



PHASE I GEO-ENVIRONMENTAL SITE ASSESSMENT

**300 KINGS ROAD
READING, RG1 4HP**

REC REFERENCE: 1CO105134/P1/R0

REPORT PREPARED FOR: CCL DEVELCO 4 LIMITED

MARCH 2018



National Consultancy, Locally Delivered

A CONCEPT LIFE SCIENCES COMPANY





QUALITY ASSURANCE

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EXECUTIVE SUMMARY

Site Address	300 Kings Road, Reading, RG1 4HP
Grid Reference	472760, 173212
Site Area	0.09ha
Current Site Use	The site comprises of an asphalt car park located next to a 4no. storey office building which is currently being converted into 87no. residential flats.
Proposed Use	REC understands that the proposed development is the construction for four storey residential development with undercroft car parking and soft landscaping.
Environmental Setting	▶ Site is underlain by Taplow Gravel Member (Secondary A Aquifer) and Seaford Chalk Formation (Principal Aquifer); ▶ Very significant soluble rocks present with a high possibility of localised subsidence; ▶ Site is located within a Groundwater Source Protection Zone 3 (SPZ); ▶ The nearest surface water feature is located 284m north west of the site; and, ▶ Site is not located within an Environment Agency Floodplain and has a very low Risk of Flooding from Rivers and the Sea (RoFRaS).
Site History	The site has mainly comprised of residential dwellings until circa 1982. From 1982 the site has been a car park for the adjacent building.
Initial Conceptual Site Model (CSM)	On-site ▶ Made Ground associated with historical re-development on site. Off-site ▶ Nursery (located 21m north east); and, ▶ Kings Road Filling Station (106m north west).
Conclusions and Recommendations	It is recommended that a Phase II intrusive investigation is undertaken to assess the contamination linkages identified within the Conceptual Site Model (CSM).





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1.0 INTRODUCTION

1.1 Background

Resource and Environmental Consultants Ltd (REC) has been commissioned by Titan Property Developments Ltd, on behalf of CCL Develco 4 Limited, herein referred to as 'the Client', to undertake a Phase I Geo-Environmental Site Assessment at 300 Kings Road, Reading, RG1 4HP 'the site'.

1.2 Proposed Development

REC understands that the proposed development comprises the construction of a four storey residential development with partial undercroft car parking and soft landscaping. A proposed development plan is included within Appendix III (ref: 1CO105134-002).

1.3 Objectives

The objectives of the desk based study are to:

- ▶ Undertake a site walkover to identify any current areas of potential environmental concern in order to establish the source, pathway, receptor conceptual site model (CSM);
- ▶ Review historical plans, geology, hydrogeology, site sensitivity, flood-plain issues, mining records and any local authority information available in order to complete a Phase I Desk Study in line with Environment Agency (EA) document Model Procedures for the Management of Contaminated Land (Contaminated Land Report 11 (CLR11));
- ▶ Assess the implications of any potential environmental risks, liabilities, and development constraints associated with the site in relation to the future use of the site and in relation to potential off-site receptors;
- ▶ Provide preliminary recommendations on any potential development issues; and,
- ▶ Provide recommendations regarding future works required.

1.4 Sources of Information

Background information was sought from the following sources:

- ▶ Groundsure database search (reports GS-4776342 & GS-4776343);
- ▶ Historical mapping dated 1872 to 2014. A selection of historical map excerpts are reproduced in Section 3.1 and Appendix V;
- ▶ Online planning records held by Reading Borough Council;
- ▶ Environment Agency Groundwater Vulnerability Map (www.environment-agency.gov.uk/wiyby);
- ▶ Radon: Guidance on protective measures for new buildings (BRE Document BR 211, 2015) and HPA Indicative Radon Atlas for England and Wales); and,





► British Geological Survey Online Mapping (<http://www.bgs.ac.uk>).

1.5 Risk Classification

REC Ltd has utilised the available data to classify the site on the basis of its likely contaminated land liability and potential for geotechnical constraints in relation to the property development. The risk classification definitions are summarised below:

Table 1.1 Summary of Risk Classification

Risk	Definition
Low	There are unlikely to be significant contaminated land liabilities/geotechnical constraints associated with the property.
Low-Moderate	There are unlikely to be significant contaminated land liabilities/geotechnical constraints associated with the property with regard to the proposed use. However, minor issues may require further consideration in the event of a future redevelopment of the site etc.
Moderate	Some potential contaminated land liabilities/geotechnical constraints are likely to affect the property as a result of historical and/or current activities. The risks identified are unlikely to pose an immediate significant issue but the purchaser/developer may wish to make further enquiries of the vendor or undertake further environmental improvements. Redevelopment of the site will likely require further site investigation.
Moderate-High	Some potentially significant contaminated land liabilities/geotechnical constraints have been identified at the property that requires further assessment including intrusive ground investigations.
High	Significant potential contaminated land liabilities/geotechnical constraints have been identified at the property. Further assessment including intrusive ground investigation will be required to determine to level of risk and associated liability.

1.6 Limitations of the Study

The full limitations of this report are presented in Appendix I.

1.7 Confidentiality

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





2.0 SITE SETTING

2.1 Site Details

Table 2.1 Site Details

Site Address	300 Kings Road, Reading, RG1 4HP
National Grid Reference	472760, 173212
Site Area	0.09ha

A site location plan is presented in Appendix III as Drawing No. 1CO105134-001.

2.2 Current Site Use

Site Walkover Brief

A site walkover was undertaken on 12th March 2018 and the following site description comprises the site layout and features based on the REC Engineer's observations at the time. Selected photographs from the site walkover are presented in Appendix IV.

The subject site was irregularly shaped and generally flat, within a predominantly residential area. The site comprised an asphalt car park located next to a 4no. storey office building undergoing refurbishment into 87no. residential flats. The site was surrounded by wooden hoarding and was used for waste storage for the office conversion.

Access to the site was via the construction site adjacent to the site from Muirfield Close to the south.

Hazardous Materials Storage

No Above Ground Storage Tanks (ASTs) or Underground Storage Tanks (USTs) were observed on the site.

Polychlorinated Biphenyls (PCBs)

No electricity substations were observed on site.

Asbestos Containing Material (ACM)

No evidence of Asbestos Contaminating Materials were identified during the walkover.

Waste Storage

Two large temporary waste storage containers are located within the site boundary associated with the adjacent construction site.





2.3 Surrounding Area

The surrounding land uses are summarised below:

Table 2.2 **Summary of Land use**

Direction	Land Use
North	Kings Road
East	Construction site and residential dwellings
South	Muirfield Close and residential dwellings
West	Residential dwellings



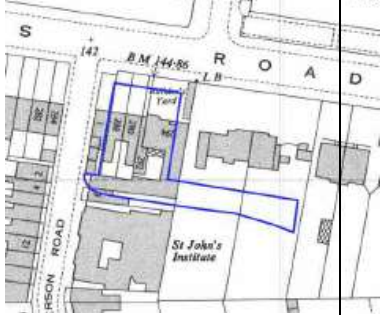
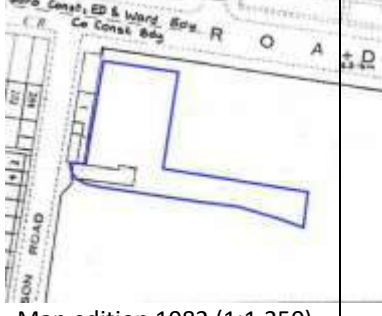


3.0 SITE HISTORY

3.1 Historical Maps

A review of historical maps pertinent to the site is summarised in Table 3.1 below:

Table 3.1 Summary of Potentially Contaminative Historical Land Uses

Map Edition	Historical Land Use	Historical map excerpt
1879 - 1900 (1:500, 1:2,500 & 1:10,560)	Three terrace buildings are located in the west of the site with residential gardens in the remainder. Residential dwellings surround the site with a King's Road adjacent to the north of the site and a park beyond. Additionally Berkshire Brewery is 90m west.	 Map edition 1879 (1:2,500)
1900 - 1956 (1:2,500 & 1:10,560)	From 1900 a fourth terrace house has been constructed adjoining the existing buildings with a building also along part of the southern boundary. By 1931 the building in the south reaches to the south western corner of the site. A nursery is located 20m north east, shown as allotment gardens from 1932.	 Map edition 1900 (1:2,500)
1956 - 1982 (1:1,250, 1:2,500, 1:10,560 & 1:10,000)	Between 1956 and 1966, the fourth terrace house appears to have been converted into a builder's yard. A builders yard is also shown 70m south west, similarly until 1966. Reading Technical College is located 100m north west.	 Map edition 1957 (1:1,250)
1982 - 1985 (1:1,250, 1:2,500 & 1:10,000)	From 1982 the majority of the buildings have been demolished, with the exception of the building in the south of the site. By 1983 the building along the south of the site has been demolished and the site is shown as open space. Reading Technical College has expanded; no other major changes have taken place within the surrounding area.	 Map edition 1982 (1:1,250)



Map Edition	Historical Land Use	Historical map excerpt
1985 - Present (1:1,250, 1:2,500, 1:10,560 & 1:10,000)	The site is shown in its current configuration. No significant changes are present within the surrounding area, and largely remains unchanged to the present day.	 Map edition 1985 (1:1,250)

3.2 Historical Database

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

Table 3.2 Summary of Potentially Contaminative Historical Land Uses

Surrounding Feature	Distance (m)	Dates	Direction
Electricity Substation*	11-17	1986-1996	SE
Nursery	21	1898	NE
Tanks	123-132	1980-1996	NW
Garage	162	1966-1996	W
Smithy	223-230	1898-1913	NW

*nearest substation only listed.

3.3 Planning History

REC has undertaken a review of online planning records held by Reading Borough Council which identified no environmentally pertinent information.





4.0 ENVIRONMENTAL SETTING

4.1 Geology & Hydrogeology

The British Geological Survey (BGS) memoirs with respect to the site area indicates that the site is underlain by the following geological sequence:

Table 4.1 Summary of Geological Information

Classification	Geological unit	Description	Aquifer Classification	Permeability	Sensitivity
Superficial	Taplow Gravel Member	Sand and Gravel	Secondary A	High – Very High	Low
Bedrock	Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated)	Chalk	Principal	Very High	Moderate

The site is underlain by superficial deposits of the Taplow Gravel Member comprising Sand and Gravel, with the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated) at depth. The Kempton Park Gravel Member comprising Sand and Gravel is identified 37m to the north and may also be present on site.

A historical borehole is located on the site (SU77SW884) which indicates Made Ground to a depth of 1.30mbgl overlying the Gravel to a depth of 3.90mbgl overlying Chalk to the base of the borehole at 10.00mbgl. Groundwater was encountered at a depth of 7.70mbgl.

The data search report indicates that there are 3 no. groundwater abstraction licences within 1km of the site with the closest located 375m north at Kenavon Drive for pollution remediation; this is listed as historical. The nearest active potable abstraction licence is 527m south west at the Royal Berkshire Hospital for drinking, cooking, sanitary and washing. In addition, the site lies within a groundwater Source Protection Zone 3 (Total Catchment) and 26m north west of a Source Protection Zone 2 (Outer Catchment).

The surface soil on site is classified as having a high leaching potential; soils that readily transmit liquid directly to rock, gravel or groundwater.

4.2 Geotechnical Data

Geotechnical data presented within the data search identifies ground conditions relating to natural ground subsidence summarised in Table 4.2 overleaf.



Table 4.2 Summary of Data Search Geotechnical Information

Hazard	Designation	Comments
Shrink-Swell Clay	Negligible	Ground conditions are predominantly non-plastic.
Landslides	Very Low	Slope instability problems are unlikely to be present. No special actions required.
Ground Dissolution	High	Very significant soluble rocks present with a high possibility of localised subsidence occurring naturally or in adverse conditions such as high surface or subsurface water flow. Obtain specialist advice to advise on need for stabilisation work and/or land management plan to maintain stability. This relates to the Chalk bedrock underlying the Taplow Gravel on site.
Compressible Ground	Negligible	No indicators for compressible deposits identified.
Collapsible Deposits	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
Running Sand	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water.

It should be noted that this data is qualitative and based on anticipated ground conditions only and not on any other topographical information such as trees.

4.3 Mining and Ground Workings

The site is not affected by coal mining and therefore no Coal Authority Coal Mining Report was obtained for the purposes of this report. No ground workings were identified within 250m radius of the site. Due to the presence of Chalk underlying the site, it is possible that localised small scaled underground mining may have occurred; however, this is unlikely to pose a significant risk to the site.

4.4 Railways and Tunnels

No historical or active railways or tunnels are located within 250m of the site.

4.5 Hydrology

The nearest surface water feature is the Kennet and Avon Canal located 284m north west of the site.

There are no surface water abstractions within a 1km radius of the site.

The site is not located within an Environment Agency Floodplain Zone and has a very low risk of flooding from rivers and the sea (RoFRaS). However, the site is within 50m of groundwater flooding susceptibility area relating to clearwater flooding.

4.6 Radon Risk Potential

The site is not situated within a radon affected area as less than 1% of properties are above the action level, and therefore no radon protective measures are necessary in the construction of new





buildings.

4.7 Industrial Land Uses

Available records identify the following potentially contaminative current industrial land uses within 250m of the site:

Table 4.3 Current Industrial Land Uses within 250m of site

Company	Activity	Distance (m)	Direction
Electricity Substation*	Electrical Features	25	SE
Kings Road Filling Station	Petrol and Fuel Site	106	NW
Berkshire Recovery & Breakdown	Scrap Metal Merchants	216	N

**nearest substation only listed*

4.8 Sensitive Land Uses

Two records of nitrate vulnerable zones are within 1km of the site with the closest located 574m north. No other sensitive land uses were identified.

4.9 Site Sensitivity Assessment

The site is considered to be located within a **low to moderate** sensitivity setting due to the following reasons:

- ▶ The underlying solid geologies are classified as Secondary A and Principal Aquifers;
- ▶ Site is underlain by very significant soluble rocks with a high possibility of localised subsidence;
- ▶ The site is located within groundwater Source Protection Zone 3 total catchment; and,
- ▶ Site is located within close proximity to residential properties.





5.0 CONSULTATIONS

5.1 Contaminated Land Officer

A request for information pertaining to the site was sent to the Contaminated Land Team at Reading Borough Council. However, further discussions indicated that the information provided Reading Borough Council would have been a duplication of the information gained from the data search and was therefore not obtained.

5.2 Landfill Sites and Waste Treatment Sites

A review of available information indicates that there are two records of landfill sites within a 1km radius of the site. The details of these records are shown in Table 5.1 below.

Table 5.1 Landfill and waste treatment sites

Site	Waste Type	Distance (m)	Direction	Details
Napier Road, Reading	Inert & Industrial	632	N	Environment Agency historical landfill
Deans Farm, Caversham	Unknown	828 - 875	NE	Environment Agency licensed waste site

Neither of the landfill sites identified in Table 5.1 are considered to pose a risk to the site due to the presence of the River Thames which would hinder the migration of contaminants to the site.

5.3 Regulatory Database

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

Table 5.2 Summary of Data Search Regulatory Data

Activity	0 - 249m	250 - 500m	Details
Licensed Discharge Consents	2	4	The nearest active discharge consent is located 277m north at Blakes Lock for sewage discharges.
Pollutant Incidents	0	5	The nearest pollutant incident occurred on 19/03/2002, 294m north. The pollutant involved was oils and fuels. No impact was recorded to land or air, however a category 3 (minor) impact was recorded to water.
Records of planning hazardous substance consents	0	4	The nearest record is located 351m south west at the Royal Berkshire Hospital for the storage of liquid oxygen and bottled gas.
Records of Category 3 or 4 Radioactive Substances	0	10	All radioactive substance licences relate to the Royal Berkshire NHS located 355m south west.
Record of Part A and Part B Activities and Enforcements	1	3	The nearest current Part B permit is located 428m south east at A to Z Cleaners for Dry Cleaning.
Records of NIHHS	0	1	A single record is located 441m north at BG Plc.





6.0 CONCEPTUAL SITE MODEL (CSM)

6.1 Initial CSM

In accordance with Environment Agency, CLR 11 (2004) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), REC Ltd has developed an initial CSM to identify potential contamination sources, migration pathways and receptors within the study area.

6.2 Contaminant Sources

On-site Potential Sources

Made Ground associated with historical re-development on site has been identified as a potential source of contamination.

Off-site Potential Sources

The following off-site potential sources of contamination have been identified:

- ▶ Electricity Substation (nearest located 11m south east);
- ▶ Nursery (located 21m north east);
- ▶ Kings Road Filling Station (located 106m north west);
- ▶ Unspecified historical tanks (nearest located 123m north west);
- ▶ Garage (nearest located 162m west);
- ▶ Berkshire Recovery & Breakdown Scrap Metal Merchants (located 216m north); and,
- ▶ Historical Smithy (nearest located 223m north west).

6.3 Potential Pathways

Receptors may be potentially at risk from the identified potential sources of contamination via the following pathways:

- ▶ Migration of mobile contaminants on or off site via services, sewers and manmade conduits;
- ▶ Direct contact, ingestion and inhalation of contaminants on site;
- ▶ Migration of contaminated dusts during refurbishment;
- ▶ Migration of mobile contaminants into groundwater and transport into surface waters;
- ▶ Migration of hazardous gases; and,
- ▶ Uptake of toxins/phytotoxins by plants.





6.4 Potential Receptors

Human Receptors

REC has identified the following potential receptors:

- ▶ Future users of the site and buildings; and,
- ▶ Users of adjacent areas due to off-site migration of vapours or contaminated dust.

Construction workers are not considered to be a plausible receptor as exposure will be managed through the use of appropriate PPE and hygienic working practices, as required under HSE/ CDM regulations. Furthermore exposure is likely to be for a short duration.

Controlled Waters

- ▶ Secondary A aquifer contained within the Taplow Gravel Member;
- ▶ Principal Aquifer contained within the underlying Seaford Chalk Formation; and,
- ▶ Surface water feature located 284m north west of site.

6.5 Risk Assessment

CIRIA 552: Contaminated Land Risk Assessment 'A Guide to Good Practice' provides guidance on risk assessment taking into account factors such as severity of the potential harm that may arise from a successful pollutant linkage, potential magnitude of the hazard, and the sensitivity of the target receptor. Risk assessment is initially assessed by determining the severity of the potential hazard, which takes into account receptor sensitivity and the magnitude of the potential impact as detailed in Tables 6.1 & 6.2 below.

6.5.1 Severity

Table 6.1 Receptor sensitivity

Category	Human sensitivity	Environmental sensitivity
Very Low	Ground workers	Non-sensitive water course
Low	Commercial / Industrial	Secondary Aquifer
Moderate	Residential without plant uptake	Principal Aquifer / Sensitive Watercourse
High	Residential with plant uptake	Groundwater Source Protection Zone

Table 6.2 Magnitude of Impact

Category	Example
No Impact	No identified or potential pollutants present / Greenfield site
Slight Impact	Minor leaks and spills from fuel infrastructure, inert landfills / Residential, retail or Offices
Moderate Impact	Major leaks and spills from fuel infrastructure / Railways, Collieries, Scrapyards
Gross Impact	Heavily contaminated industrial sites, hazardous landfills / Gas works, Chemical Works

Severity is subsequently assessed considering the potential receptor and magnitude of impact as





outlined within Table 6.3 below.

Table 6.3 Determination of level of severity for potential hazards

	Receptor Sensitivity			
	Very Low	Low	Moderate	High
No Impact	Minor	Minor	Minor	Minor
Slight Impact	Minor	Minor	Minor	Mild
Moderate Impact	Minor	Minor	Mild	Medium
Gross Impact	Minor	Mild	Medium	Severe

6.5.2 Likelihood

The likelihood of an event is assessed while considering the potential for presence of a contaminant, presence of receptor, and the substantiality of the pollutant pathway. Likelihood is broken down into four separate categories within the CSM as shown in Table 6.4 below:

Table 6.4 Definitions of likelihood categories

Category	Definition
Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable.
Low Likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term.
High Likelihood	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor.

6.5.3 Risk Rating

Table 6.5 demonstrates the methodology used to provide an overall risk rating within the preliminary CSM with respect to any potential sources of contamination that may affect the site. An overall risk rating is assigned to each potential contaminant considering the assessed likelihood and severity as determined using the methodologies within Tables 6.1 to 6.4.

Table 6.5 Level of risk rating for hazard definition

	Severity			
	Minor	Mild	Medium	Severe
Unlikely	Very Low	Very Low	Low	Low / Moderate
Low Likelihood	Very Low	Low	Low / Moderate	Moderate
Likely	Low	Low / Moderate	Moderate	High
High Likelihood	Low / Moderate	Moderate	High	Very High

6.6 Conceptual Site Model

A site specific CSM has therefore been created using the above information and is provided on the





following page:





Table 6.6 Conceptual Site Model (CSM) Table

Source	Contaminant	Potential migration pathway	Potential Receptors	Likelihood of Occurrence	Severity	Overall Risk Rating	Active / Inactive
On-Site							
Made Ground associated with historical development of the site	Heavy Metals	Ingestion of soils Dermal contact with soils	Future site users	Likely	Minor	Low	Potentially Active – Further investigation recommended
			Controlled waters		Mild	Low/ Moderate	
	Asbestos Fibres In Soil	Inhalation of fibres	Future site users	Low Likelihood	Severe	Moderate	
	Total Petroleum Hydrocarbons (TPH)	Ingestion of soils Dermal contact with soils Inhalation of ground gases	Future site users	Likely	Minor	Low	
			Controlled waters		Mild	Low/ Moderate	
	Polycyclic Aromatic Hydrocarbons (PAH)	Ingestion of soils Dermal contact with soils Inhalation of ground gases	Future site users		Minor	Low	
			Controlled waters		Mild	Low/ Moderate	
	Ground Gas	Inhalation of ground gases	Future site users		Minor	Low	
Off-Site							
Electricity Substation (11m south east)	PCBs	Vertical and lateral migration	Future Site Users	Low likelihood	Minor	Very Low	Inactive – due to the relatively poor mobility of PCB contaminants within ground, it is unlikely that PCBs would have migrated to the site and pose a significant risk to receptors
			Control waters		Mild	Low	
Nursery (21m north east)	Heavy Metals, TPH & PAH	Vertical and lateral migration	Future Site Users	Likely	Minor	Low	Potentially Active – Further investigation recommended



			Controlled waters		Mild	Low/ Moderate	
Kings Road Filling Station (106m north west)	Heavy Metals, TPH & PAH	Vertical and lateral migration	Future site users	Likely	Minor	Low	Potentially Active – Further investigation recommended
			Controlled waters		Mild	Low/ Moderate	
Tanks (123m north west)	Heavy Metals, TPH, PAH and	Vertical and lateral migration	Future site users	Low likelihood	Minor	Very Low	Inactive - Given the distance of the tanks it is unlikely that any contaminants would migrate onto the site
			Controlled waters		Mild	Low	
Garage (162m west)	Heavy Metals, TPH & PAH	Vertical and lateral migration	Future Site Users	Low likelihood	Minor	Very Low	Inactive - Given the distance of the garage it is unlikely that any contaminants would migrate onto the site
			Controlled waters		Mild	Low	
Berkshire Recovery & Breakdown (216m north)	Heavy Metals, TPH & PAH	Vertical and lateral migration	Future Site Users	Low likelihood	Minor	Very Low	Inactive - Given the distance of the scrap metal merchants it is unlikely that any contaminants would migrate onto the site
			Controlled waters		Mild	Low	
Historical Smithy (223m north west)	Heavy Metals, TPH & PAH	Vertical and lateral migration	Future Site Users	Low likelihood	Minor	Very Low	Inactive - Given the distance of the smithy it is unlikely that any contaminants would migrate onto the site
			Controlled waters		Mild	Low	

Note: PAH- Polycyclic Aromatic Hydrocarbon, TPH –Total Petroleum Hydrocarbon



7.0 CONCLUSIONS & RECOMMENDATIONS

7.1.1 Human Health

Given the proposed development of residential dwellings with private gardens, the risk posed to human health (future users) from **on-site** source is considered to be **Low to Moderate**, whilst risk posed by various **off-site** sources is considered to be **Low to Low/Moderate**.

7.1.2 Controlled Waters

Given that the site is underlain by Secondary A and Principal Aquifers, and located within a ground Source Protection Zone 3, risk posed to controlled waters is considered to be **Low to Moderate**.

7.1.3 Overall Environmental Risk Assessment

Overall, the preliminary risk classification of the site in relation to the proposed conversion is considered to be **Low to Moderate**.





8.0 RECOMMENDATIONS

It is recommended that a Phase II intrusive site investigation is undertaken to assess the contamination linkages identified within the Conceptual Site Model (CSM). Particular consideration should be taken to investigating the potential sources of contamination on and off site including the Made Ground associated with historical development, nursey and Kings Road Filling Station.





Phase I Geo-Environmental Site Assessment
300 Kings Road
March 2018
1CO105134/P1/R0

APPENDIX I LIMITATIONS

APPENDIX I LIMITATIONS





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





APPENDIX II

GLOSSARY





TERMS

AST	Above Ground Storage Tank
BGS	British Geological Survey
BSI	British Standards Institute
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CIEH	Chartered Institute of Environmental Health
CIRIA	Construction Industry Research Association
CLEA	Contaminated Land Exposure Assessment
CSM	Conceptual Site Model
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)
DWS	Drinking Water Standard
EA	Environment Agency
EQS	Environmental Quality Standard
GAC	General Assessment Criteria
GL	Ground Level
GSV	Gas Screening Value
HCV	Health Criteria Value
ICSM	Initial Conceptual Site Model
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)
ND	Not Detected
LMRL	Lower Method Reporting Limit
NR	Not Recorded
PAH	Poly Aromatic Hydrocarbon
PCB	Poly-Chlorinated Biphenyl
PID	Photo Ionisation Detector
QA	Quality Assurance
SGV	Soil Guideline Value
SPH	Separate Phase Hydrocarbon
Sp.TPH (CWG)	Total Petroleum Hydrocarbon (Criteria Working Group)
SPT	Standard Penetration Test
SVOC	Semi Volatile Organic Compound
UST	Underground Storage Tank
VCCs	Vibro Concrete Columns
VOC	Volatile Organic Compound
WTE	Water Table Elevation





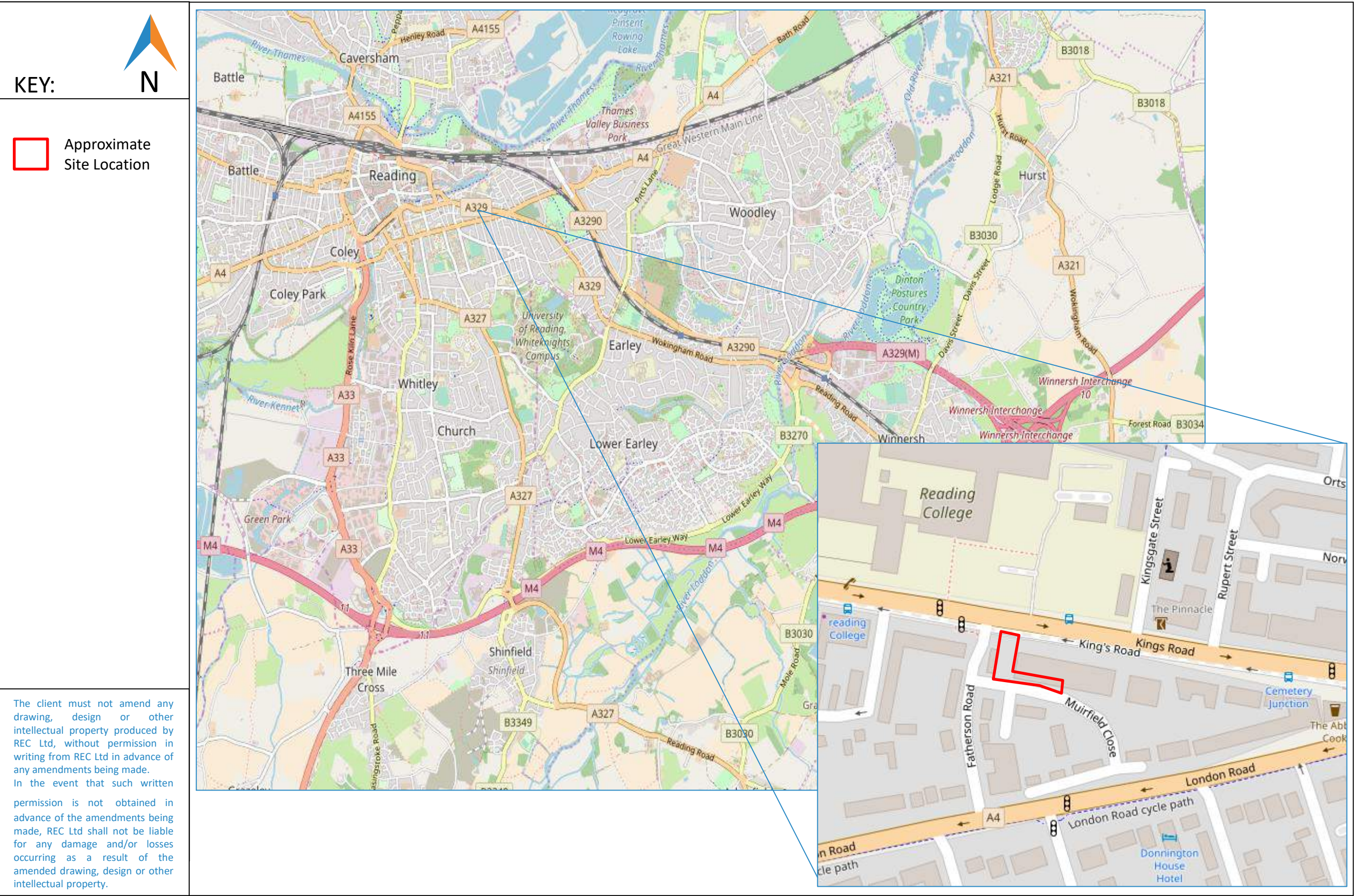
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March 2018
1CO105134/P1/R0

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APPENDIX III

DRAWINGS





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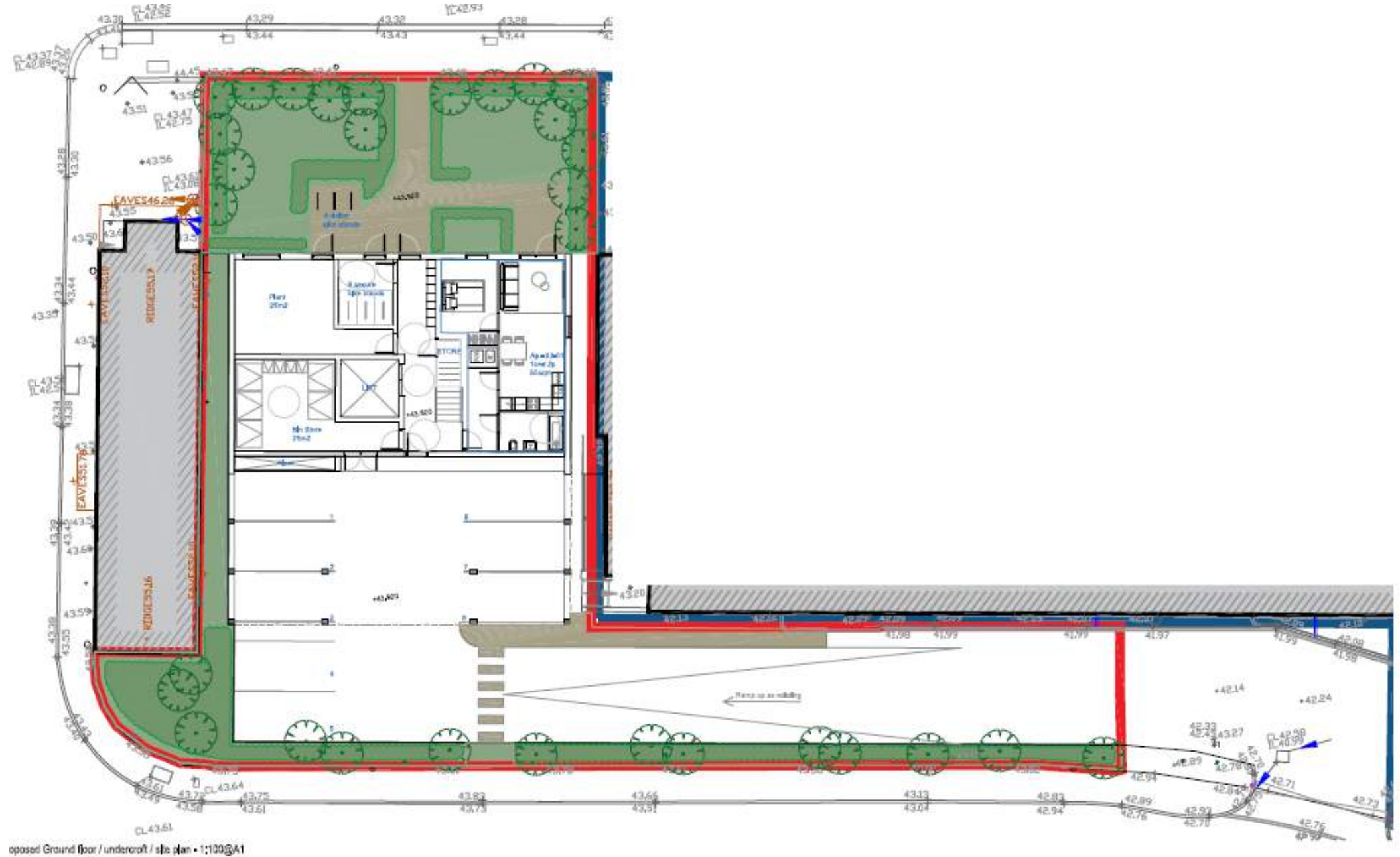
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				Approved by: CT		
				Date: March 2018		

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Client:

CCL Develco 4 Ltd

Drawn by: LM

Approved by: CT

Date: March 2018

Notes:

Taken from Titan Property
Developments Ground
Flood Plan.
Drawing No PL04

Drawing Title:

1CO105134-002
Proposed Development Plan



Phase I Geo-Environmental Site Assessment
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1CO105134/P1/R0

APPENDIX IV PHOTOGRAPHS

APPENDIX IV PHOTOGRAPHS





PLATE 1 – LOOKING ACROSS THE SITE TOWARDS WASTE STORAGE AREA



PLATE 2 – VEGETATION LONG THE SOUTHERN BOUNDARY





PLATE 3: ACCESS ROAD VIA ADJACENT SITE





PLATE 4: WASTE STORAGE FOR THE ADJACENT SITE





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APPENDIX V HISTORICAL MAPPING

APPENDIX V HISTORICAL MAPPING



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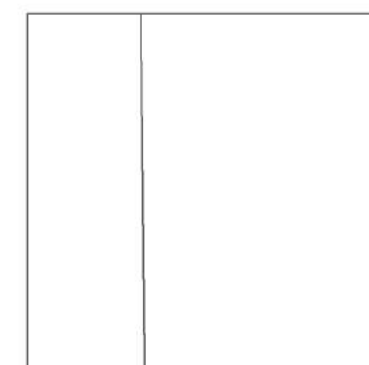
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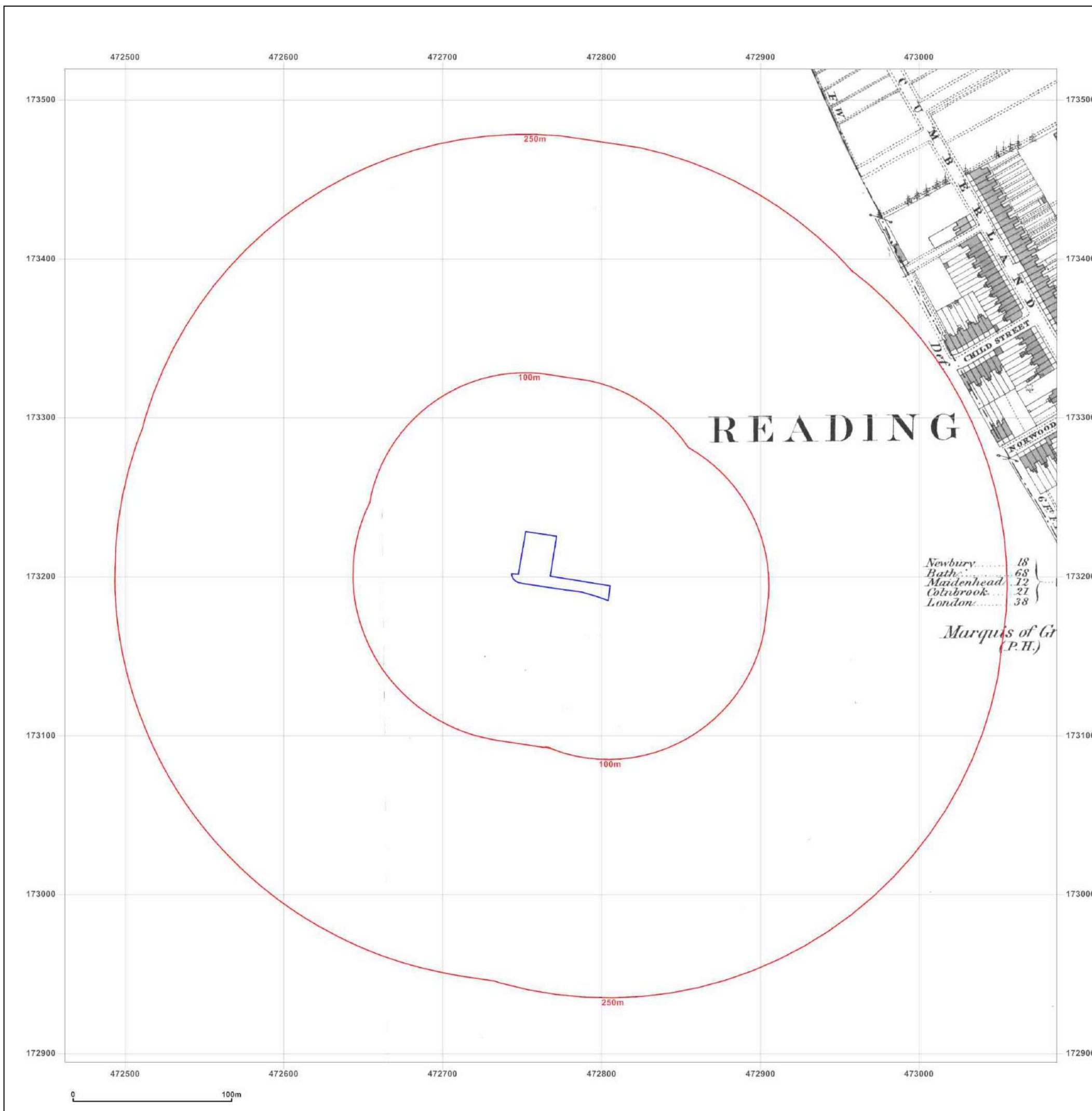


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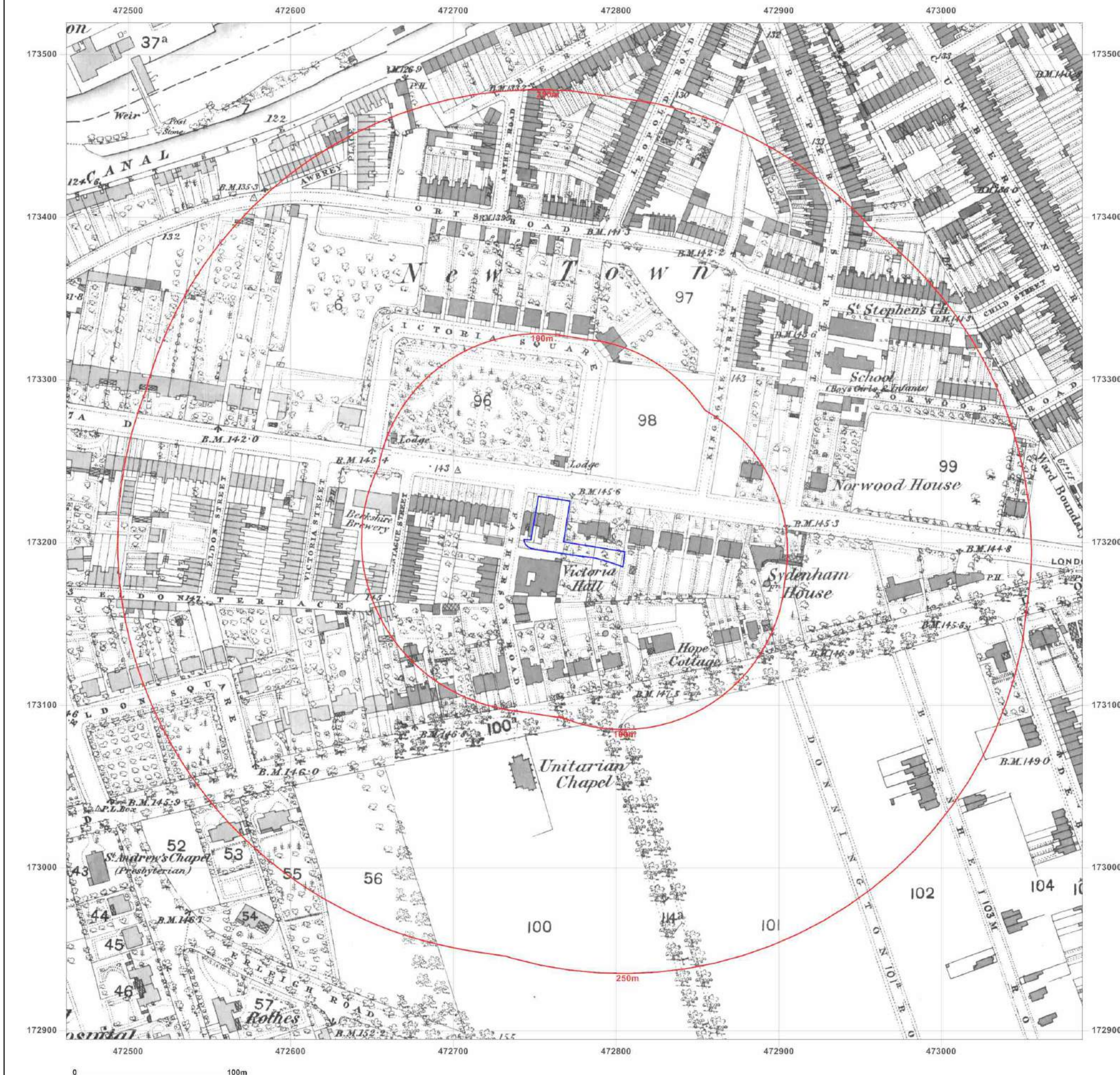


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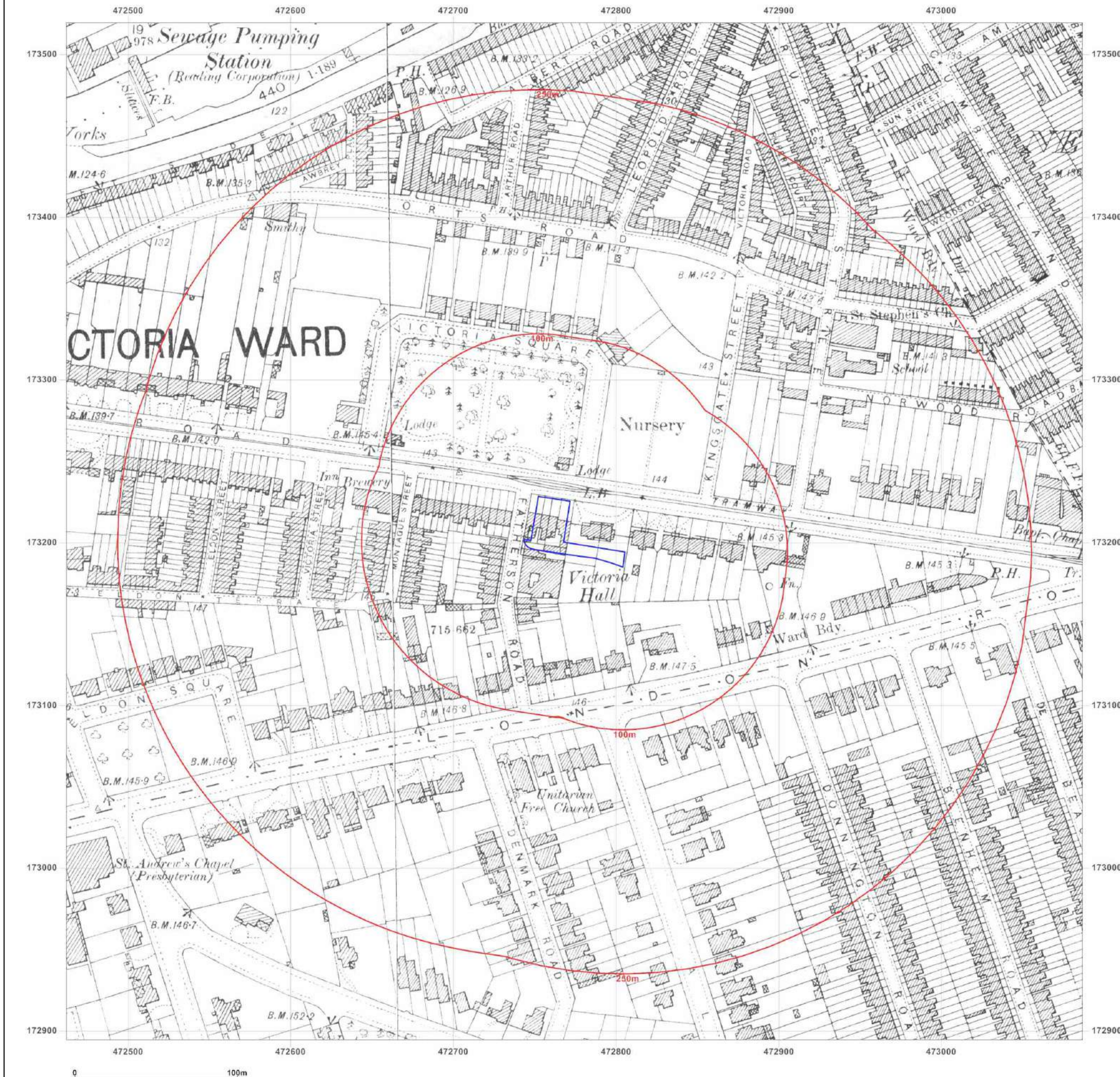


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Map Name: National Grid

Map date: 1956-1957

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Map Name: National Grid

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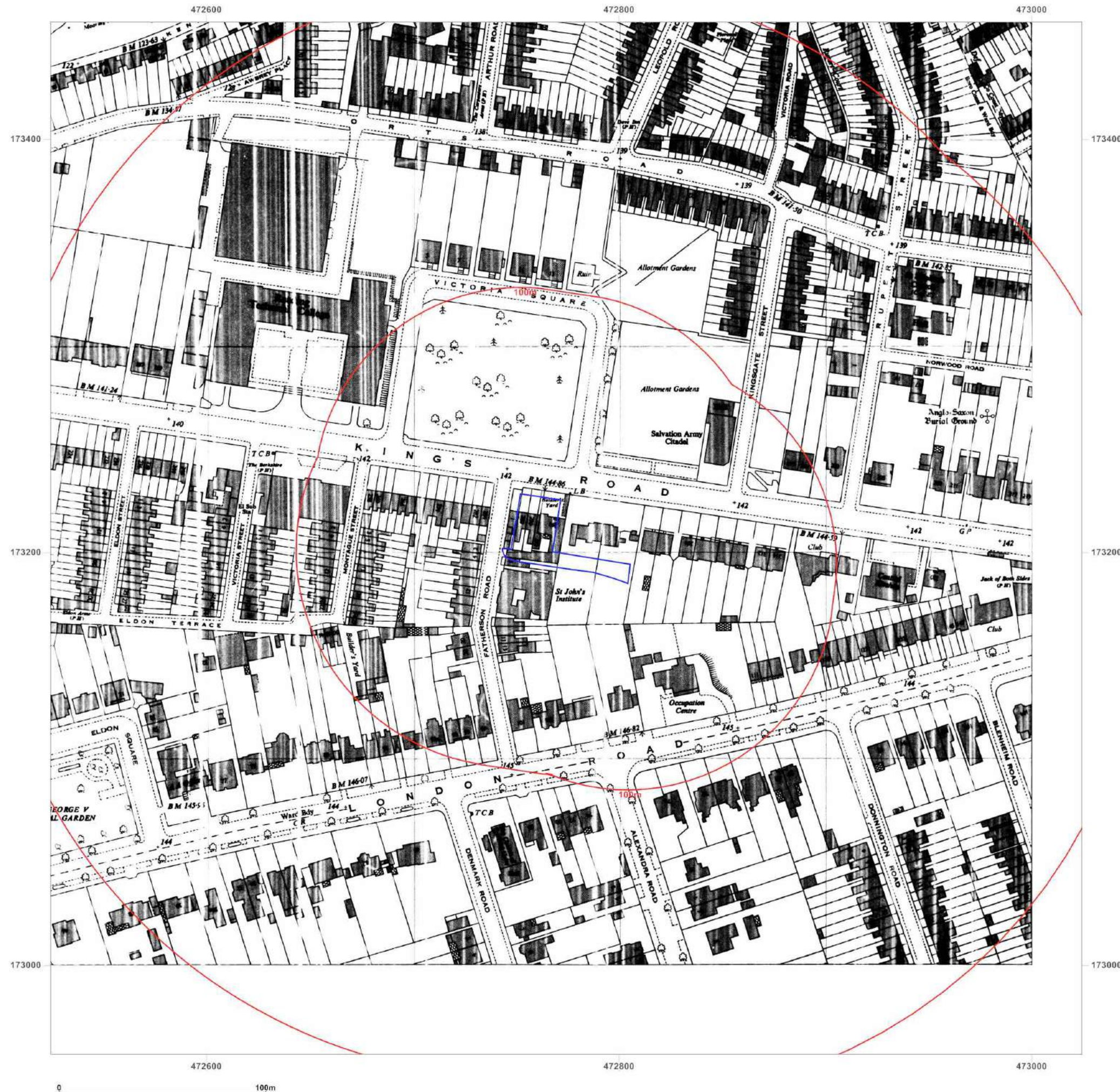


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Map Name: National Grid

Map date: 1957-1958

Scale: 1:1,250

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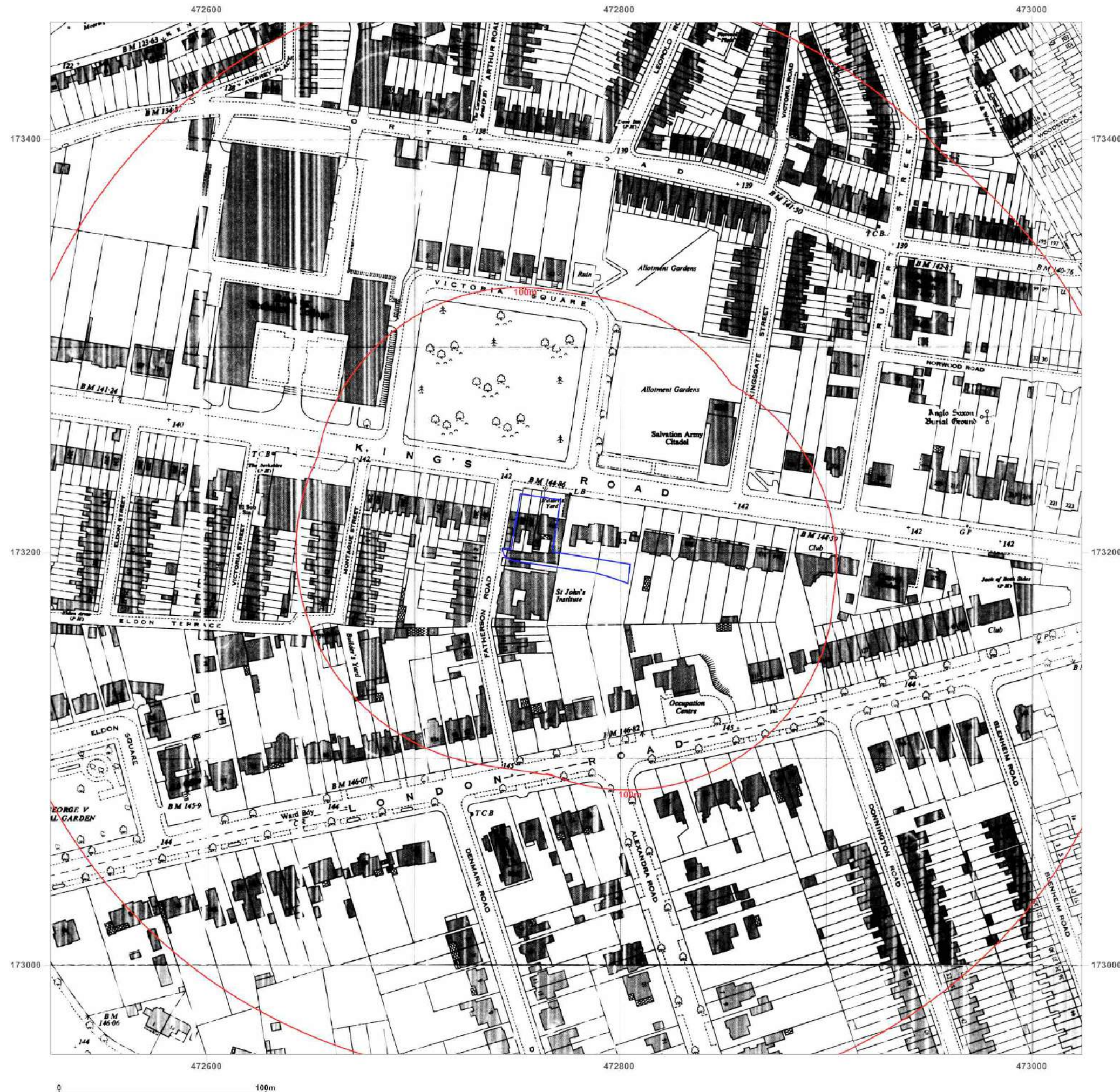


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Grid Ref: 472774, 173207

Map Name: National Grid

Map date: 1980-1982

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Map Name: National Grid

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Grid Ref: 472774, 173207

Map Name: National Grid

Map date: 1986-1989

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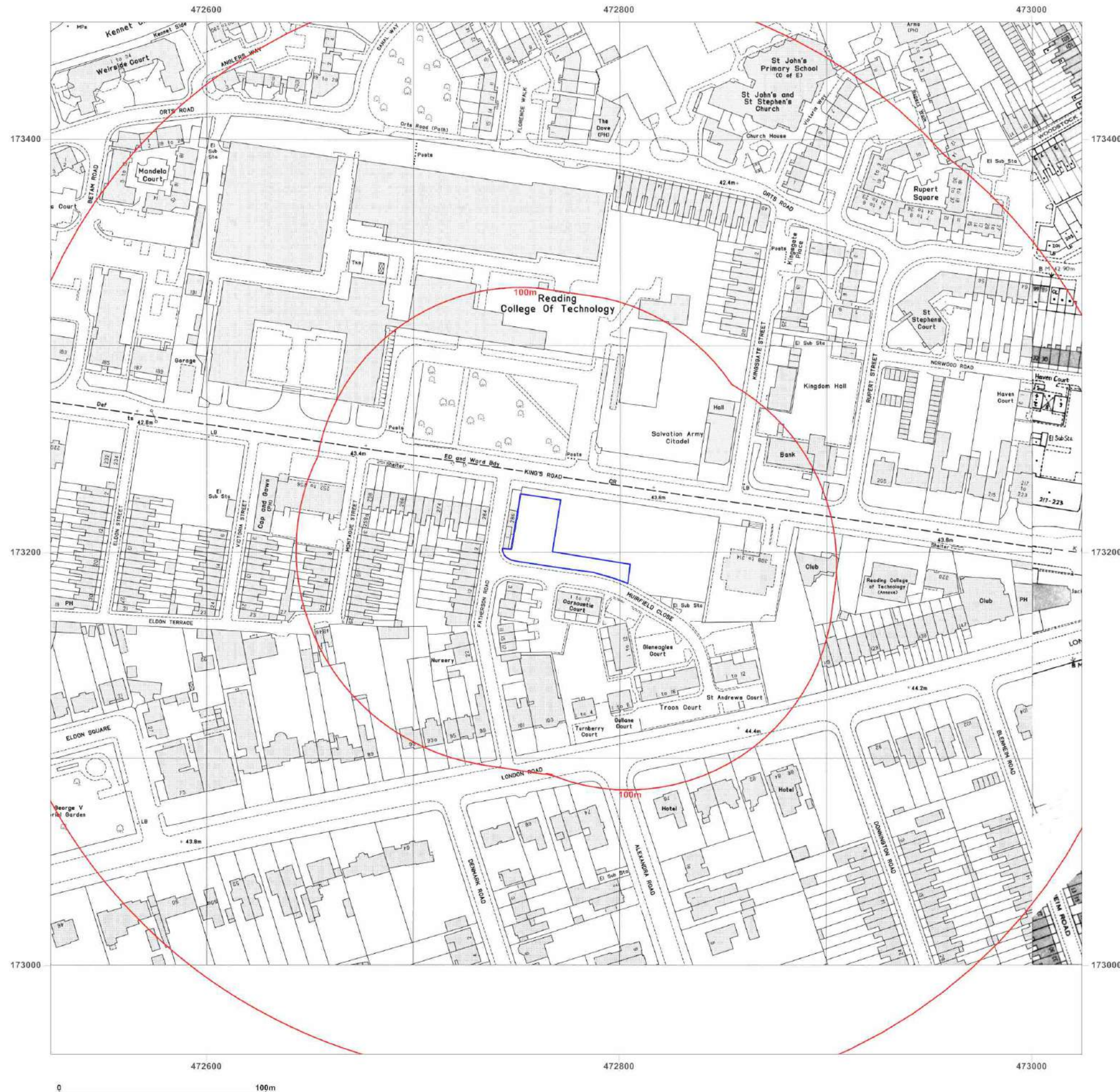


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Grid Ref: 472774, 173207

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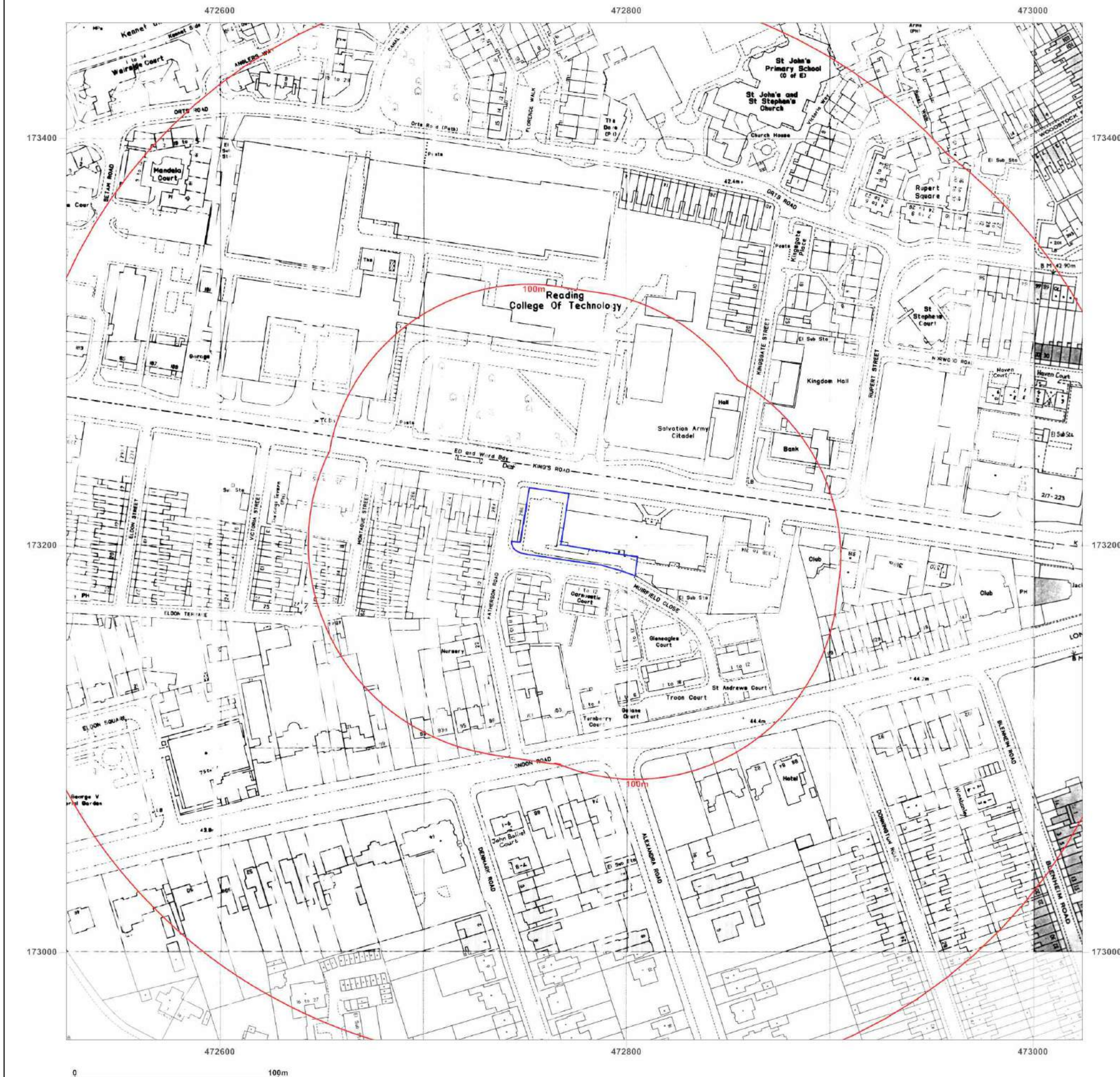


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Map Name: County Series

Map date: 1897-1898

Scale: 1:10,560

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Map Name: County Series

Map date: 1900

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Map Name: County Series

Map date: 1910-1913

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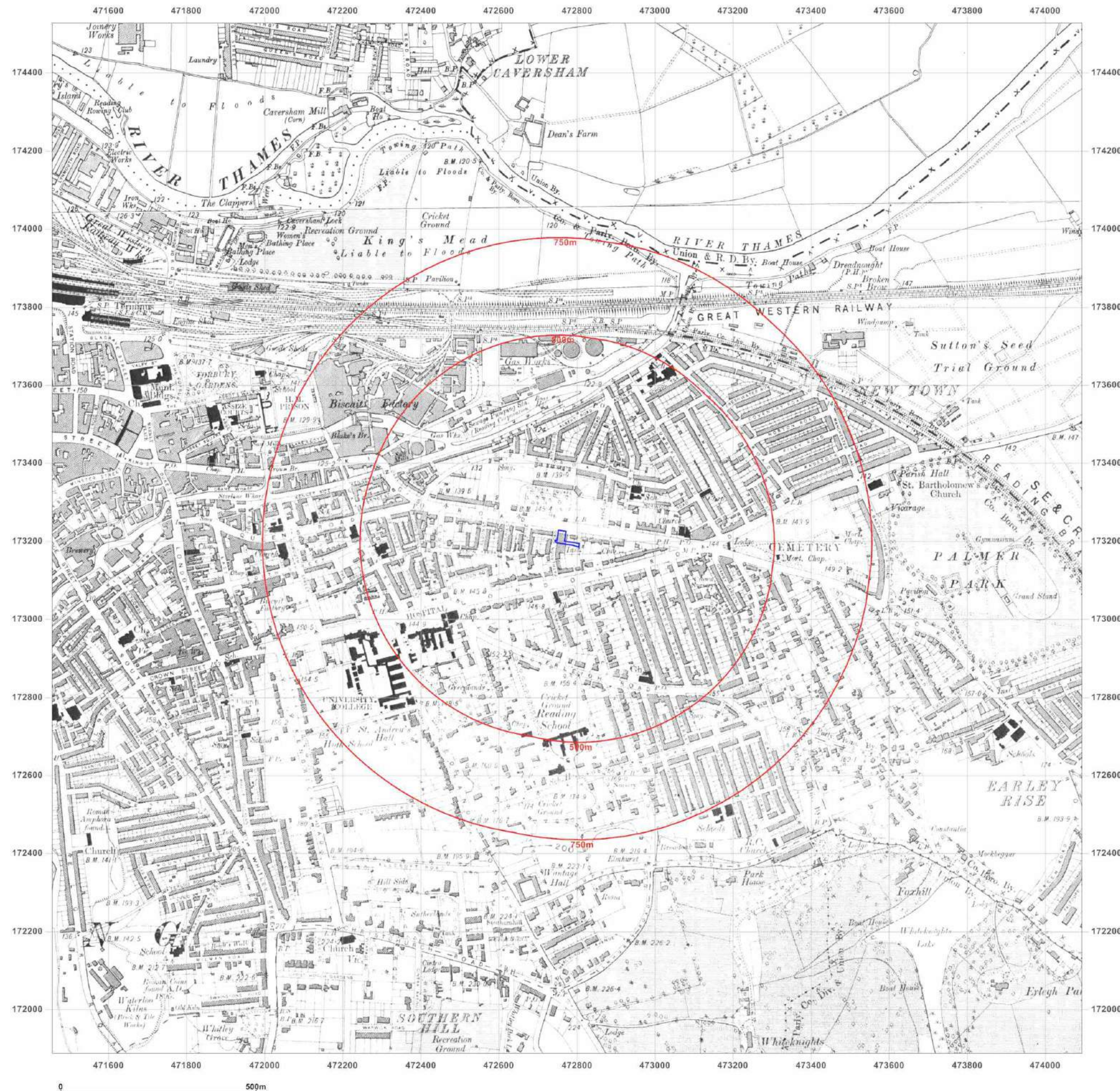


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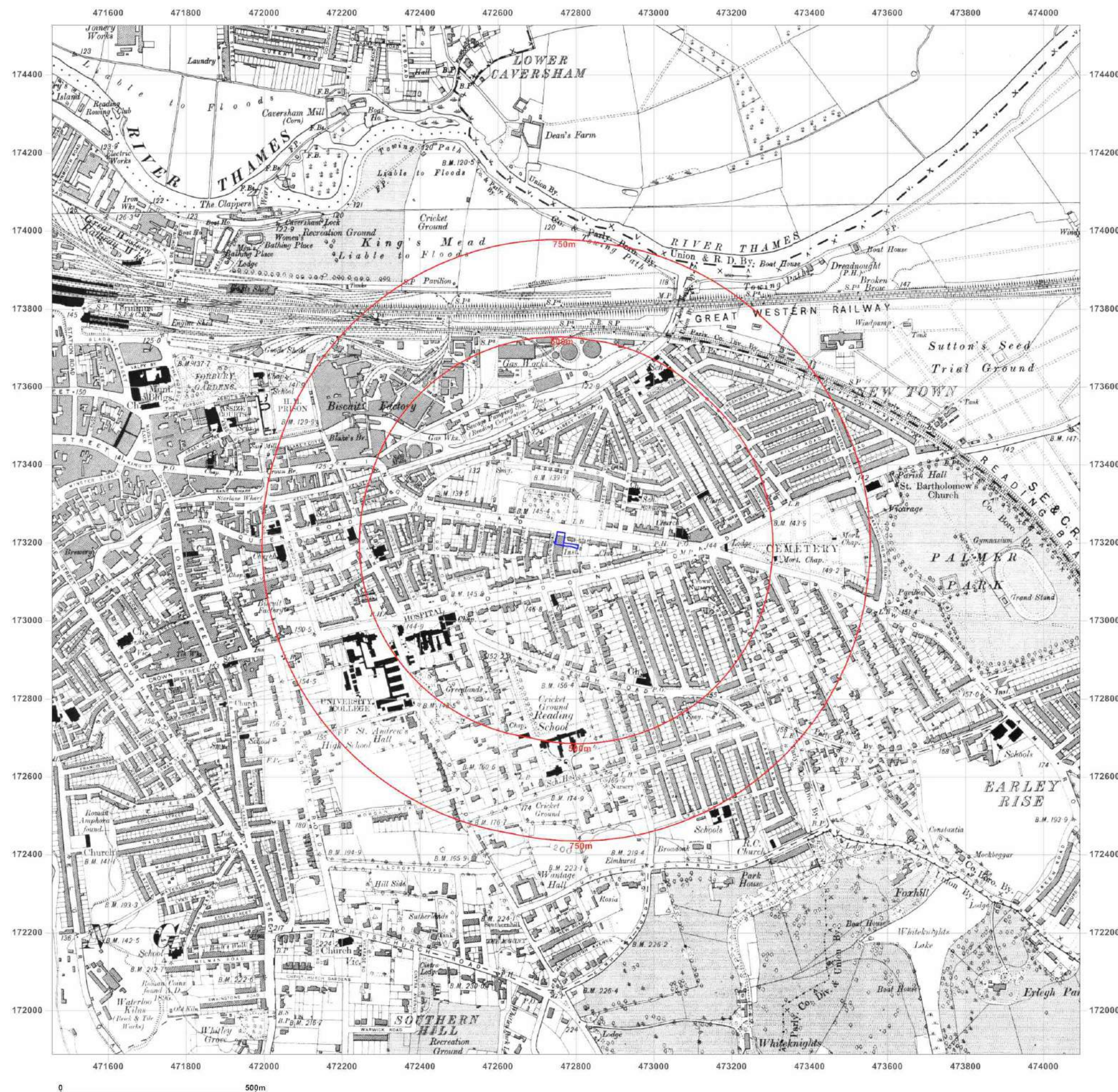


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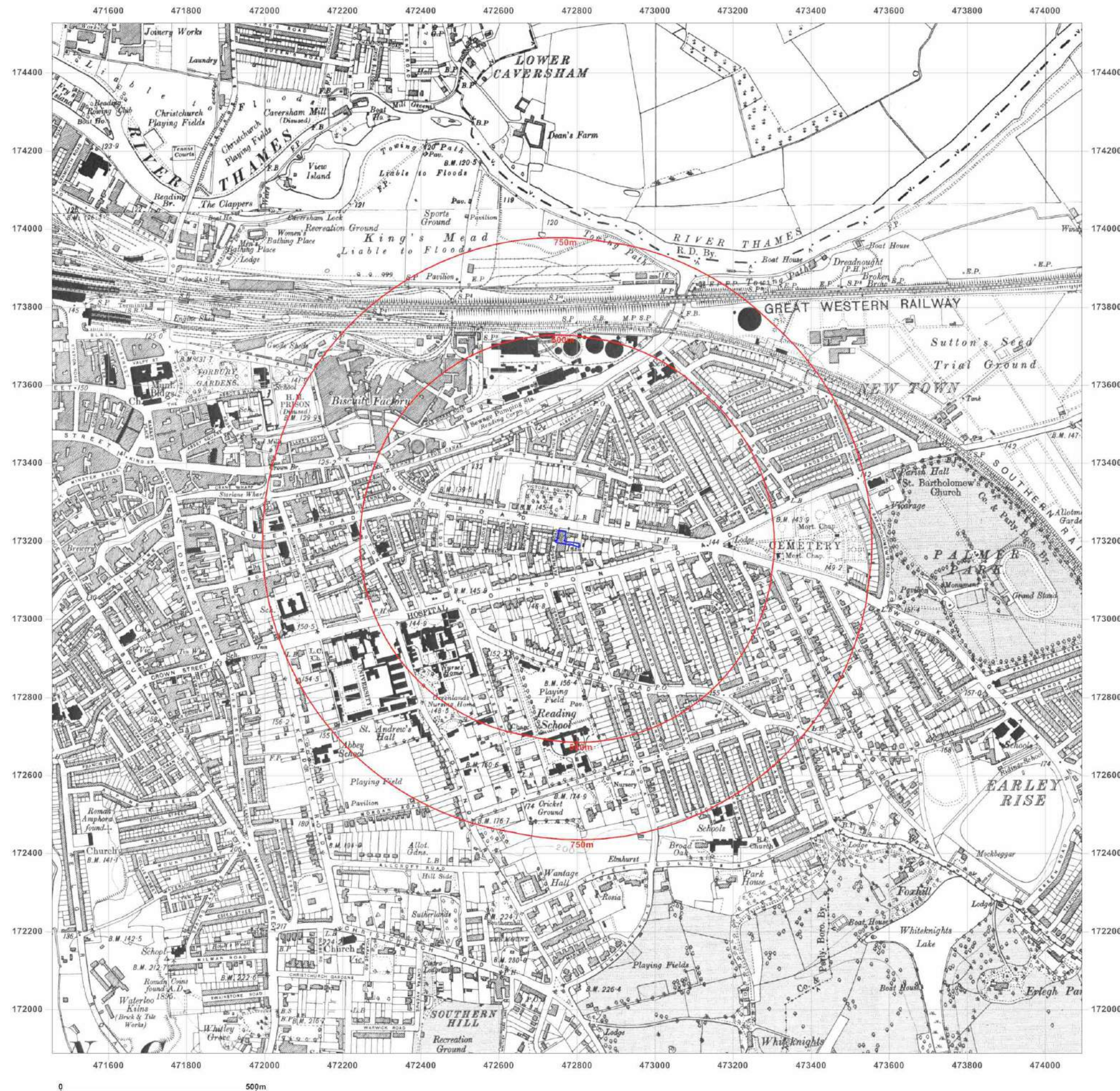


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Map Name: County Series

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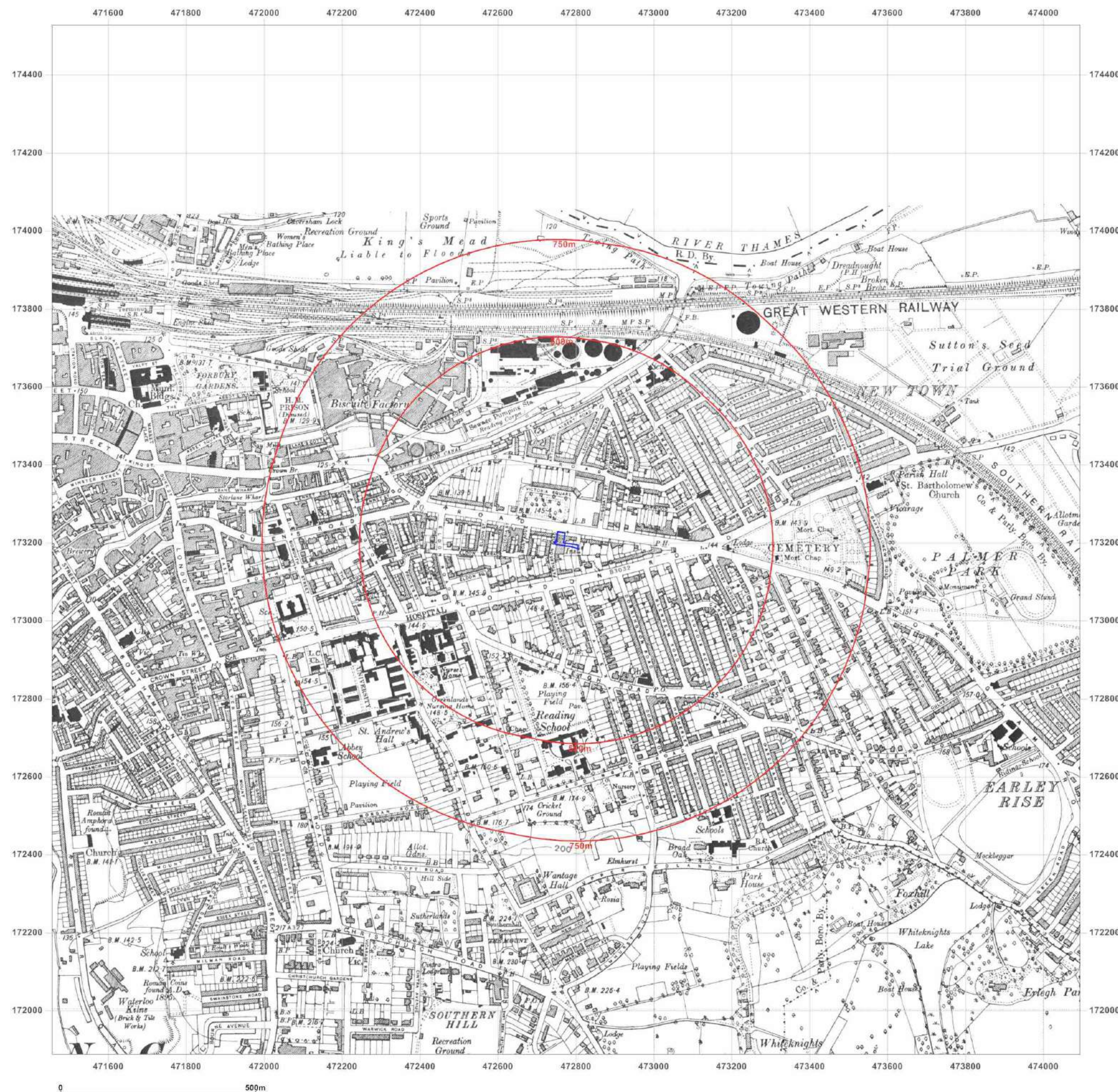


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Site Details:

300 KINGS ROAD, READING,
RG1 4HP

Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1877
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

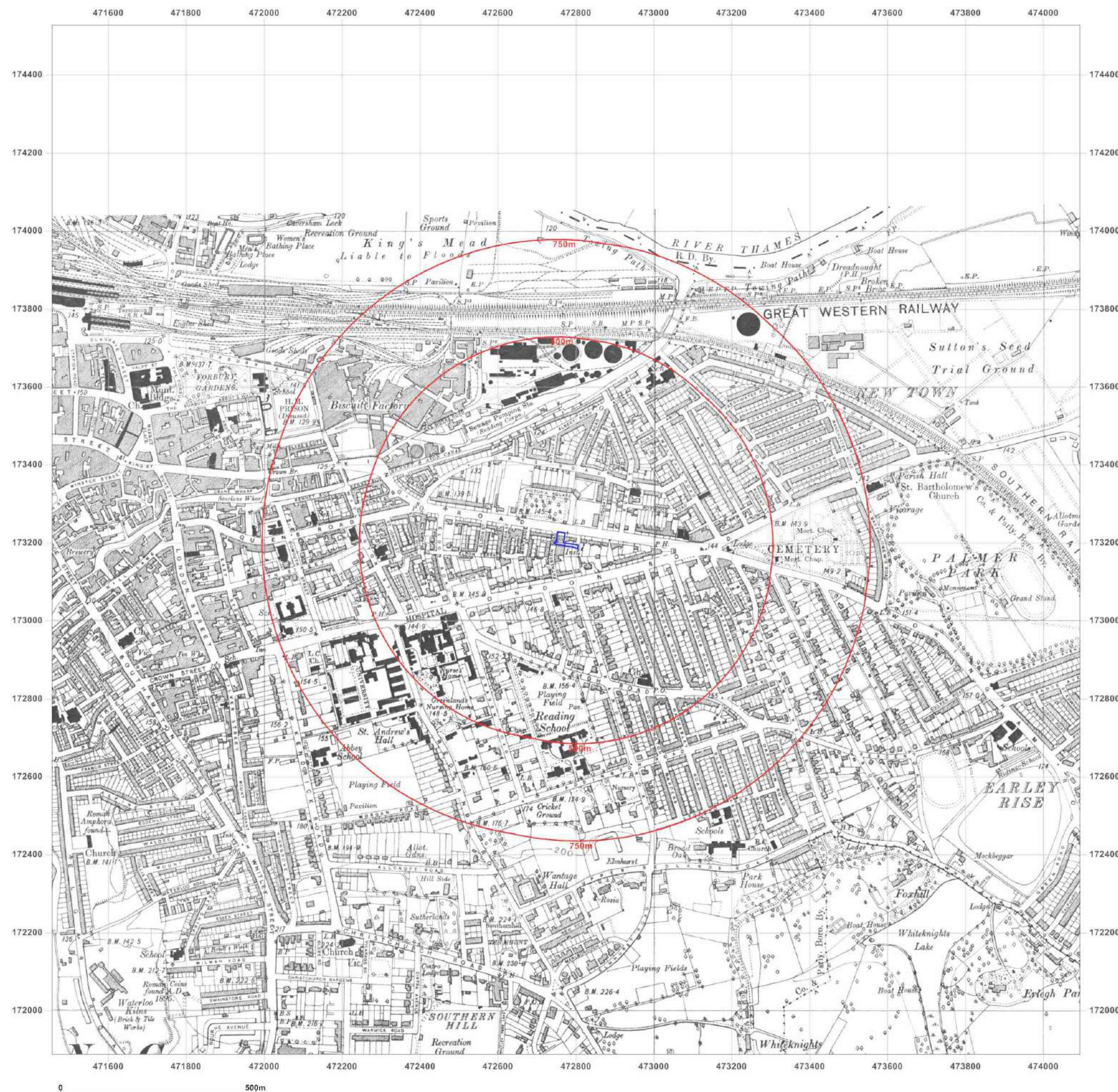


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Site Details:

300 KINGS ROAD, READING,
RG1 4HP

Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: Provisional

Map date: 1962

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1959
Revised 1961
Edition N/A
Copyright 1962
Levelled N/A

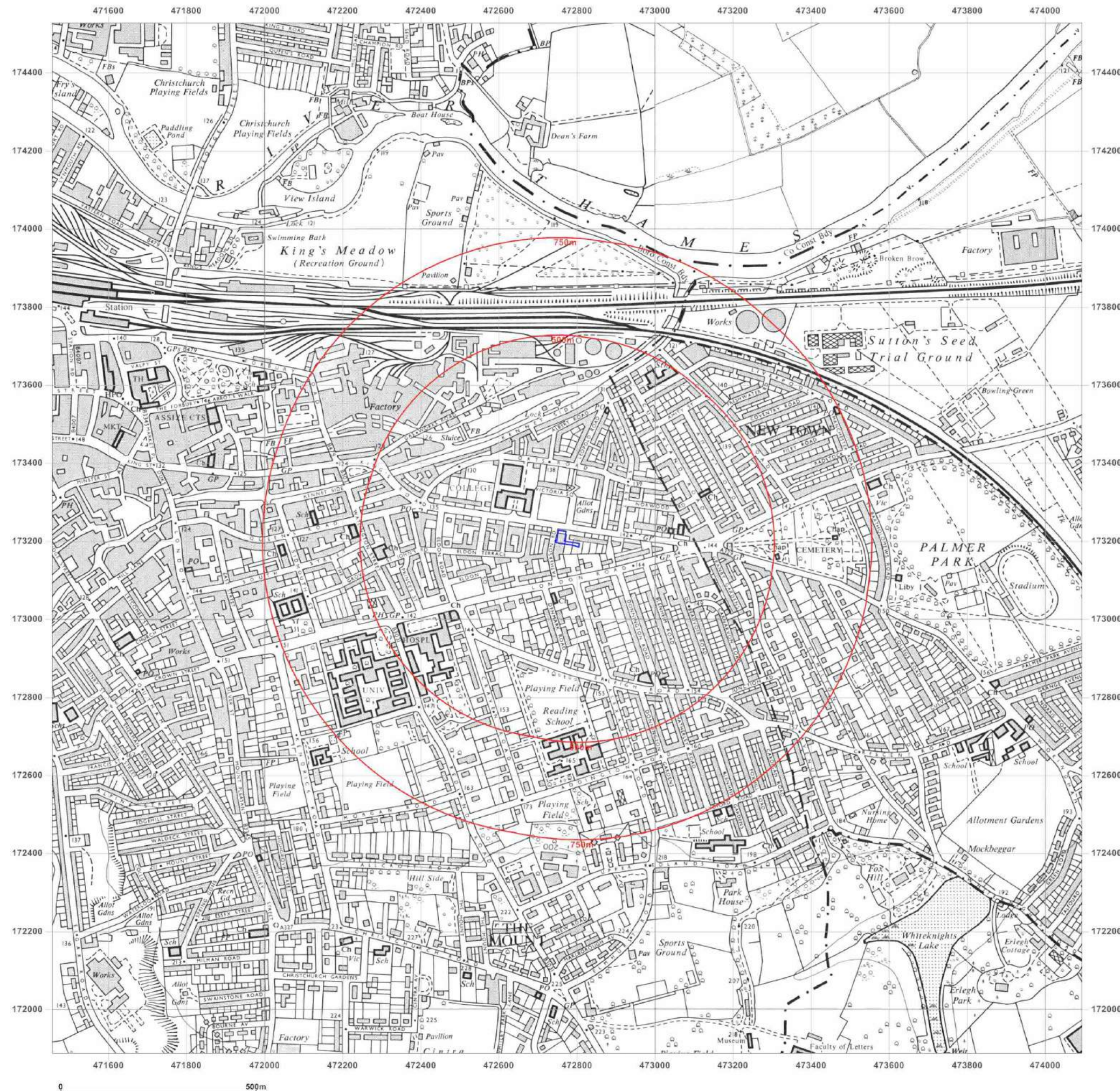


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Site Details:

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RG1 4HP

Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: National Grid

Map date: 1973

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1970
Revised 1973
Edition N/A
Copyright 1973
Levelled N/A

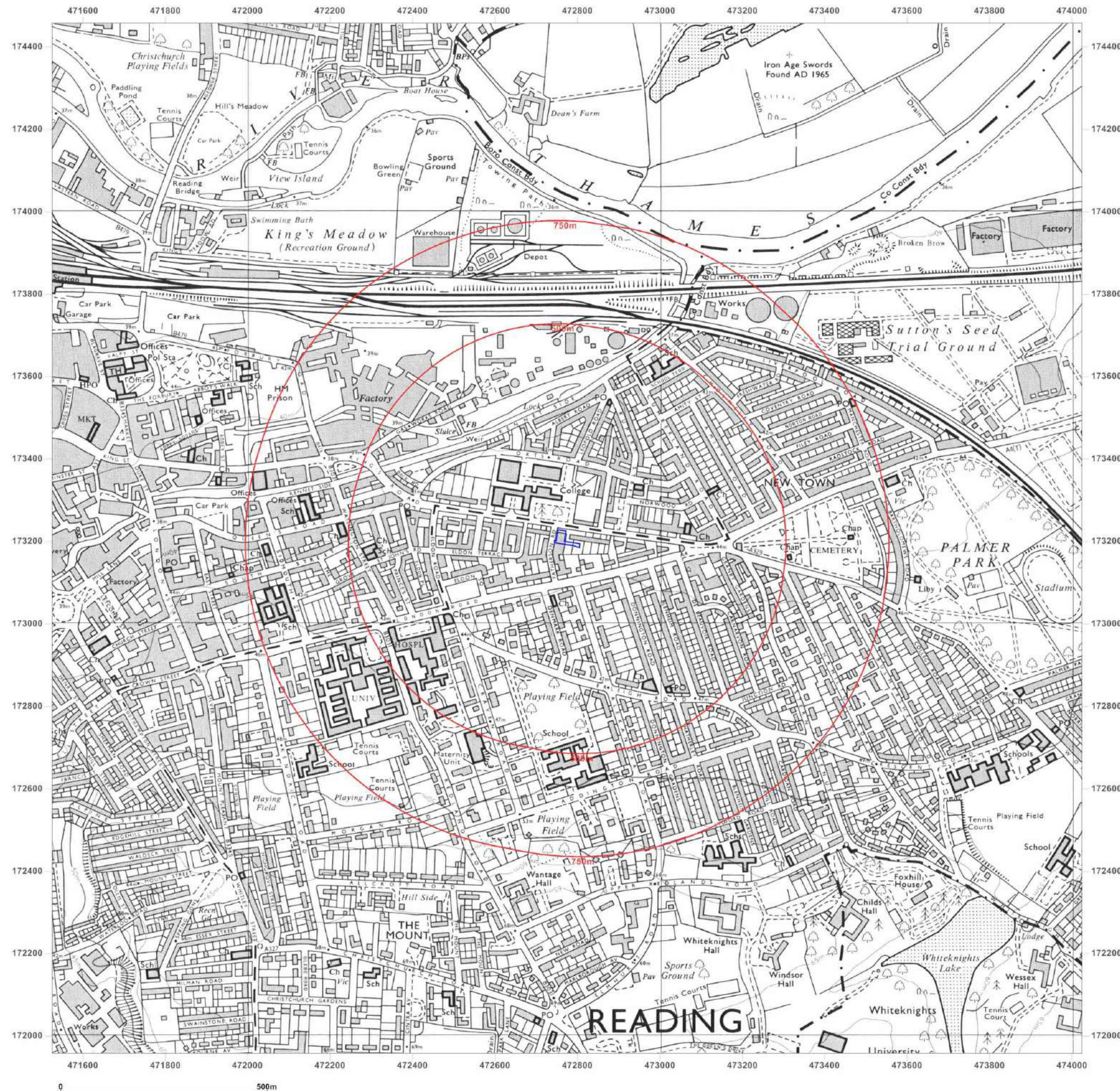


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Site Details:

300 KINGS ROAD, READING,
RG1 4HP

Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: National Grid

Map date: 1979

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1977
Revised 1979
Edition N/A
Copyright 1979
Levelled 1969

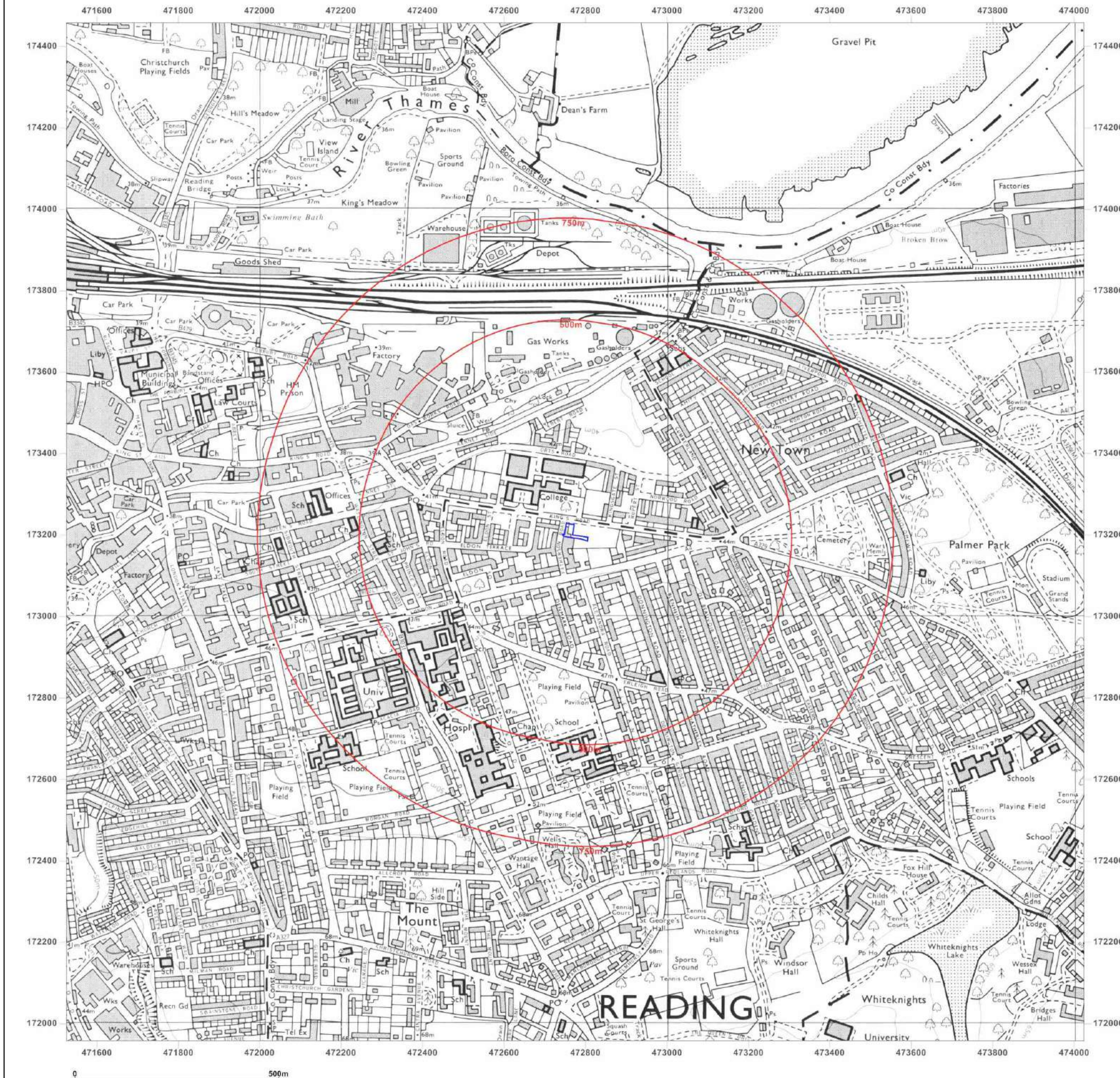


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Site Details:

300 KINGS ROAD, READING,
RG1 4HP

Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: National Grid

Map date: 1989

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1987
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

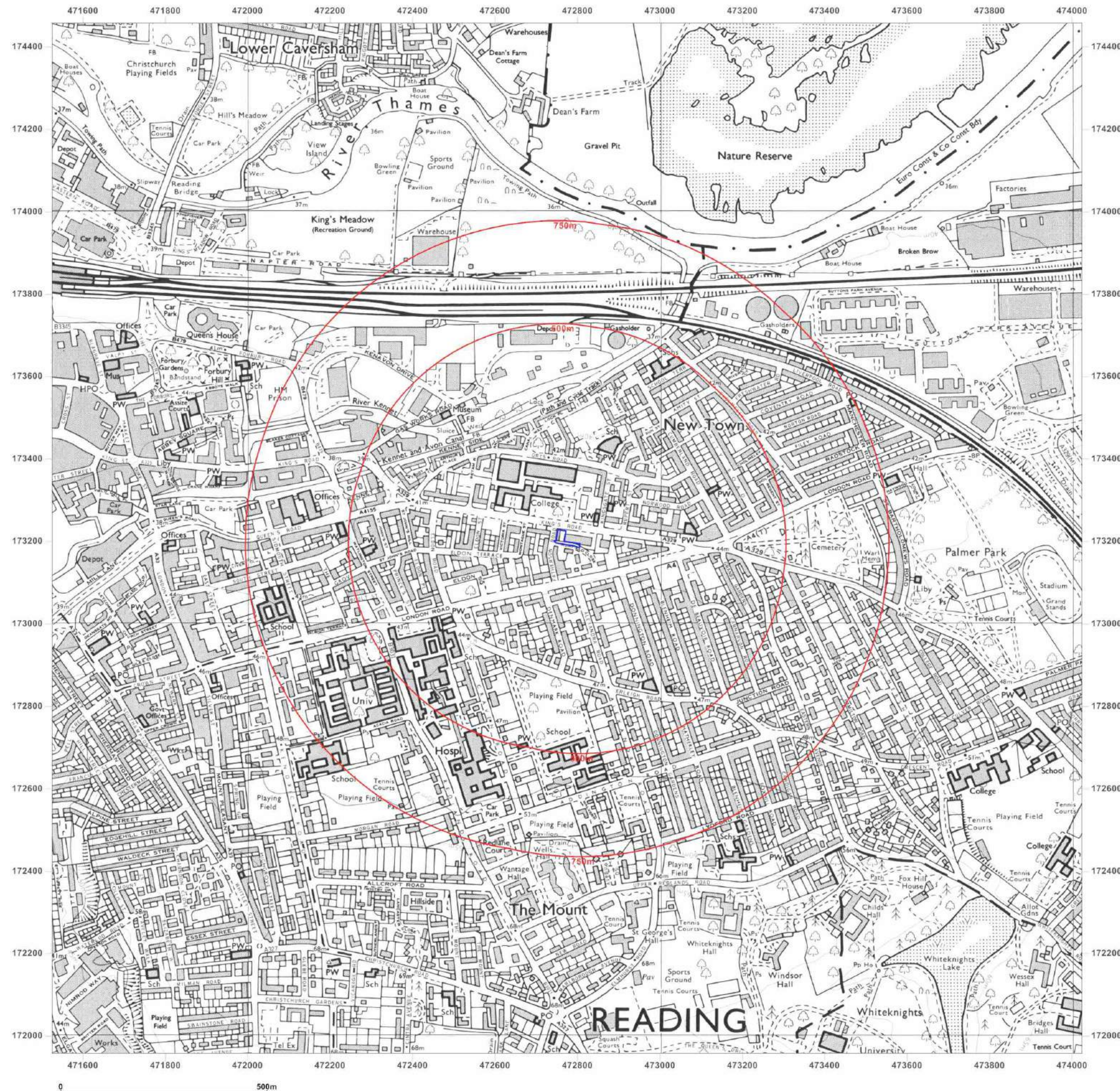


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Site Details:

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RG1 4HP

Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: National Grid

Map date: 1994

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1987
Revised 1994
Edition N/A
Copyright N/A
Levelled N/A

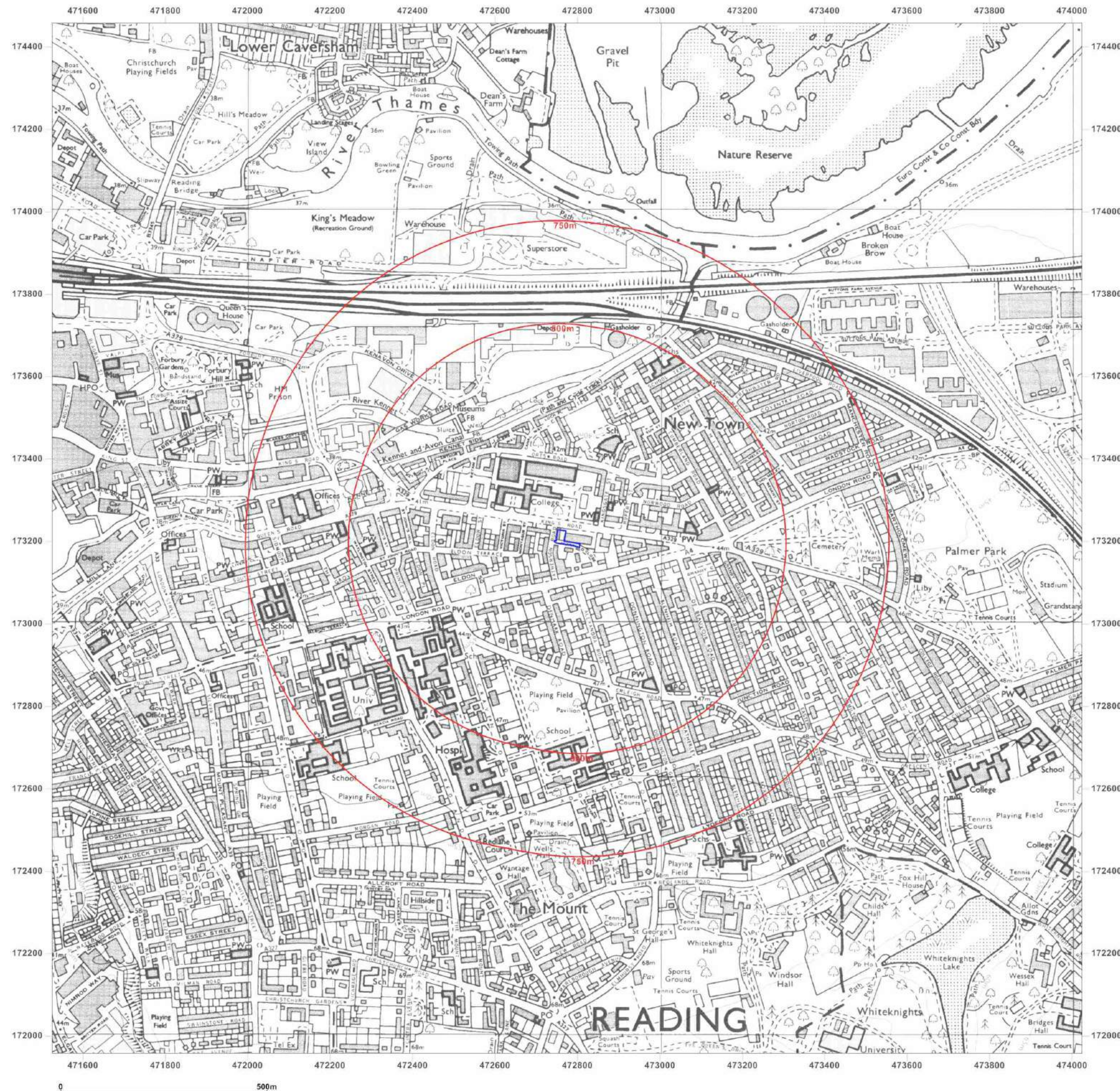


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Site Details:

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RG1 4HP

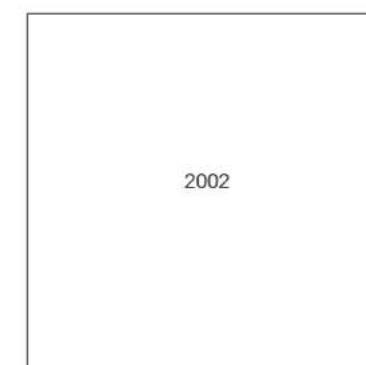
Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000

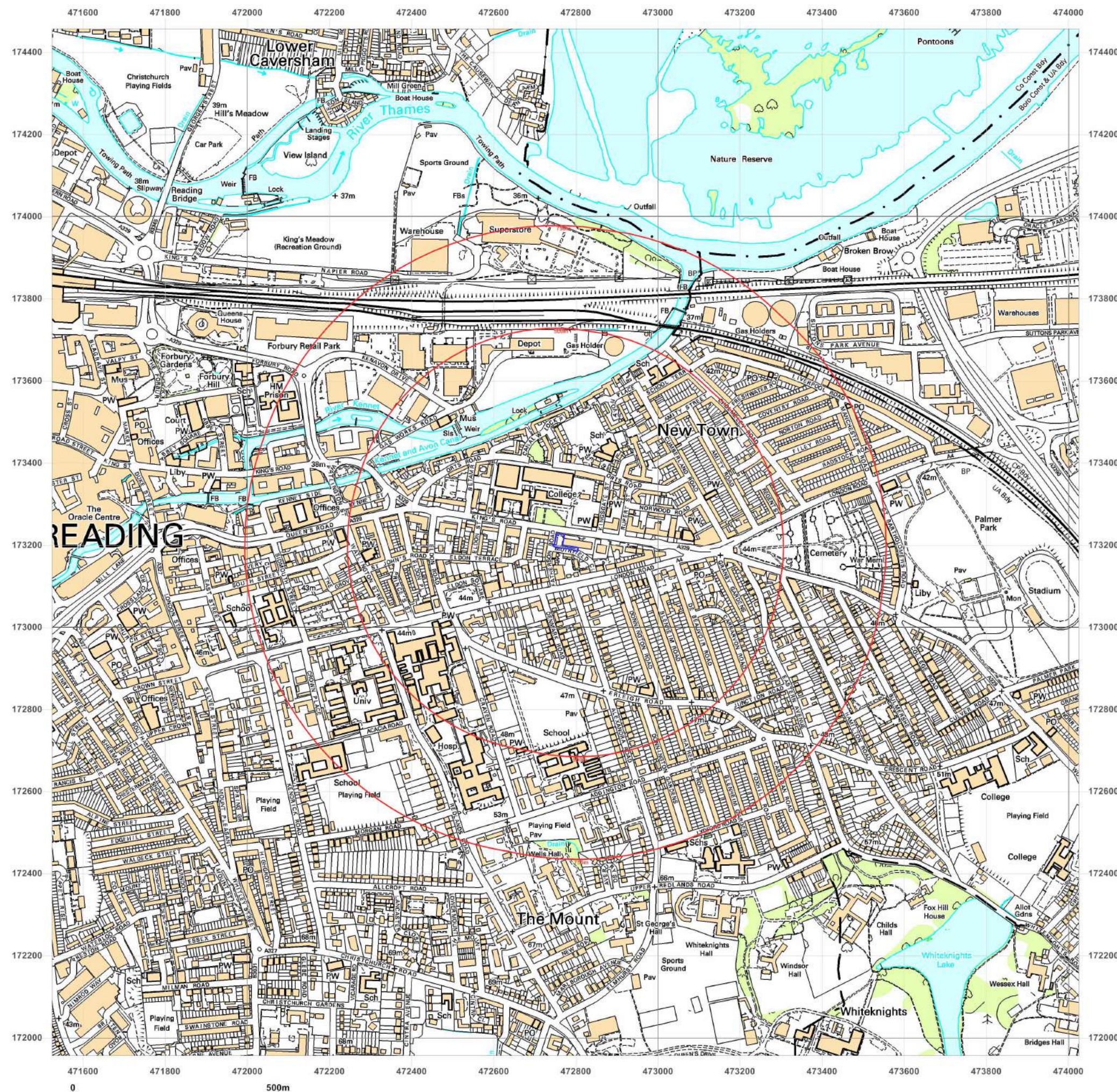


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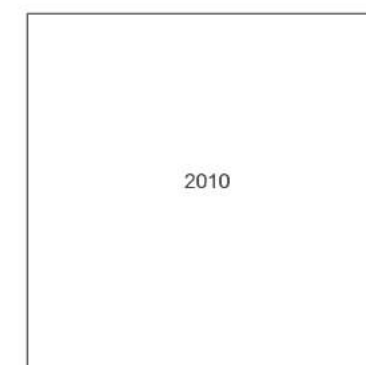
Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



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Site Details:

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RG1 4HP

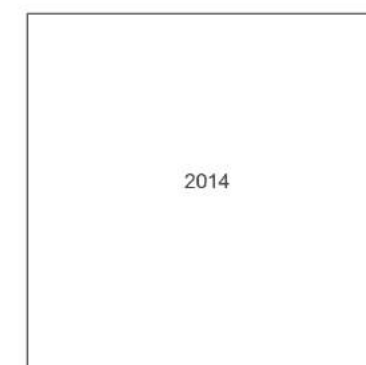
Client Ref: 1CO105134_004324
Report Ref: GS-4776344
Grid Ref: 472774, 173207

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



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