

Norcot Community Centre, Lyndhurst Road, Reading, RG30 6UB

PRELIMINARY CONTAMINATION RISK ASSESSMENT



Beard Construction Limited

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P20-069pra

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ISSUE	DATE	Written By	Comments
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For and on behalf of Paddock Geo Engineering Limited			

1.0 INTRODUCTION

Paddock Geo Engineering Limited (PGE) were instructed by Beard Construction Ltd; the Client, to undertake a Preliminary Contamination Risk Assessment (Phase 1 of a Site Contamination Assessment) of the subject site referred to as Norcot Community Centre, Lyndhurst Road, Reading, RG30 6UB.

The overall objective of the Preliminary Contamination Risk Assessment was to inform the Client of the ground conditions and any potential environmental or ground-related risks associated with the proposed development of the site. The Risk Assessment undertaken relates to a proposed residential development of the site.

1.1 Terms of Reference

- British Standard BS10175:2011 Investigation of Potentially Contaminated Sites - Code of Practice;
- CLR7 Assessment of Risks to Human Health from Land Contamination 2002, DEFRA / Environment Agency (withdrawn);
- CLR8 Potential Contaminants for the assessment of Land 2002, DEFRA / Environment Agency (withdrawn);
- CLR11 Model Procedures for the Management of Land Contamination 2010, DEFRA / Environment Agency;
- PPG23 (PPS23) Planning and pollution control (contaminated land aspects) 2002;
- GPLC1 Guiding Principles for Land Contamination 2010, Environment Agency;
- Environmental Protection Act: 1990 – Contaminated Land Statutory Guidance, April 2012, DEFRA;
- CIRIA C665 Assessing risks posed by hazardous ground gases to buildings, CIRIA 2007; and
- BS 8576:2013 Guidance on investigations for ground gas - Permanent Gases and Volatile Organic Compounds (VOCs).

2.0 THE SITE

2.1 Site Description

The subject site is located in an urban area, Norcot, a western suburb of Reading, the town centre of which is some 3.6km east.

The site comprises an irregular shaped parcel of waste land formerly occupied by Norcot Community Centre at the northern end of Lyndhurst Road. The site is currently covered with crushed demolition rubble and is hoarded on all sides. Vegetation and several trees of mixed species and maturity are present around the perimeter of the site.

The approximate centre of the site is located at grid reference 467880, 174510 and the site covers an area of approximately 0.19Ha. The site has a gentle becoming moderate slope down to the south towards a shallow north-south trending valley feature to the south of the site area.

There is a strip along the northeast border of the site is approximately 1m lower in elevation than the central and western area of the site

Site Location Plans and an Aerial Photograph are presented in Appendix A.

2.2 Proposed Development

The proposed development scheme is indicated by the client to involve the development of the site with a central three storey steel framed structure housing residential apartments and including associated access, parking, infrastructure and ornamental soft landscaping.

A Proposed development plan is presented within Appendix A.

2.3 Walkover Survey

2.3.1 Site Area

A site walkover survey was conducted on 29th July 2020 by a representative of Paddock Geo Engineering Limited. A series of photographs taken during the walkover survey are presented in Appendix B along with a Site Walkover Survey Plan.

The western and central area of the site are relatively level in topography; however, a central section of site is approximately 0.50m to 1.0m lower than the north, west and south, apparently where the former structure stood on site. A strip along the northeast edge of the site approximately 1m lower in elevation than the rest of the site. The site would appear to have been levelled historically as the rear or southern boundary and flanking sides of the site have retaining structures with the adjacent land some 1-2m higher.

The site is currently a disused parcel of land surfaced with crushed brick and concrete comprising demolition rubble from the former development on site, and bare earth in places. Scrub vegetation, brambles and weed are beginning to colonise the site surface. Areas of macadam surfacing are still present on the central northern and southeast areas of site, apparently a section of the car park remaining from the previous site development. It appears that the demolition rubble may have been placed directly over the existing macadam access road and car parking areas.

The site boundaries are currently marked by timber hoarding on the northeast and southeast with a gate on the eastern corner of site providing access from Lyndhurst Road. The borders of the northwest and southwest are marked by timber fencing marking the rear of residential gardens bounding the site. The fencing is heavily overgrown with brambles and several mature trees are present in the adjacent gardens.

2.3.2 Surrounding Area

The land surrounding the site comprised medium density mature residential property to the north, northwest and west. Sheltered housing is located to the northeast with a school further to the northeast. A public footpath and strip of grass landscaping and trees are located along the southwest boundary. Lyndhurst Road provides access onto the southeast corner of the site and extends to the southeast with residential housing.

2.4 Geology

Information on the underlying geology at the site has been obtained from the British Geological Survey (BGS) Sheet 268 (scale: 1:50,000 dated 2005) for Reading, the BGS Geological Map Viewer and Geological Mapping provided by Landmark within the Envirocheck Report (a copy of which is provided in Appendix C).

The BGS record indicates the site is underlain by Superficial Deposits of Head. The Head deposits comprise gravel, sand, silt and clay formed up to 3 million years ago in the Quaternary Period within local environments previously dominated by subaerial slopes. There are detrital deposits comprising coarse to fine grained material forming down-slope layers and fans of accumulated material.

The Bedrock at the site is indicated to comprise generally Seaford Chalk Formation and Newhaven Chalk Formation. These were formed approximately 72 to 90 million years ago in the Cretaceous Period in a local environment previously dominated by warm chalk seas. These deposits are biogenic and detrital, generally comprising carbonate material (cocoliths) forming distinctive beds of chalk.

The geological mapping reviewed indicates several areas of Worked Ground some 450m southwest of the site.

2.4.1 Borehole Records

A search was made of the online BGS database for published borehole records within the area. No publicly available records were located within 250m of the site.

2.5 Hydrogeology

The groundwater vulnerability map for the site and the surrounding area presented in Appendix C, indicates that the Bedrock underlying the site has been designated as a Principal Aquifer. This means that the strata comprise layers of rock that have high fracture permeability, so 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 aquifer.

The Superficial Head deposits are classified as Secondary A Aquifer. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

The site is not located within a Groundwater Source Protection Zone (SPZ).

There are nineteen water abstraction licenses listed within the Envirocheck Report. The nearest listed is located 794m east for abstraction of groundwater from a single point for use within a sports ground for drinking.

Given the hydrogeological status of the site, the groundwater beneath the site is considered to be of medium to high sensitivity with regards to near surface contamination.

The site and surrounding areas are indicated to have a limited potential for groundwater flooding to occur. Areas with a risk of potential groundwater flooding of property situated below ground level are highlighted in the Envirocheck report some 124m northeast and east.

2.6 Hydrology

The nearest surface water feature is a drainage channel located 292m northeast of the subject site, likely to be the channel of the River Thames which flows west to east to the north of the site.

A total of thirty seven pollution incidents to controlled waters have been recorded by Envirocheck, with three incidents recorded within 500m of the site. The nearest, 277m northeast of the site occurred on the 8th August 1995 and is recorded as Category 3 – Minor Incident with the pollutant involving Oils – unknown, which polluted an unknown receptor. All other incidents within 500m of the site are recorded as resulting in Category 3 – minor incidents.

A single discharge consent is listed within the Envirocheck Report. The listing is located 936m northwest and the operator is listed as Mr. P Coussens. The consent is for sewage discharges onto land.

No surface water abstraction consents are recorded within 1000m of the site. The site is not indicated to be with a flood risk zone or extreme flood risk zone.

2.7 Geotechnical Risks

The geotechnical risks that could impact the site and any shallow foundations present are listed below.

Hazard	Assessed On-Site Risk (and area within 10m of the site)	
	Present	Level
Potential for Collapsible Ground Stability	✓	Very Low
Potential for Compressive Ground Stability	✗	No Hazard
Potential for Ground Dissolution Stability	✓	High
Potential for Landslide Ground Stability	✓	Very Low
Potential for Running Sand Ground Stability	✓	Very Low
Potential for Shrinking or Swelling Clay	✓	Moderate

2.8 Ground Stability and Mining

The site is underlain by Chalk strata and as such is subject to potential ground instability due to natural dissolution of this chalk strata or from anthropogenic historic mining activities creating cavities.

A Mining and Ground Stability Assessment data report and associated plans are presented in Appendix C. This data has been employed to assess the risk posed to the site from ground instability due to mining or natural solution cavities and is summarised below.

Feature	Comments	Risk Level to Site
Mining	Twenty one BGS recorded Mineral Sites are noted within 1km of the subject site. Three of these were within 500m of the site.	Low to Moderate

Feature	Comments	Risk Level to Site
	Beecham Hill Chalk Pit – 207m south. Removed sand and gravel via opencast methods. Operation ceased. Kentwood Farm Chalk Pit – 265m northwest. Removed chalk via opencast methods. Operation ceased. Gipsy Lane Gravel Pit – 404m southwest. Removed chalk via opencast methods. Operation ceased. The remaining listings were all opencast operations and have now all ceased operations. The produced a mixture of chalk, sand and gravel and common clay and shale.	
Man-made Cavities	Four listings are included under the heading man made mining cavities, all of which are beyond 500m of the site. The nearest listing is located 554m southwest.	Low
Natural Cavities	Two features, the nearest of which is 682m west and the second located 780m southwest. Both features are listed as solution pipe.	Low to Moderate
Collapse Ground Stability Hazard	On site hazard listed as very low.	Very Low
Ground Dissolution Stability Hazard	On site hazard has been identified as High with the risk within the wider area varying between very low and moderate.	High
Ground Movement	No data available.	Unknown

Given the above data it is considered that the site has at worst a **High** risk of ground instability natural dissolution cavities beneath the site.

2.9 Radon

The property is indicated within the Envirocheck Report to be in a lower probability radon area, with less than 1% of homes estimated to be at or above action level. Therefore, no radon protection measures are necessary in the construction of any new dwelling, buildings or extensions on site.

2.10 Waste Management and Landfill

Based on the report compiled by Envirocheck, there are two historical landfill sites located within 500m of subject site. These comprise Thirlmere Avenues, 72m west and Beecham Hill 84m south. First and last input are not listed for either site and both sites list deposited waste are inert and industrial waste.

A single registered waste transfer site is located 749m southeast of the site. Authorised wastes are listed as hydrocarbons, hydrocarbon solvents, and oxygen containing compounds. Prohibited wastes are listed as waste N.O.S..

2.11 Sensitive land Uses

The site is located within a Nitrate Vulnerable Zone for surface water, named as Thames Wallingford to Caversham NVZ.

An area of ancient woodlands and several local nature reserves are noted within 500m of the site.

3.0 HISTORIC LAND USE MAPPING SUMMARY

A review of available historical topographic mapping obtained from the Envirocheck Report has been carried out and comprises County Series, Ordnance Survey Plans and Unpublished Survey Information (at scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560). Maps covering the site were published between 1868 and 2019. Extracts from this mapping data set are presented in Appendix D.

The maps are reproduced in accordance with Landmark Information Group Limited's Ordnance Survey License. All directions and distances are therefore approximate. A summary of the history of the site and immediate area is provided in the table below.

Date of mapping	Site History	History of the area surrounding the site
1878/1879	The site is located within an open suspected agricultural land. An apparent hedgerow marks the southeast boundary.	An old chalk pit is shown approximately 200m northwest and approximately 200m south of site. A railway line is located some 250m northeast of the site.
1899	No apparent changes.	No changes to northeast, east and southeast. Area to west of site not shown on map edition.
1912-1913	No changes.	No apparent changes.
1936	The site appears to be the southern area of the grounds of a Mission Church which is located some 40m to the north of the northwest boundary of the site.	Residential housing is present to the southeast, east and northwest and southwest of the site. A sand pit is located approximately 100m to the south of the site.
1960-1961	The former mission church on site is now labelled as ruins.	The area of residential housing to the south has been extended southwest and now covers the sand pit previously recorded.
1969	A large structure is now located on the centre of the site with apparent domestic	An L-shaped structure is located to the northeast of the site where the former mission church / ruin was located. This

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Date of mapping	Site History	History of the area surrounding the site
	garages along the northwest and southwest boundaries of the site.	appears to match the sheltered housing facility observed during the site walkover.
1971-1982	No changes noted to the site.	No significant changes.
1993	The structure on site is labelled as Norcot Clinic.	No significant changes.
1999	No apparent changes.	No significant changes.
2020	No apparent changes.	No significant changes.

3.1 Historical Mapping Summary

The available historical maps span a period of 141 years, dating back to 1868.

The site was indicated to be an agricultural field from the earliest mapping, and from around 1936 appear to be located within the grounds of a Mission Church to the northeast of the site. The site was redeveloped in circa 1969 with a central structure and apparent domestic garages along the northwest and southwest boundaries. The central structure was latterly labelled at Norcot Clinic.

The surrounding area was undeveloped until circa 1936 when developed with residential housing. The areas of housing were extended during the 1960. Several chalk and gravel pits were noted to the southeast, east and northeast. Some of which were later developed over with residential housing and some of which are now located within an area of public green space named as McIlroy Park.

The historical mapping did not indicate any potential significantly contaminative land uses within 250m of the site.

4.0 ENVIRONMENTAL DATABASE SEARCH

The Envirocheck Report for the site was commissioned on behalf of the Client, to gather significant data relating to the site and the immediate vicinity. A copy of this report is provided in Appendix E. The table below and overleaf summarises the key environmental disclosure data for the site.

Date type	No. of listings (distance from site)				Details
	On-Site	0m to 250m	251m to 500m	501m to 1km	
Geological					
Radon					Less than 1% of homes are at or above the action level. No radon protection measures are necessary in the construction of new dwellings or extensions on site.
Agency and Hydrological					
Contaminated Land Register Entries and Notices					None identified with 1km of the site.

Date type	No. of listings (distance from site)				Details
	On-Site	0m to 250m	251m to 500m	501m to 1km	
Enforcement and Prohibition Notices					None identified within 1km of the site.
Pollution or Prevention Controls		1		3	Nearest listing and only within 500m is a Dry Cleaners 227m NE.
Groundwater Vulnerability	Yes				The Bedrock is recorded as a Principal Aquifer
Groundwater Solubility – Soluble Rock Risk	1				Very significant risk – high probability. See section 2.8.
Discharge Consents				1	Nearest 936m NW – Domestic treated sewage to ground
Water Abstractions				4 (15)	None identified within 500m of the site.
Nearest Surface Water Features			Yes		292m NE – River Thames.
Source Protection Zones					Site is not located within a SPZ.
Waste					
BGS Recorded Landfill Sites					None identified within 1km of the site.
Historical Landfill Sites		2			Nearest site is located 72m west – deposited wastes included inert and industrial wastes.
Licensed Waste Management Facilities (Locations)					None identified within 1km of the site.
Registered Waste Transfer Sites				1	Single listing located 749m southeast. Authorised wastes include hydrocarbons, solvents and oxygen containing organic compounds.
Registered waste treatment transfer sites and waste management facilities					None identified within 1km of the site.
Hazardous Substances					
Control of Major Accident Hazard Sites					None identified within 1km of the site.
Planning Hazardous Substance Consents or explosive sites					None identified within 1km of the site.
Notification of Installations Handling Hazardous Substances					None identified within 1km of the site.
Industrial Land Use					
Contemporary Trade Directory Entries		16	17	92	Within 250m – five active. Closest from site 32m NW for a domestic cleaning services.

Date type	No. of listings (distance from site)				Details
	On-Site	0m to 250m	251m to 500m	501m to 1km	
Fuel Station Entries				1	Single listing located 819m east, named Shell Norcot, a Shell branded petrol station.
Sensitive Land Uses					
Areas of Adopted Greenbelt					None identified within 1km of the site.
Ancient Woodland		1			Kentwood Grove is located 129m west.
Areas of Outstanding Natural Beauty (AONB)					None identified within 1km of the site.
RAMSAR sites					None identified within 1km of the site.
Sites of Special Scientific Interest (SSSI)					None identified within 1km of the site.
National Parks and Nature Reserves					None identified within 1km of the site.
Local Nature Reserves		1	1	2	Several listed but only one within 250m. Mcilroy Park located 52m southwest.
Special Protection Areas and Areas of Conservation					None identified within 1km of the site.
Environmentally Sensitive Areas					None identified within 1km of the site.
Nitrate Vulnerable Zones	1				The site is located within Thames Wallingford to Caversham NVZ for surface water.

4.1 Planning Search

A search of Reading Borough Council planning portal was undertaken for the site and the immediate area on the 25th August 2020 to gather details of relevant planning applications. The relevant search results are as follows:

On-Site

- 940835 – Incorporation of land within Norcot Community Centre for use as a car park and erection of perimeter fencing – Application permitted 28th April 1994.
- 181377 – Erection of a three storey building comprising 18 (8 x 1 and 10 x 2 bed) residential units (class C3) with associated bin and cycle storage, 96.4sqm (NIA) building for community use (Use Class D1), vehicle parking, landscaping and associated works– Application permitted 6th August 2018.

Off-Site

- 031295 - New Day Care Centre for children aged 0 to 5 years old – Application permitted 26th August 2003.

- Several additional permissions for extensions and alteration to the above Day Care Centre.

The planning search has not identified any recent significant potentially contaminative uses in the area surrounding the site.

4.2 Summary of Environmental Search Data

A review of the environmental data obtained from the Envirocheck Report and the site walkover survey has indicated the following potential contamination risk driver features generally within 500m of the site (or further if considered significant):

Current or recent uses

- Currently disused site covered with demolition rubble: **Low risk**
- Sheltered housing development to north: **Low risk**
- Residential housing in surrounding area: **Low risk**
- Historical uses
- Former Clinic on site: **Low risk**
- Domestic garage along northwest and southwest boundaries: **Low risk**
- Agricultural fields: **Very Low risk**
- Former use as part of Church yard / garden: **Low risk**
- Former church and later sheltered housing to north: **Low risk**
- Residential housing in surrounding area: **Low risk**
- Infilled excavations from chalk and gravel pits and historical landfill 72m west (ground gases): **Low risk**

Site environmental features

- Site is underlain by a Principal bedrock aquifer
- Site is not located within a Source Protection Zone
- River Thames is located 292m northeast of site.

5.0 PRELIMINARY CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

5.1 Risk Assessment Guidance

Guidance has been published by the Department of the Environment, Transport and the Regions (DEFRA) 'Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance' (DEFRA April 2012) which promotes the 'risk-based approach' for defining contaminated land. The statutory guidance states:

"Part 2A takes a risk-based approach to defining contaminated land. For the purposes of this Guidance, "risk" means the combination of: (a) the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land; and (b) the scale and seriousness of such harm or pollution if it did occur."

A means to assess the risk posed by potential contamination on or under a site is to carry out a preliminary contaminated land risk assessment. The risk assessment process is defined within the statutory guidance:

"For a relevant risk to exist there needs to be one or more contaminant- pathway-receptor linkages - "contaminant linkage" - by which a relevant receptor might be affected by the contaminants in question. In other words, for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard, and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters. For the purposes of this Guidance:

(a) A "contaminant" is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of controlled waters.

(b) A "receptor" is something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property, or controlled waters. The various types of receptors that are relevant under the Part 2A regime are explained in later sections.

(c) A "pathway" is a route by which a receptor is or might be affected by a contaminant."

The contaminant linkage is described within the statutory guidance as:

"The term "contaminant linkage" means the relationship between a contaminant, a pathway and a receptor. All three elements of a contaminant linkage must exist in relation to particular land before the land can be considered potentially to be contaminated land under Part2A, including evidence of the actual presence of contaminants. The term "significant contaminant linkage", as used in this Guidance, means a contaminant linkage which gives rise to a level of risk sufficient to justify a piece of land being determined as contaminated land. The term "significant contaminant" means the contaminant which forms part of a significant contaminant linkage".

The following sections relate to a qualitative risk assessment of the site and surrounding environs.

The data within this assessment will be employed to produce a Conceptual Site Model which will be tested to assess if a 'significant possibility of significant harm' to human health, non-human health or significant pollution to controlled waters is likely to occur and the risk level posed by any such linkages.

The risk level classification system employed in the risk assessment is generally based upon those described in CIRIA C552¹.

5.2 Potential Contaminant Sources

The potential contamination sources identified as part of this Preliminary Contamination Risk Assessment are summarised in the table below. The potential contaminants are based on the data within CL8, Department of the Environment (DoE) Industry Profiles, the current and historic site uses.

Current Potential On-Site Contaminant Sources	Potential Contaminants
Currently disused land covered with demolition rubble.	Asbestos
Historic Potential On-Site Sources	Potential Contaminants
Former development on site from 1969 (labelled for part of history as clinic)	Asbestos, metals, inorganics, hydrocarbons (from vehicle parking and movement)
Former domestic garages	Asbestos, hydrocarbons.
Former use as part of Church yard / garden	N/A
Agricultural fields – use of herbicides and pesticides	Agrichemicals
Current Potential Off-Site Contaminant Sources	Potential Contaminants
Sheltered housing / home to northeast of site.	N/A
Residential land use surrounding site	N/A
Historical Potential Off-Site Contaminant Sources	Potential Contaminants
Former Mission Church and later Sheltered housing / home to northeast of site.	N/A
Residential land use surrounding site	N/A
Agricultural fields – use of herbicides and pesticides	Agrichemicals
Infilled excavations from chalk and gravel pits and historical landfill 72m west	Ground gases

The risk posed to site construction workers has not been assessed as any risks are considered to be mitigated through good site practices, such as dust suppression, and the use of Personal Protective Equipment (PPE).

¹ Rudland, D., Lancefield, R.M., Mayal, P.N. (2001) Contaminated Land Risk Assessment: A Guide to Good Practice. CIRIA C552. UK.

5.3 Conceptual Contaminant-Pathway-Receptor Model

The information gathered in this Preliminary Contamination Risk Assessment has been compiled to produce a Contaminant-Pathway-Receptor (C-P-R) model, which is summarised in the table below and

overleaf. A Contamination Conceptual Site Model Cross Section is presented in Appendix F.

Potential Site Contaminant Sources	Potential Pathways	Potential Receptors	Pathway Complete	Risk Level Classification
Current	Dermal / direct contact	Current site users (Agricultural field)	No	
	Direct ingestion		No	
	Direct inhalation		No	
	Inhalation of Radon		No	
	Inhalation of wind-blown dust		No	
	Vapour migration		No	
	Ground gas migration		No	
Disused land surface with demolition rubble. Residential housing and sheltered housing / home to northeast. Historic Agricultural land initially. Site was part of ground of a Mission Church to the north from circa 1936. Later developed as Clinic on site and sheltered housing / north to north. Residential housing first developed in 1930s surrounding areas and expanded in 1960s. Historical landfill and infilled chalk, gravel and clay pits in surrounding areas. Nearest located some 72m west.	Dermal / direct contact	Future site users (residential use with plant uptake)	Yes	Low
	Direct ingestion		Yes	Low
	Direct inhalation		Yes	Low
	Inhalation of Radon gas		No	
	Inhalation of wind-blown dust		Yes	Low
	Vapour Migration onto the site		Yes	Low
	Ground gas migration		Yes	Low
	Direct contact	Services (following redevelopment)	Yes	Low
	Migration of contaminants: non-aqueous phase		Yes	Low
	Migration of contaminants: aqueous phase		Yes	Low
	Migration of contaminants off-site: non-aqueous phase	Adjacent Properties	No	
	Migration of contaminants off site: aqueous phase		No	
	Vapour migration		No	
	Inhalation of wind-blown dust	Ecological Impacts	No	
	Migration of contaminants: non-aqueous phase		No	
	Migration of contaminants: aqueous phase		No	
	Migration of contaminants from site: non-aqueous phase	Controlled groundwater	Yes	Low
	Migration of contaminants from site: aqueous phase		Yes	Low
	Migration of Contaminants: non-aqueous phase	Surface Waters	No	
	Migration of contaminants: aqueous phase		No	

5.4 Potential Contamination Risk Summary

The preliminary contamination risk assessment has identified complete Contaminant-Pathway-Receptor (CPR) linkages with a maximum **Low** risk level from the potential contamination sources and risk drivers identified on the site and surrounding area.

The most significant of these potential source drivers, representing the greatest potential to impact the proposed site user (equivalent to residential without plant uptake) is the former development including domestic garages on site, now demolished with the likely presence of asbestos on site due to the age of the former buildings and the possible presence of hydrocarbon contamination due to vehicle movements and parking on site.

The site was initially apparently open agricultural land with the potential for use of agrichemicals, however, given the time elapsed and subsequent developments on site, the risk of residual agrichemicals remaining on site is minimal and the risk is considered very low.

There are records of two historical landfill sites within 100m of the site and several potentially infilled areas from former chalk, sand and gravel and clay pits excavated in the wider areas. As such, there is considered to be the potential for ground gases to be generated and migrate through any near surface highly permeable soils to impact the proposed highly sensitive end site users.

The proposed site use will allow contact with potential contaminant through direct contact, ingestion and inhalation pathways. As the site is to be residential apartments with minimal ornamental soft landscaping, however, some of the pathways such as direct ingestion or soil or ingestion via fruits and vegetables will be limited.

Given the above discussion, in order to verify that 'Significant Possibility of Significant Harm' does not exist with respect to the potential contamination sources, and the proposed end user, it is recommended that a ground investigation be undertaken across the site to confirm the risks to receptors and confirm ground conditions with respect to potential geotechnical and geo-environmental risks. Specific objectives of this investigation should include sampling and assessment of the imported aggregate on the cattle barn area in the northwest of the site. Ground gas monitoring wells should be installed in order to assess the ground gas risk regime beneath the site.

Further to this, should any unexpected contamination be identified during the future development groundworks, then a suitably qualified and experienced Geo-Environmental Engineer should be consulted and if necessary further assessment should be undertaken.

5.5 Potential Geotechnical Risk Summary

A **high** geotechnical risk was identified at the site associated with dissolution instability on the site.

Therefore, it is recommended that a geotechnical appraisal of the site be carried out to derive foundation design criteria and an initial ground instability assessment.

6.0 CERTIFICATION

This report is produced for the sole use of the Client, and no responsibility of any kind, whether for negligence or otherwise, can be accepted for any third party who may rely upon it.

The site walkover survey was carried out within reasonably accessible areas of the site. No responsibility of any kind can be accepted for any conditions or features not identified due to inaccessibility of areas such as locked, unstable or unsafe buildings and heavily overgrown areas.

The conclusions and recommendations given in this report are based on our understanding of the future plans for the site and based on a scope of works agreed by the Client and afforded by the agreed budget. No responsibility is accepted for conditions not encountered, which are outside of the agreed scope of work.

If the future plans for the site are changed, such as the site is developed for a more or less sensitive use, then a different interpretation might be appropriate.

The report has been prepared following the guidelines and principles established in the British Standards, BS 10175:2011, entitled 'Investigation of Potentially Contaminated Sites – Code of Practice' and the DEFRA / EA Contaminated Land Reports CLR7 and CLR8. It necessarily relies on the co-operation of other organisations and the free availability of information and total access. No responsibility can, therefore, be accepted for conditions arising from information that was not available to the investigating team as a result of information being withheld or access being denied.

This report may suggest an opinion on a possible configuration of strata or conditions between exploratory points and below the maximum depth of investigation. However, this is for guidance only and no liability can be accepted for its accuracy.

REFERENCES

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- 2) Investigation of Potentially Contaminated Sites – Code of Practice, British Standards Institution BS 10175:20011 + A2 2017.
- 3) Code of Practice for Site Investigations, British Standards Institution BS5930: 1999.
- 4) Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination, R&D Technical Report P5-066/TR, 2000, Environment Agency.
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- 29) Environment Agency, Briefing Note – Monitoring Frequencies and Non-Compliance Recording.
- 30) LFTGN03. Guidance on the Management of Landfill Gas. Environment Agency. 2003.
- 31) Environment Agency, Final R&D Technical Report P1-471 Techniques for the Interpretation of Landfill Monitoring Data – Guidance Notes.

APPENDIX A

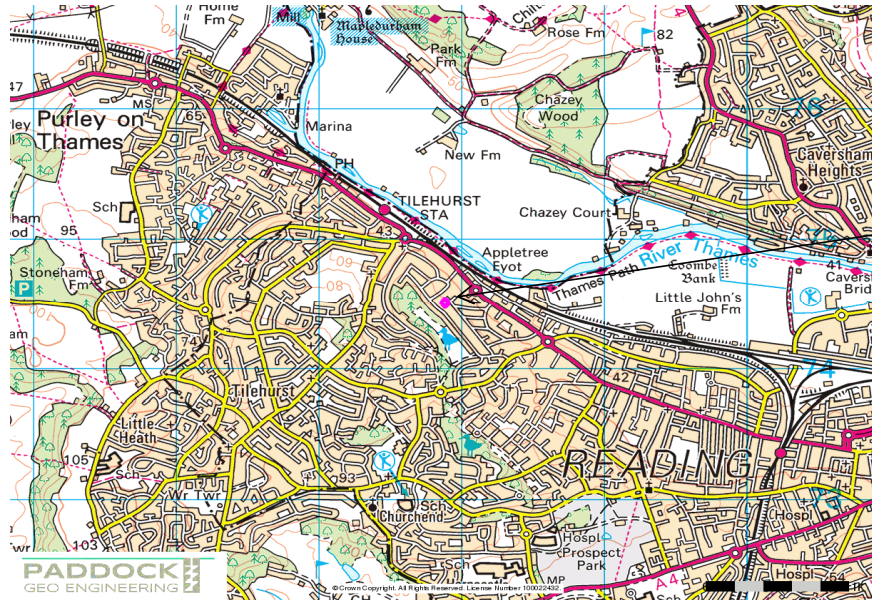
Site Location Plan

Site Plan

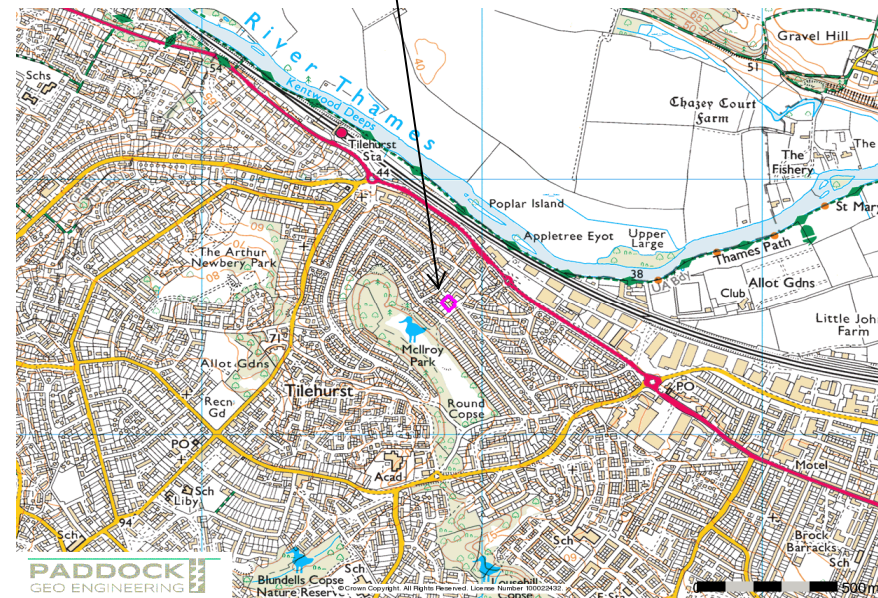
Aerial Photograph

Proposed Development Plan

SITE LOCATION PLAN



Site Location

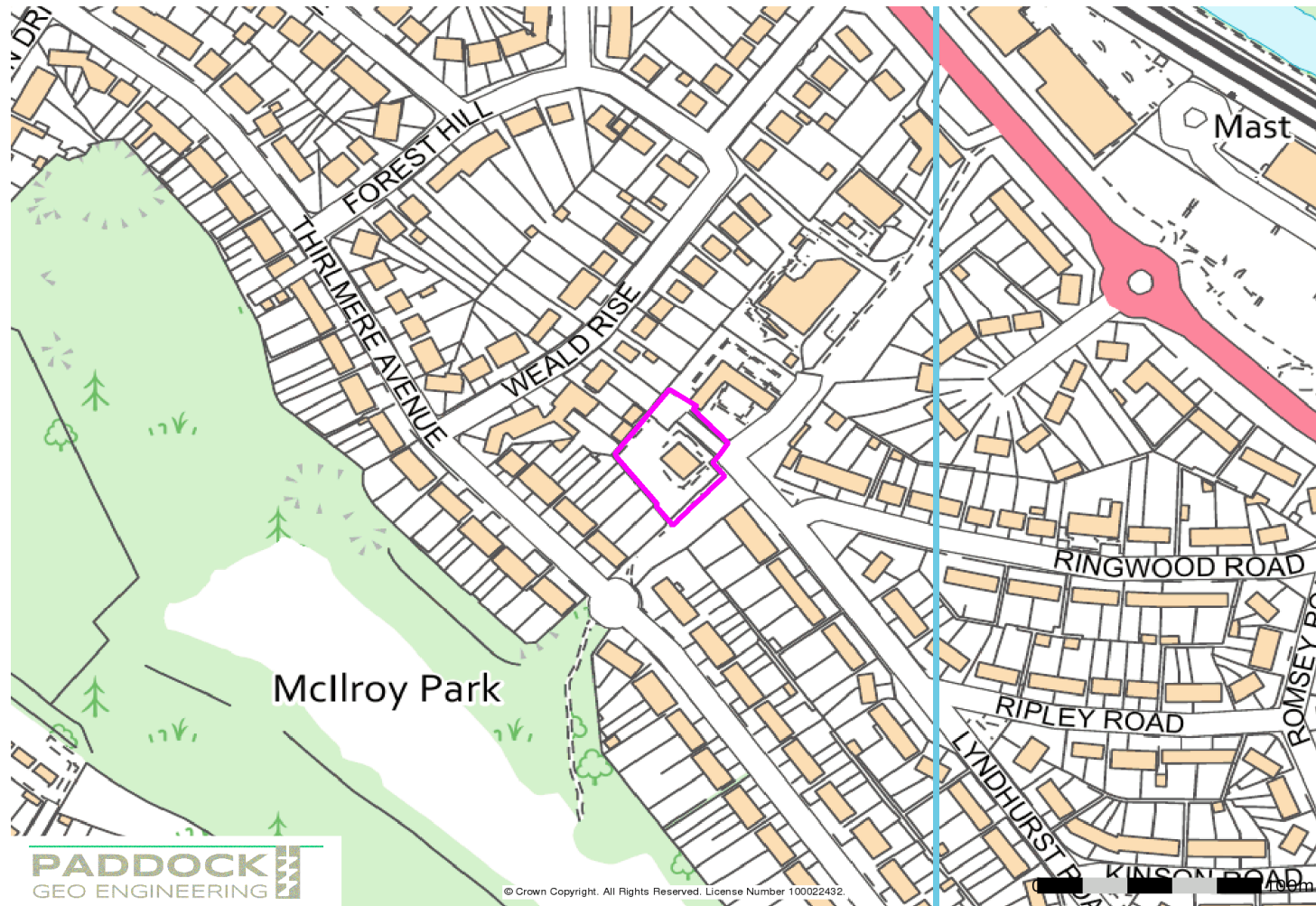


PADDOCK
GEO ENGINEERING

CLIENT:
PROJECT No:
PROJECT TITLE:

Beard Construction Limited
P20-069
Norcot Community Centre, Lyndhurst Road,
Reading, RG30 6UB

SITE PLAN



CLIENT:

PROJECT No:

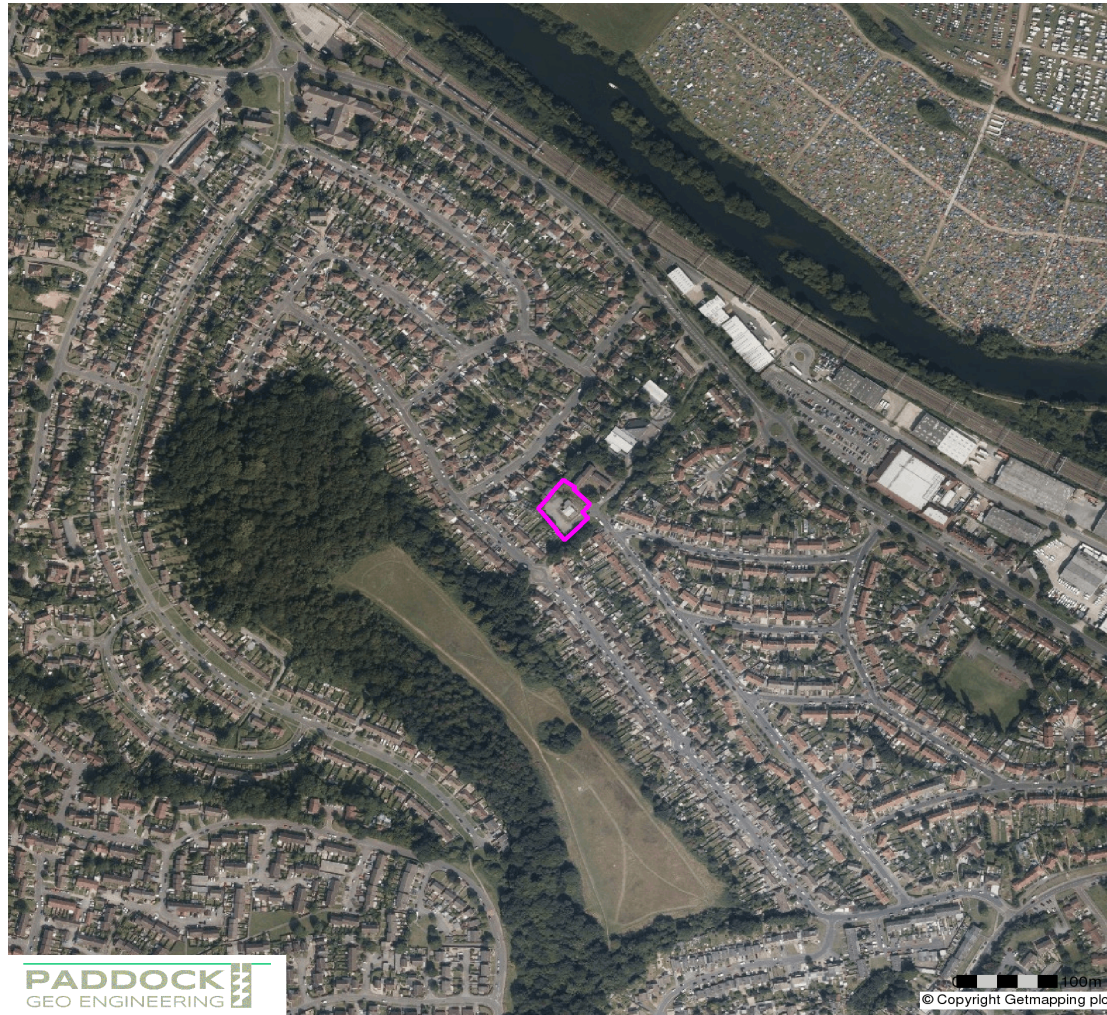
PROJECT TITLE:

Beard Construction Limited

P20-069

Norcot Community Centre, Lyndhurst Road,
Reading, RG30 6UB

AERIAL PHOTOGRAPH





NOTES

This drawing is to be read in accordance with the specification/Bills of Materials and related drawings. No Dimensions to be scaled from this drawing. All stated dimensions to be verified on site and the Architect notified of any discrepancies

0 50
Scale bar 50mm at 1:1

D	Layout changes in accordance with discussion with Reading Borough Council planning team	09/05/19	JT
C	Parking layout revised	20/11/18	SB

Project

Norcot Community Centre
Lyndhurst Road
Tilehurst
Reading

Title

Rendered Site Plan

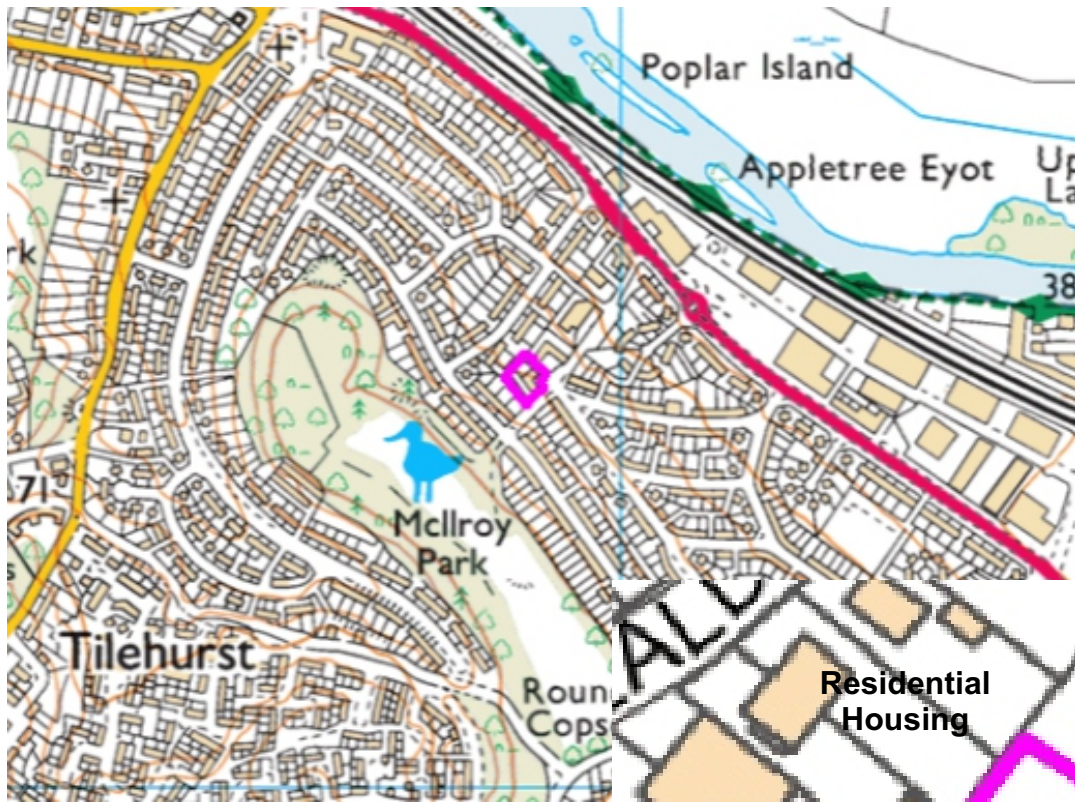
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Saunders
Architecture + Urban Design

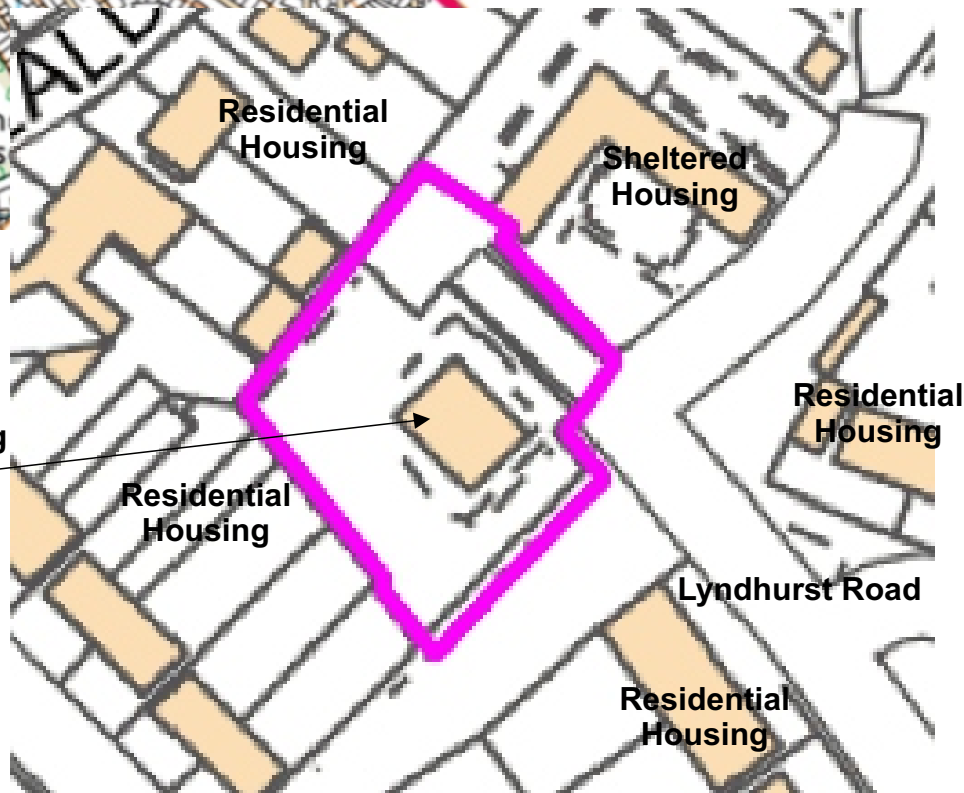
APPENDIX B

Site Walkover Survey Plan

Site Photographs



School



Former Clinic including
domestic garages
- now demolished



View of site access from Lyndhurst Road looking west .



View of site access gate looking east from within site hording.



View looking southwest from gate within hording.



View northwest showing general site cover.



View of site looking north. The drop in level of the strip of land along the northeast boundary of site can be seen.



View of northeast site boundary.

APPENDIX C

Geology Report

Ground Stability Report

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	LASI	Langley Silt Member	Clay and Silt	Not Supplied - Devensian
	KPGR	KEMPTON PARK GRAVEL MEMBER	Sand and Gravel	Not Supplied - Devensian
	TPGR	TAPLOW GRAVEL MEMBER	Sand and Gravel	Not Supplied - Wolstonian
	LHGR	Lynch Hill Gravel Member	Sand and Gravel	Not Supplied - Wolstonian
	BHT	Boyn Hill Gravel Member	Sand and Gravel	Not Supplied - Hoxnian
	BPGR	Black Park Gravel Member	Sand and Gravel	Not Supplied - Anglian
	WIHG	Winter Hill Gravel	Sand and Gravel	Not Supplied - Anglian
	GCGR	Gerrards Cross Gravel	Sand and Gravel	Not Supplied - Cromerian
	HEAD	Head	Gravel, Sand, Silt and Clay	Not Supplied - Quaternary
	HEAD	Head	Clay, Silt, Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	LC	London Clay Formation	Clay, Silt and Sand	Not Supplied - Ypresian
	LMBE	Lambeth Group	Clay, Silt and Sand	Not Supplied - Thanetian
	SNCK	Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated)	Chalk	Not Supplied - Coniacian
		Faults		



Geology 1:50,000 Maps

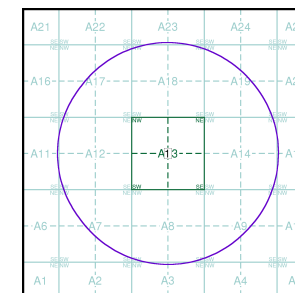
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	1
Map Sheet No:	268
Map Name:	Reading
Map Date:	2000
Bedrock Geology:	Available
Superficial Geology:	Available
Artificial Geology:	Available
Faults:	Not Supplied
Landslip:	Not Available
Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice A



Order Details:

Order Number:	254014005_1_1
Customer Reference:	P20-069
National Grid Reference:	467880, 174510
Slice:	A
Site Area (Ha):	0.19
Search Buffer (m):	1000

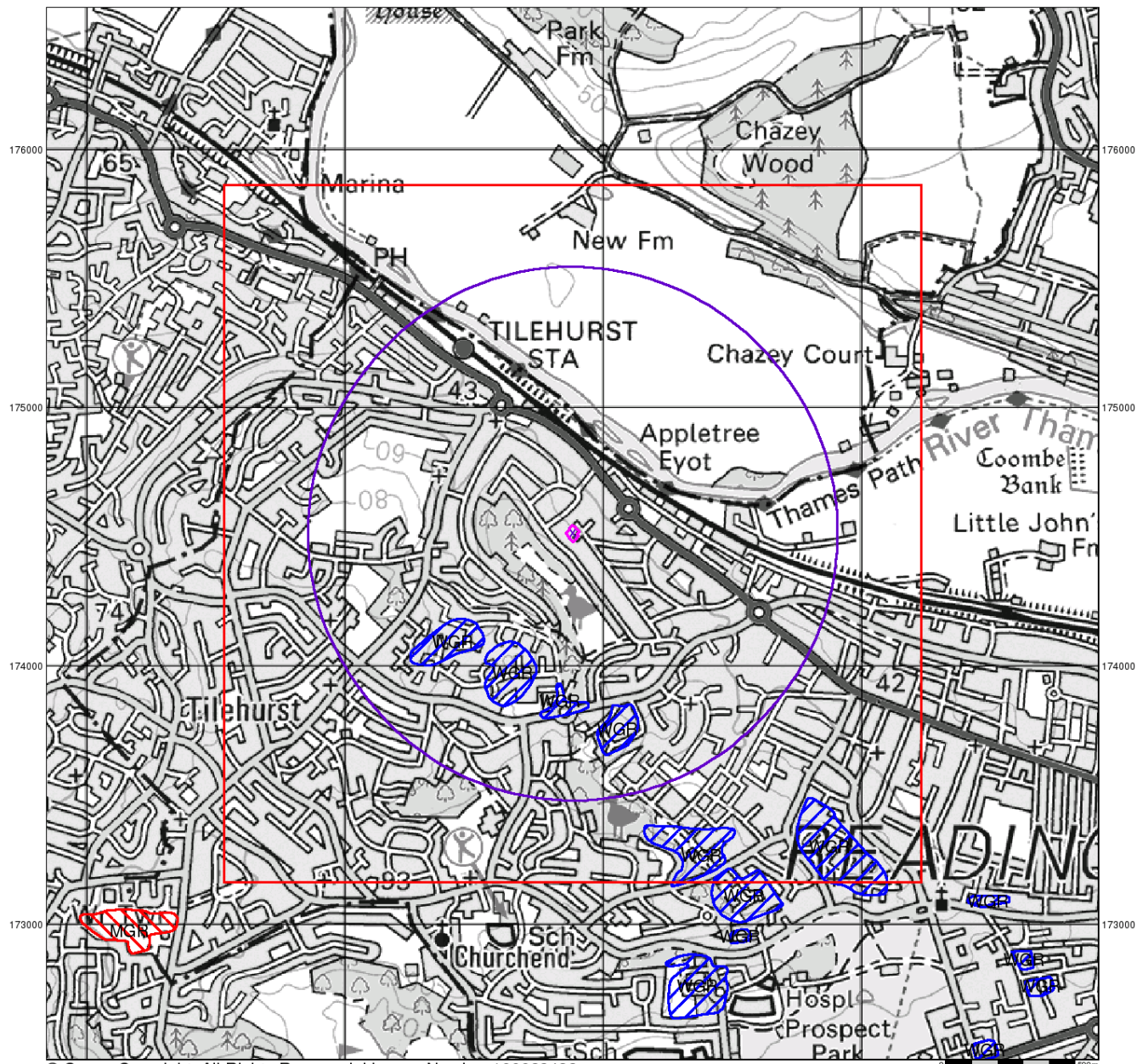
Site Details:

Norcot Community Centre, Lyndhurst Road, Tilehurst, READING, RG30 6UB

Landmark
INFORMATION GROUP

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

466000 467000 468000 469000



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Artificial Ground and Landslip

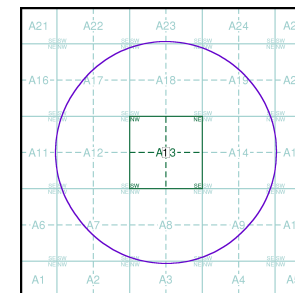
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

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National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details:

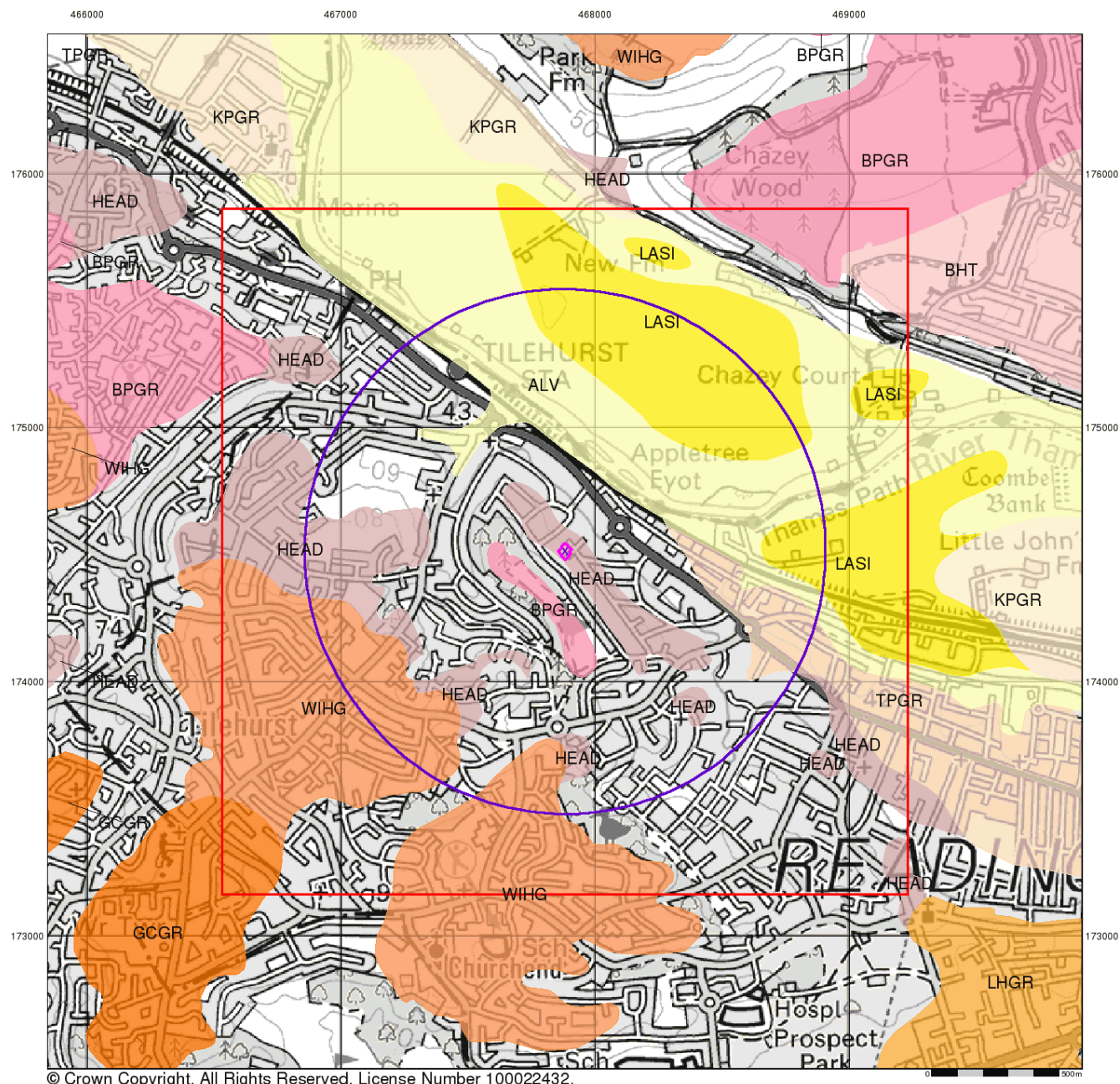
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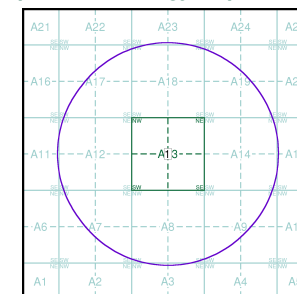
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



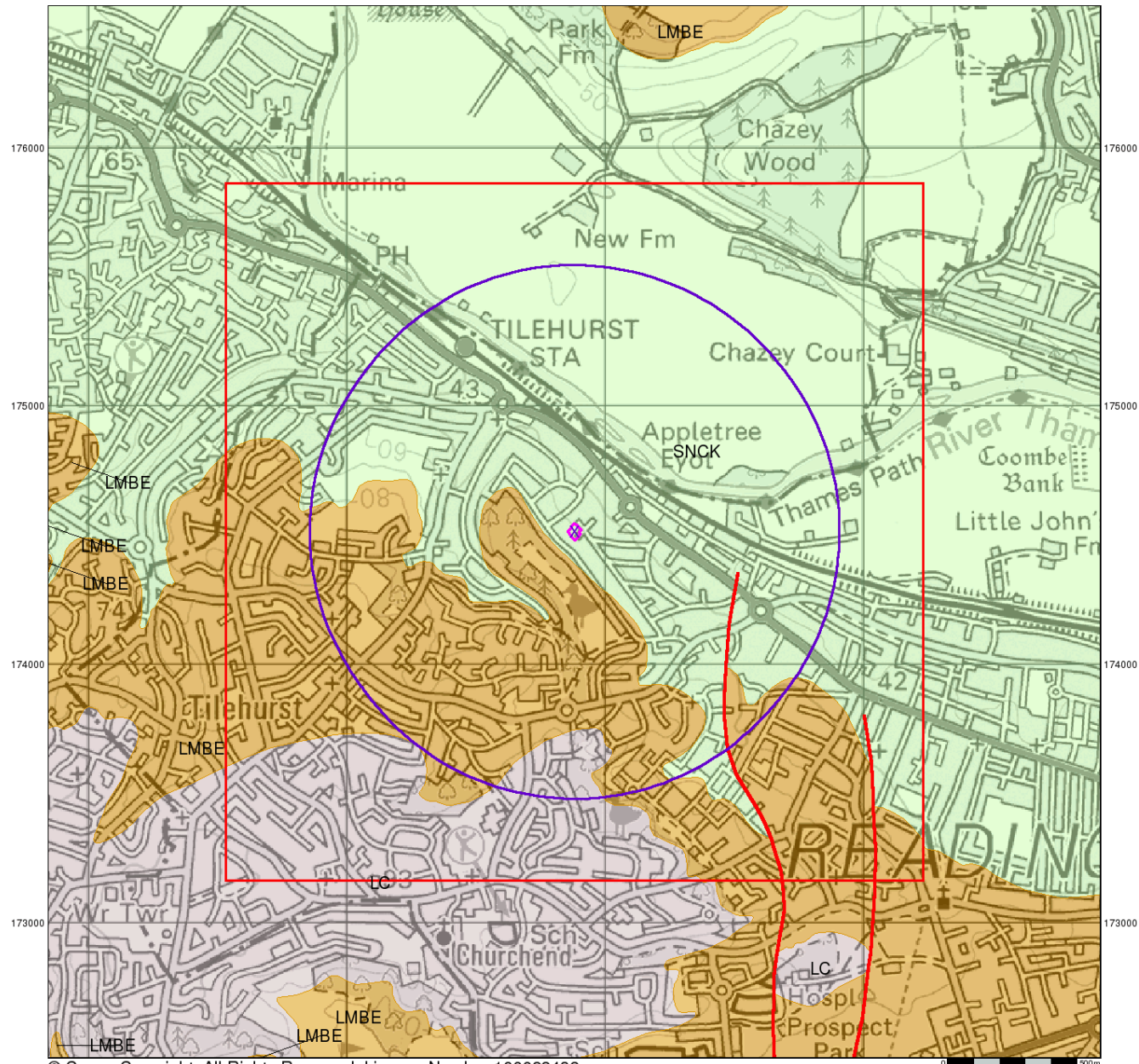
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Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details:

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Bedrock and Faults

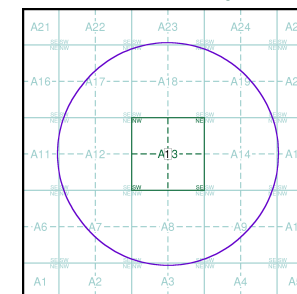
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

Order Number: 254014005_1_1
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National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details:

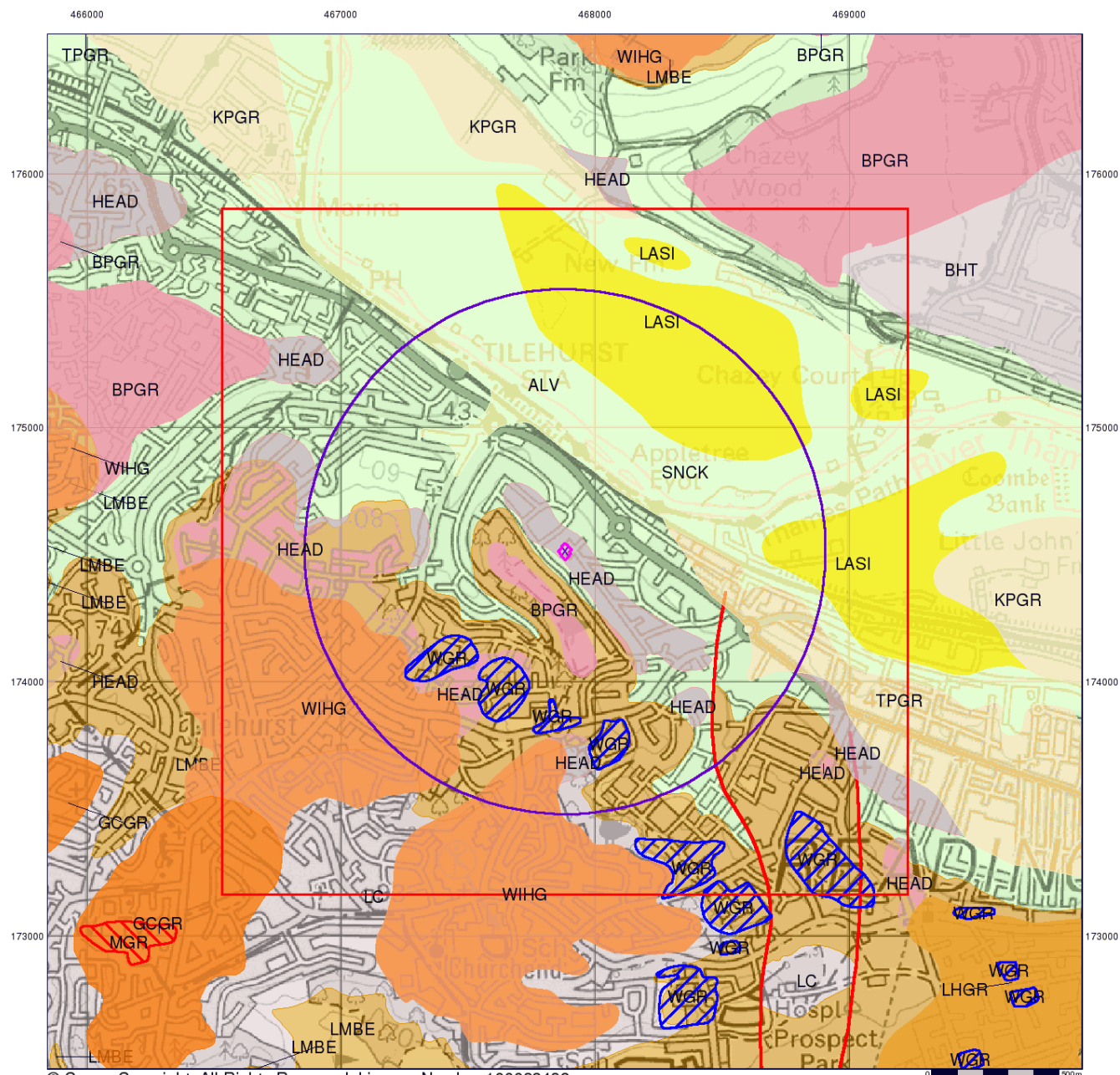
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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

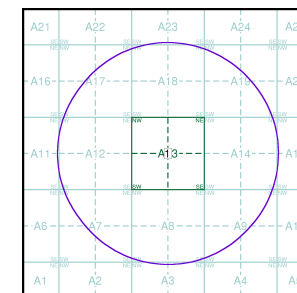
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 254014005_1_1
Customer Reference: P20-069
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Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

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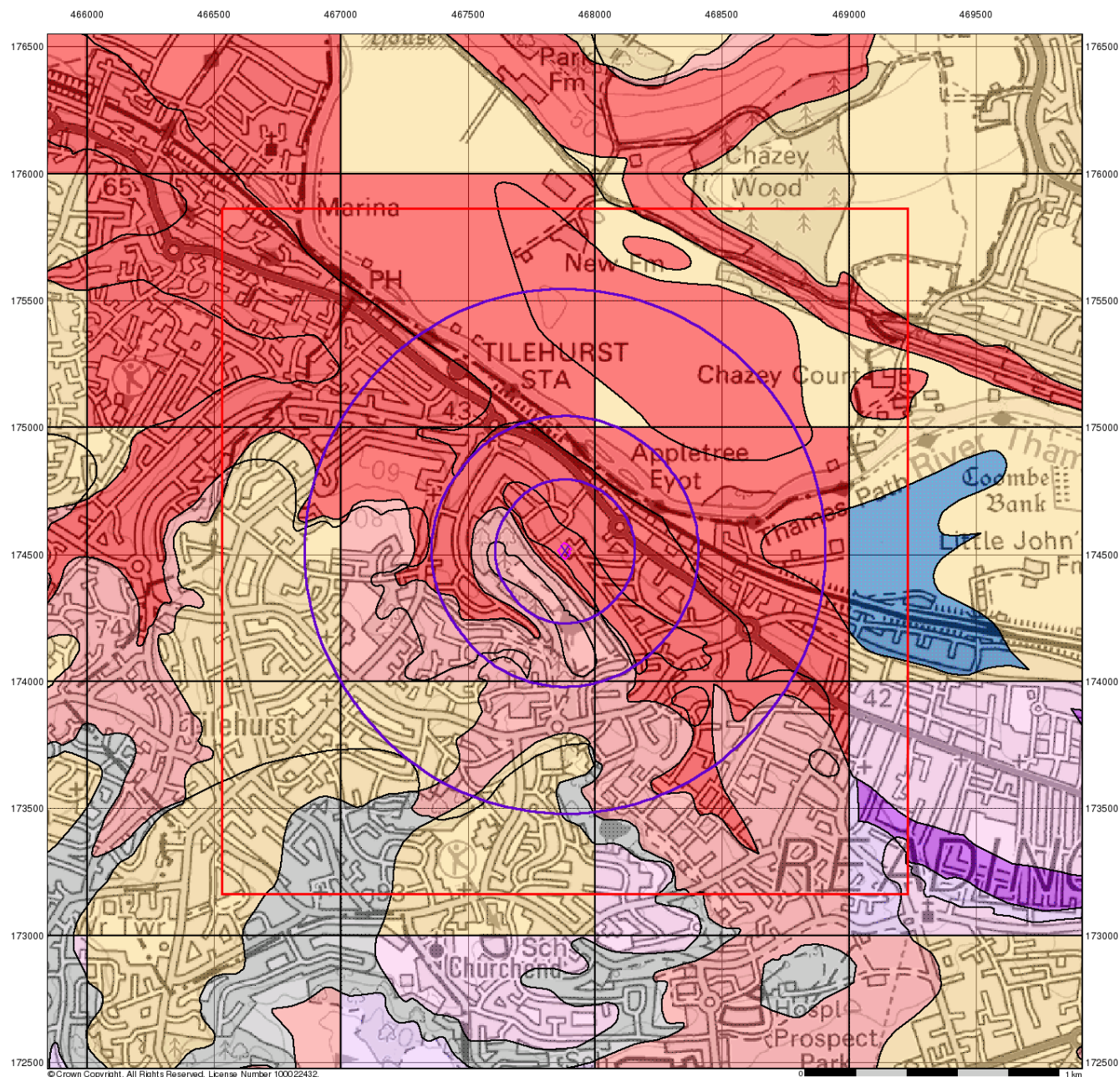
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0 1 km

Groundwater Vulnerability

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Bedrock Aquifers

- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

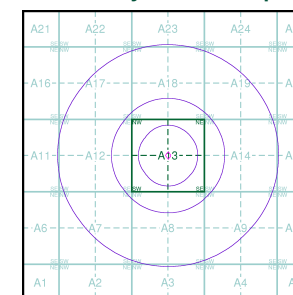
Superficial Aquifers

- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A

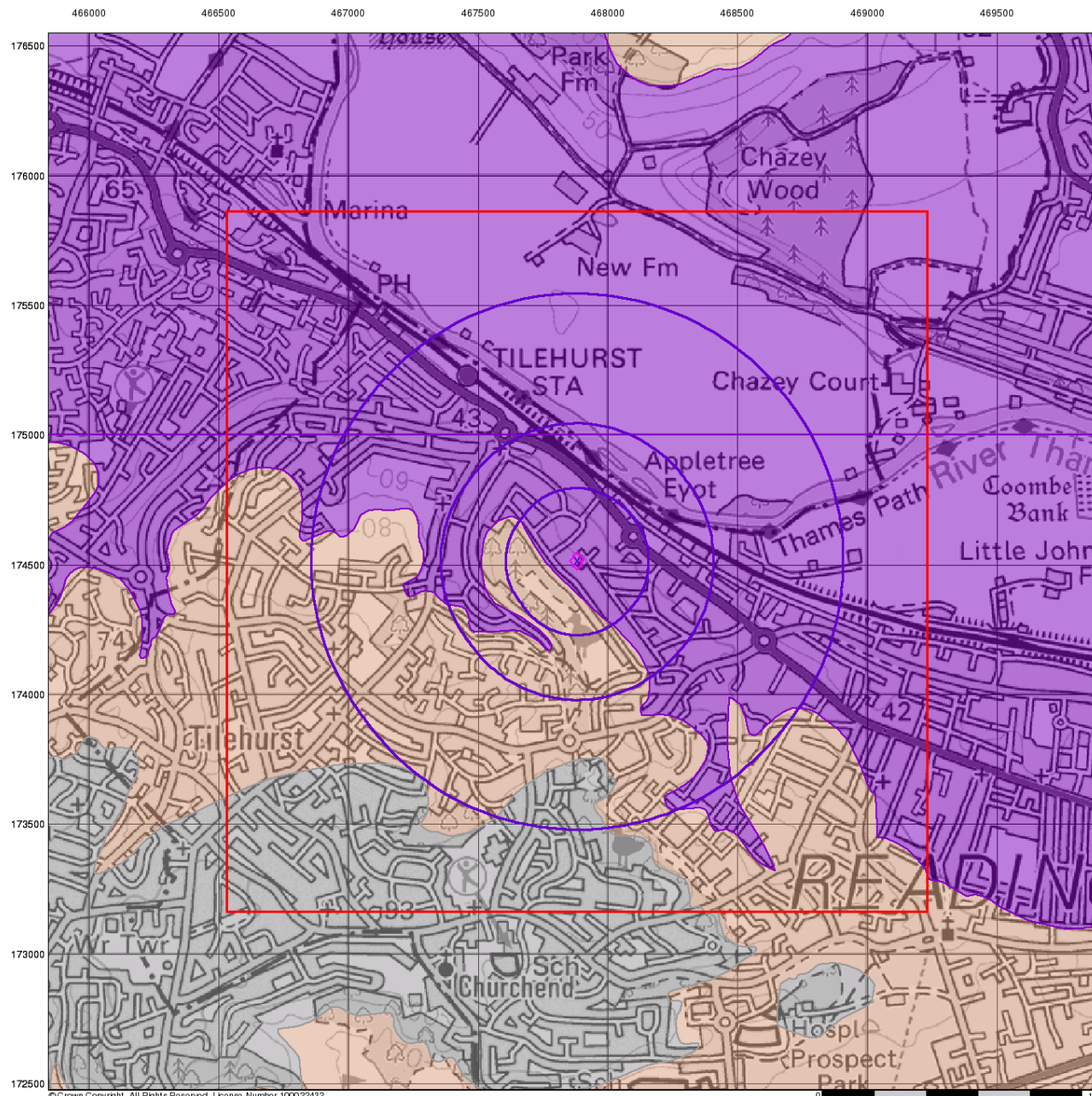


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Order Number: 254014005_1_1
Customer Ref: P20-069
National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

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0 1 km

Bedrock Aquifer Designation

General

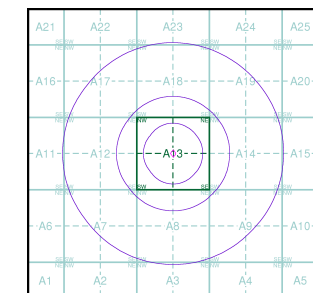
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A

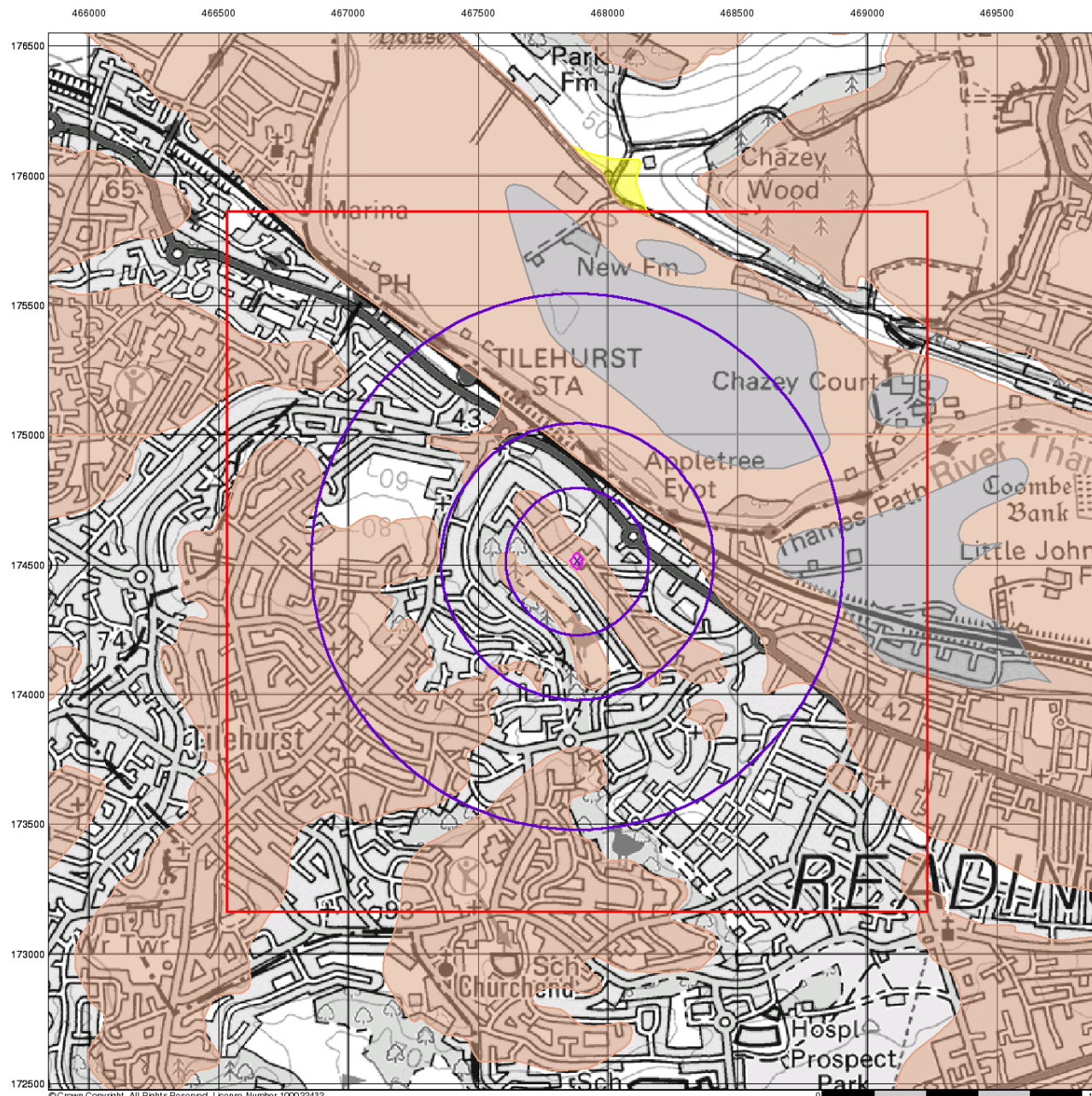


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Site Details

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Superficial Aquifer Designation

General

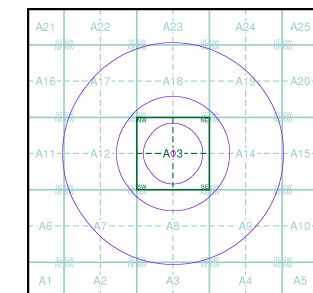
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- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A

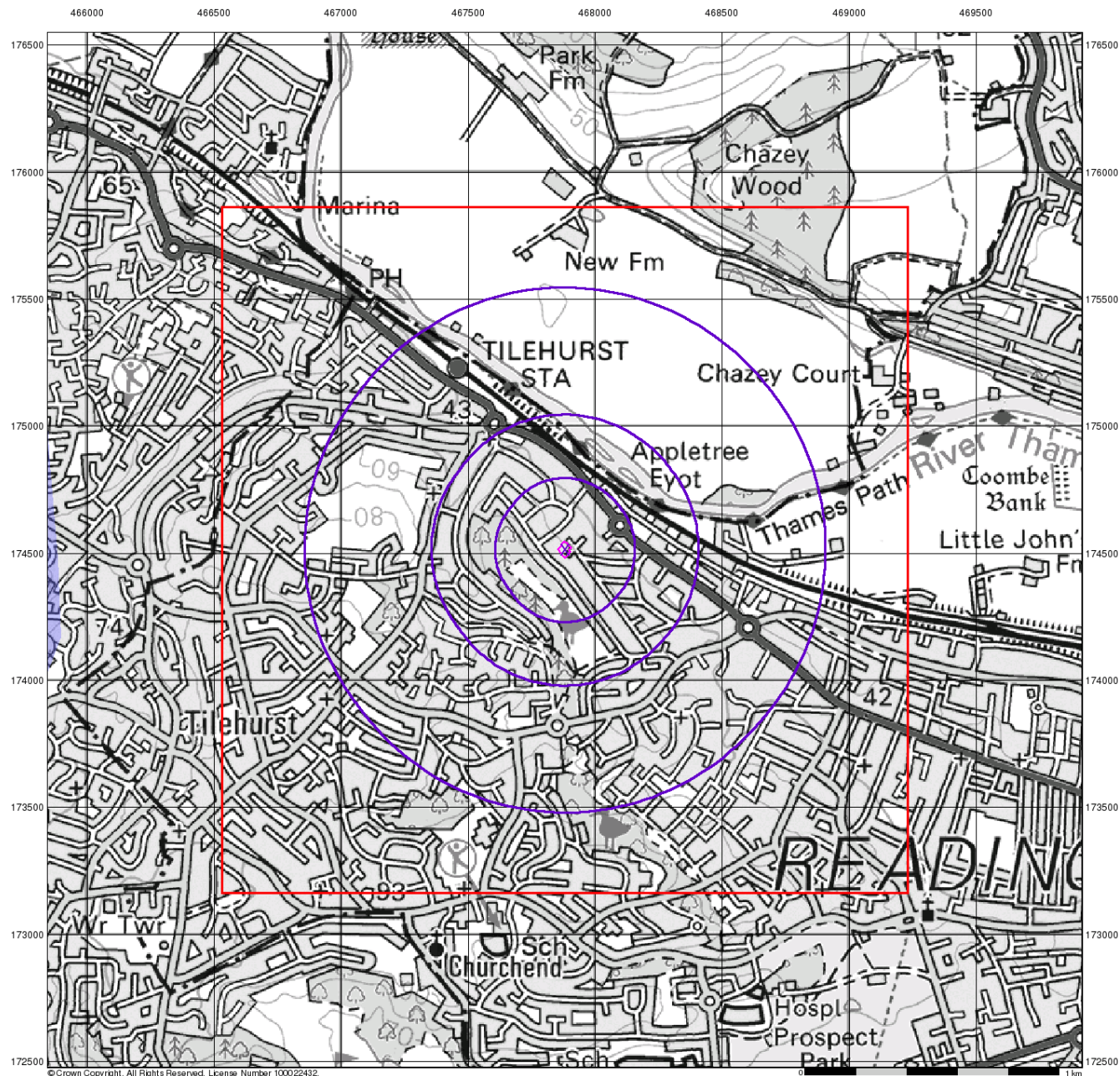


Order Details

Order Number: 254014005_1_1
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 National Grid Reference: 467880, 174510
 Slice: A
 Site Area (Ha): 0.19
 Search Buffer (m): 1000

Site Details

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Source Protection Zones

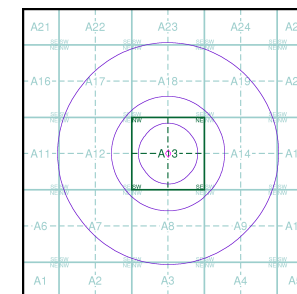
General

- ◊ Specified Site ○ Specified Buffer(s) X Bearing Reference Point
- Slice 8 Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- ▨ Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- ▨ Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- ▨ Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A

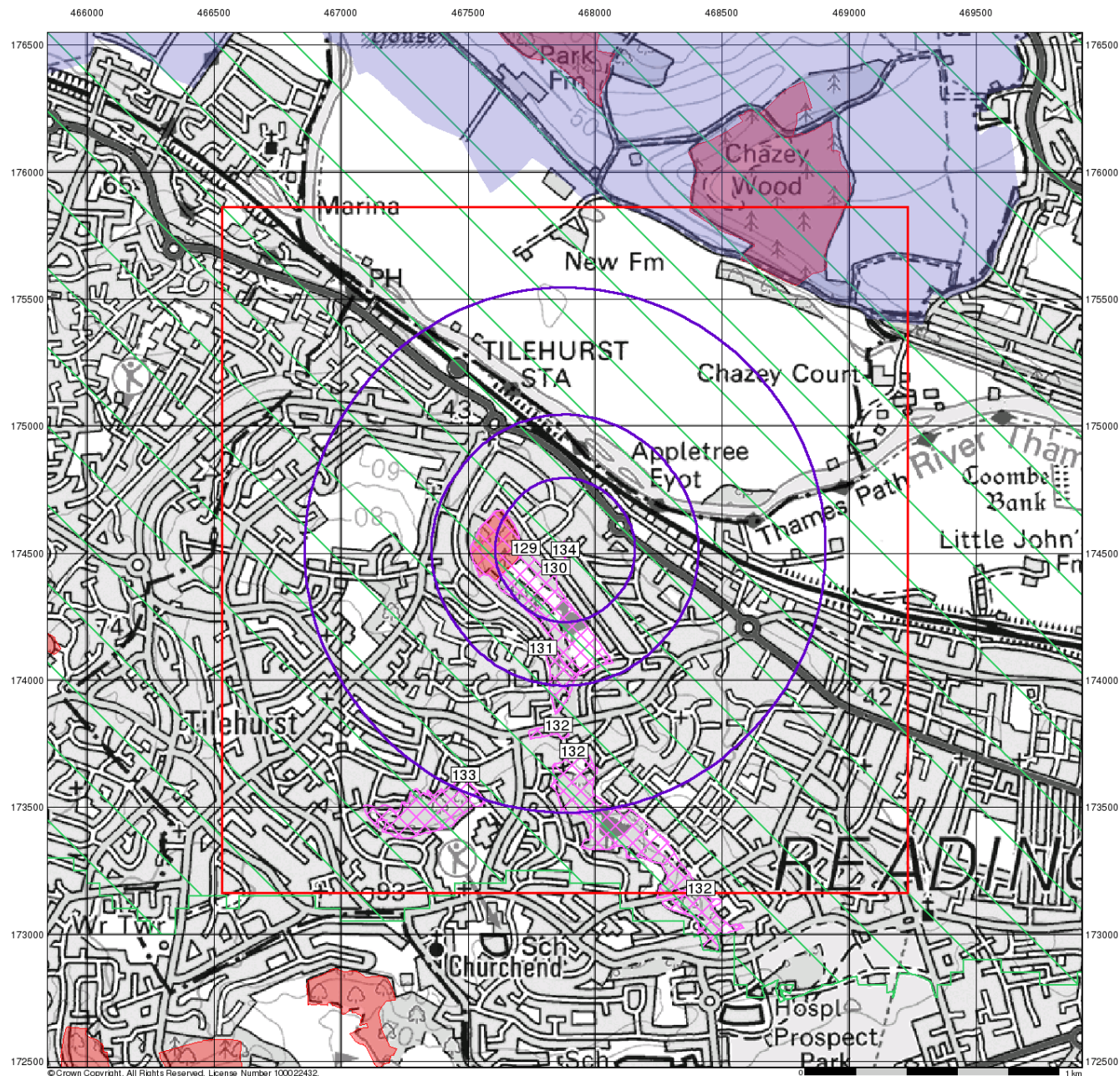


Order Details

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Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

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Sensitive Land Uses

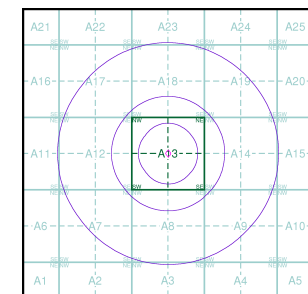
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A

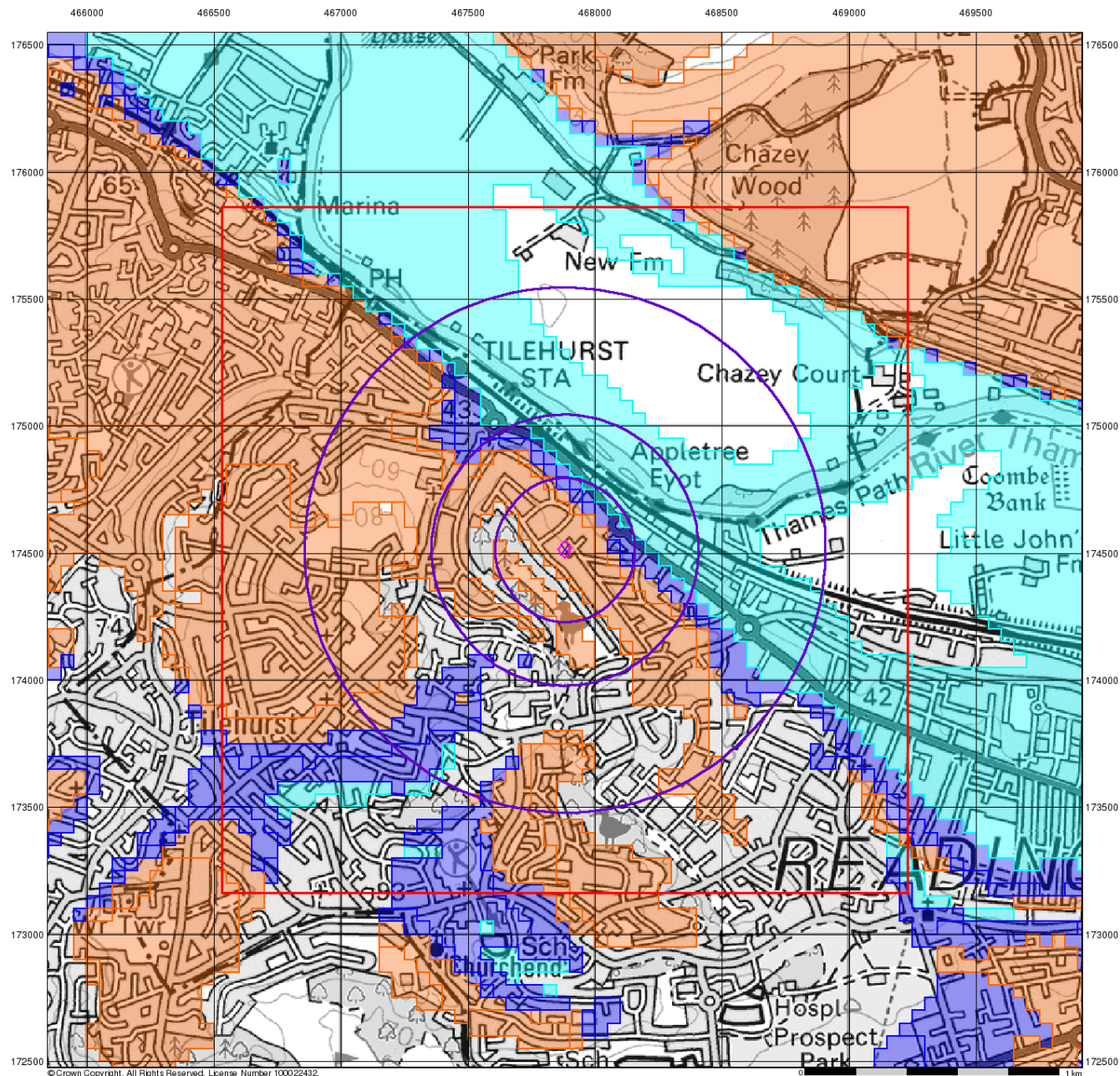


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Site Area (Ha): 0.19
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Site Details

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BGS Flood GFS Data

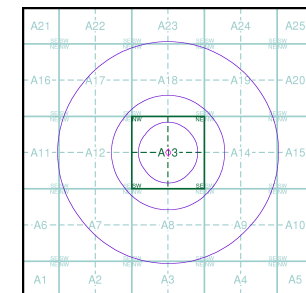
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 254014005_1_1
 Customer Ref: P20-069
 National Grid Reference: 467880, 174510
 Slice: A
 Site Area (Ha): 0.19
 Search Buffer (m): 1000

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Historical Land Use Information (1:10,000)

General

- ✦ Specified Site
 ○ Specified Buffer(s)
 ✕ Bearing Reference Point
 8 Map ID
 Several of Type at Location

Potentially Contaminative Industrial Uses (Past Land Uses - Mining)

	Point	Line	Polygon
Air Shafts	◆	—	▨
Disturbed Ground	◆	—	▨
General Quarrying	◆	—	▨
Heap, unknown constituents	◆	—	▨
Mineral Railway	◆	—	▨
Mining and Quarrying General	◆	—	▨
Mining of Coal & Lignite	◆	—	▨
Quarrying of Sand and Clay, Operation of Sand and Gravel Pits	◆	—	▨

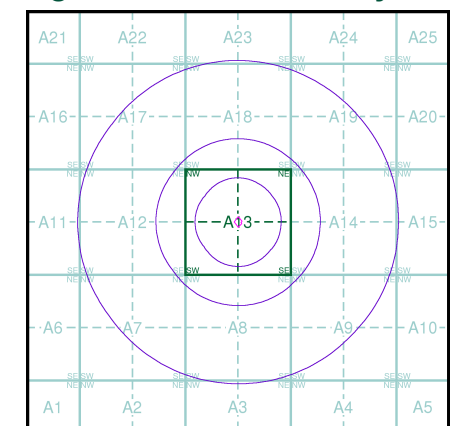
Historical Land Use

	Point	Line	Polygon
Potentially Infilled Land (Non-Water)	●	---	▨
Potentially Infilled Land (Water)	●	---	▨
Former Marsh	✕		

Mining Data

- Potential Mining Area
▼ BGS Recorded Mineral Site

Mining and Ground Stability - Slice A

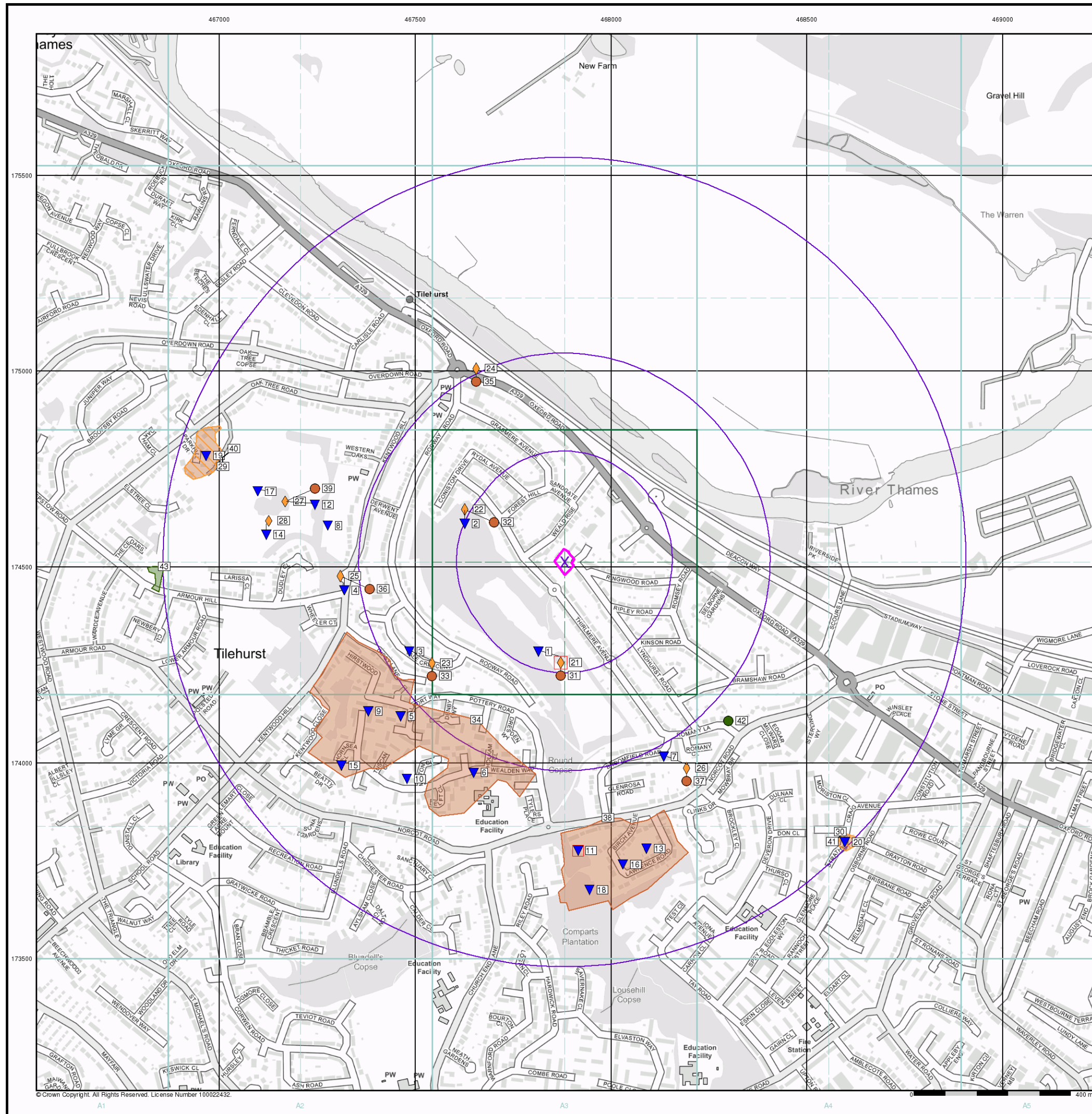


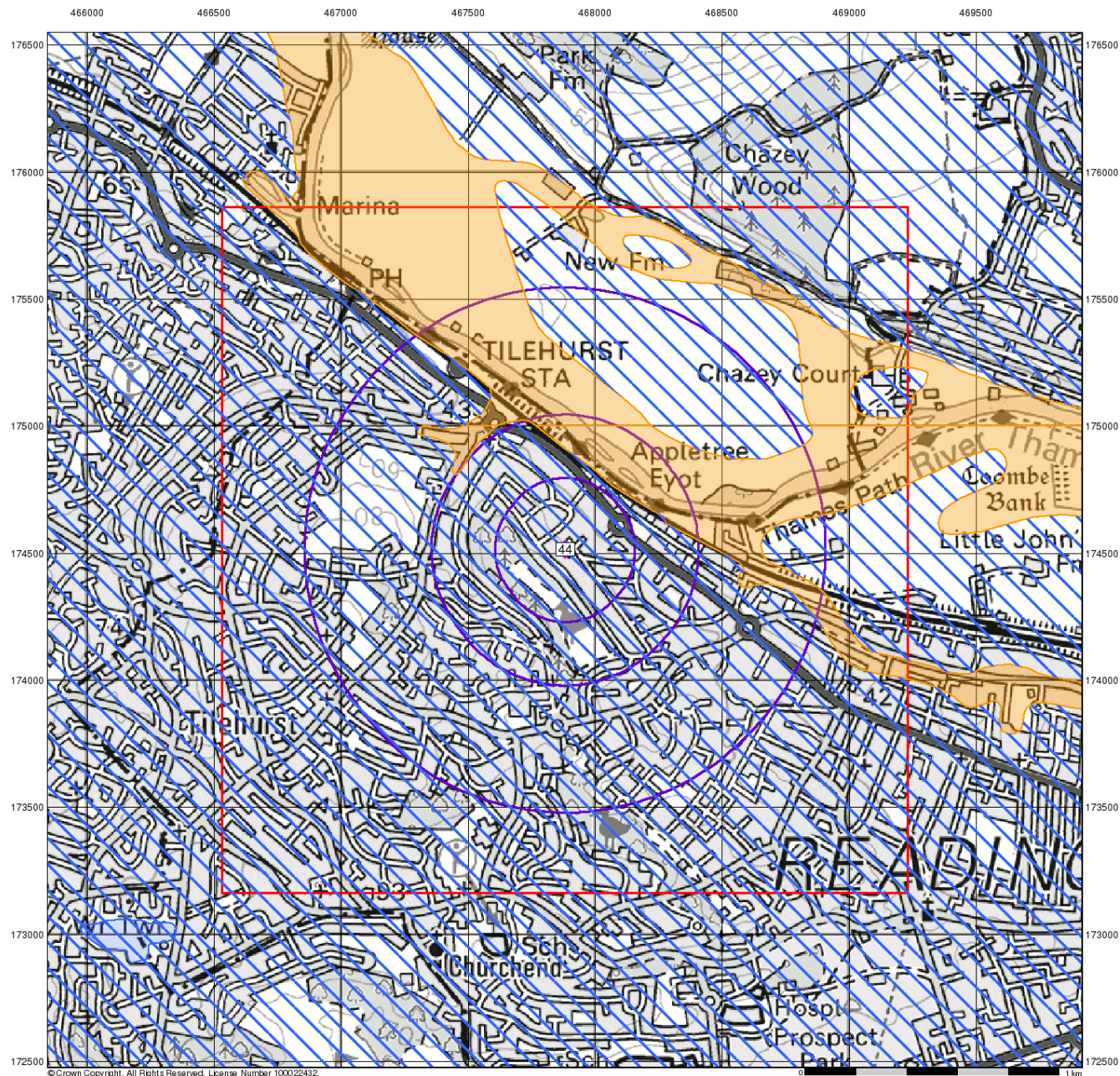
Order Details

Order Number: 254014005_1_1
 Customer Ref: P20-069
 National Grid Reference: 467880, 174510
 Slice: A
 Site Area (Ha): 0.19
 Search Buffer (m): 1000

Site Details

Norcot Community Centre, Lyndhurst Road, Tilehurst,
 READING, RG30 6UB





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Ground Stability Data (1:50,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Potential for Compressible Ground Stability Hazards

- High
- Low
- Moderate
- Very Low

Potential for Collapsible Ground Stability Hazards

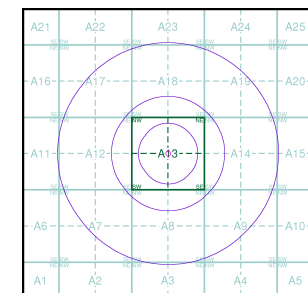
- High
- Low
- Moderate
- Very Low

Brine Pumping and Salt Mining

- Brine Pumping Related Feature
- Salt Mining Related Feature

- | Point | Polygon |
|-------|---------|
| | |
| | |

Mining and Ground Stability - Slice A

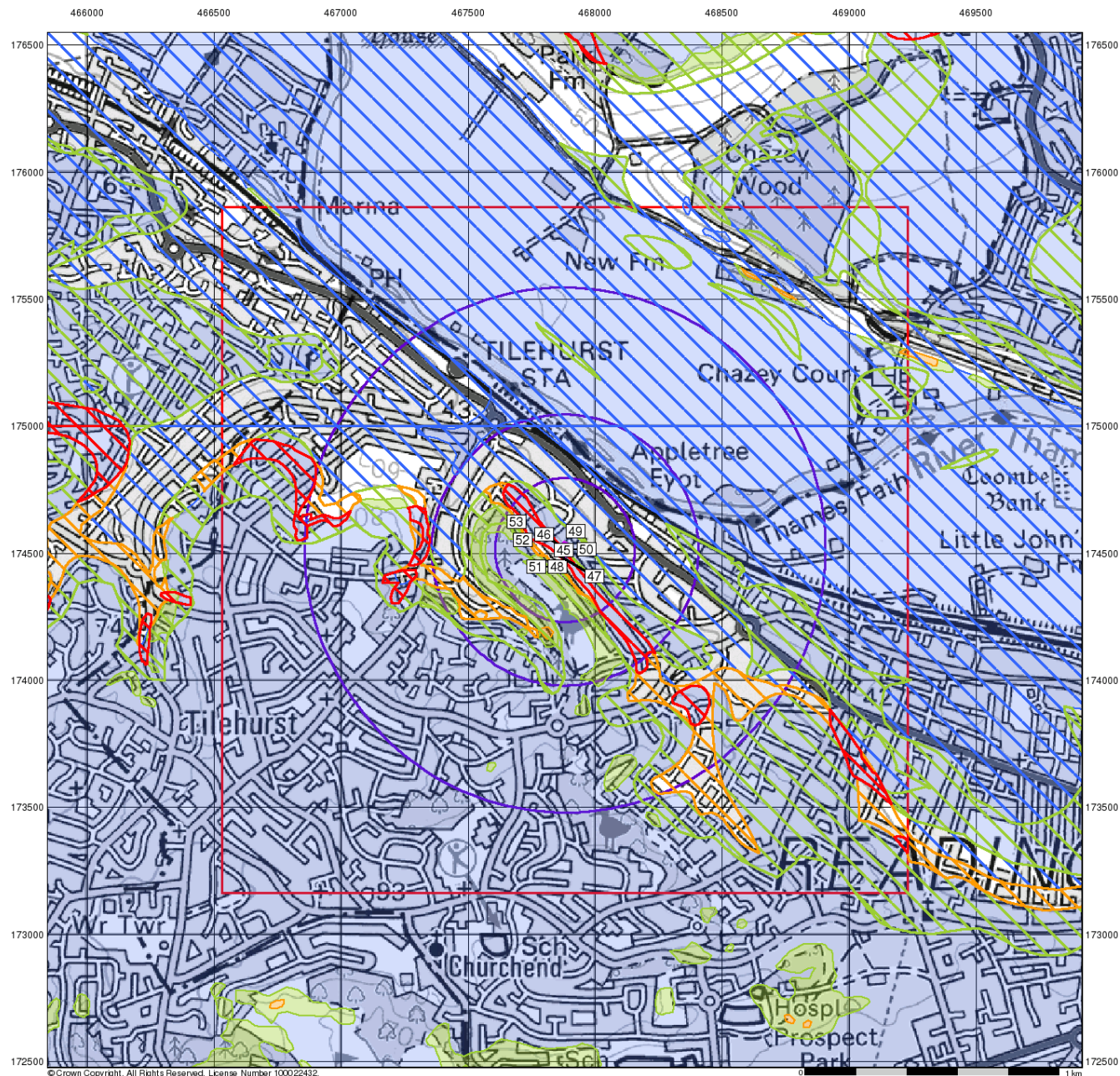


Order Details

Order Number: 254014005_1_1
Customer Ref: P20-069
National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Norcot Community Centre, Lyndhurst Road, Tilehurst, READING, RG30 6UB



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Ground Stability Data (1:50,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

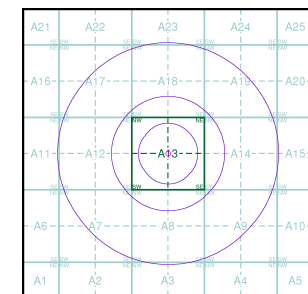
Potential for Landslide Ground Stability Hazards

- High
- Moderate
- Low
- Very Low

Potential for Ground Dissolution Stability Hazards

- High
- Moderate
- Low
- Very Low

Mining and Ground Stability - Slice A

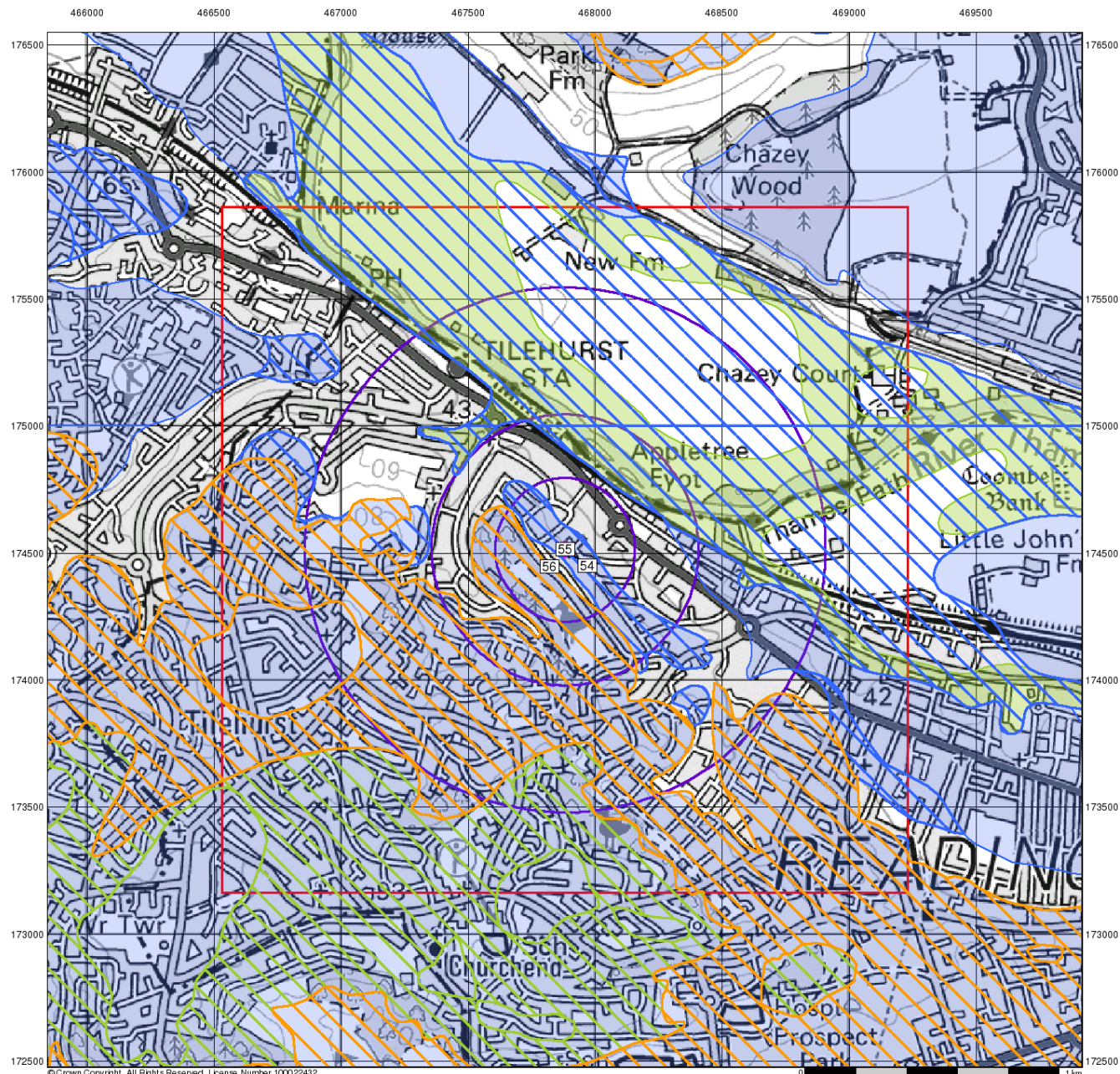


Order Details

Order Number: 254014005_1_1
Customer Ref: P20-069
National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Norcot Community Centre, Lyndhurst Road, Tilehurst, READING, RG30 6UB



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Ground Stability Data (1:50,000)

General

- ◇ Specified Site ○ Specified Buffer(s) X Bearing Reference Point
- Slice 8 Map ID

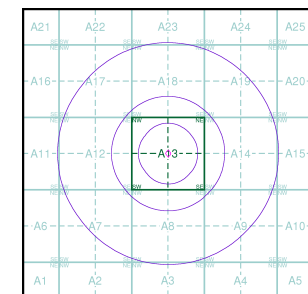
Potential for Running Sand Ground Stability Hazards

- High
- Low
- Moderate
- Very Low

Potential for Shrinking or Swelling Clay Ground Stability Hazards

- ▨ High
- ▨ Low
- ▨ Moderate
- ▨ Very Low

Mining and Ground Stability - Slice A



Order Details

Order Number: 254014005_1_1
 Customer Ref: P20-069
 National Grid Reference: 467880, 174510
 Slice: A
 Site Area (Ha): 0.19
 Search Buffer (m): 1000

Site Details

Norcot Community Centre, Lyndhurst Road, Tilehurst, READING, RG30 6UB

Envirocheck[®] Report:

Mining and Ground Stability Datasheet

Order Details:

Order Number:

254014005_1_1

Customer Reference:

P20-069

National Grid Reference:

467880, 174510

Slice:

A

Site Area (Ha):

0.19

Search Buffer (m):

1000

Site Details:

Norcot Community Centre, Lyndhurst Road
Tilehurst
READING
RG30 6UB

Client Details:

Mr M Paddock
Paddock Geo Engineering
The Log Cabin, Manor Farm
Whaddon Road
Newton Longville
Milton Keynes
MK17 0AU

Report Section and Details	Page Number
Summary	-
The Summary section provides an overview of the data contained within the report, detailing the number of data set features or the existence of a data set in relation to the buffer selected. For ease of reference, the report is broken down into 4 sections of data; Mining and Natural Cavities Data, Historical Land Use Information (1:2,500), Historical Land Use Information (1:10,000) and Ground Stability Data (1:50,000).	
Mining and Natural Cavities Data	1
The Mining and Natural Cavities Data section features data sets related to the existence of mining areas and their potential hazards; and details of naturally formed cavities. Data sets within this section are not plotted, with the exception of BGS Recorded Mineral Sites and Potential Mining Areas which feature on the Historical Land Use Information (1:10,000) map.	
Historical Land Use Information (1:2,500)	-
The Historical Land Use Information (1:2,500) section contains data captured from analysis carried out by Landmark of 1:1,250 and 1:2,500 scale historical Ordnance Survey mapping, identifying areas where, historically, the land uses were potentially contaminative. For the purpose of this Envirocheck module, only historical data relating to mining and ground stability has been included and plotted on the corresponding Historical Land Use Information (1:2,500) map. This section also includes the Subterranean Features data set, which details various man-made and man-used underground spaces obtained from the Subterranea Britannica society.	
Historical Land Use Information (1:10,000)	6
The Historical Land Use (1:10,000) section covers data captured from the systematic analysis carried out by Landmark of 1:10, 560 and 1:10,000 scale historical Ordnance Survey mapping dating back to the mid-19th century, identifying potentially contaminative past industrial land uses. For the purpose of this Envirocheck module, only data relating to mining and ground stability has been included and plotted on the accompanying Historical Land Use Information (1:10,000) map.	
Ground Stability Data (1:50,000)	8
The Ground Stability (1:50,000) section includes the BGS Geosure data suite, reporting features to 250m and plotted onto 3 separate maps. Also reported is brine subsidence, brine mining and salt mining data sets, of which Brine Pumping and Salt Mining Related Features are plotted, and subsidence insurance claims and insurance investigations data, which is not plotted.	
Historical Map List	9
The Historical Map List section details the historical mapping that has been analysed for your site, in relation to the Historical Land Use Information sections.	
Data Currency	10
Data Suppliers	11
Useful Contacts	12

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The brine subsidence data relating to the Driotwich area as provided in this report is derived from JPB studies and physical monitoring undertaken annually over more than 35 years. For more detailed interpretation contact enquiries@jpb.co.uk. JPB retain the copyright and intellectual rights to this data and accept no liability for any loss or damage, including in direct or consequential loss, arising from the use of this data.

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Report Version v53.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Mining and Natural Cavities Data					
BGS Recorded Mineral Sites	pg 1		1	2	18
Coal Mining Affected Areas			n/a	n/a	n/a
Man Made Mining Cavities	pg 4				4
Mining Instability			n/a	n/a	n/a
Natural Cavities	pg 4				2
Non Coal Mining Areas of Great Britain	pg 5	Yes		n/a	n/a
Potential Mining Areas					
Historical Land Use Information (1:2,500)					
Extractive Industries or Potential Excavations from 1855-1909 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1893-1915 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1906-1937 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1924-1949 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1950-1980 (100m)				n/a	n/a
Subterranean Features (100m)				n/a	n/a
Historical Land Use Information (1:10,000)					
Air Shafts					
Disturbed Ground					
General Quarrying					
Heap, unknown constituents					
Mineral Railway					
Mining & quarrying general					
Mining of coal & lignite					
Quarrying of sand & clay, operation of sand & gravel pits	pg 6		2	2	7
Former Marshes					
Potentially Infilled Land (Non-Water)	pg 6		1	3	7
Potentially Infilled Land (Water)	pg 7				2
Ground Stability Data (1:50,000)					
CBSCB Compensation District			n/a	n/a	n/a
Brine Pumping Related Features					
Brine Subsidence Solution Area					
Potential for Collapsible Ground Stability Hazards	pg 8	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 8	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 8	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 8	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 8	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 8	Yes	Yes	n/a	n/a
Salt Mining Related Features					

Report Version v53.0

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	BGS Recorded Mineral Sites Site Name: Beecham Hill Chalk Pit Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137497 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Black Park Gravel Member, Thames Valley Formation Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A13SW (S)	207	1	467867 174273
2	BGS Recorded Mineral Sites Site Name: Kentwood Farm Chalk Pit Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137495 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	A13NW (NW)	265	1	467626 174645
3	BGS Recorded Mineral Sites Site Name: Gipsy Lane Gravel Pit Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137496 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	A12SE (SW)	404	1	467541 174262
4	BGS Recorded Mineral Sites Site Name: Armour Chalk Pit Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137498 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	A12SE (W)	540	1	467318 174475
5	BGS Recorded Mineral Sites Site Name: Kew Kiln Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137504 Type: Opencast Status: Ceased Operator: Tilehurst Potteries (1922) Ltd Operator Location: Not Supplied Periodic Type: Quaternary Geology: Head Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	551	1	467462 174123
6	BGS Recorded Mineral Sites Site Name: Hill Top Quarry Location: Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 10638 Type: Opencast Status: Ceased Operator: S. & E. Collier Ltd Operator Location: Not Supplied Periodic Type: Palaeocene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	552	1	467649 173979

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	BGS Recorded Mineral Sites Site Name: Norcot Farm Gravel Pit Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 36363 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeocene Geology: Lambeth Group Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	579	1	468199 173995
8	BGS Recorded Mineral Sites Site Name: Armour Gravel Pits Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137502 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	A12NE (W)	588	1	467276 174610
9	BGS Recorded Mineral Sites Site Name: Kew Kiln Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 10637 Type: Opencast Status: Ceased Operator: Tilehurst Potteries (1922) Ltd Operator Location: Not Supplied Periodic Type: Palaeocene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	609	1	467379 174136
10	BGS Recorded Mineral Sites Site Name: Tilehurst Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137638 Type: Opencast Status: Ceased Operator: S. & E. Collier Ltd Operator Location: Not Supplied Periodic Type: Palaeocene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	656	1	467478 173963
11	BGS Recorded Mineral Sites Site Name: Norcot Kiln Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 244198 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Head Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SE (S)	701	1	467915 173780
11	BGS Recorded Mineral Sites Site Name: Norcot Kiln Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 244198 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Thanetian - Ypresian Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SE (S)	701	1	467915 173780

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	BGS Recorded Mineral Sites Site Name: Armour Gravel Pits Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137500 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	A12NW (W)	702	1	467171 174667
13	BGS Recorded Mineral Sites Site Name: Norcot Kiln Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 36367 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeocene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SE (S)	725	1	468090 173785
14	BGS Recorded Mineral Sites Site Name: Armour Gravel Pits Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137499 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	A12NW (W)	743	1	467119 174611
15	BGS Recorded Mineral Sites Site Name: Kew Kiln Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137503 Type: Opencast Status: Ceased Operator: Tilehurst Potteries (1922) Ltd Operator Location: Not Supplied Periodic Type: Quaternary Geology: Head Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	748	1	467311 173997
16	BGS Recorded Mineral Sites Site Name: Norcot Kiln Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 36368 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeogene Geology: London Clay Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SE (S)	750	1	468030 173745
17	BGS Recorded Mineral Sites Site Name: Armour Gravel Pits Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137501 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	A12NW (W)	762	1	467116 174696

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
18	BGS Recorded Mineral Sites Site Name: Norcot Kiln Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 244197 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Head Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SE (S)	802	1	467944 173680
19	BGS Recorded Mineral Sites Site Name: Lucas'S Farm Chalk Pit Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 137490 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	A12NW (W)	932	1	466965 174788
20	BGS Recorded Mineral Sites Site Name: Penham'S Shaw Gravel Pit Location: Tilehurst, Reading, Berkshire Source: British Geological Survey, National Geoscience Information Service Reference: 36364 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeocene Geology: Lambeth Group Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A9SE (SE)	985	1	468596 173802
	Coal Mining Affected Areas In an area which may not be affected by coal mining				
	Man Made Mining Cavities Cavity Type: Bell Pit with Adits/Headings Discovered Commodity: Chalk Solid Geology Detail: Lambeth Group, Upper Chalk Formation Superficial Geology: Worked Ground Detail:	A12SE (SW)	554	2	467400 174200
	Man Made Mining Cavities Cavity Type: Extensive Clay Excavations-Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Lambeth Group, Upper Chalk Formation Superficial Geology: Worked Ground Detail:	A8NW (SW)	557	2	467600 174000
	Man Made Mining Cavities Cavity Type: Extensive Brick and Pottery Works/Clay Excavations-Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Lambeth Group, Upper Chalk Formation Superficial Geology: Worked Ground, Head Gravel, Winter Hill Gravel Detail:	A7NE (SW)	694	2	467300 174100
	Man Made Mining Cavities Cavity Type: Historical Brick and Tile Works-Probable References to Chalk Mining Commodity: Chalk Solid Geology Detail: Lambeth Group, Upper Chalk Formation Superficial Geology: Worked Ground Detail:	A8SE (S)	714	2	468100 173800
	Natural Cavities Cavity Type: Solution Pipe x 3 Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology: No Details Detail:	A12NW (W)	682	2	467200 174700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Natural Cavities Cavity Type: Solution Pipe Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology: Winter Hill Gravel Detail:	A7SE (SW)	780	2	467500 173800
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NE (W)	0	1	467882 174513

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1961	A13SE (S)	209	-	467887 174271
21	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1900	A13SW (S)	224	-	467871 174256
22	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1882	A13NW (NW)	266	-	467625 174647
23	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1882	A12SE (SW)	407	-	467542 174255
24	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1900	A18SW (NW)	513	-	467656 175006
25	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1882	A12SE (W)	549	-	467308 174477
26	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1883	A8NE (SE)	583	-	468193 173987
27	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1914	A12NW (W)	705	-	467168 174667
28	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1914	A12NW (W)	738	-	467126 174619
29	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1882 - 1900	A12NW (W)	888	-	467009 174779
30	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1883	A9SE (SE)	970	-	468585 173812
31	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13SW (S)	224	-	467871 174256
32	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (NW)	266	-	467625 174647
33	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A12SE (SW)	407	-	467542 174255
34	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A8NW (SW)	434	-	467657 174109
35	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1984	A18SW (NW)	513	-	467656 175006
36	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A12SE (W)	549	-	467308 174477
37	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A8NE (SE)	583	-	468193 173987
38	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A8NE (S)	630	-	467992 173860
39	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A12NW (W)	705	-	467168 174667
40	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A12NW (W)	888	-	467009 174779

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
41	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A9SE (SE)	970	-	468585 173812
42	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1900	A9NW (SE)	559	-	468299 174107
43	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1938	A11SE (W)	997	-	466859 174501

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	CBSCB Compensation District The site does not fall within the brine compensation area.				
	Brine Subsidence Solution Area The site does not fall within the brine subsidence solution area.				
44	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (W)	0	1	467882 174513
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (W)	0	1	467882 174513
45	Potential for Ground Dissolution Stability Hazards Hazard Potential: High Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	467878 174510
46	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (W)	0	1	467882 174513
47	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	8	1	467860 174489
48	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	44	1	467852 174447
49	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	56	1	467924 174584
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	93	1	467802 174427
50	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (W)	0	1	467882 174513
51	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	66	1	467821 174446
52	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	146	1	467715 174552
53	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	199	1	467690 174624
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	8	1	467860 174489
54	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (W)	0	1	467882 174513
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	8	1	467860 174489
55	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (W)	0	1	467882 174513
56	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	66	1	467821 174446
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	8	1	467860 174489

The following mapping has been analysed for Historical Land Use Information (1:2,500):

1:2,500	Mapsheet	Published Date
Berkshire	029_14	1878
Berkshire	029_14	1899
Oxfordshire	056_14	1899
Berkshire	029_14	1913
Berkshire	029_14	1936

The following mapping has been analysed for Historical Land Use Information (1:10,000):

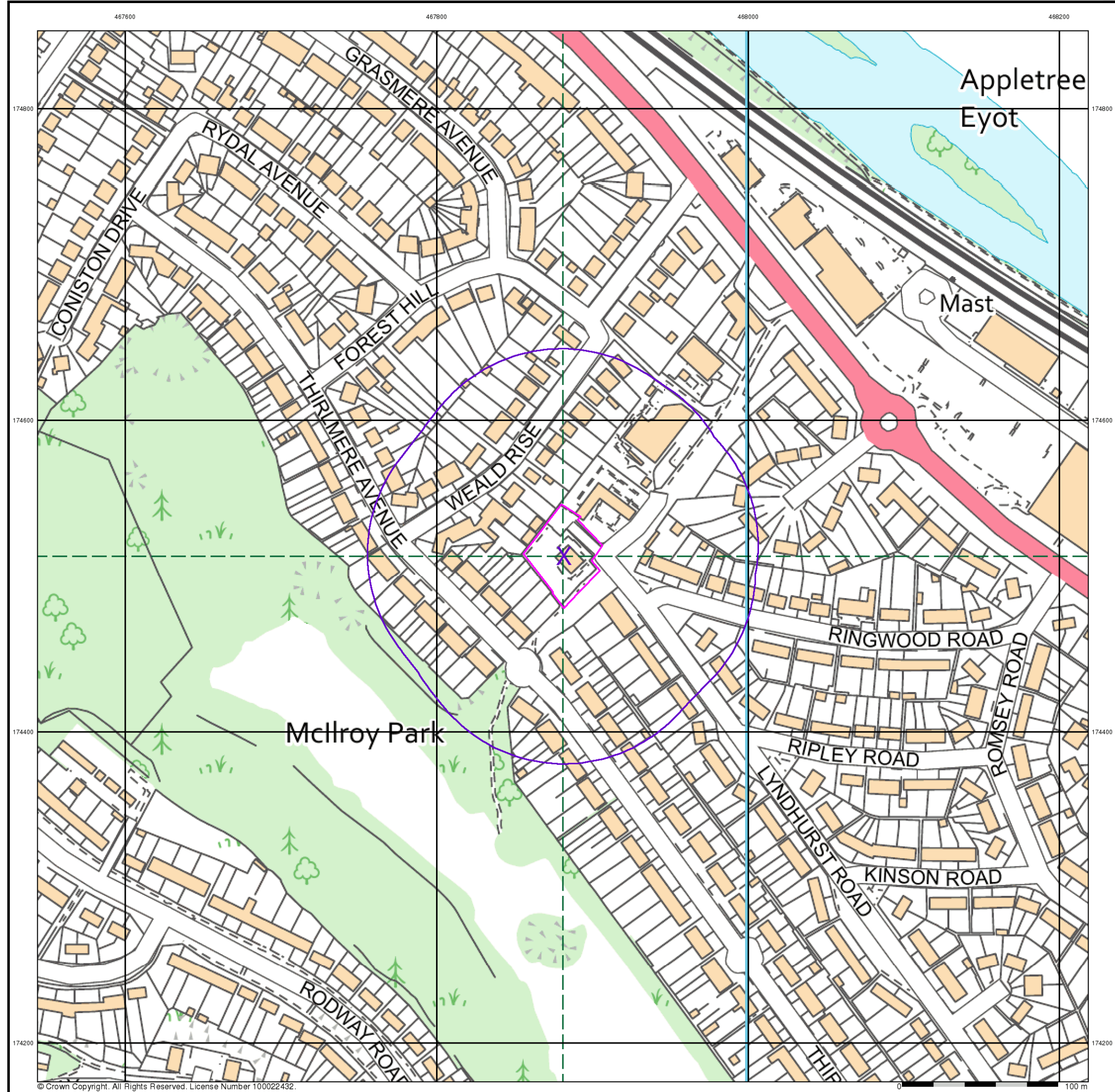
1:10,560	Mapsheet	Published Date
Oxfordshire	056_00	1882
Berkshire	037_00	1883
Berkshire	029_SW	1900
Berkshire	037_NW	1900
Oxfordshire	056_SW	1900
Berkshire	029_SW	1914
Berkshire	037_NW	1914
Oxfordshire	056_SW	1914
Berkshire	037_NW	1932
Berkshire	029_SW	1938
Oxfordshire	056_SW	1938
Ordnance Survey Plan	SU67NE	1960
Ordnance Survey Plan	SU67SE	1961
1:10,000	Mapsheet	Published Date
Ordnance Survey Plan	SU67NE	1984
Ordnance Survey Plan	SU67SE	1992

Mining and Cavities Data	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	June 2020	Bi-Annually
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Man Made Mining Cavities Stantec UK Ltd	December 2019	Bi-Annually
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Natural Cavities Stantec UK Ltd	December 2019	Bi-Annually
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Historical Land Use Information (1:2,500)	Version	Update Cycle
Subterranean Features Landmark Information Group Limited	February 2020	Bi-Annually
Ground Stability Data (1:50,000)	Version	Update Cycle
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	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
Brine Subsidence Solution Area Johnson Poole & Bloomer	January 2015	Annual Rolling Update

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
British Geological Survey	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
The Coal Authority	 The Coal Authority
Ove Arup	
Stantec UK Ltd	
Wardell Armstrong	 wardell armstrong your earth our world
Johnson Poole & Bloomer	

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	Stantec UK Ltd Caversham Bridge House, Waterman Place, Reading, RG1 8DN	Telephone: 0118 950 0761 Email: pba.reading@stantec.com Website: www.stantec.com
-	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



Historical Land Use Information (1:2,500)

General

- Specified Site Specified Buffer(s) Bearing Reference Point Map ID
Several of Type at Location

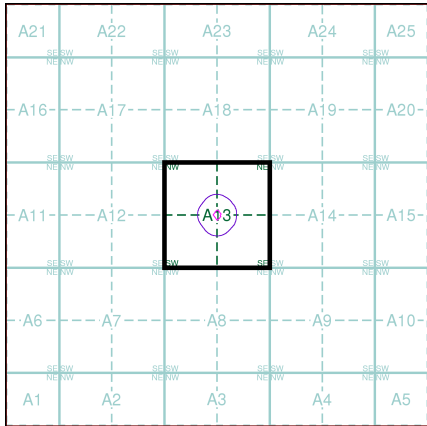
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	■
Extractive Industries Activity from 1893 - 1915	▲	—	■
Extractive Industries Activity from 1906 - 1937	▲	—	■
Extractive Industries Activity from 1924 - 1949	▲	—	■
Extractive Industries Activity from 1950 - 1980	▲	—	■

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	---	■

Mining and Ground Stability - Segment A13



Order Details

Order Number: 254014005_1_1
Customer Ref: P20-069
National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
Plot Buffer (m): 100

Site Details

Norcot Community Centre, Lyndhurst Road, Tilehurst,
READING, RG30 6UB

APPENDIX D

Historical Mapping

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Quarry		Shingle		Orchard
	Osiers		Reeds		Marsh
	Mixed Wood		Deciduous		Brushwood
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	•285 Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		Administrative County, County Borough or County of City
	Municipal Borough, Urban or Rural District, Burgh or District Council		Borough, Burgh or County Constituency
	Civil Parish		
	BP, BS Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Foot Bridge		Signal Box
	Fountain		Spring
	Guide Post		Telephone Call Box
	Mile Post		Telephone Call Post
	Mile Stone		Well

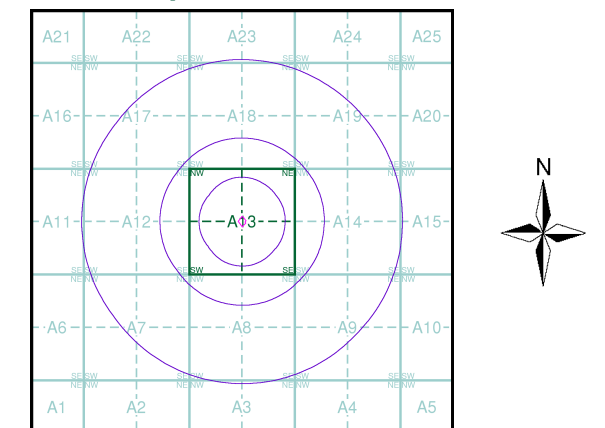
1:10,000 Raster Mapping

	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, parish or community boundary
	District, Unitary, Metropolitan, London Borough boundary		Constituency boundary
	Area of wooded vegetation		Non-coniferous trees
	Non-coniferous trees (scattered)		Coniferous trees
	Coniferous trees (scattered)		Positioned tree
	Orchard		Coppice or Osiers
	Rough Grassland		Heath
	Scrub		Marsh, Salt Marsh or Reeds
	Water feature		Flow arrows
	Mean high water (springs)		Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Oxfordshire	1:10,560	1882	2
Berkshire	1:10,560	1883	3
Berkshire	1:10,560	1900	4
Oxfordshire	1:10,560	1900	5
Berkshire	1:10,560	1901	6
Oxfordshire	1:10,560	1901	7
Berkshire	1:10,560	1914	8
Berkshire	1:10,560	1932	9
Berkshire	1:10,560	1938	10
Ordnance Survey Plan	1:10,000	1960 - 1961	11
Ordnance Survey Plan	1:10,000	1968	12
Ordnance Survey Plan	1:10,000	1970 - 1976	13
Ordnance Survey Plan	1:10,000	1983 - 1984	14
Ordnance Survey Plan	1:10,000	1992	15
10K Raster Mapping	1:10,000	1999	16
Street View	Variable		17

Historical Map - Slice A



Order Details

Order Number: 254014005_1_1
Customer Ref: P20-069
National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Norcot Community Centre, Lyndhurst Road, Tilehurst,
READING, RG30 6UB

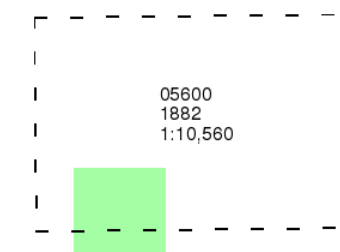
Oxfordshire

Published 1882

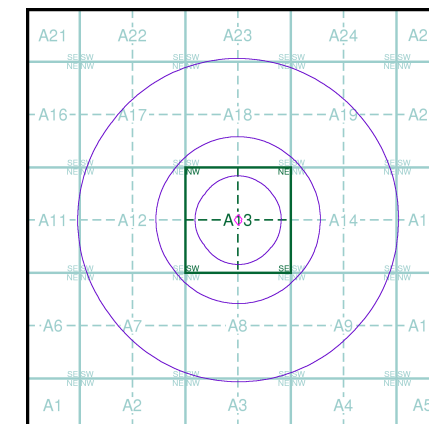
Source map scale - 1:10,560

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; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

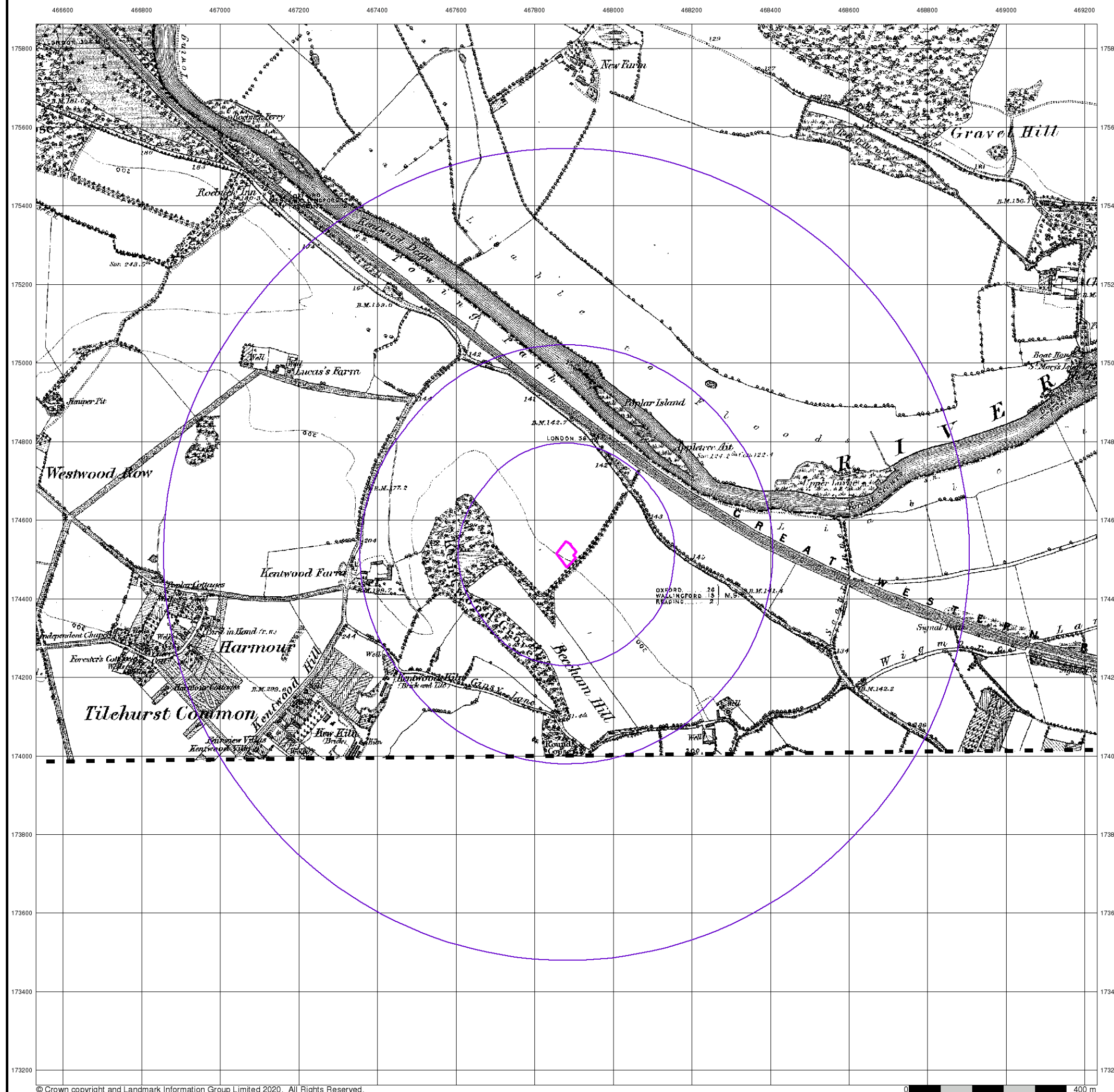


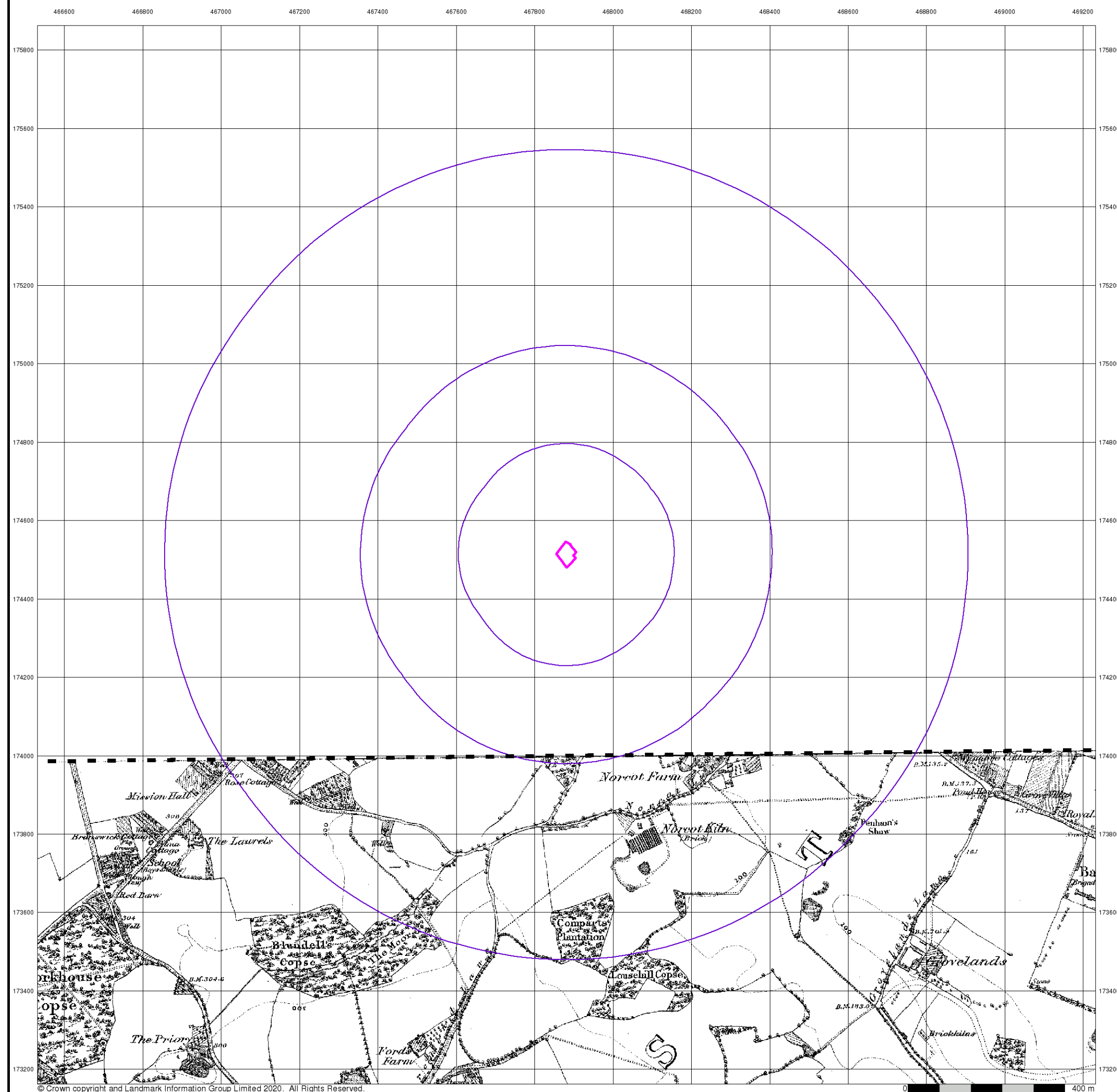
Order Details

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National Grid Reference: 467880, 174510
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Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Norcot Community Centre, Lyndhurst Road, Tilehurst,
READING, RG30 6UB





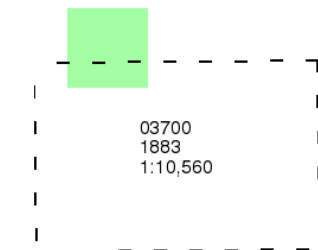
Berkshire

Published 1883

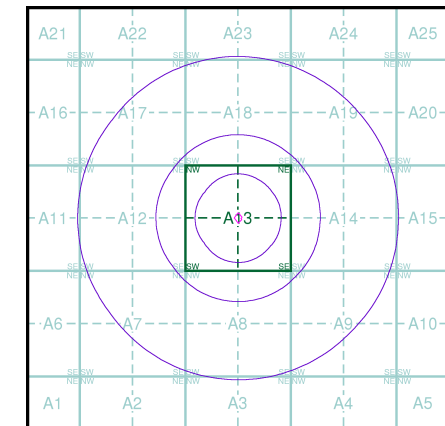
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

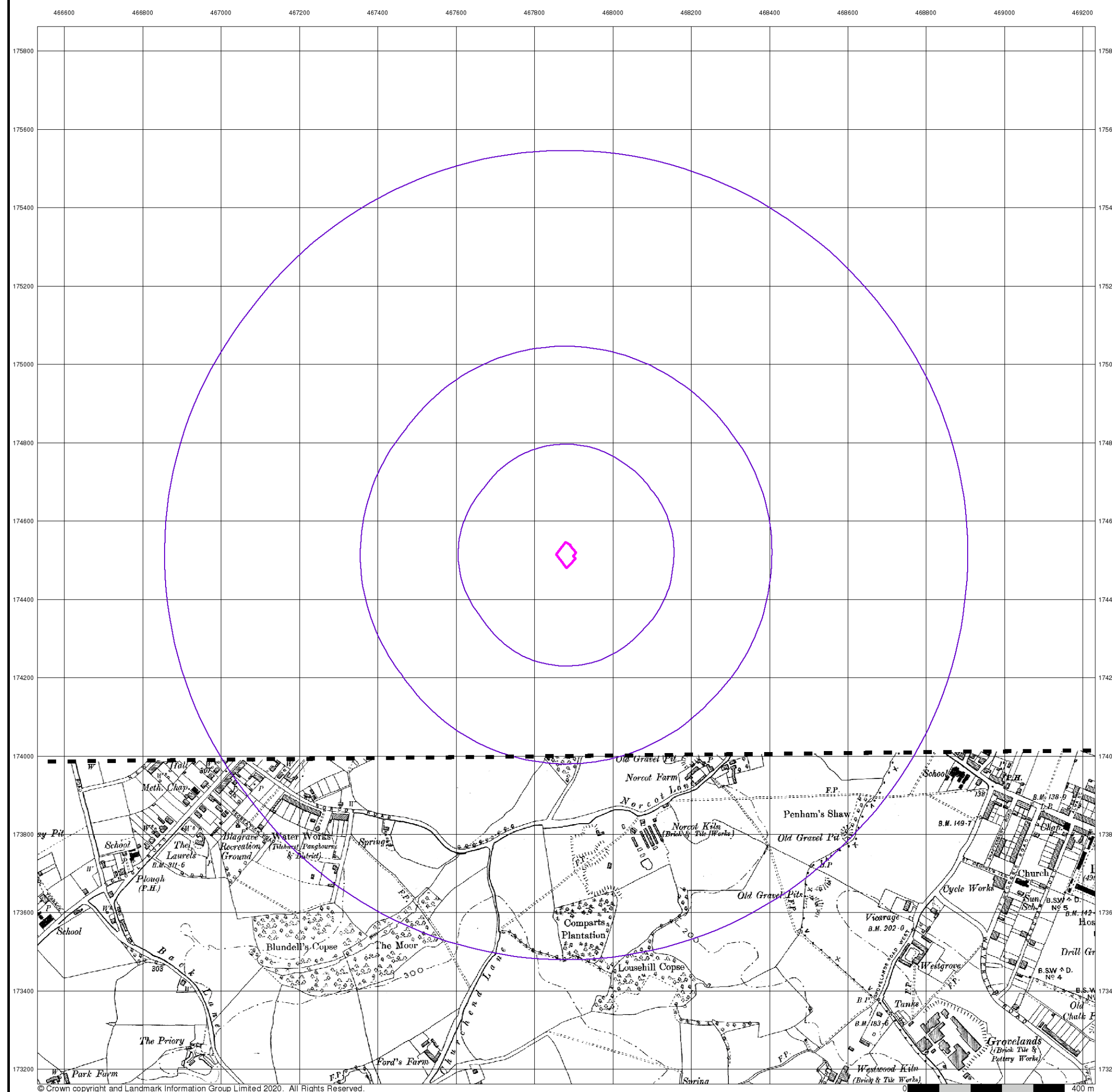
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Customer Ref: P20-069
National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Norcot Community Centre, Lyndhurst Road, Tilehurst,
READING, RG30 6UB

Landmark®
INFORMATION GROUP

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



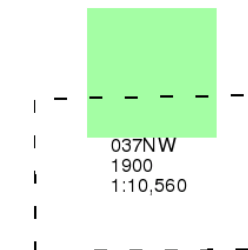
Berkshire

Published 1900

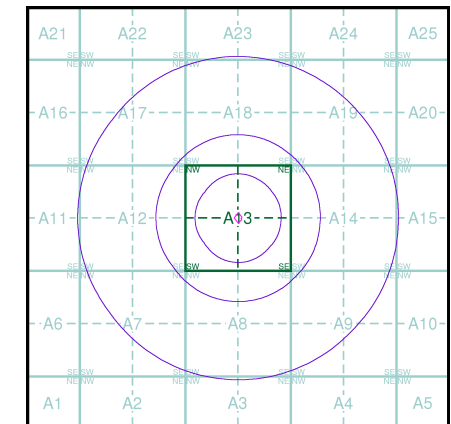
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

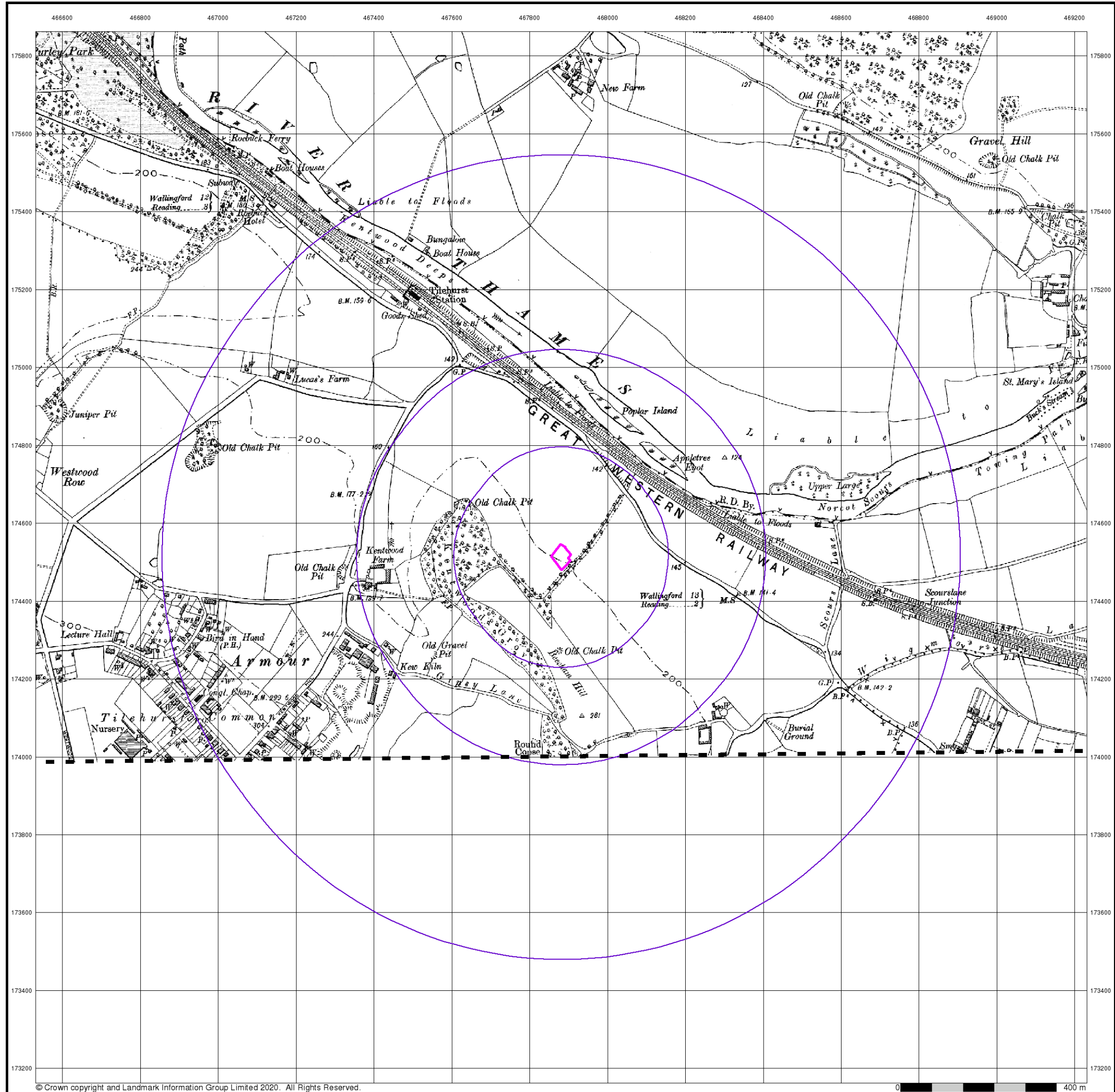
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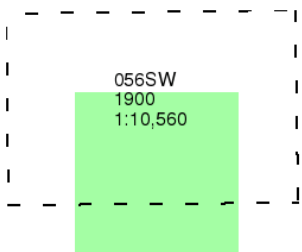
Oxfordshire

Published 1900

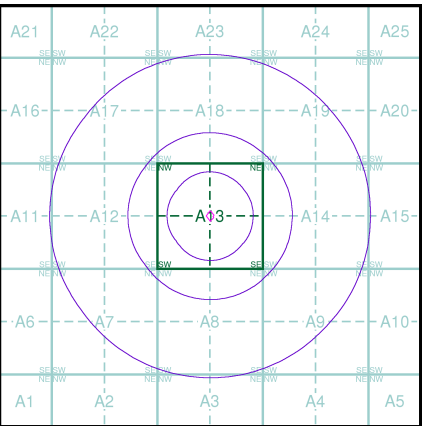
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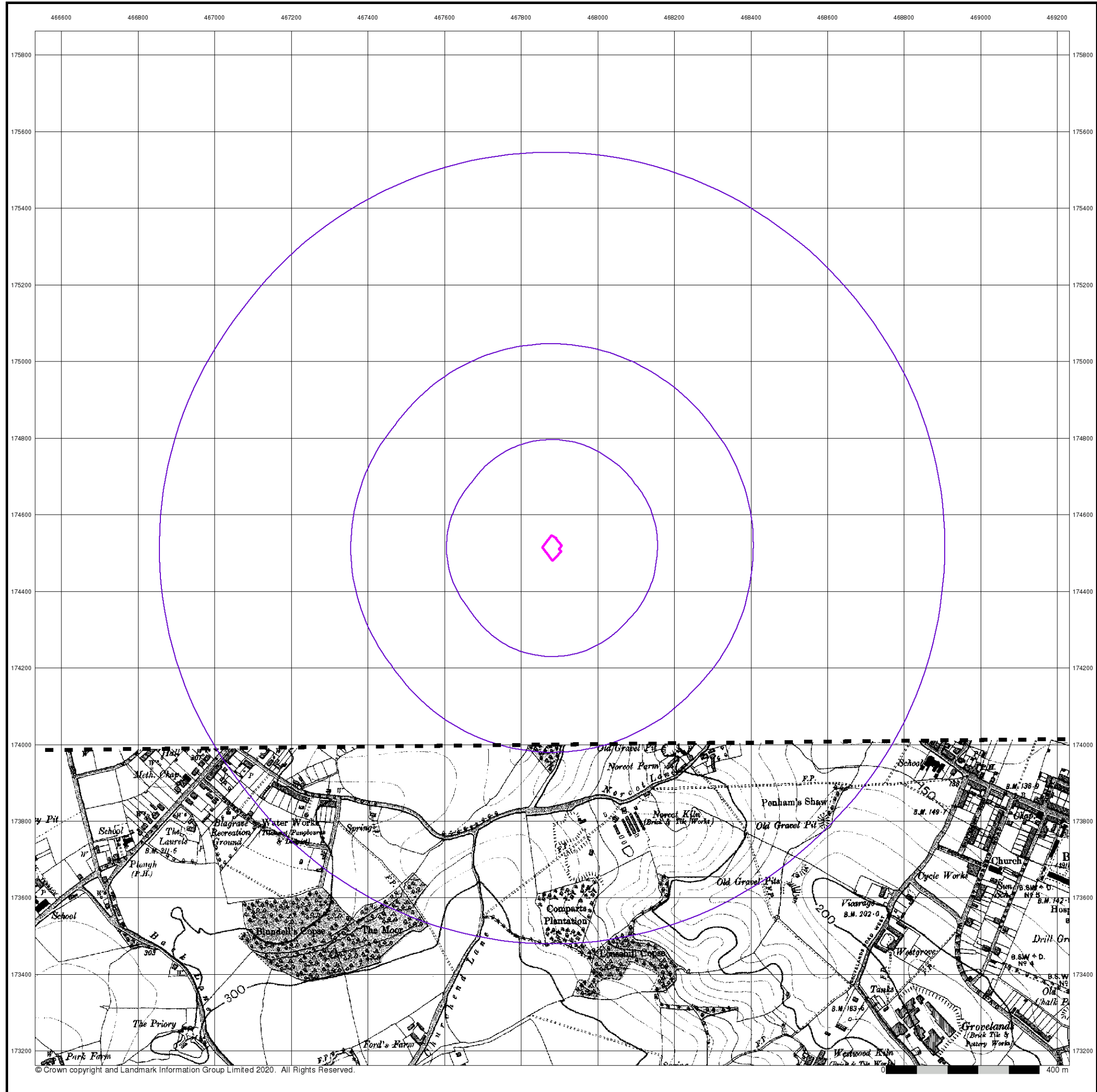


Order Details

Order Number: 254014005_1_1
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Slice: A
Site Area (Ha): 0.19
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READING, RG30 6UB



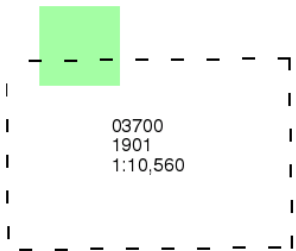
Berkshire

Published 1901

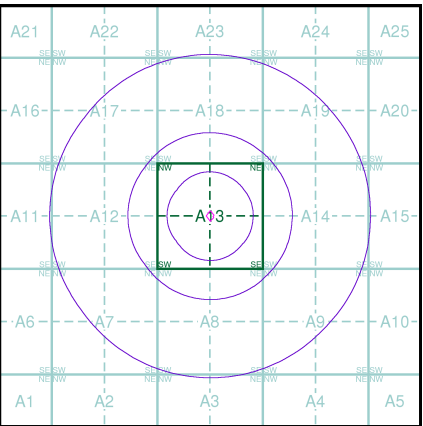
Source map scale - 1:10,560

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; these maps were used to update the 1:10,560 maps. The published date given therefore 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. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 254014005_1_1
Customer Ref: P20-069
National Grid Reference: 467880, 174510
Slice: A
Site Area (Ha): 0.19
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