Sites have been identified within 1km of the subject site. No registered landfill sites have been identified within 1km of the subject site.
Waste Management Facilities	No Licensed Waste Management Facilities have been identified within 250m of the subject site. No Registered Waste Transfer Sites have been identified within 250m. No Registered Waste Treatment or Disposal Sites have been identified within 250m of the subject site.
Contemporary Trade Directory Entries	No Contemporary Trade Directory Entries have been identified within 250m of the subject site.
Petrol Filling Stations (PFS)	No fuel station entries have been identified within 250m of the subject site.

The approximate bearing of identified features is abbreviated with the first letter(s) (e.g., south-west = SW).

Review of Regulatory Information

2.21 A review of the available online planning records held by the Local Planning Authority, Sevenoaks District Council has revealed that a previous planning application for the conversion of the existing barn to a two-bedroom residential dwelling was submitted for the site in September 2015 (planning reference: 15/03040/FUL). The application was refused in February 2016. Prior to this in September 2014, an application (planning reference:

14/02643/FUL) was submitted for the demolition of the existing dwelling at 2 Hartley Wood Corner Cottage and the ancillary barn and the erection of a five-bedroom detached dwelling. The application was refused in January 2015.

2.22 Various additional planning applications for residential alterations have been submitted within the surrounding area but are not considered to present a risk to the proposed scheme.

Site History

2.23 The site history has been assessed by reviewing historical Ordnance Survey maps provided by Landmark and aerial photographic imagery from Google Earth. Relevant maps are reproduced in Appendix B. The historical development of the site and the surrounding area are summarised in the following section. Where features are identified as having a potential impact on the proposed development, an indication of potential contaminants has been provided at the end of the Chapter.

2.24 It is noted that the mapping process adopted in generating the historical Ordnance Survey records (mapping intervals / frequency, scale, inclusion / exclusion of features etc.), may result in an incomplete account of a site's history. Changes in land use between mapping dates, or small yet potentially contaminative land uses, may not be identified from the records. The following account is therefore based solely on the information provided in the mapping records and the dates listed should be considered as approximate.

On Site Land Use	Date Feature Present	Date Feature Removed
Barn on site labelled as a Hop Kiln (with what appeared to be an adjacent storage tank). No changes to the building footprint noted so it appears to be the original structure remaining on site.	Pre-1869	No longer labelled as a Hop Kiln by 1896 but barn remained
Adjoining small building extending off-site	Pre-1908	Pre-1939

The approximate bearing of identified features is abbreviated with the first letter (e.g., south-west = SW). Approximate distances are interpreted from historical mapping and in metres.

2.25 Environmentally pertinent historical information from the immediate surrounding area (within 250m) has been summarised overleaf.

Surrounding Land Use	Distance / Bearing	Date Feature Present	Date Feature Absent
Electrical sub-station	5m E	Pre-1972	-
Nearby residential properties	10m NW	Pre-1894	-

2.26 No significant contaminative industries beyond 250m that could realistically impact the site were identified within a 250m radius of the site boundary.

Summary of Identified Potential Sources of Contamination

2.27 This section has assessed both the current and historical uses of the site and surrounding areas, as well as publicly available regulatory information. In accordance with the LCRM guidance, this assessment has allowed potential sources of contamination to be identified.

2.28 Based on our understanding, it is considered that some potential sources can be discounted at this stage of the assessment. Potential sources of contamination have only been discounted where sufficient evidence has been gathered to indicate that the source, for reasons relating to the viability of its presence / significance, need not be considered further.

2.29 The residential use of the immediate surrounds is considered unlikely to cause significant contamination during normal circumstances and has been discounted as a potential source. Again, whilst considered as a potential receptor, this land use is not considered further as a potential source of contamination that could affect the redevelopment of the site.

2.30 Viable potential sources of contamination which have been carried forward into the conceptual model and risk assessment are set out below.

On-Site Sources – Current and Historical

2.31 The former use of the barn on site as a Hop Kiln and an agricultural barn represents a potentially contaminative land use due to the potential use of contaminative materials and the storage and use of fuels and oils. It is possible that agricultural plant and machinery may have been stored on site historically, with small scale repairs and maintenance carried out within the building or external area. Potential contaminants include heavy metals, inorganics, TPH, PAH and asbestos.

2.32 Historical mapping records show that the site has undergone very limited, if any construction and subsequent demolition. Any waste demolition materials generated may have been retained and spread on site. These waste materials, which may contain asbestos and other contaminants, as such a layer of Made Ground may be present on site.

2.33 No suspected ACM was observed during the site walkover, particularly within the roofing materials which were noted to be corrugated metal sheeting.

Off-site Sources – Current and Historical

2.34 The electrical sub-station to the east of the site may pose a risk to the site due to the proximity to the site boundary (approximately 5m). The electrical sub-station dates to before 1972, as such the station may present a heavy metal and Poly-Chlorinated Biphenyl (PCBs) risk.

Off-site Sources – Potential Sources Identified from Regulatory Information

2.35 No permitted or regulatory controlled activities require assessment as specific off-site sources of contamination.

2.36 A review of regulatory information has not identified any pollution incidents which are likely to have adversely impacted the subject site.

2.37 No off-site petrol filling stations are present within close proximity to the site that would require further consideration.

2.38 No non-landfill waste disposal sites have been identified within relevant distances (>625m from the site boundary) which could impact the subject site and proposed development.

3.0 SENSITIVITY & ANTHROPOLOGY

Introduction

3.1 This chapter provides information relating to on-site and off-site **'pathways'** and **'receptors'** and includes a review of the geology, hydrogeology, hydrology, and ecological setting of the site. A general assessment and review of the site anthropology, such as identified human / built environment receptors, including current and future site occupiers, below ground structures, flora etc is also provided. A summary of identified receptors and site-specific pollutant linkages is given at the end of the chapter. Any pathways (contaminant migration, exposure pathways), which can be discounted in conceptual terms (i.e., considering the unviable nature of the pathway given the proposed development setting or local geology / hydrogeology etc), are discussed at the end of the chapter.

Geology

3.2 The 1:50,000 British Geological Survey (BGS) map for Dartford (Sheet 271)[4] and the BGS website (National Geoscience Information Service)[5] show the site to be situated on the western boundary of an outcrop of superficial deposits of the Clay-with-Flints Formation, comprising orange-brown and red-brown sandy clay with abundant nodules and rounded pebbles of flint. These deposits may therefore be either locally absent beneath the site or may be present, but likely to be of a limited thickness.

3.3 The bedrock geology is listed as the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) comprising interbedded soft to medium hard Chalks (some grainy) and marls, with some griotte chalks.

3.4 Historical mapping records show that the site has undergone very limited construction and demolition since records began. Any waste demolition materials generated on site may have been retained and spread across the site area; as such, a limited layer of Made Ground or reworked natural soils of limited thickness may therefore be present beneath the site.

3.5 Historical borehole records have been identified relating to boreholes drilled within the general vicinity of the site and surrounding area. The closest historical borehole was recorded

[4] BGS Solid and Drift Map Sheet 271
[5] Information from BGS website: www.bgs.ac.uk consulted in month of report issue

approximately 600m to the north-west of the site (borehole reference: TQ66NW12) within Middle Farm on Church Road in Hartley. The borehole was advanced to a total depth of 71.62m below ground level between 1944 and 1964. No information on the ground conditions encountered was provided. A copy of the borehole details is included in Appendix C.

Ground Hazards

3.6 BGS data has also been reviewed to determine potential ground stability hazards which may affect the site. The table below summarises the ground stability hazards anticipated on the subject site based upon the expected ground model.

Details	On-Site Hazard Potential
Coal Mining Affected Area	None
Non-Coal Mining Affected Area	Rare
Potential for Collapsible Ground Stability Hazards	Very Low
Potential for Compressible Ground Stability Hazards	No Hazard
Potential for Ground Dissolution Stability Hazards	Very Low
Potential for Landslide Ground Stability Hazards	Very Low
Potential for Running Sand Ground Stability Hazards	No Hazard
Potential for Shrinking or Swelling Clay Ground Stability Hazards	Low

3.7 The BGS also holds data on non-coal mining areas, natural cavities and radon, and the Coal Authority holds data on coal mining affected areas for the UK. Data collated by Landmark on these matters (sites / features within 1km of the subject site) are presented below.

Category	Details
BGS Recorded Mineral Sites	Three BGS Recorded Mineral Sites have been identified within a 750m radius of the subject site: • 51m NE at Hartley Chalk Mine which was operated as an underground site extracting Chalk. Status listed as ceased. • 320m W at Billings Hill Shaw Chalk Pit operated as an opencast site extracting Chalk. Status listed as ceased. • 482m W at Hartley Chalkwell operated as an underground site extracting Chalk. Status listed as ceased.
Man-Made Mining Cavities	Three man-made mining cavities have been identified within 1km of the subject site: • 51m NE relating to a shaft / denhole within the Chalk. • 302m NW relating to a denhole within the Chalk.

Category	Details
	• 484m W relating to a chalkwell within the Chalk.
Natural Cavities	No natural cavities have been identified within 1km of the subject site.
Radon Potential - Radon Affected Areas	The property is in an intermediate probability radon area (with 1% to 3% of homes are estimated to be at or above the Action Level).

Hydrogeology

3.8 The Groundwater Vulnerability Map of England and the DEFRA website[6] have been reviewed to determine the aquifer designations for the underlying geological units on site.

3.9 The Clay-with-Flints Formation, which most likely directly underlies the majority of the site, but is likely to be of limited thickness, is designated as Unproductive Strata. This is defined by the Environment Agency as "rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow." If groundwater is present within Unproductive Strata, for example within more permeable lenses or small fissures, it is typically discontinuous, of low value and very low sensitivity. Based on the BGS information reviewed, it is considered that this geology is relatively impermeable, and that shallow groundwater is not anticipated.

3.10 The Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) is designated as a Principal Aquifer. This is defined by the Environment Agency as "layers of rock or drift deposits that have high intergranular and / or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and / or river base flow on a strategic scale. In most cases, Principal Aquifers are aquifers previously designated as Major Aquifers." Based on the BGS information reviewed, it is considered that the bedrock is relatively permeable and that as such, shallow groundwater is not anticipated.

3.11 The Environment Agency has defined Source Protection Zones (SPZs) for groundwater sources used for public drinking water supply.[7] A Zone 3 (Total Catchment) Groundwater SPZ is present on site. This is described as the total area needed to support the discharge from the protected groundwater source.

[6] Information from DEFRA Website: www.magic.defra.gov.ukconsulted in month of report issue
[7] These zones show the risk of contamination from any activities that might cause pollution in the area. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest.

3.12 Seven groundwater abstractions have been listed within 1km of the subject site. All of these abstractions are recorded between 778m and 999m to the south of the site and are operated by South East Water Ltd from the Chalk and Lower Greensand. The abstraction consents pertain to the abstraction of groundwater for public water supply (potable water supply), under licence numbers 9/40/01/0148/A/Gr and 9/40/01/0148/B/Gr.

3.13 No groundwater discharge consents are recorded within 250m of the site.

Hydrology

3.14 No surface water features have been identified on mapping records within 500m of the site, except for a pond located on the edge of Hartley Woods, approximately 480m north. Given the distance from the site and the underlying geology, this feature is not considered to be in hydraulic connectivity with the site.

3.15 River quality information is not available within 1km of the subject site.

3.16 No surface water abstractions are recorded within 1km of the site.

3.17 No surface water discharge consents are recorded within 250m of the site.

Environmental Statutory Designations

3.18 A review of the environmental sensitive receptors' database indicates that the site is located adjacent to an area of ancient woodland known as Hartley Wood, from 4m to the east of the site.

3.19 The site also lies within an area of Adopted Greenbelt, which was adopted by Sevenoaks District Council in February 2015.

3.20 The site does not lie within a Nitrate Vulnerable Zone (NVZ) for groundwater or surface water. There are no Special Protection Areas, Sites of Special Scientific Interest (SSSI), Ramsar Sites, Local Nature Reserves, or other environmentally sensitive areas within 250m of the site.

Environmental Sensitivity

3.21 The sensitivity of each of the identified receptors is rated depending upon the environmental setting of the site, the likelihood for pollutant linkages to be present and potential consequence

of those potential pollutant linkages. The assessment approach adopted is based on guidance set out in the *NHBC R&D 66*[8] document.

3.22 Groundwater within the Clay-with-Flints Formation is considered to have a Very Low (L2) sensitivity, which is described in the guidance as being "not a recognised aquifer, but strata beneath the site may retain a small amount of contaminated liquid but there is likely to be limited vertical penetration. High potential for surface run-off or ponding." This sensitivity classification has been assigned given the expected low permeability and limited potential for groundwater storage and transmission.

3.23 Groundwater within the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) is considered to have a Very High (H1) sensitivity, which is described in the guidance as being a "highly vulnerable aquifer, actively used in the site vicinity with short travel times to sources of supply or sensitive watercourses. Likely to be within an inner or outer groundwater protection zone (Zones I or II under EA protection policy). All contaminant releases to the ground environment of concern." This sensitivity classification has been assigned given the designation of the site area as within a Zone III Groundwater SPZ, the presence of groundwater abstractions for potable water supply within 1km of the site, the expected permeability of the stratum and the potential for groundwater storage.

3.24 Surface water is considered to have a Very Low (L2) sensitivity, which is described in the guidance as being a site with "no surface water within general area of the site (at least 250m) or closed drainage within the site. Little or no potential for significant transmission via baseflow and no interconnecting drains." This sensitivity classification has been assigned given the absence of nearby surface water features and the limited potential for baseflow in shallow groundwater.

3.25 The sensitivity classifications noted above have been taken into consideration in the development of the conceptual model presented at the rear of this report.

Anthropology

3.26 Proposed anthropological receptors at the site are considered to include future residents and visitors. In the short term, groundworkers and construction personnel will also be considered.

[8] Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66, NHBC, 2008

Summary of Identified Receptors and Site-Specific Pollutant Linkages

3.27 A review of the environmental sensitivity and proposed anthropological use of the site has identified the following **receptors**, as detailed below.

Identified receptors:

- Future residents and visitors,
- Ground / construction workers,
- Limited perched groundwater within the Made Ground and Clay-with-Flints Formation (Unproductive Strata),
- Deeper groundwater within the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) (Principal Aquifer),
- Adjacent land (including residential within neighbouring properties and Hartley Wood)
- Flora (including Hartley Wood)
- Below ground structures and foundations, and
- Potable water pipes.

Viable pathways and pollution linkages:

3.28 Some **viable migration and exposure pathways** and potential pollutant linkages have been identified, whereby a receptor may be exposed to a source. The viable pollutant linkages have then been used to develop a conceptual model. The following is a summary of **viable,** site specific pathways and pollutant linkages to be considered further:

- In areas of open ground, the following exposure pathways to humans are considered to be active: inhalation of contaminated dust and dermal contact and direct ingestion of contaminated soils. It is noted that these exposure pathways are only active in soft landscaped areas; permanent hardstanding breaks the potential pathways. In addition, as a private garden is proposed, the indirect ingestion of contaminated soils sorbed to home-grown produce are also to be considered.
- Inhalation of toxic vapours, potentially migrating into above ground structures from organic contaminants within the Made Ground, contaminated groundwater, or localised spills / leaks. Potential for vapours to migrate through hardstanding and open ground.
- Hazardous ground gases, potentially generated by the Made Ground or organic-rich natural soils, may migrate into above ground structures, and accumulate within building voids and enclosed spaces (resultant risk of asphyxiation and / or explosion).
- Shallow soil contamination has the potential to vertically migrate downwards into the underlying natural soils and perched or shallow groundwater by leaching and infiltration. These processes are enhanced in areas of soft landscaping due to an increased

infiltration potential. Conversely, areas of hardstanding reduce infiltration potential and leaching rates, which results in a lower mobility of any shallow contamination.

- Flora grown within areas of soft landscaping and the nearby Hartley Wood may be exposed to contaminants through root uptake mechanisms.
- Below ground concrete structures and foundations are susceptible to chemical attack from aggressive ground conditions (pH and water-soluble sulphate).
- Potable water pipes are susceptible to chemical attack from shallow soil contamination.

4.0 CONCLUSIONS & RECOMMENDATIONS

Geoenvironmental Considerations

4.1 A conceptual model and qualitative risk assessment have been included at the end of this report. The risk ratings assigned in the risk table, and summarised in this Chapter, are based on information obtained through desk-based research, a site walkover and on our experience in assessing risks from similar sites. The proposed end use of the site, anticipated ground conditions, environmental receptors and viable exposure pathways have been considered.

4.2 In summary, this Phase 1 Desk Study has determined that it is **unlikely** for contamination to be present on site in a circumstance which could lead to risks to identified receptors. The potential sources of contamination identified are limited to the former use of the barn as a Hop Kiln and agricultural building.

4.3 As illustrated in the risk assessment table, some of the risks attributable to viable pollutant linkages were **low to very low**. The risk ratings identified in this assessment are not considered prohibitive for the development and can be effectively managed in accordance with LCRM. The risks which require further consideration in this regard are detailed below:

- A **low risk** has been identified to future site occupants, site visitors and neighbours (residential), and shallow and deep groundwater on site from any potential Made Ground on site associated with the former use of the barn. A lower risk with regards to ground and construction workers is assumed due to occupational exposure and can be further reduced by using appropriate PPE and other precautionary measures. The underlying bedrock is very permeable and will likely allow the vertical and lateral transmission of any contaminants on site. The overlying Clay-with-Flints Formation, though likely to be a minimal thickness on site, may afford some protection to the underlying aquifer from any near-surface contamination. The proposed end-use will comprise hardstanding and the building footprint, with a small soft landscaped residential garden. Hardstanding and building footprints will limit direct contact between proposed end users and contamination present, however the enclosed building on site, which may allow the internal accumulation of any generated ground gases. Exposure will occur in soft landscaped areas.

- A **very low risk** has been identified with regards to buried services and structures (including foundations) from possible limited thicknesses of Made Ground on site. Aggressive ground conditions (sulphate and pH) may occur due to the presence of contamination within any fill and Made Ground on site. However, deep, or widespread Made Ground is unlikely to be encountered on site.

- A **very low risk** has been identified with regards to future site occupants, the underlying natural strata and controlled waters associated with the potential off-site source of contamination identified in the surrounding area, relating to the nearby electrical sub-station. This is due to the presence of residential properties all around the sub-station and the absence of spillages or incidents associated with this sub-station since its construction in the early-1970s.

4.4 The qualitative nature of the risk assessment is not absolute. Furthermore, although low risks may have been assigned to various pollutant linkages, the risk cannot be eliminated (i.e., "no risk") at this stage of the assessment and residual risks will remain which should not be discounted on the basis that the risk is low or very low.

4.5 Based on the above risk ratings, no further investigation is required to refine the risk assessment and validate the conceptual site model at this stage. Should evidence of significant Made Ground or contamination be encountered on site then a ground investigation at the site should be carried out. The scope of which would need to be discussed and agreed with Lustre and the Local Planning Authority.

4.6 Given the nature of the proposed development scheme at the site residential use, the overall risk from the site to future site users is likely to be **very low** at this stage. The final site condition will comprise a small, soft landscaped garden area adjacent to the barn building, with the potential for the consumption of home-grown produce from the site.

4.7 A suitable asbestos survey should be undertaken prior to the start of any refurbishment works, if not already completed. If encountered, asbestos and asbestos containing materials, should be dealt with in accordance with CAR 2012.

Planning Considerations

4.8 It is understood that this report will be submitted to the Local Planning Authority, Sevenoaks Borough Council to support the application for the proposed works. On award of planning permission, it is not expected that a Phase 2 Site Investigation will be required due to minimal risks having been identified on site. At this stage, no additional works are necessary.

Preliminary Ground Model & Ground Hazard Recommendations

4.9 The BGS information shows that the site to be located on the edge of an outcrop of Clay-with-Flints Formation which are expected to underlie the site (albeit a likely limited thickness). These deposits are reportedly underlain by the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated).

4.10 Considering the information from the BGS reviewed as part of this Phase 1, shallow groundwater is not anticipated to be present beneath the site.

4.11 Depending on the loading requirements associated with the proposed refurbishment works, a geotechnical investigation may be required to inform foundation design on site.

Comments on Waste Classification

4.12 Separate to the human health and wider environmental risks from potential contamination, the presence of some contaminants can also impact the waste spoil disposal costs. Depending on the presence of and chemical composition of any Made Ground and any contaminants present and their distribution, soils may require different levels classification for waste disposal purposes. For example, the presence of asbestos within the Made Ground can significantly change the classification of waste soils which could incur greater disposal costs. The Client should consider the impacts that this may have the overall waste disposal strategy for the site.

4.13 Should there be a need for the disposal of soils as part of the development, it is recommended that the Client consider the need for undertaking a waste spoil assessment as part of any intrusive works. This may include an assessment of the hazardous nature of the soil by virtue of any contamination (in accordance with the Waste Framework Directive and the Environment Agency's *Technical Guidance WM3 Hazardous Waste*[9]), and Waste Acceptance Criteria (WAC) testing.

Statutory Designation

4.14 The *National Planning Policy Framework (NPPF)* states that "land should be suitable for its new use and as a minimum, after carrying out remediation (if required), the land should **not** be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990". It is our opinion that, based on the findings of this Phase 1 Desk Study, it is unlikely the site would be designated as statutory contaminated land by the Local Authority under the provision of the published Statutory Guidance. It is advisable however, that any recommendations made in this report are implemented in line with current guidance and good practice, especially where verification of the risk assessment is necessary.

[9] Technical guidance WM3: Guidance on the Classification and Assessment of Waste (1st Edition 2015). Environment Agency.

CONCEPTUAL MODEL & RISK ASSESSMENT

CONCEPTUAL SITE MODEL & QUALITATIVE RISK ASSESSMENT **4033_FP01.0**

Barn at 2 Hartley Wood Corner Cottage, Manor Drive, Hartley, Longfield, Kent

ON SITE SOURCE: **Shallow Soils Impacted by Current and Historical Site Use**

JUSTIFICATION NOTES: A full list of summary notes which provide detail and context to the risk ratings assigned in the table below is given at the end of the table. If specific notes are particularly significant to a certain pollutant linkage, these are referenced in the final column of the table.

CONCEPTUAL SITE MODEL				RISK ASSESSMENT			KEY
		PATHWAY	RECEPTOR	LIKELIHOOD OF OCCURRENCE	CONSEQUENCE (SEVERITY)	POTENTIAL RISK	JUSTIFICATION NOTES
SOURCE - Potential contamination from current / historical site use(s) to impact site Based on historical mapping records, the following have been identified on site: agricultural farm buildings.	**POTENTIAL CONTAMINANTS - asbestos, metals, inorganics, PAH, TPH**	Inhalation of contaminated dusts, gases and vapours, dermal contact and direct ingestion of contaminated soils, and indirect ingestion of contaminated soils sorbed to home-grown produce	Residents and site visitors	Low Likelihood	Mild	**Low**	**1 - 8**
		Inhalation of contaminated dusts, gases and vapours, dermal contact and direct ingestion of contaminated soils	Ground / construction workers	Low Likelihood	Minor	**Very Low**	**9**
		Vertical migration downwards via leaching and/or saturation of contaminated soils	Perched groundwater within Made Ground	Low Likelihood	Mild	**Low**	**3 - 8 and 10**
		Vertical migration downwards via leaching and vertical mixing with shallow groundwater	Deeper groundwater within the Lewes Nodular Chalk Formation (Principal aquifer)	Low Likelihood	Mild	**Low**	**3 - 8 and 11**
		Lateral migration of contaminants to down hydraulic gradient areas in groundwater and runoff	Adjacent land	Low Likelihood	Mild	**Low**	**12**
		Root uptake mechanisms	Flora	Low Likelihood	Minor	**Very Low**	**16**
		Chemical attack from aggressive ground conditions (pH and water soluble sulphate) and shallow contamination	Buried services and below ground structures and foundations	Low Likelihood	Minor	**Low**	**5**
		Migration and accumulation of gases within building voids and enclosed spaces	Building and site occupants	Very Unlikely	Severe	**Acceptably Low**	**18**
GROUND HAZARDS		Moderate or above ground stability hazards have been identified on site: N/A				**No**	
MINING		Potential risk identified based on the presence of nearby BGS mineral sites.				**No**	

JUSTIFICATION NOTES

NOTE ID	NOTES
1	It is understood that development proposals for the site involve refurbishment of existing building(s) on the site to create a residential scheme. The proposed development will comprise 1 low rise residential dwellings with private gardens.
2	In areas of open ground, the following exposure pathways to humans are considered to be active: inhalation of contaminated dust and dermal contact and direct ingestion of contaminated soils. It is noted that these exposure pathways are only active in soft landscaped areas; permeant hardstanding breaks the potential pathways. In addition, as private gardens are proposed, the indirect ingestion of contaminated soils sorbed to home-grown produce are to be considered.
3	Historical mapping records show that the site has undergone periods of construction and subsequent demolition. Any waste demolition materials may have been retained and spread on site. These waste materials, which may contain asbestos and other contaminants, may be present in the subsoil on site; a layer of Made Ground is therefore anticipated.
4	Agricultural land can have a wide range of uses depending on the nature of the farm. Often agricultural plant and machinery can be used and stored on site, with small scale repairs and maintenance carried out within buildings or external areas. Any agricultural buildings commonly contained asbestos and have often undergone periods of expansion and clearance over time, with waste materials buried or spread on open ground. Often the limited presence of hardstanding on agricultural sites means the shallow soils are more at risk to uncontrolled releases.
5	Contamination may be generally minor, with possible sporadic localised areas of higher contamination
6	Externally, no hardstanding was recorded on site, with external areas formed of bare ground / soft landscaping.
7	Small scale storage of potentially hazardous materials was not recorded during the site inspection.
8	Based on the site use, potentially contaminative waste streams are not considered likely. From the observations made on site, housekeeping appears to be generally good.
9	Construction workers - use of appropriate PPE and awareness of potential hazards through 'toolbox' talks
10	Groundwater within the Claywithflints Formation is considered to have a Very Low (L2) sensitivity, which is described in the guidance as being "not a recognised aquifer, but strata beneath site may retain a small amount of contaminated liquid but there is likely to be limited vertical penetration. High potential for surface runoff or ponding." This sensitivity classification has been assigned given the expected low permeability and limited potential for groundwater storage and transmission.
11	Groundwater within the Lewes Nodular Chalk Formation is considered to have a Very High (H1) sensitivity, which is described in the guidance as being a "highly vulnerable aquifer, actively used in vicinity of site with short travel times to sources of supply or sensitive watercourses. Likely to be within an inner or outer groundwater protection zone (Zones I or II under EA protection policy). All contaminant releases to the ground environment of concern." This sensitivity classification has been assigned given the designation of the site area as within a groundwater SPZ, the presence of groundwater abstractions nearby, but also the expected permeability and potential for groundwater storage.
12	The superficial soils are a low permeability clay geology, with a very low porosity and permeability. As such this stratum is not anticipated to be a viable groundwater aquifer or capable of storing or transmitting significant quantities of groundwater. Any groundwater present will likely be held within discontinuous more granular lenses and be of limited value and low significance. The potential for significant mobilisation of contamination within this stratum is therefore very low. As such, the vertical mixing of shallow groundwater to deeper groundwater can be discounted. This will also limit the potential for the lateral migration of site-borne contaminants to off-site areas (down hydraulic gradient) via baseflow. The migration of potential sources of off-site contamination and ground gases onto the site is also likely to be significantly restricted noting the above.
13	Considering the information from the BGS reviewed as part of this Phase 1, shallow groundwater is not anticipated to be present beneath the site.
14	Given the anticipated absence of shallow groundwater, shallow contamination is unlikely to readily enter groundwater and migrate off-site.
15	No surface water features have been identified on mapping records within 500m of the site.
16	Flora grown within areas of soft landscaping may be exposed to contaminants through root uptake mechanisms.
17	Potable water pipes likely laid in Made Ground
18	The organic content of the natural ground is low. Organic-rich soils are not anticipated on site.
19	Depending on the thickness, organic and putresible content of any Made Ground on site, these soils may represent a source of ground gas.

ENVIRONMENTAL RISK ASSESSMENT

Introduction

This section assesses the significance of the environmental issues that have been identified on the site or in the surrounding area. This is achieved by developing an initial conceptual model for the site and undertaking a qualitative risk assessment.

The objective of the conceptual model is to identify potential contaminant "source(s)", "pathways" and target "receptors" relating to the site and surrounding area. The information obtained is described in detail in the Land Use Chapter and the Sensitivity & Anthropology Chapters. This information is then collated and a qualitative risk assessment[10,11] undertaken to assess the source-pathway-receptor linkages. The potential for a pollution event to occur is evaluated using a risk classification tool[12.] The level of risk is assigned by considering the likelihood that a pollution event might occur with the consequence of its occurrence. The consequence is essentially a measurement of the severity of a hazard (or source) and sensitivity of the receptor (e.g. aquifer type or end user).

The Table presented overleaf details the various components of the site conceptual model and evaluates the risks associated with each viable potential pollution linkage. Where additional explanation is required, Justification Notes have been given at the end of the Table. The risks associated with each potential pollution linkage are also discussed within the report conclusions.

Methodology

The qualitative risk assessment firstly considers the source of contamination and potential contaminants associated with the source(s) (or hazards). As well as the type of source, the extent, concentration and availability of a contaminant is also assessed.

The effect of a hazard on an identified receptor is largely governed by the sensitivity of a receptor. Receptors may typically include people, buildings, animals, plants and local resources (such as groundwater, surface waters, mines etc). A change in the receptor should be considered if the end-use of the site changes, for example, if a commercial site is to be redeveloped into a residential housing estate as a residential occupier is considered more sensitive than a commercial occupier. The presence of contamination (as a potential hazard) does not necessary mean that there is a risk. It is the exposure pathway and the quantity of contamination that reaches the receptor which may determine the effect on a receptor (such as the integrity of a barrier between a contamination source and receptor).

The risk classifications for both likelihood and consequence is based on methodology presented in Contaminated Land Risk Assessment, A Guide to Good Practice (CIRIA C552, 2001) and has been developed from procedures outlined in the EA's LCRM. The Department for the Environment Transport and the Regions (DETR), with the EA and Institute of Environment & Health, has also published guidance on risk assessment (Guidelines for Environmental Risk Assessment and Management). The guidance states that the designation of risk is based upon a consideration of both:

- The magnitude of the potential consequence (severity) of risk occurring which takes into account both the potential severity of the hazard and the sensitivity of the receptor; and
- The likelihood of an event occurring (probability) which takes into account the both the presence of the hazard and receptor and the integrity of the pathway.

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[10] Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66, NHBC, 2008.
[11] Construction Industry Research and Information Association (CIRIA). Contaminated Land Risk Assessment. A Guide to Good Practice. CIRIA C552 2001.
[12] Department of the Environment, Transport and the Regions, Environment Agency and Institute of Environmental Health. Guidelines for Environmental Risk Assessment and Management. HMSO July 2000.

The magnitude of consequence (severity) and likelihood (probability) is defined in the CIRIA guidance, together with examples. The two classifications are then compared (as shown on Table 1) to obtain an estimation of risk for each pollution linkage, ranging from "very high risk" to "very low risk". A description of the risks and likely actions required is presented in Table 2. The benefit of estimating the risk in this way is that it can be revised after each investigation phase as the conceptual model and corresponding pollution linkages are refined.

Table 1: Comparison of Consequence VS. Probability

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Likelihood	**High likelihood**	Very high risk	High risk	Moderate risk	Moderate/ low risk
	Likely	High risk	Moderate risk	Moderate/ low risk	Low risk
	Low likelihood	Moderate risk	Moderate/ low risk	Low risk	Very low risk
	Unlikely	Moderate/ low risk	Low risk	Very low risk	Very low Risk

Table 2: Description of the Classified Risks and Likely Action Required

Level of Risk	Description of Classification
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or, there is evidence that severe harm to a designated receptor is currently happening. If this risk is realised, it is likely to result in significant environmental and financial liability to current and/ or future site owners/ occupiers. Urgent investigation (if not already undertaken) and remediation is likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. If risk is realised, it is likely to present a sizeable environmental and financial liability to current and/ or future site owners/ occupiers. Urgent investigation is required and remediation work may be necessary in the short term and likely over the longer term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the potential environmental liability. Some remedial works may be required over the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild. Limited investigation may be recommended to clarify the risk, dependant on the sensitivity of the receptor and view point of those of interest. Any remedial works are likely to be fairly limited.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is likely to be mild or minor.

The acceptability of risk will always depend upon the view point of those of interest, whether it is an occupier of a site, a regulator or stakeholder. As a result, it could be that action will be required to deal with a level of risk even if it is classified as very low.

APPENDIX A: ENVIROCHECK REPORT

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
283444115_1_1

Customer Reference:
4033

National Grid Reference:
561270, 167350

Slice:
A

Site Area (Ha):
0.03

Search Buffer (m):
1000

Site Details:

2 Hartley Wood Corner Cottage, Manor Drive
Hartley
LONGFIELD
DA3 8AU

Client Details:

Mr M Dean
Lustre Consulting Ltd
Second Floor North,
The Fitted Rigging House,
The Historic Dockyard
Chatham
Kent
ME4 4TZ

LUSTRE CONSULTING

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes			n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1			2	5
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 2			Yes	
Pollution Incidents to Controlled Waters	pg 2				1
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 3				7
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 4	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 5	1	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 5	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 5	Yes	n/a	n/a	n/a
Source Protection Zones	pg 5	1			3
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites	pg 6				1
Historical Landfill Sites	pg 6				1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 6	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 6			1	1
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 7	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 7	Yes			Yes
BGS Recorded Mineral Sites	pg 7		1	2	3
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities	pg 8		1	2	
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 9	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 9	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 9	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 9	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 10		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 10	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas	pg 10	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 11			7	16
Fuel Station Entries	pg 13				1
Points of Interest - Commercial Services	pg 13			1	9
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 13				2
Points of Interest - Public Infrastructure					
Points of Interest - Recreational and Environmental	pg 14				3
Gas Pipelines					
Underground Electrical Cables	pg 14				1

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 15		1	4	11
Areas of Adopted Green Belt	pg 16	1			1
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 16				1
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	0	1	561266 167350
1	**Discharge Consents** Operator: Mr John Peter Stoneham Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Premises At Orchard-Lea, Church Road, Hartley, Kent, Da3 8dr Authority: Environment Agency, Southern Region Catchment Area: Darent (NIRS) Reference: P21446 Permit Version: 2 Effective Date: 21st December 2012 Issued Date: 21st December 2012 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Underground Strata **Status:** **Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SW (W)	266	2	560991 167344
1	**Discharge Consents** Operator: Mr John Peter Stoneham Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Premises At Orchard-Lea, Church Road, Hartley, Kent, Da3 8dr Authority: Environment Agency, Southern Region Catchment Area: Darent (NIRS) Reference: P21446 Permit Version: 1 Effective Date: 20th July 2007 Issued Date: 20th July 2007 Revocation Date: 20th December 2012 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Underground Strata **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SW (W)	266	2	560991 167344
2	**Discharge Consents** Operator: Hf & Jm Glover Property Type: Mixed Farming Location: Hartley Manor Farm, Hartley, Longfield, Kent, Da3 8lj Authority: Environment Agency, Southern Region Catchment Area: Darent (NIRS) Reference: App/So/174k Permit Version: 1 Effective Date: 27th March 2000 Issued Date: 27th March 2000 Revocation Date: 1st January 2011 Discharge Type: Trade Discharge - Process Water Discharge Environment: Into Land Receiving Water: Into Land **Status:** **Groundwater Regulations Authorisation (by Application or Full Determination of Deemed Authorisation)** Positional Accuracy: Located by supplier to within 10m	A14NW (E)	536	2	561780 167540
2	**Discharge Consents** Operator: Hf & Jm Glover Property Type: Mixed Farming Location: Hartley Manor Farm, Hartley, Longfield, Kent, Da3 8lj Authority: Environment Agency, Southern Region Catchment Area: Darent (NIRS) Reference: App/So/174k Permit Version: 2 Effective Date: 16th March 2006 Issued Date: 16th March 2006 Revocation Date: 1st January 2011 Discharge Type: Trade Discharge - Process Water Discharge Environment: Into Land Receiving Water: Into Land **Status:** **Varied Groundwater Regs Authorisation** Positional Accuracy: Located by supplier to within 10m	A14NW (E)	581	2	561820 167560

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Hf & Jm Glover Property Type: Mixed Farming Location: Hartley Manor Farm, Hartley, Longfield, Kent, Da3 8lj Authority: Environment Agency, Southern Region Catchment Area: Darent (NIRS) Reference: App/So/174k Permit Version: 2 Effective Date: 16th March 2006 Issued Date: 16th March 2006 Revocation Date: 1st January 2011 Discharge Type: Trade Discharge - Process Water Discharge Environment: Into Land Receiving Water: Into Land **Status: Varied Groundwater Regs Authorisation** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	594	2	561760 167700
3	**Discharge Consents** Operator: Hf & Jm Glover Property Type: Mixed Farming Location: Hartley Manor Farm, Hartley, Near Longfield, Kent, Da3 8lj Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: App/So/174k Permit Version: 1 Effective Date: 1st April 1999 Issued Date: 1st April 1999 Revocation Date: Not Supplied Discharge Type: Trade Discharge - Process Water Discharge Environment: Into Land Receiving Water: Into Land **Status: Varied Groundwater Regs Authorisation** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	594	2	561760 167700
4	**Discharge Consents** Operator: South East Water Limited Property Type: PUMPING STN ON UNADOPTED SEWERAGE NETWRK (NOT WATER CO) Location: Hartley Pumping Station, Hartley Bottom Road, Longfield, Kent, Da3 8lf Authority: Environment Agency, Southern Region Catchment Area: Darent (NIRS) Reference: P04402 Permit Version: 1 Effective Date: 29th March 1995 Issued Date: 29th March 1995 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Process Effluent - Water Company (Wtw) Discharge Environment: Land/Soakaway Receiving Water: Into Land **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A8SE (S)	801	2	561570 166600
	Nearest Surface Water Feature	A18SW (N)	463	-	561262 167823
5	**Pollution Incidents to Controlled Waters** Property Type: Arable Location: Parsons Orchard, Church Road, HARTLEY Authority: Environment Agency, Southern Region Pollutant: Miscellaneous - Fire water / Foam Note: Fire In Shed Containing Chemicals Incident Date: 26th February 1998 Incident Reference: 197087 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Agricultural Pesticide/Fertilizer Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	754	2	561400 166600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Water Abstractions** Operator: South East Water Ltd Licence Number: 9/40/01/0148/A/Gr Permit Version: 103 Location: Chalk Boreholes Within Two Areas Of Land At Hartley Ps. Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from any point within an area Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 13th February 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SE (S)	778	2	561422 166580
7	**Water Abstractions** Operator: South East Water Limited Licence Number: 9/40/01/0148/A/Gr Permit Version: 102 Location: Chalk Boreholes Within Two Areas Of Land At Hartley Ps. Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from any point within an area Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 October Authorised End: 30 September Permit Start Date: 27th October 2010 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SE (S)	848	2	561510 166530
7	**Water Abstractions** Operator: South East Water Plc Licence Number: 9/40/01/0148/A/Gr Permit Version: 101 Location: Chalk Boreholes Within Two Areas Of Land At Hartley Ps. Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from any point within an area Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 October Authorised End: 30 September Permit Start Date: 14th December 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SE (S)	848	2	561510 166530
7	**Water Abstractions** Operator: Mid Kent Water Plc Licence Number: 9/40/01/0148/A/Gr Permit Version: 100 Location: Chalk Boreholes Within Two Areas Of Land At Hartley Ps. Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from any point within an area Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 October Authorised End: 30 September Permit Start Date: 23rd November 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SE (S)	848	2	561510 166530

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Water Abstractions** Operator: South East Water Ltd Licence Number: 9/40/01/0148/B/Gr Permit Version: 102 Location: Lower Greensand Borehole At Hartley Ps Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 October Authorised End: 30 September Permit Start Date: 27th October 2010 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A8SE (S)	999	2	561600 166400
8	**Water Abstractions** Operator: South East Water Plc Licence Number: 9/40/01/0148/B/Gr Permit Version: 101 Location: Lower Greensand Borehole At Hartley Ps Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 October Authorised End: 30 September Permit Start Date: 14th December 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A8SE (S)	999	2	561600 166400
8	**Water Abstractions** Operator: Mid Kent Water Plc Licence Number: 9/40/01/0148/B/Gr Permit Version: 100 Location: Lower Greensand Borehole At Hartley Ps Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 October Authorised End: 30 September Permit Start Date: 23rd November 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A8SE (S)	999	2	561600 166400
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A13SE (SE)	0	3	561267 167349

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A13SW (SW)	0	3	561266 167350
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	A13SW (SW)	0	3	561266 167350
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A13SW (SW)	0	3	561266 167350
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13SE (SE)	0	3	561267 167349
9	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A13SW (SW)	0	2	561266 167350
10	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A12NW (W)	803	2	560456 167399
11	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A8SE (S)	882	2	561483 166487
12	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A8SE (S)	882	2	561482 166487
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
	OS Water Network Lines None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	**BGS Recorded Landfill Sites** Site Name: Longfield Location: DARTFORD, Kent Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate	A19SW (NE)	672	-	561820 167749
14	**Historical Landfill Sites** Licence Holder: Southwark Borough Location: Hartley Bottom Road, Hartley, Kent Name: Hartley Bottom Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD19379 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Inert and Commercial Waste, and Liquid Sludge EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: 1761 Other Ref: SE26	A19SW (NE)	643	2	561791 167741
	Local Authority Landfill Coverage Name: Sevenoaks District Council - Has no landfill data to supply		0	4	561266 167350
	Local Authority Landfill Coverage Name: Kent County Council - Had landfill data but passed it to the relevant environment agency		0	5	561266 167350
	Local Authority Landfill Coverage Name: Dartford Borough Council - Has no landfill data to supply		946	6	561674 168215
15	**Potentially Infilled Land (Non-Water)** Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1981	A13SW (W)	309	9	560947 167345
16	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1981	A14SE (E)	721	9	561996 167319

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	A13SW (SW)	0	1	561266 167350
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SW (SW)	0	1	561266 167350
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SW (N)	640	1	561266 168000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 100 - 200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SE (E)	724	1	562000 167350
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 100 - 200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A17SW (NW)	999	1	560500 168000
17	**BGS Recorded Mineral Sites** Site Name: Hartley Chalk Mine Location: Hartley, Longfield, Kent Source: British Geological Survey, National Geoscience Information Service Reference: 220781 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	51	1	561300 167400
18	**BGS Recorded Mineral Sites** Site Name: Billings Hill Shaw Chalk Pit Location: Hartley, Longfield, Kent Source: British Geological Survey, National Geoscience Information Service Reference: 131117 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A13SW (W)	320	1	560937 167340

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**BGS Recorded Mineral Sites** Site Name: Hartley Chalkwell Location: Hartley, Longfield, Kent Source: British Geological Survey, National Geoscience Information Service Reference: 220301 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A12NE (W)	482	1	560790 167460
20	**BGS Recorded Mineral Sites** Site Name: Hartley Manor Gravel Pit Location: Hartley, Longfield, Kent Source: British Geological Survey, National Geoscience Information Service Reference: 130645 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Head Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A14NE (E)	776	1	562051 167406
21	**BGS Recorded Mineral Sites** Site Name: Foxborough Wood Location: Hartley, Longfield, Kent Source: British Geological Survey, National Geoscience Information Service Reference: 131116 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A8SE (S)	800	1	561547 166593
22	**BGS Recorded Mineral Sites** Site Name: Longfield Hill Chalk Pit Location: Hartley, Longfield, Kent Source: British Geological Survey, National Geoscience Information Service Reference: 131114 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	938	1	561935 168023
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Man-Made Mining Cavities Easting: 561300 Northing: 167400 Distance: 51 Quadrant Reference: A13 Quadrant Reference: NE Bearing Ref: NE Cavity Type: Shaft-Probable Denehole Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: Clay-with-Flints	A13NE (NE)	51	7	561300 167400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Man-Made Mining Cavities Easting: 561000 Northing: 167500 Distance: 302 Quadrant Reference: A13 Quadrant Reference: NW Bearing Ref: NW Cavity Type: Denehole:- vertical shaft having chambers at the base Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: Clay-with-Flints	A13NW (NW)	302	7	561000 167500
	Man-Made Mining Cavities Easting: 560800 Northing: 167500 Distance: 484 Quadrant Reference: A12 Quadrant Reference: NE Bearing Ref: W Cavity Type: Chalkwell Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: Clay-with-Flints	A12NE (W)	484	7	560800 167500
	Non Coal Mining Areas of Great Britain Risk: Likely Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350
	Non Coal Mining Areas of Great Britain Risk: Highly Likely Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	1	1	561272 167359
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	27	1	561243 167318
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	1	561267 167349
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	142	1	561141 167424
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	1	561267 167349
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	142	1	561141 167424
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	144	1	561160 167455
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	163	1	561184 167500
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	222	1	561130 167534

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	142	1	561141 167424
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	1	561267 167349
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	142	1	561141 167424
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	561266 167350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	**Contemporary Trade Directory Entries** Name: Mb Air Location: Green Acres, Church Road, Hartley, Longfield, Kent, DA3 8DT Classification: Air Conditioning & Refrigeration Contractors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (S)	367	-	561126 166998
23	**Contemporary Trade Directory Entries** Name: M B Location: Green Acres, Church Road, Hartley, Longfield, Kent, DA3 8DT Classification: Air Conditioning & Refrigeration Contractors **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	367	-	561126 166998
24	**Contemporary Trade Directory Entries** Name: Briary'S Dry Cleaners Location: 1, Cherry Trees, Hartley, Longfield, Kent, DA3 8DS Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	440	-	560850 167509
24	**Contemporary Trade Directory Entries** Name: Hartley Supplies Diy Store Location: 1, Cherry Trees, Hartley, Longfield, Kent, DA3 8DS Classification: Hardware **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	440	-	560850 167509
25	**Contemporary Trade Directory Entries** Name: Calipee Pneumatics Ltd Location: 1, Billings Hill Shaw, Hartley, Longfield, Kent, DA3 8EU Classification: Pneumatic Systems & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	445	-	560817 167409
26	**Contemporary Trade Directory Entries** Name: Gb Truck Sales Ltd Location: Enchante, Church Road, Hartley, Longfield, Kent, DA3 8DW Classification: Commercial Vehicle Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (NW)	461	-	560873 167597
26	**Contemporary Trade Directory Entries** Name: R & A Services Location: Cedars, Gorsewood Road, Hartley, Longfield, Kent, DA3 7DH Classification: Pest & Vermin Control **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (NW)	479	-	560870 167627
27	**Contemporary Trade Directory Entries** Name: K W Grab Hire Location: 47, Cherry Trees, Hartley, Longfield, DA3 8DS Classification: Commercial Vehicle Breakdown & Recovery Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	558	-	560705 167424
28	**Contemporary Trade Directory Entries** Name: Pamela Laister Location: Mariners, Gorse Way, Hartley, Longfield, Kent, DA3 8AE Classification: Electrolysis **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	606	-	561076 167935
29	**Contemporary Trade Directory Entries** Name: A M L Advanced Vehicle Services Location: Woodvale, Gorsewood Road, Hartley, Longfield, DA3 7DH Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	622	-	561006 167924
30	**Contemporary Trade Directory Entries** Name: M R Autos Ltd Location: Ash Road, Hartley, Longfield, Kent, DA3 8EL Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	691	-	560578 167475
30	**Contemporary Trade Directory Entries** Name: Westwood Cars & Commercials Location: Ash Road, Hartley, LONGFIELD, Kent, DA3 8EL Classification: Car Customisation & Conversion Specialists **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	719	-	560547 167460

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Contemporary Trade Directory Entries** Name: Bateman'S Coachworks Location: Ash Road, Hartley, Longfield, Kent, DA3 8EL Classification: Car Body Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	722	-	560550 167488
30	**Contemporary Trade Directory Entries** Name: Hartley Car Sales Location: Ash Road, Hartley, Longfield, Kent, DA3 8EL Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	722	-	560550 167488
30	**Contemporary Trade Directory Entries** Name: Hartley Garage Services Location: Ash Road, Hartley, Longfield, Kent, DA3 8EL Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	722	-	560550 167488
30	**Contemporary Trade Directory Entries** Name: Hartley Commercial Location: Ash Rd, Hartley, Longfield, Kent, DA3 8BQ Classification: Commercial Vehicle & Car Cleaning Equipment & Supplies **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NW (W)	722	-	560550 167488
30	**Contemporary Trade Directory Entries** Name: Westwood Car & Commercial Location: Ash Road, Hartley, Longfield, DA3 8EL Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	728	-	560538 167460
30	**Contemporary Trade Directory Entries** Name: Hartley Garage Location: Ash Road, Hartley, Longfield, DA3 8EL Classification: Car Body Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	728	-	560538 167460
31	**Contemporary Trade Directory Entries** Name: Revive Mobile Car Care Location: 3, Dickens Close, Hartley, Longfield, Kent, DA3 8DP Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	768	-	560622 167776
32	**Contemporary Trade Directory Entries** Name: A-Z Geotechnical & Environmental Services Location: Oast Cottage, Ash Road, Hartley, Longfield, Kent, DA3 8ER Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	801	-	560476 167519
33	**Contemporary Trade Directory Entries** Name: Ellerby Top Soils Ltd Location: Fairby Hill, Ash Road, Hartley, Longfield, Kent, DA3 8EJ Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	870	-	560432 167618
34	**Contemporary Trade Directory Entries** Name: Vw Audi Garage Location: Hemsleys Yard,Ash Rd, Hartley, Longfield, Kent, DA3 8HA Classification: Air Conditioning Equipment & Systems **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A7NW (SW)	931	-	560462 166856
35	**Contemporary Trade Directory Entries** Name: The Oven Guru Location: Kinnerton, Ash Road, Hartley, Longfield, Kent, DA3 8EH Classification: Oven cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	978	-	560339 167679

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	**Fuel Station Entries** Name: Hartley Garage Auto Services Location: Ash Road , , Hartley, Kent, DA3 8EL Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Automatically positioned to the address	A12NW (W)	721	-	560550 167483
37	**Points of Interest - Commercial Services** Name: R & A Services Location: Cedars, Gorsewood Road, Hartley, Longfield, DA3 7DH Category: Contract Services Class Code: Pest and Vermin Control Positional Accuracy: Positioned to address or location	A12NE (NW)	479	8	560870 167627
38	**Points of Interest - Commercial Services** Name: A M L Advanced Vehicle Services Location: Woodvale, Gorsewood Road, Hartley, Longfield, DA3 7DH Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SW (NW)	622	8	561006 167924
39	**Points of Interest - Commercial Services** Name: Bateman's Coachworks Ltd Location: Ash Road, Hartley, Longfield, DA3 8EL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (W)	722	8	560550 167488
39	**Points of Interest - Commercial Services** Name: Hartley Garage Services Ltd Location: Ash Rd, Hartley, Longfield, Kent, DA3 8EL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (W)	722	8	560550 167488
39	**Points of Interest - Commercial Services** Name: Hartley Garage Services Location: Ash Road, Hartley, Longfield, DA3 8EL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (W)	722	8	560550 167488
39	**Points of Interest - Commercial Services** Name: Hartley Garage Services Ltd Location: Ash Road, Hartley, Longfield, Kent, DA3 8EL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (W)	722	8	560550 167488
39	**Points of Interest - Commercial Services** Name: M R Autos Ltd Location: Ash Road, Hartley, Longfield, DA3 8EL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (W)	723	8	560549 167487
39	**Points of Interest - Commercial Services** Name: Hartley Garage Location: Ash Road, Hartley, Longfield, DA3 8EL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (W)	728	8	560538 167460
39	**Points of Interest - Commercial Services** Name: Bateman's Coachworks Location: Hartley Library, Ash Road, Hartley, Longfield, DA3 8EL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (W)	728	8	560538 167460
40	**Points of Interest - Commercial Services** Name: Alfjess Ltd Location: 18 Round Ash Way, Hartley, Longfield, DA3 8BT Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12NW (W)	957	8	560308 167468
41	**Points of Interest - Manufacturing and Production** Name: Pit (Dis) Location: DA3 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A8SE (S)	784	8	561562 166615

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**Points of Interest - Manufacturing and Production** Name: A-Z Geotechnical & Environmental Services Ltd Location: Oast Cottage, Ash Road, Hartley, Longfield, DA3 8ER Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A12NW (W)	801	8	560476 167519
43	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	867	8	560934 168160
43	**Points of Interest - Recreational and Environmental** Name: Play Area Location: DA3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	870	8	560930 168162
44	**Points of Interest - Recreational and Environmental** Name: Play Area Location: DA3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12SW (W)	914	8	560363 167151
45	**Underground Electrical Cables** Unique Feature Identifier: 10006862 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 26th October 2017	A19NW (N)	972	9	561606 168272

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	**Ancient Woodland** Name: Hartley Wood Reference: 1499946 Area(m²): 7692.79 Type: Ancient and Semi-Natural Woodland	A13SE (E)	4	10	561277 167349
47	**Ancient Woodland** Name: Foxborough Wood Reference: 1499471 Area(m²): 100507.47 Type: Ancient and Semi-Natural Woodland	A13SE (SE)	317	10	561514 167141
48	**Ancient Woodland** Name: Hartley Wood Reference: 1499952 Area(m²): 15939.28 Type: Ancient and Semi-Natural Woodland	A13NE (NE)	389	10	561536 167645
49	**Ancient Woodland** Name: Hartley Wood Reference: 1501526 Area(m²): 114015.59 Type: Ancient and Semi-Natural Woodland	A13NE (NE)	409	10	561586 167622
50	**Ancient Woodland** Name: Hartley Wood Reference: 1499103 Area(m²): 10576.61 Type: Ancient and Semi-Natural Woodland	A18SE (N)	414	10	561346 167766
51	**Ancient Woodland** Name: Hartley Wood Reference: 1499472 Area(m²): 5418.91 Type: Ancient and Semi-Natural Woodland	A14NW (E)	512	10	561783 167429
52	**Ancient Woodland** Name: Hartley Wood Reference: 1500070 Area(m²): 7577.16 Type: Ancient and Semi-Natural Woodland	A18SW (N)	533	10	561214 167891
53	**Ancient Woodland** Name: Hartley Wood Reference: 1500069 Area(m²): 13382.5 Type: Ancient and Semi-Natural Woodland	A18SE (N)	540	10	561327 167897
54	**Ancient Woodland** Name: Hartley Wood Reference: 1500068 Area(m²): 12316.62 Type: Ancient and Semi-Natural Woodland	A18SE (N)	557	10	561351 167911
55	**Ancient Woodland** Name: Not Supplied Reference: 1499942 Area(m²): 5875.03 Type: Ancient and Semi-Natural Woodland	A12SE (SW)	579	10	560731 167099
56	**Ancient Woodland** Name: Hartley Wood Reference: 1501505 Area(m²): 36341.97 Type: Ancient and Semi-Natural Woodland	A18SE (N)	593	10	561399 167939
57	**Ancient Woodland** Name: Gorse Wood Reference: 1499164 Area(m²): 14408.68 Type: Ancient and Semi-Natural Woodland	A18NE (N)	697	10	561267 168057
58	**Ancient Woodland** Name: Not Supplied Reference: 1501577 Area(m²): 8373.4 Type: Ancient and Semi-Natural Woodland	A18NE (N)	794	10	561498 168120
59	**Ancient Woodland** Name: Not Supplied Reference: 1500184 Area(m²): 3543.55 Type: Ancient and Semi-Natural Woodland	A8SW (S)	846	10	561095 166511

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
60	**Ancient Woodland** Name: Not Supplied Reference: 1499938 Area(m²): 5784.13 Type: Ancient and Semi-Natural Woodland	A7SE (SW)	896	10	560907 166517
61	**Ancient Woodland** Name: Gorse Wood Reference: 1499955 Area(m²): 9048.88 Type: Ancient and Semi-Natural Woodland	A18NW (N)	915	10	561000 168235
62	**Areas of Adopted Green Belt** Authority: Sevenoaks District Council Plan Name: Proposal Map **Status: Adopted** Plan Date: 17th February 2015	A13SW (SW)	0	4	561266 167350
63	**Areas of Adopted Green Belt** Authority: Dartford Borough Council Plan Name: Proposal Map **Status: Adopted** Plan Date: 17th July 2017	A19NW (NE)	946	11	561680 168211
64	**Nitrate Vulnerable Zones** Name: North Kent Description: Groundwater Source: Environment Agency, Head Office	A14NW (NE)	576	3	561803 167587

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	June 2020	Annually
Sevenoaks District Council - Environmental Health Department	October 2017	Annual Rolling Update
Dartford Borough Council - Environmental Health Department	September 2017	Annual Rolling Update
Gravesham Borough Council - Public Health Services	September 2017	Annual Rolling Update
Tonbridge And Malling Borough Council - Environmental Health Department	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Southern Region	April 2021	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Southern Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Southern Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - Kent & South London Area	April 2021	Quarterly
Environment Agency - Southern Region	April 2021	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Tonbridge And Malling Borough Council - Environmental Health Department	April 2014	Variable
Gravesham Borough Council - Environmental Health Department	October 2014	Variable
Dartford Borough Council - Environmental Health Department	September 2014	Variable
Sevenoaks District Council - Environmental Health Department	September 2014	Variable
Local Authority Pollution Prevention and Controls		
Tonbridge And Malling Borough Council - Environmental Health Department	April 2014	Annual Rolling Update
Gravesham Borough Council - Environmental Health Department	October 2014	Annual Rolling Update
Dartford Borough Council - Environmental Health Department	September 2014	Annual Rolling Update
Sevenoaks District Council - Environmental Health Department	September 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Tonbridge And Malling Borough Council - Environmental Health Department	April 2014	Variable
Gravesham Borough Council - Environmental Health Department	October 2014	Variable
Dartford Borough Council - Environmental Health Department	September 2014	Variable
Sevenoaks District Council - Environmental Health Department	September 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	June 2021	
Pollution Incidents to Controlled Waters		
Environment Agency - Southern Region	December 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Southern Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Southern Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Southern Region	June 2016	Annually
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	Annually
Substantiated Pollution Incident Register		
Environment Agency - South East Region - Kent & South London Area	July 2021	Quarterly
Environment Agency - Southern Region - Kent Area	July 2021	Quarterly
Environment Agency - Southern Region - Kent and East Sussex	July 2021	Quarterly
Water Abstractions		
Environment Agency - Southern Region	April 2021	Quarterly

Data Currency

Agency & Hydrological	Version	Update Cycle
Water Industry Act Referrals Environment Agency - Southern Region	October 2017	Quarterly
Groundwater Vulnerability Map Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Source Protection Zones Environment Agency - Head Office	May 2021	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	March 2021	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	March 2021	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	March 2021	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	March 2021	Quarterly
Flood Defences Environment Agency - Head Office	March 2021	Quarterly
OS Water Network Lines Ordnance Survey	July 2021	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Data Currency

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	May 2021	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Southern Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - Kent & South London Area	April 2021	Quarterly
Environment Agency - Southern Region - Kent Area	April 2021	Quarterly
Environment Agency - Southern Region - Kent and East Sussex	April 2021	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - Kent & South London Area	April 2021	Quarterly
Environment Agency - Southern Region - Kent Area	April 2021	Quarterly
Environment Agency - Southern Region - Kent and East Sussex	April 2021	Quarterly
Local Authority Landfill Coverage		
Dartford Borough Council - Environmental Health Department	February 2003	Not Applicable
Gravesham Borough Council	February 2003	Not Applicable
Kent County Council - Waste Management Group	February 2003	Not Applicable
Sevenoaks District Council	February 2003	Not Applicable
Tonbridge And Malling Borough Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Dartford Borough Council - Environmental Health Department	October 2018	
Gravesham Borough Council	October 2018	
Kent County Council - Waste Management Group	October 2018	
Sevenoaks District Council	October 2018	
Tonbridge And Malling Borough Council - Environmental Health Department	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Southern Region - Kent Area	March 2006	Not Applicable
Environment Agency - Southern Region - Kent and East Sussex	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Southern Region - Kent Area	April 2018	
Environment Agency - Southern Region - Kent and East Sussex	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Southern Region - Kent Area	June 2015	
Environment Agency - Southern Region - Kent and East Sussex	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Sevenoaks District Council	February 2016	Variable
Tonbridge And Malling Borough Council	February 2016	Variable
Dartford Borough Council	January 2016	Variable
Kent County Council	January 2016	Variable
Gravesham Borough Council	October 2015	Variable
Planning Hazardous Substance Consents		
Sevenoaks District Council	February 2016	Variable
Tonbridge And Malling Borough Council	February 2016	Variable
Dartford Borough Council	January 2016	Variable
Kent County Council	January 2016	Variable
Gravesham Borough Council	October 2015	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry		
British Geological Survey - National Geoscience Information Service	December 2015	Annually
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	May 2021	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	As notified
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	July 2011	Annually

Data Currency

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	July 2021	Quarterly
Fuel Station Entries Catalist Ltd - Experian	June 2021	Quarterly
Gas Pipelines National Grid	May 2021	Annually
Points of Interest - Commercial Services PointX	June 2021	Quarterly
Points of Interest - Education and Health PointX	June 2021	Quarterly
Points of Interest - Manufacturing and Production PointX	June 2021	Quarterly
Points of Interest - Public Infrastructure PointX	June 2021	Quarterly
Points of Interest - Recreational and Environmental PointX	June 2021	Quarterly
Underground Electrical Cables National Grid	May 2021	Annually

Data Currency

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	February 2021	Bi-Annually
Areas of Adopted Green Belt		
Dartford Borough Council	October 2020	Quarterly
Gravesham Borough Council	October 2020	Quarterly
Sevenoaks District Council	October 2020	Quarterly
Tonbridge And Malling Borough Council	October 2020	Quarterly
Areas of Unadopted Green Belt		
Dartford Borough Council	October 2020	Quarterly
Gravesham Borough Council	October 2020	Quarterly
Sevenoaks District Council	October 2020	Quarterly
Tonbridge And Malling Borough Council	October 2020	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	January 2021	Bi-Annually
Environmentally Sensitive Areas		
Natural England	January 2017	
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	February 2021	Bi-Annually
Marine Nature Reserves		
Natural England	July 2019	Bi-Annually
National Nature Reserves		
Natural England	January 2021	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	June 2017	Bi-Annually
Ramsar Sites		
Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest		
Natural England	February 2021	Bi-Annually
Special Areas of Conservation		
Natural England	July 2020	Bi-Annually
Special Protection Areas		
Natural England	February 2021	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

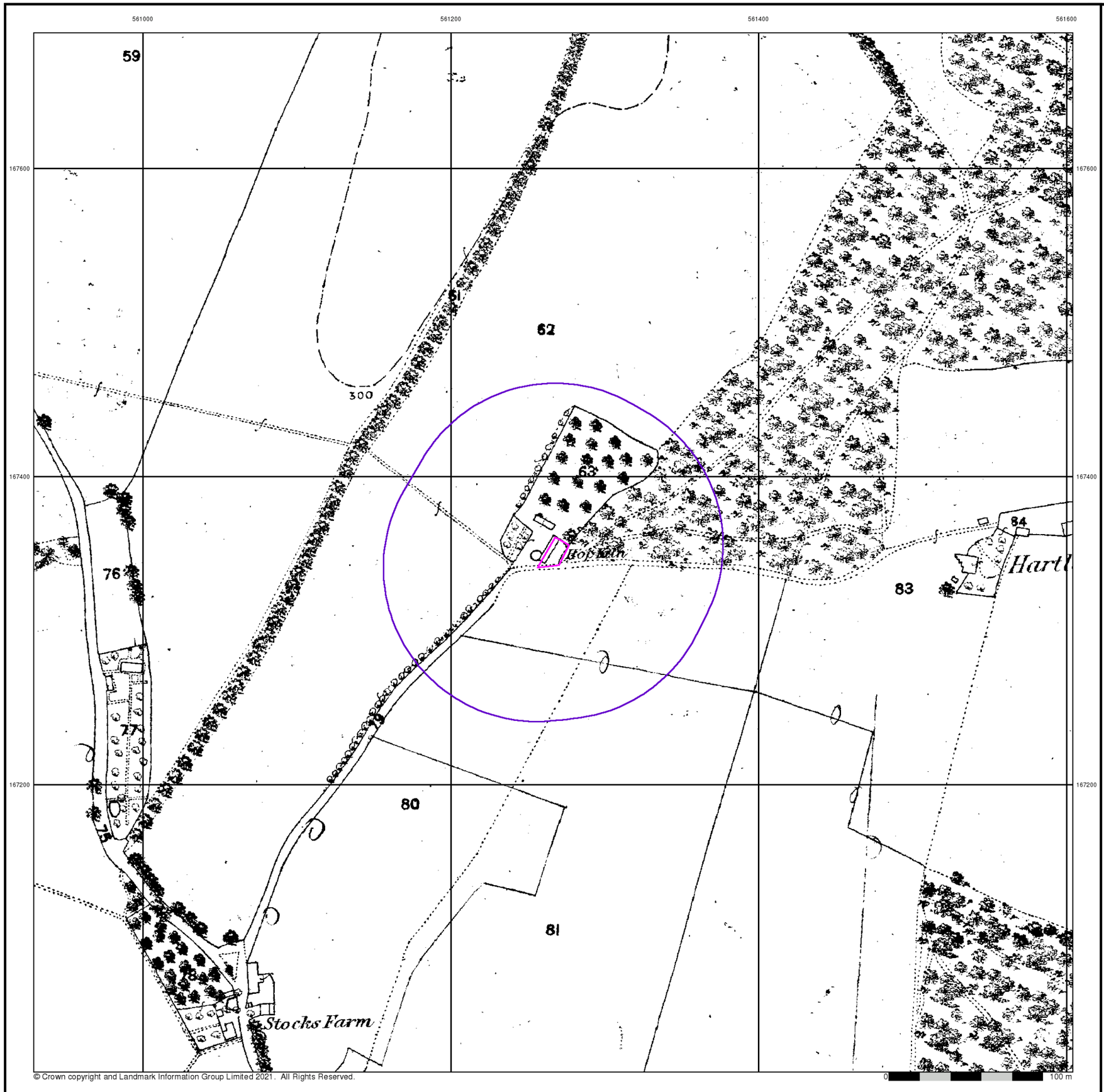
Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
Environment Agency	Environment Agency
Scottish Environment Protection Agency	SEPA Scottish Environment Protection Agency
The Coal Authority	The Coal Authority
British Geological Survey	British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	Cyfoeth Naturiol Cymru Natural Resources Wales
Scottish Natural Heritage	SCOTTISH NATURAL HERITAGE
Natural England	NATURAL ENGLAND
Public Health England	Public Health England
Ove Arup	ARUP
Stantec UK Ltd	Stantec

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Sevenoaks District Council** Council Offices, Argyle Road, Sevenoaks, Kent, TN13 1HG	Telephone: 01732 227000 Fax: 01732 742339 Website: www.sevenoaks.gov.uk
5	**Kent County Council - Waste Management Group** Block H, The Forstal, Beddow Way, Aylesford, Kent, ME20 7BT	Telephone: 01622 605976 Website: www.kent.gov.uk
6	**Dartford Borough Council - Environmental Health Department** Civic Centre, Home Gardens, Dartford, Kent, DA1 1DR	Telephone: 01322 343233 Fax: 01322 343963 Website: www.dartford.gov.uk
7	**Stantec UK Ltd** Caversham Bridge House, Waterman Place, Reading, RG1 8DN	Telephone: 0118 950 0761 Email: pba.reading@stantec.com Website: www.stantec.com
8	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
9	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: www.landmark.co.uk
10	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
11	**Dartford Borough Council** Civic Centre, Home Gardens, Dartford, Kent, DA1 1DR	Telephone: 01322 343434 Fax: 01322 343047 Website: www.dartford.gov.uk
12	**Gravesham Borough Council** Cygnet House, 132 Windmill Street, Gravesend, Kent, DA12 1BQ	Telephone: 01474 564422 Fax: 01474 337546 Website: www.gravesham.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

APPENDIX B: HISTORICAL MAPS



0 100 m

LUSTRE CONSULTING

Kent

Published 1894

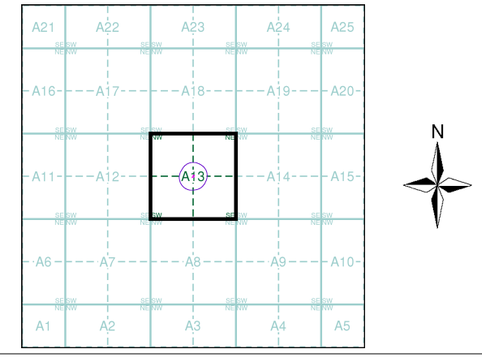
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

018_05
1894
1:2,500

Historical Map - Segment A13



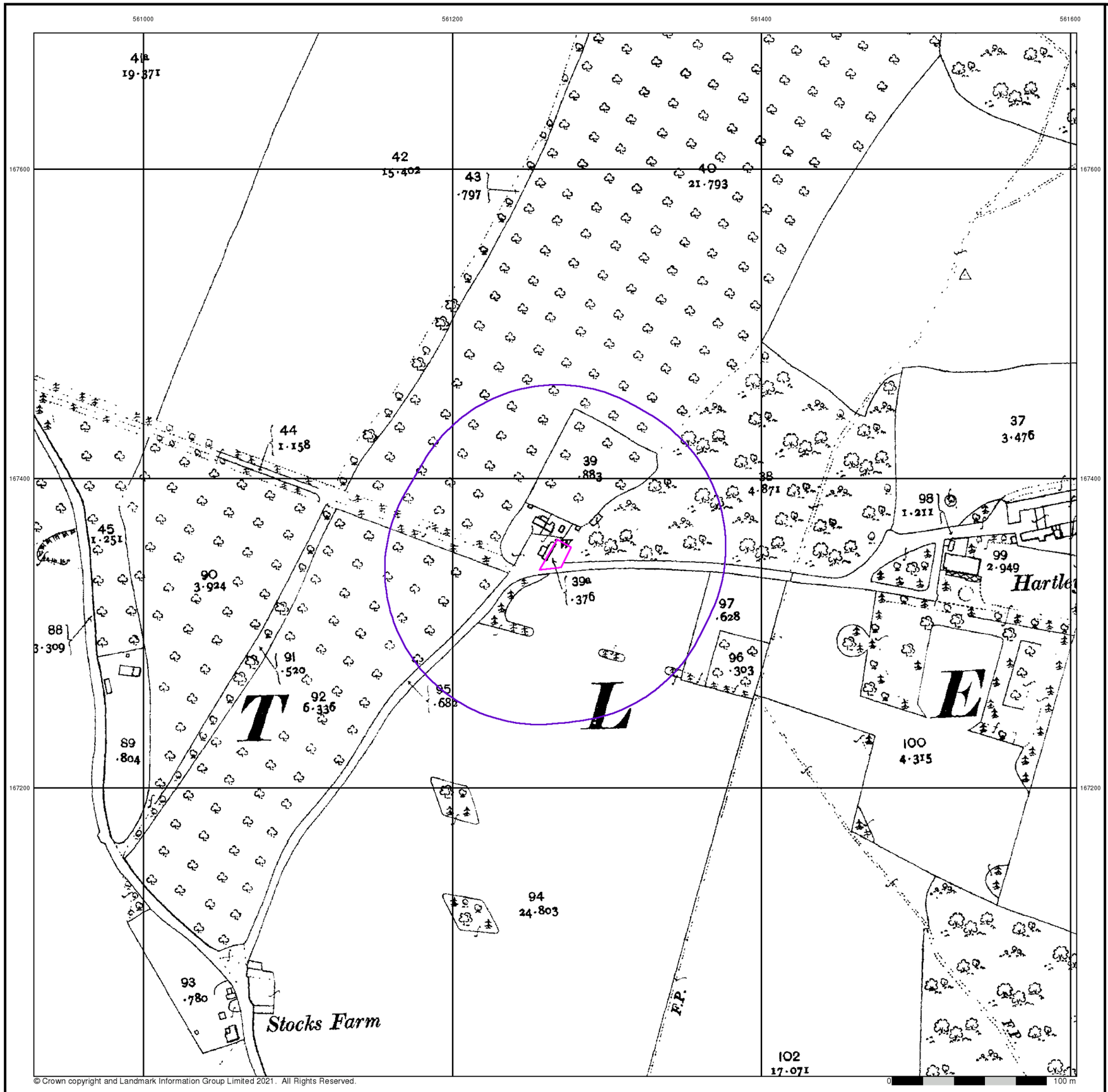
Order Details

Order Number:	283444115_1_1
Customer Ref:	4033
National Grid Reference:	561270, 167350
Slice:	A
Site Area (Ha):	0.03
Search Buffer (m):	100

Site Details

2 Hartley Wood Corner Cottage, Manor Drive, Hartley, LONGFIELD, DA3 8AU

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



LUSTRE CONSULTING

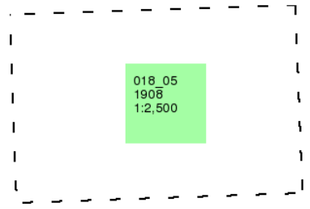
Kent

Published 1908

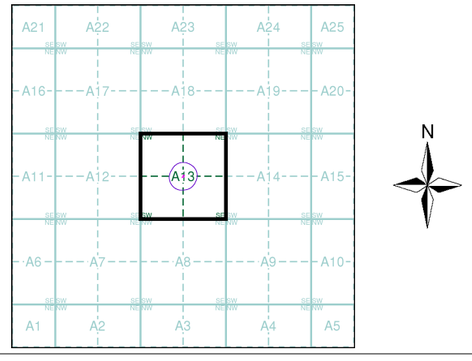
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



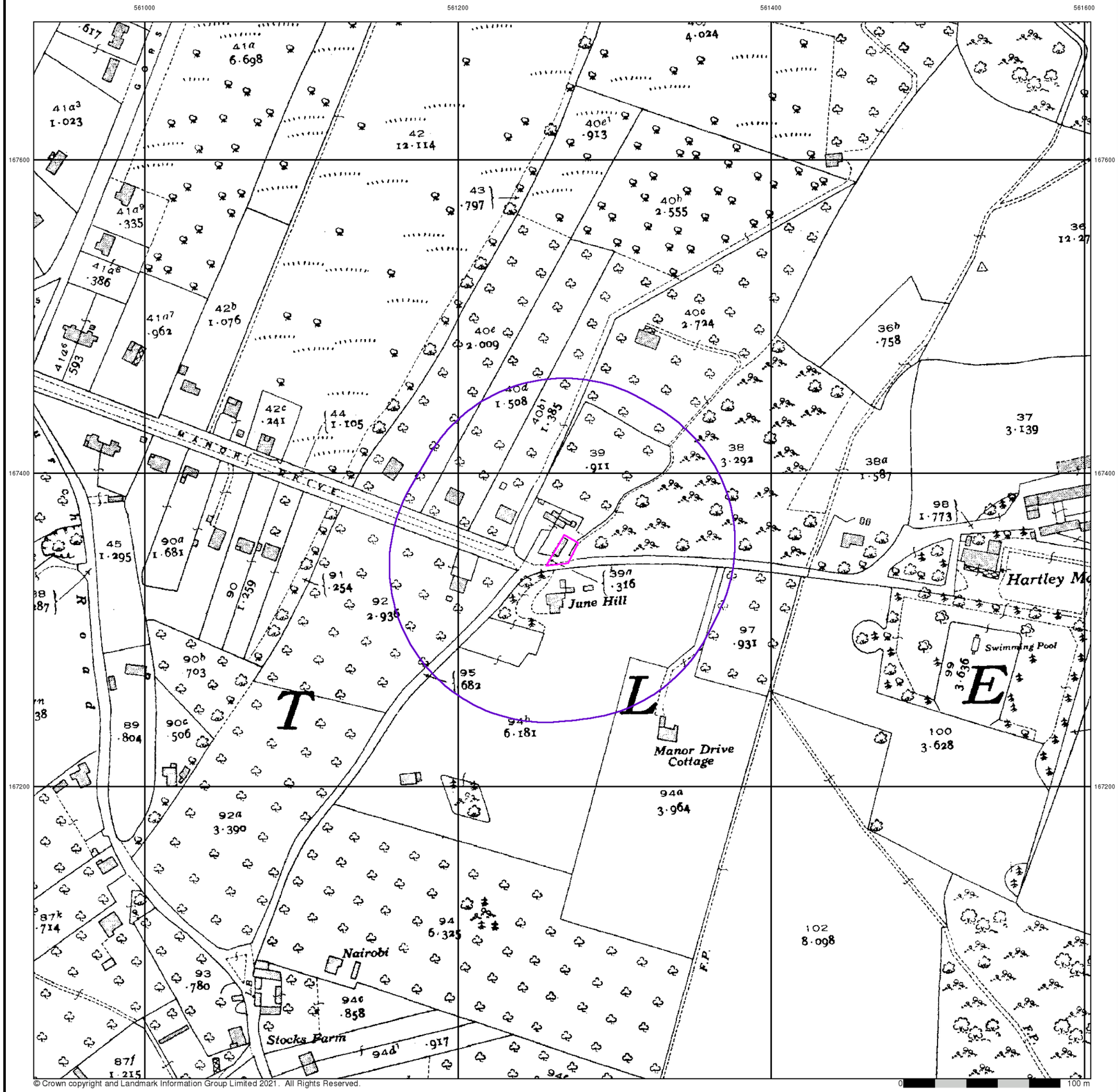
Order Details

Order Number:	283444115_1_1
Customer Ref:	4033
National Grid Reference:	561270, 167350
Slice:	A
Site Area (Ha):	0.03
Search Buffer (m):	100

Site Details

2 Hartley Wood Corner Cottage, Manor Drive, Hartley, LONGFIELD, DA3 8AU

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



LUSTRE CONSULTING

Kent

Published 1939

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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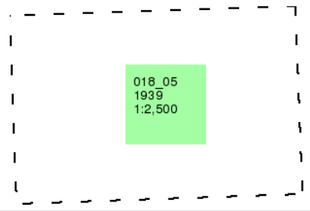
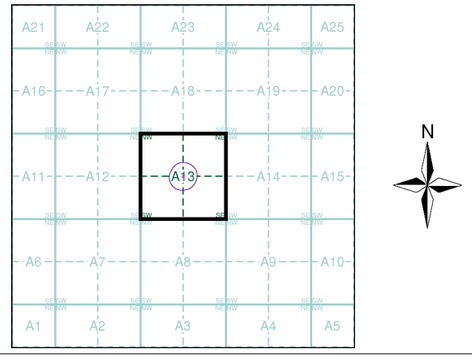


Historical Map - Segment A13



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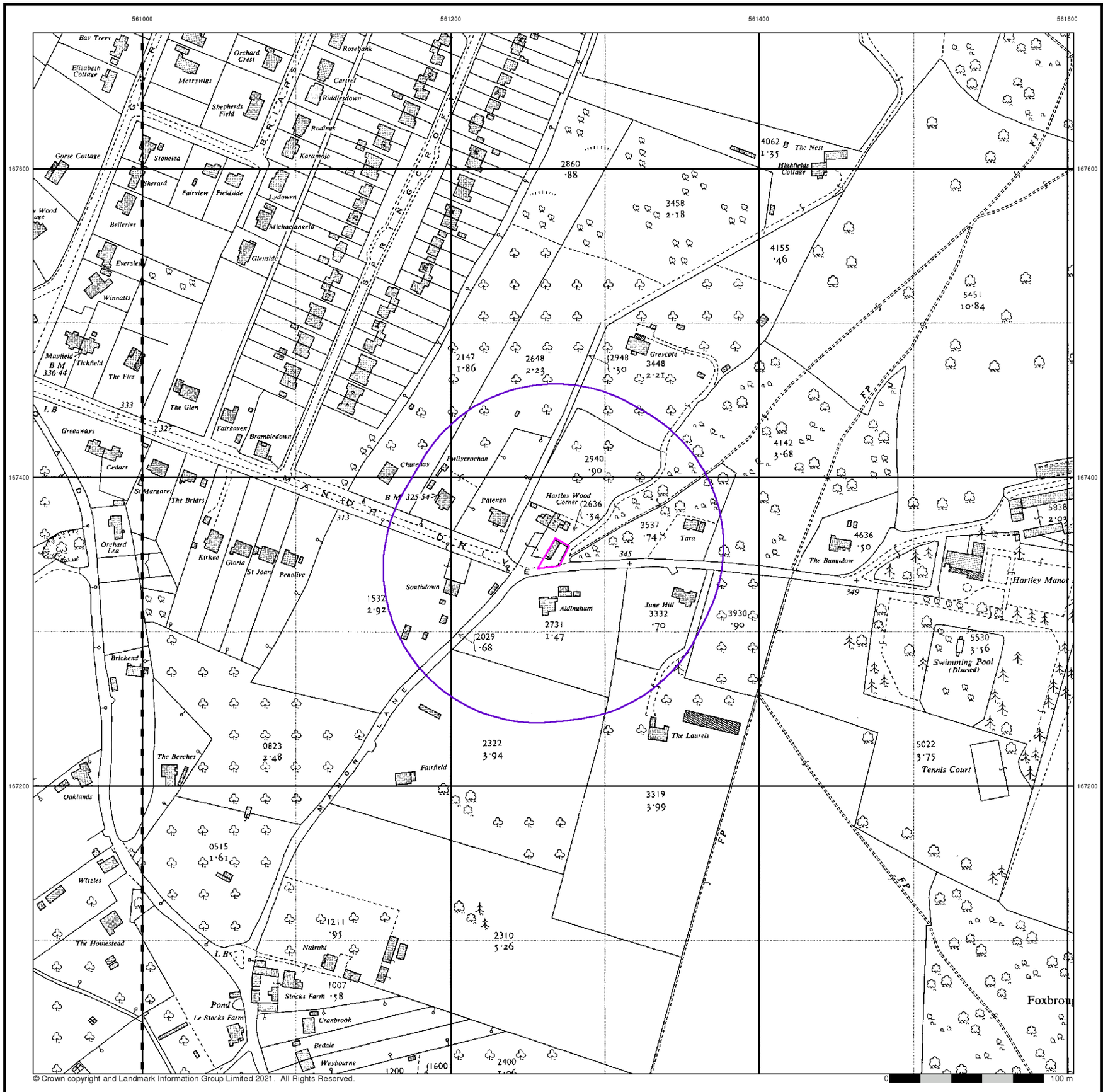

LUSTRE CONSULTING

Ordnance Survey Plan

Published 1962

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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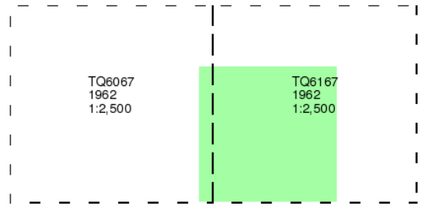
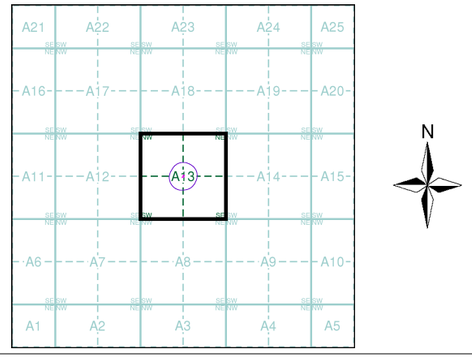


Historical Map - Segment A13



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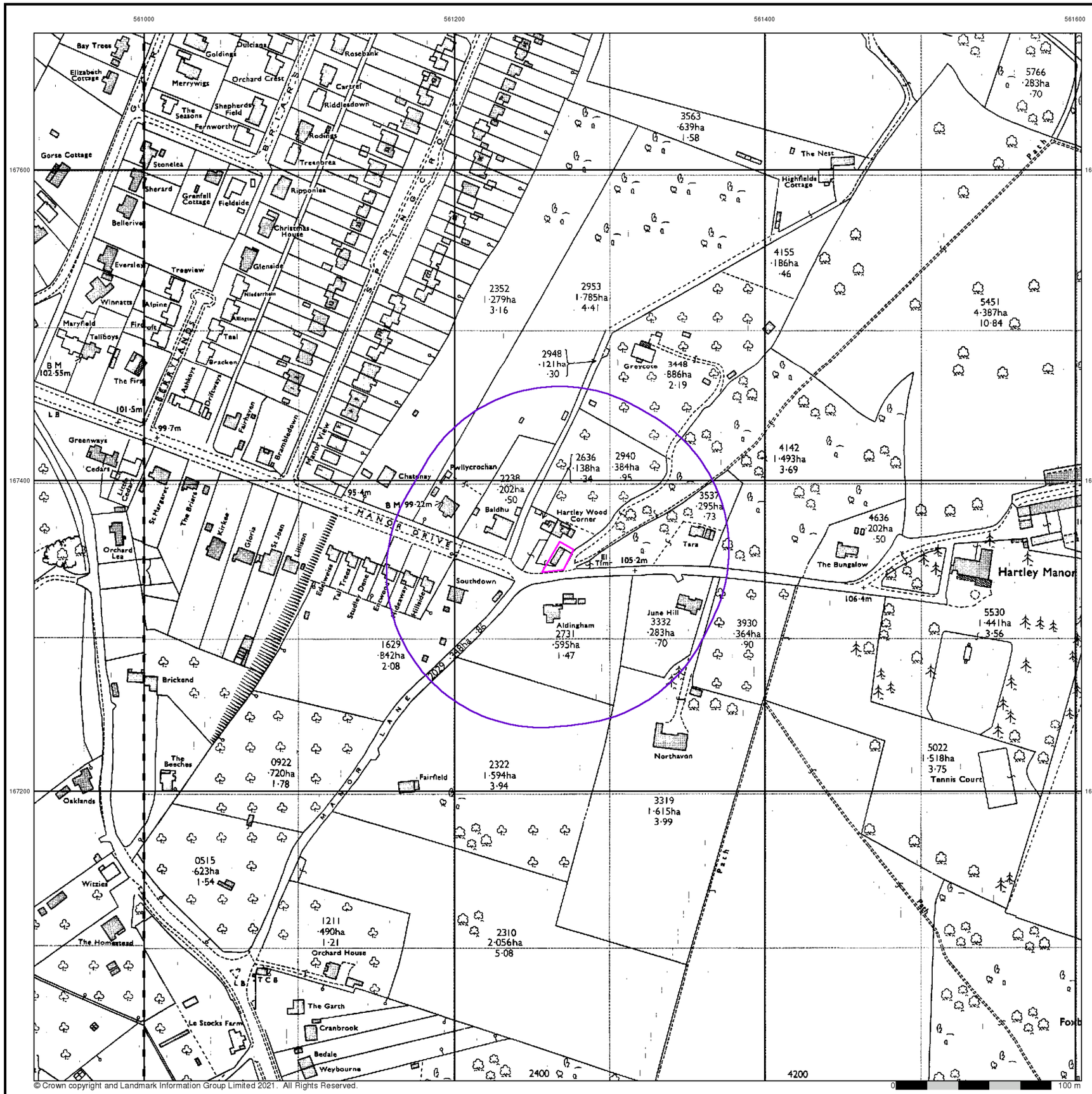

LUSTRE CONSULTING

Ordnance Survey Plan

Published 1972

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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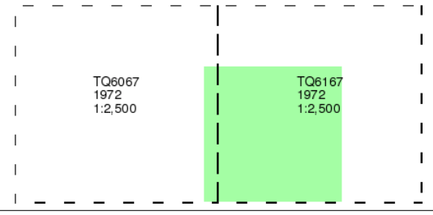
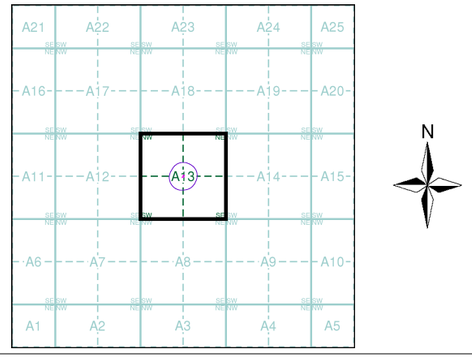


Historical Map - Segment A13



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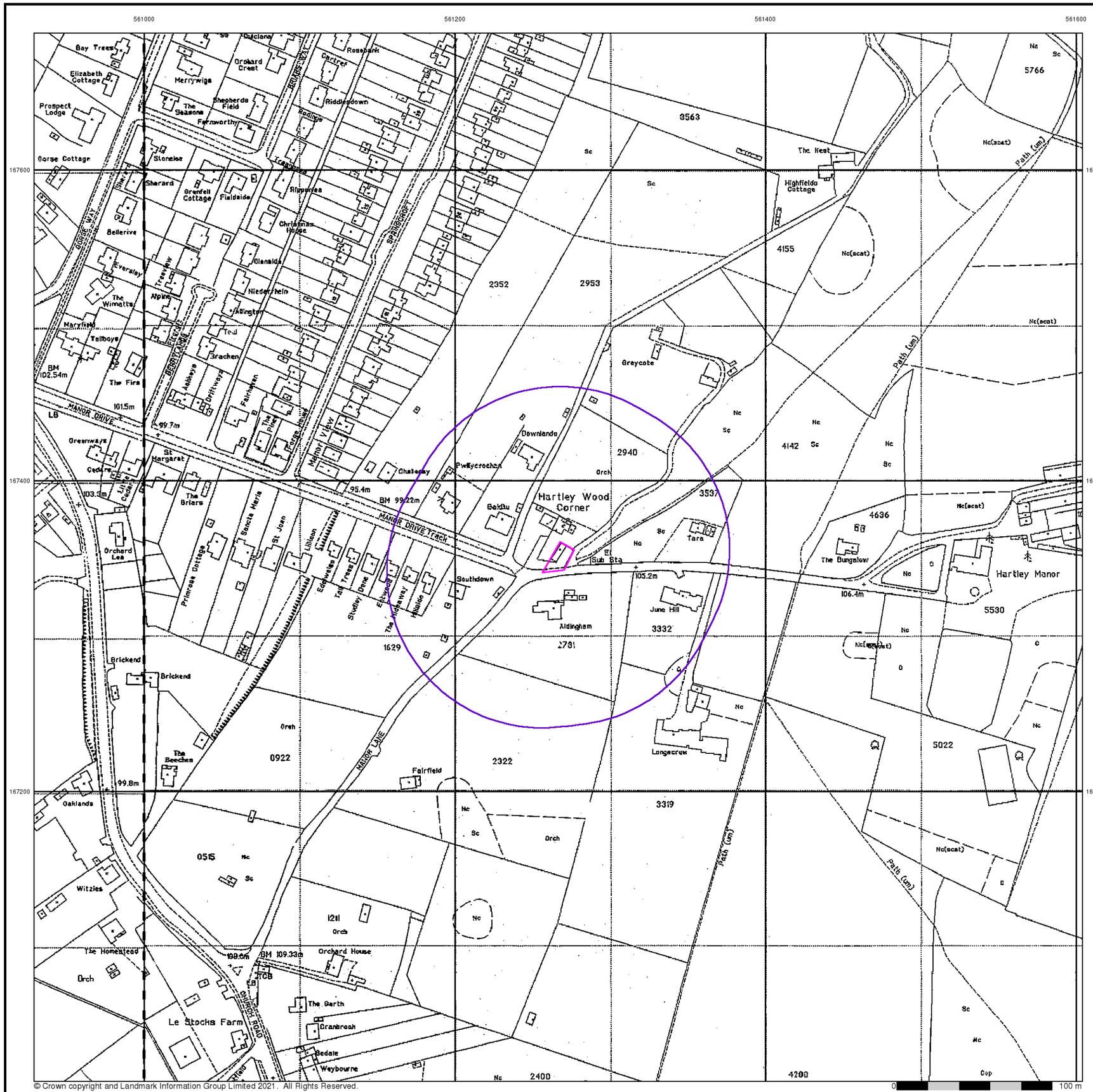


LUSTRE CONSULTING

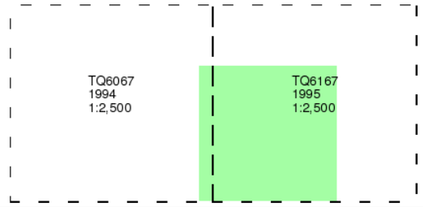
Large-Scale National Grid Data

Published 1994 - 1995

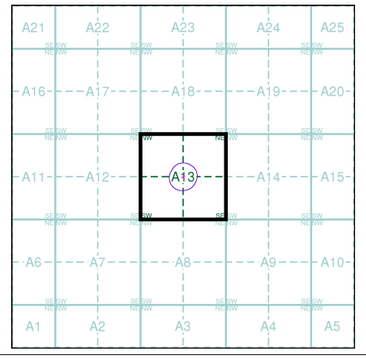
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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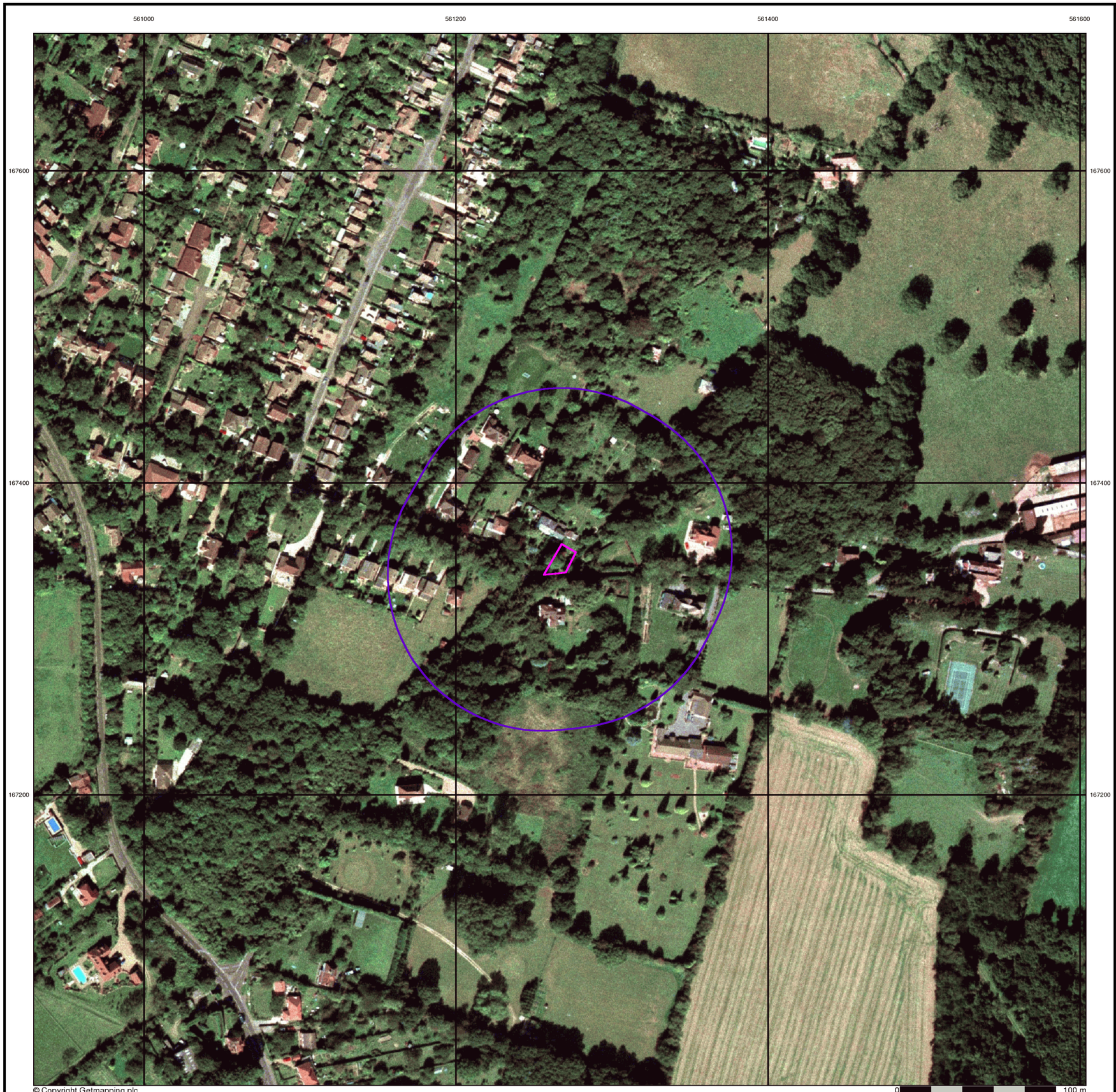


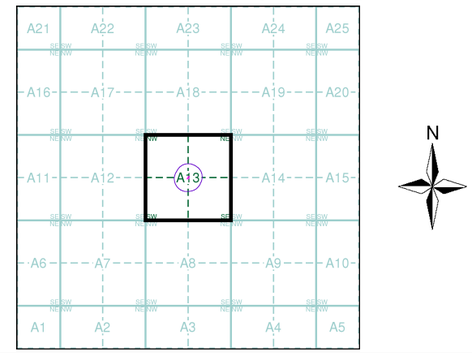
LUSTRE CONSULTING

Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



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APPENDIX C: HISTORICAL BOREHOLE LOGS

TQ 66 NW

TQ 66NW/12

TQ 6076 6768

271/307 Middle Farm, Church Road, Hartley. (Disused)

Surface +337½. Shaft. 23ft Bucket and winch. Date unknown. (Deepened. Depth unknown. Before Feb. 1948) R.W.L.S.
R.W.L. +107½. Oct. 1944; +107½. Mar. 1945; +107. Sept. 1948; +103. Feb.;
+113¼. June; +108¾. Nov. 1957; +111¼. July 1958.

Drift)	...	...	~~231¼~~ 234½+	~~231¼~~ 234½+
UCk)				

E.A. Edmonds May 1964.

APPENDIX D:

NOTES ON LIMITATIONS

LUSTRE CONSULTING, ENVIRONMENTAL AND GEOTECHNICAL CONSULTANCY SERVICES
NOTES ON LIMITATIONS

General

Lustre Consulting have completed the attached report for the use of the Client detailed on the front cover and those parties to whom Lustre Consulting has agreed to provide and has provided an executed warranty agreement, or to whom an assignment of the benefit of this report has been agreed.

Third parties are not entitled to use or rely upon the contents of the report unless written approval has been given by Lustre Consulting; (due to legal requirements, a charge may be levied as a condition of such approval, in which case approval shall not be effective unless and until such a charge has been paid in full).

Lustre Consulting accepts no responsibility or liability for:

a) any use of this report for any purpose or project other than that for which it was commissioned, and

b) any use of this report by any third party to whom approval for use has not been given and any conditions applicable to such use have been met.

Phase I Environmental Risk Assessments, Desk Studies and Site Audits

The work completed and utilised to provide this report comprises a study of available documentation. The opinions and results presented in this report have been arrived at by utilising the finite amount of data available at the time of writing and are relevant only to the purpose for which the report was commissioned. The data which has been reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative information pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, Lustre Consulting reserves the right to review this information and, if warranted, to modify the opinions presented in the report accordingly.

It should be noted that the risks which are identified in this report are perceived risks based on the available information at the time of writing and that the actual risks associated can only be assessed following a physical investigation of the site.

Phase II Site Investigations

The intrusive investigation has been completed to provide information concerning the type and degree of contamination present along with ground and groundwater conditions which facilitates a reasonable risk assessment to be completed. The stated objectives of the ground investigation have been limited to assessing the proven risks which are associated with potential human targets, building materials, the environment (including adjacent land), and to surface water and groundwater.

The amount of exploratory work, chemical testing and monitoring completed as part of this project has potentially been restricted by the short timescale available, and the locations of exploratory holes undertaken have potentially been restricted to areas unoccupied by buildings(s) and buried services. A more comprehensive post demolition / decommission investigation may be required if the site is to be redeveloped. For these reasons any costs included in relation to site remediation must be considered as tentative only at this time.

The exploratory holes investigate only a small volume of the ground in relation to the size of the site and therefore, can only provide a “snap shot” or general indication of ground conditions located on the site. The fact that the site has been investigated does not preclude the existence of localised “hotspots” of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided in this report take into account currently available guidance values relating to acceptable contamination concentrates; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

LUSTRE
CONSULTING

2nd Floor North
Fitted Rigging House
The Historic Dockyard
Chatham, Kent, ME4 4TZ
www.lustreconsulting.com