

ENVIRONMENTAL DESK STUDY
AND
PRELIMINARY
RISK ASSESSMENT

Land rear of 303 - 313
Oxford Road
Reading
Berkshire
RG30 1AU



July 2021

Contents

	Contact information	3
	Apple Environmental company information	4
1	Introduction and objectives	5
2	Site history	6
3	Current setting	10
4	Environmental setting	16
5	Geology	17
6	Hydrology	19
7	Waste and other infilled land	22
8	Available contaminated land information	23
9	Conceptual site model	24
10	Summary and recommendations	31
11	Limitations	34
12	References	35

Appendices

I	Historical maps	36
II	Environmental and geological datasheets	46

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1 Introduction and objectives

1.1 Introduction

Apple Environmental Limited has been appointed to provide a Phase I environmental desk study report in support of a planning application for the development of the existing commercial site for residential use. This assessment has been carried out in accordance with the requirements of LCRM April 2021.

1.2 Aim

The principal aim of a Phase I environmental report is to gather the information needed in order to be in a position to assess the presence and/or significance of any land contamination on this site. The resultant information then enables a preliminary risk assessment to be carried out to conclusions in which an acceptable degree of confidence can be placed. These conclusions form the basis of the conceptual site model (CSM). The CSM therefore highlights any potential pollutant linkages at the site based on current and historical use of the land and its immediate surroundings, and if appropriate, proposes further investigation. Any such further investigation will focus on areas currently and previously used for purposes that may give rise to contamination and will take account of land use in the proposed future development, one of the principal goals being the reduction of any uncertainty in the CSM (BSI 10175:2011+A2:2017).

1.3 Objectives

The broad objectives of this report are to obtain information in order to:

- provide information from which likely contaminant-pathway-receptor relationships can be identified;
- evaluate the environmental setting of the site and to identify sensitive receptors;
- assess the likelihood of finding contamination on site, its nature and extent; and
- determine the need or requirements for further investigation, by means of generic or detailed risk assessment.

2 Site history

2.1 Introduction

The site is located in the town of Reading, Berkshire

2.2 Historical maps

Historical mapping and other archive material has been consulted to ascertain the past use of the site.

1881

The subject site is unoccupied and exists as the southern section of two adjoining plots of land, and lies to the immediate east of Western Elms Avenue running in a north to south direction, and to the south of Oxford Road running in a west to east direction.

Dwellings are present to both the northeast and the northwest, whilst a railway line is present 80m to the east, running in a northeast to southwest direction.

1900

The site now exists as the southern garden sections associated with seven dwellings aligning the southern side of Oxford Road. The westernmost garden section has a small structure upon it, presumed to be a garage or outbuilding, as has one other. Consequently these two small structures occupy the southwestern corner of the site.

Extensive development has occurred in all directions of the site; especially to the west, northeast and east.

1912 - 1914

A railway station is now present around 60m to the southeast.

1932 - 1934

The aforementioned outbuilding on-site in the westernmost garden has been enlarged to form a 'T' shape.

1938

No significant changes at the site or immediate surroundings.

1959 - 1962

The aforementioned 'T' shaped structure on-site is now shown as a group of domestic vehicle garages. Two more small outbuildings are now present along the southern part of the site; once again presumed to be garages or similar.

Two more rows of domestic garages appear to be present to the immediate southeast of the site, beyond which there is a large structure present 50m to the east; the use of which is not shown. Another row of garages is evident to the immediate northwest of the site.

1974 - 1976

More small structures are present upon the western section of the site; again presumed to be garaging. The aforementioned large structure to the east is now labelled as a garage.

1978 - 1982

The northernmost part of the garage 50m to the east is now labelled as a filling station. The two rows of domestic garaging to the immediate southeast of the site appear to have been demolished.

1991 - 1993

No significant changes at the site. The filling station located 50m to the east is no longer labelled as such.

2001 - 2003

The aforementioned large garage building to the east appears to have been demolished and in its place there is a smaller building fronting onto Oxford Road, with a much larger warehouse-type building to the immediate south.

2010 - 2021

No significant changes at the site or immediate surroundings.

2.3 Historical records

The first mention of a settlement in Reading dates from the 8th Century when the town was known as Readingum; derived from Readingas, an Anglo-Saxon tribe whose name means Reada's people. It is however noted that Stone Age artefacts have been unearthed in the town suggesting even earlier settlement.

At the time of the Domesday Book Reading was listed as a typical small town until the founding of the Abbey in 1121 when it became a place of pilgrimage. By 1525, Reading it had become the largest town in Berkshire and the 10th largest town in England, with recent excavations having identified the remains of a 16th Century tannery within the town centre. By the 17th Century the town's population had exceeded 5000 as a result of a now established cloth industry, and by the 18th Century a major iron works had become established, in addition to a growing brewing trade.

With the rising popularity of Bath, Reading's trade soon benefited from its position on the major stage coach route from London, whereupon by 1801, the population had exceeded 9000. During the 19th Century the town grew rapidly further as a manufacturing centre, which was then helped even further by the introduction of the Great Western Railway which arrived in 1841 followed by the South Eastern Railway in 1849, and the London and South Western Railway in 1856.

One of the major employers of the 19th Century was Huntley & Palmers which started as a small bakery in 1822, followed by the opening of a large factory in 1846. At the turn of the century it was employing over 5,000 people, whereas the population of the town now exceeded 59,000.

The next major change came in the mid-20th Century when the town benefitted from the introduction of the M4 motorway. It was around this time that Reading reverted from essentially being a manufacturing centre to emerge as a town of high tech industries.

2.4 Identified historical commercial/industrial sites

Through reference to the environmental datasheets, there have been a number of historical features within 200m of the subject site with a potentially contaminative past land-use; namely:

- a railway station - 57m to the southeast (1910 - 1994);
- railway sidings - 127m to the northeast (1932 - 1994);
- cuttings - 157m to the south (1898 - 1994); and

- an unspecified pit - 200m to the northeast (1913 - 1938).

In addition to the above, unspecified tanks have been present 94m to the southeast (dated 1933), and 144m to the east of the site (dated 1877).

There is one recorded fuel station located within 200m of the site, which was present to the immediate east (dated 1978). There is also one recorded historical garage located within this same distance, which was present 16m to the east of the site (dated 1971).

There are two historic energy features listed within 200m of the site, both of which are electrical substations.

3 Current setting

3.1 General

The site exists as a large tarmacadam and concrete covered section of land comprising several domestic vehicle garages, timber outbuildings and a steel-panelled motor repair garage. The subject site boundary also extends across the rear gardens of 311 and 313 Oxford Road.

The motor repair garage lies on the eastern section of the site, and has concrete flooring with a brick extension on the southern facade. Adjacent to this extension there is an external storage area where items such as tyres, wooden pallets and other unwanted items have been deposited. There was also an area of hydrocarbon staining noted. The ground surface at the site is generally in a poor condition with many cracks and other damage noted. Overgrown vegetation is also present in some areas.

The other buildings on the site exist as either brick-constructed domestic vehicle garages or small timber shed-type structures; one of which was seen to have (presumed) asbestos roofing.

The aforementioned large garage and filling station site to the immediate east of the site now exists as a supermarket and fast food chain.

Photographs 1 to 9 below show some of the features highlighted above.

Photograph 1 Showing the site from the south



Photograph 2 Showing the motor repairs garage on the eastern section



Photograph 3 Showing general storage adjacent to the repair garage



Photograph 4 Showing the northern section of the site



Photograph 5 Showing the timber buildings on the southern section



Photograph 6 Showing the domestic garages on the western section



Photograph 7 Showing the access into the site



Photograph 8 Showing the rear garden section at No. 311



Photograph 9 Showing the rear garden section at No. 313



3.2 Development surrounding the site

Through reference to environmental datasheets, commercial activities, or potentially significant features currently existing within 200m of the site are as follows:

- electricity substations - 47m to the north, 136m to the southwest and 166m to the northwest;
- a railway station - 85m to the southeast;
- vehicle parts and accessories - 121m to the northeast;
- a furniture retailer - 134m to the east;
- vehicle repair, testing and servicing - 148m to the east; and
- baking and confectionery retailer - 153m to the northwest.

There are no active or obsolete fuel stations within 200m of the site, other than the historical facility previously mentioned.

There are also no activities occurring within 500m of the site which hold an Environmental Permit under PPC. Similarly there are no List 2 Dangerous Substance Inventory Sites within this same distance.

5 Geology

5.1 Bedrock

Geological data states that the underlying geology of the specific area upon which this site lies consists of the Seaford Chalk Formation. This sedimentary bedrock was formed approximately 72 to 90 million years ago in the Cretaceous Period when the local environment was dominated by warm chalk seas. The depth of this formation is not recorded.

5.2 Superficial deposits

This bedrock beneath the site is expected to be overlain by superficial deposits of the Taplow Gravel Member (sand and gravels). These deposits were formed up to 2 million years ago during the Quaternary Period when the local environment was dominated by rivers. The depth of these deposits has also not been confirmed.

5.3 Artificial deposits

BGS mapping does not record any artificial deposits overlying the geological deposits at this location, however considering the nature of the site, it is quite possible that there will be areas of made-ground, or at least hardcore, beneath the existing structures on-site, as well as beneath the general hard ground cover.

5.4 Borehole data

British Geological Survey (BGS) borehole data was consulted for this study. In doing so, a single borehole log has been documented below from a nearby area which is believed to share similar geological strata to that which is expected beneath the site.

SU77SW784 was located approximately 108m to the east, and continued to a depth of 3.5m.

The log details 0.1m of concrete underlain by 0.15m of hardcore, and 0.55m of silty soil with occasional bricks. This was subsequently underlain by 0.5m of soft, light-brown, slightly gravelly, clayey silt underlain by 1.1m of soft, light-brown silt. For the next 0.3m firm, light-brown silt with occasional small flints was present underlain by 0.2m of soft, brown clayey sand. From here to the base of the borehole, soft, light-brown, chalky, clayey sand was present.

Groundwater was not recorded.

5.5 Soil chemistry

Through reference to available data, the soil in the local area is expected to have a natural arsenic concentration of 15mg/kg, a cadmium concentration of 1.8mg/kg, a chromium concentration of 60 - 90mg/kg, a nickel concentration of 15 - 30mg/kg and a lead concentration of around 100mg/kg.

5.6 Radon affected areas

According to the Health Protection Agency (HPA) mapping, the site is not located within a radon affected area, and therefore radon protective measures should not be required for any new buildings in this area.

5.7 Mining

Through reference to the environmental datasheets, there has been no evidential history of coal mining or non-coal mining within 500m of the site.

It is noted however that localised chalk quarrying has historically occurred throughout the area, and could potentially have occurred on-site; although there is no evidence to support this.

6 Hydrology

6.1 Groundwater

The expected geology for this specific area of the site is bedrock of the Seaford and Newhaven Chalk Formations (undifferentiated) - chalk, overlain by superficial deposits of the Taplow Gravel Formation.

According to the Environment Agency the bedrock has been classified as a 'principal' aquifer, with high permeability status. This is designated when the geology is of high inter-granular permeability which can usually provide a high level of water storage, as well as support-water supply and river base-flow on a strategic scale. The aquifer is presumably confined by the aforementioned superficial deposits, which themselves have been classified as a 'secondary' (undifferentiated) aquifer offering intermediate permeability in places.

Through reference to a nearby documented BGS borehole log, groundwater was not reported to be within 3.5m of the surface.

Despite the presence of the aquifer, the site does not fall within a groundwater Source Protection Zone (SPZ), although there are five recorded abstraction licences within 1km of the site. The closest of these is 717m to the north of the site where it is being directly sourced for process water at a nursery.

6.2 Surface water

There are no natural surface water features located within 200m of the site.

With regards to the general movement of surface run-off at the site itself, it is presumed that due to the predominant hard landscaping, overland flow would follow any general ground slope towards permeable soft cover.

Through reference to Ambiantal Risk Analytics, surface water flooding at the site carries low risk. The nearest areas of 'medium' and 'high' risk fall to the west of the site, as shown below in Figure 2.

Figure 2 Showing the nearest surface water flood risk areas to the site



● High ● Medium ● Low ● Very low

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● Subject site

6.3 Fluvial flooding

Through reference to Environment Agency flood data the site lies within a Flood Zone 1 area; hence the annual probability of flooding from rivers here overall is deemed to be very low.

Figure 3 below shows the presence of the nearest Flood Zone 2 located around 320m to the northeast of the site.

Figure 3 Showing the nearest fluvial flood risk areas to the site



6.4 Discharge consents

There are no active discharge consents within 250m of the site.

7 Waste and other infilled land

7.1 Landfill

Environment Agency data, environmental datasheets and historical maps referenced during the compiling of the report indicate that there has been one recorded landfill site; past or present, within 500m of the site.

This was located at Cow Lane, some 455m to the north of the site where inert waste was accepted between December 1950 and December 1959. Other operational aspects of this facility are not known.

7.2 Infill

There are no records relating to land infilling at the site, nor within 200m of the site; although it is quite possible for made-ground deposits or at least hardcore to be present beneath the buildings and other hard ground cover.

7.3 Other waste facilities

There are no current Environment Agency permitted waste, treatment, transfer or disposal sites within 250m of the site.

There are however a number of waste-exception permits within this same distance, relating to the secure storage of waste 43m to the northwest, and the sorting and de-naturing of controlled drugs for disposal 45m and 130m to the northwest.

8 Available contaminated land information

8.1 Statutory contaminated land

Environmental datasheets state there is one site determined as Contaminated Land under Part 2A of the EPA 1990 within 500m of the site.

This is located 380m to the northeast of the site where benzo(a)pyrene was identified within the made-ground and compost in 2008. The source of this PAH is presumed to be ash added by allotment holders along with adjacent railway runoff.

8.2 Planning search

Reading Borough Council planning applications have been referred to for this specific area of Reading, in order to determine whether or not land contamination had been a material consideration in any corresponding decision notice, and if so, to consider any effect that these sites may have had on the subject site.

There do not appear to have been any requests for such in the vicinity of the subject site; therefore no other land contamination reports have been referred to for the compiling of this current report

8.3 Environmental incidents

There have been no Environment Agency recorded pollution incidents within 250m of the site.

9 Conceptual site model

9.1 Sources

The subject site appears to have existed as residential rear gardens up until the early 20th Century, when a number of outbuildings and garages were constructed. The precise use of these outbuildings since that time is not known, although it is suspected that one or more of these may have been small workshops.

The only identifiable use of one of these outbuildings is the most recent use for motor servicing and repairs, whereas for the remainder of the land it is apparent that much of this had ceased to become residential gardens at some point in time, whereupon it had presumably been engineered and hard surfaced to allow vehicles to be kept here. It is possible that this may have occurred around 70 years ago when rows of domestic garaging were introduced on the southwestern section of the site, as well as off-site to the northwest, east and southeast. It is quite possible that much of the ground surface here has been underlain by made-ground, or at least imported hardcore for ground strengthening.

It was also noted during the site walk-over that hydrocarbon ground-staining was evident in places, and although much of the site has hard cover, it was in a poor condition in places, and therefore may not have provided complete protection to the underlying soil from any leakages or spills.

With regards to potentially significant off-site concerns, a large motor repair facility and fuel station was present around 40m to the east of the site at its closest point from the 1950s through to the 1990s, adjacent to which there is currently a railway line and station.

In considering the above sources the following potential contamination would have to be considered:

- heavy metals and other inorganics from possible made-ground or hardcore, as well as from the on-site garage, and any unknown uses of the land and other outbuildings;
- hydrocarbons and other organics from historical oil and fuel spillages, or possibly within made-ground and hardcore;
- asbestos residue from former outbuilding and garage roofing; and
- ground gases or vapours from the possible decomposition of hydrocarbon or other organic residue in the soil.

9.2 Receptors

The receptors that would generally need to be considered are construction workers and future site occupiers, in addition to which the proposed building structure itself and any associated underground services need to be considered, along with groundwater and other environmental receptors.

9.3 Pathways

The proposal is to redevelop the site for residential use with an associated soft landscaped recreational area, and therefore on this basis the potential contamination pathways to receptors would appear to include the following:

- direct and indirect ingestion of soil and soil-dust during construction and occupation of the dwellings;
- direct dermal contact with soil and soil-dust during construction and occupation of the dwellings;
- direct inhalation of soil dust during construction and occupation of the dwellings;
- inhalation and/or ignition of ground gases or organic vapours during construction and subsequent occupation of the dwellings;
- direct contact with main services and building fabric below ground; and
- indirect contact with groundwater.

9.4 Possible pathway linkages

9.4.1 Heavy metals and other inorganics

- Direct and indirect ingestion of soil and dust - contaminated soil may be ingested by construction workers and future users of the site;
- dermal contact with soil and dust - contaminants may be absorbed through direct contact with contaminated soils by construction workers and future users of the site;
- inhalation of dust - airborne contaminated soil particles could be inhaled by construction workers and future users of the site;

- contact with building materials and services - some contaminants within the soil may affect the properties of either through direct contact; and
- contact with groundwater - some substances within the soil could indirectly contaminate groundwater and migrate off-site.

9.4.2 Hydrocarbons and other organics (including PAHs and VOCs)

- Direct and indirect ingestion of soil and dust - contaminated soil may be ingested by construction workers and future users of the site;
- dermal contact with soil and dust - organics may be absorbed through direct contact with contaminated soils by construction workers and future users of the site;
- inhalation of dust - airborne contaminated soil particles could be inhaled by construction workers and future users of the site;
- inhalation of vapours (indoors and outdoors) - hydrocarbon vapours may be inhaled by construction workers or future occupiers of the dwellings;
- contact with building materials and services - hydrocarbons within soil may affect the properties of either through direct contact; and
- contact with groundwater - hydrocarbons within the soil could indirectly contaminate groundwater or migrate off-site.

9.4.3 Ground gases

- Inhalation - ground gases may be generating due to the breakdown of hydrocarbons or other organic material within any made-ground that may be present either at the site or in other areas in the vicinity of the site, such that these could be inhaled by construction workers or future occupiers of the buildings; and
- ignition - flammable and explosive gases may be present due to the breakdown of hydrocarbons or other organic material within any made-ground or infill that may be present in the area.

9.4.4 Asbestos

- Asbestos residue may well be present on the existing site surface, or within the underlying soils, such that this could be inhaled by construction workers or future uses of the site.

9.5 Assumptions and uncertainties

9.5.1 Site history

It has been assumed that all relevant potentially contaminating activities and processes at the site have been identified. Where there is any uncertainty a precautionary approach will generally have been made.

9.5.2 Geology, surface water and groundwater

It has been assumed that the geological map is representative of the site; however any unexpected variation could affect the risk to groundwater beneath the site. This includes the presence, extent and nature of any made-ground at the site which has not been characterised.

In addition to this, the nature and presence of groundwater beneath the site is similarly not known; including the possible rest level and flow direction; although the available information suggests that despite lying above a chalk aquifer, groundwater is not expected to be present at an accessible depth in this location.

9.5.3 Contaminants

Although the presence of several contaminants is possible, their nature, location, concentration and mobility are not known.

9.5.4 Pathways

The absence of preferential flow paths such as pipe work, drains and service runs has not been confirmed.

9.5.5 Future site use

The likelihood or details of any future alteration or redevelopment of the site is not known, hence risk can only be ascertained with regard to the proposed layout and use.

9.6 Assessment of risk

The perceived risk associated with identified linkages has been assessed below in Table 1. The risk algorithm used has been shown below in Figure 4.

Risk has been assessed on the understanding that the site will be redeveloped for residential use with new areas of soft recreational landscaping created.

Figure 4 Risk assessment algorithm

Potential severity	Risk rating						Severity of hazard	Probability of hazard	Overall risk
	5	5	10	15	20	25	5 = Fatality	1 = Improbable	1 - 6 Low
	4	4	8	12	16	20	4 = Major	2 = Remote	8 - 12 Moderate
	3	3	6	9	12	15	3 = Minor	3 = Possible	15 - 25 High
	2	2	4	6	8	10	2 = Negligible	4 = Probable	
	1	1	2	3	4	5	1 = None	5 = Certainty	
		1	2	3	4	5			
Probability							Severity of hazard x probability = risk rating		

Table 1 Perceived risk to receptors

Source(s) identified	Identified pathways	Overall risk	Comments
Possible heavy metals and other inorganics, hydrocarbons (including PAHs), VOCs, asbestos and ground gases	Direct ingestion of soil and soil dust	12	The likelihood of ingesting soil during construction work and general recreation is low. Ingestion is most likely to be limited to trace quantities through unwashed hands or ingesting airborne dusts etc. Despite this, as the possibility exists for harmful contaminants to be present, the corresponding risk must still at least be considered to be moderate.
	Dermal contact with soil and soil dust	12	The potential for touching soil during construction work and general recreation is high. It is also possible that some of the contaminants potentially present could exert a biological effect from absorption through the epidermis, or alternatively be transferred to the mouth. In either instance the extent of uptake is still expected to be low, although as the possibility exists for harmful contaminants to be present, the corresponding risk must again at least be considered to be moderate.
	Inhalation of soil or soil-derived dust	15	The potential for inhaling soil or airborne soil-derived dust during construction work in particular is high. The possibility also exists for the soil to contain asbestos fibres. As such, the corresponding risk must be considered to be potentially high until such time that it can be shown otherwise.
	Uptake via the consumption of home-grown produce	10	The likelihood of ingesting contamination from eating home-grown vegetables is low. However as the possibility exists for harmful contaminants to be present, the corresponding risk must still at least be considered to be low-moderate.

Table 1 (Cont.) Perceived risk to receptors

Source(s) identified	Identified pathways	Overall risk	Comments
Possible heavy metals and other inorganics, hydrocarbons (including PAHs), VOCs, asbestos and ground gases	Inhalation and/or ignition of gases and/or vapours	12	There is a possibility that hydrocarbon or VOC residue could be present within the soil beneath the site, such that this could release vapours, although the likelihood of this occurring is low. The possibility also exists for the made-ground deposits to be generating ground gases. Until such time that the absence or presence of organic material within made-ground or natural geology can be confirmed the risk level must also be considered to be potentially moderate.
	Direct contact with buildings	12	Some of the substances potentially present could be a risk to building fabric or underground services. This is especially so for hydrocarbon or VOC residue. As such, the risk must similarly at least be considered to be moderate, until such time that it can be shown otherwise.
	Groundwater and off-site environmental media	12	Some of the substances potentially present could be an indirect risk to groundwater, and possibly impact off-site environmental media. This is especially so for organic residue. As such, the risk must similarly be considered to be moderate, until such time that it can be shown otherwise.

10 Summary and recommendations

10.1 Summary

This report has been prepared in support of the proposal to redevelop this former residential and commercial site for sole residential use with a small associated garden area. It has identified a potential contamination concern due principally to the former on-site presence of a motor repair facility, along with domestic garaging, and the presence of other outbuildings of unknown use.

Furthermore, the possible presence of made-ground and hardcore beneath the existing surface has also been highlighted, along with the current and historical presence of (presumed) cement-bonded asbestos roofing to the garages and/or outbuildings.

The site had also seen the nearby presence of a large motor repair facility and fuel station operating around 40m to the east from the 1950s through to the 1990s.

In addition to these potential sources, the conceptual model has identified pathway linkages, suggesting that there could be some degree of unacceptable risk to identified receptors, namely; construction workers and future site occupiers, along with groundwater resources and any associated underground services.

10.2 Recommendations

In view of the above conclusion, it is recommended that the actual risk to receptors would need to be determined by means of a precautionary intrusive investigation.

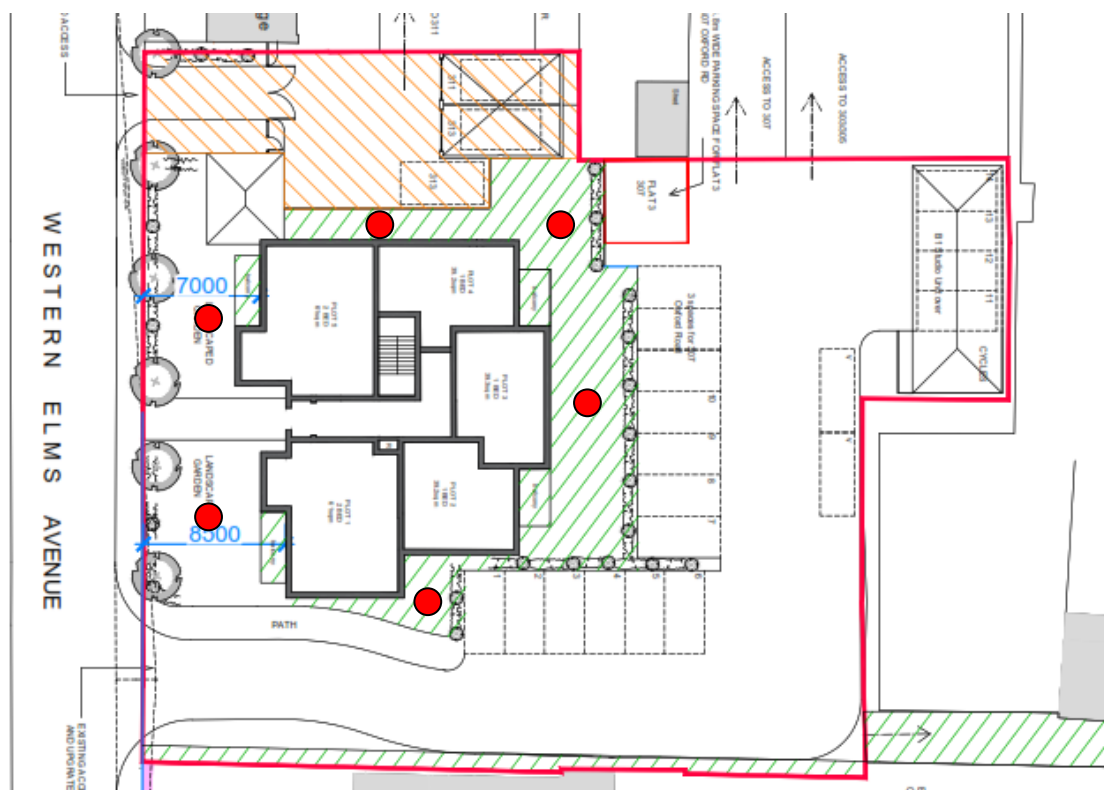
More specifically, it is recommended that soil sampling to a minimum depth of 1000mm is undertaken at a minimum of six locations across the site, concentrating on the proposed areas where soft recreational landscaping is to be introduced.

Soil samples representing the direct contact zone at a depth of 100 - 200mm, and the indirect contact zone at a depth of 500 - 600mm should at least be collected from each location for laboratory analysis; along with any other depths where a specific concern may be suspected. All soil samples should be analysed for the determinands highlighted in the conceptual model.

In undertaking intrusive works the nature of the sub-surface should be visually characterised and depending upon the findings (such as the presence, depth and nature of any made-ground) a decision should be made as to whether or not there is any potential for ground gas generation; based on the likely presence of hydrocarbon/VOC residue or other buried organic material.

In characterising the nature of the ground beneath the surface the conceptual site model (CSM) and perceived risk should be reviewed, in order to determine whether or not additional investigative works are required.

Figure 3 Proposed soil sampling locations



● Proposed intrusive sampling locations

Finally it is recommended that an informal observation strategy should be put in place during all ground-works that may take place as part of this redevelopment. Care should be taken during the working of the site to investigate any soils, which are suspected by sight, odour or suspicion, to be contaminated.

In the event of any discovery of potentially contaminated soil, the location, type and quantity should be recorded, and the contaminated land officer at Reading Borough Council notified immediately. Approval would need to be sought prior to continuing groundworks or implementing any mitigation.

The findings from such an investigation should allow any uncertainties or presumptions within the conceptual site model to be readdressed, and the risk reassessed accordingly.

11 Limitations

The results, comments and recommendations within this report are based upon the information made available at the time of undertaking this work, and relate to this specific work only. They must not be used to assess similar concerns at any other time, or at any other location.

Furthermore it should be pointed out that Apple Environmental Limited has been contracted to provide an objective preliminary risk assessment only, and as such has made every effort to achieve this aim.

Apple Environmental Limited will not be held responsible for the accuracy of information quoted from third party sources, and furthermore will not be held responsible for any subsequent outcomes arising from the implementation of recommendations herein based on this information.

12 References and other sources of information

1. Investigation of potentially contaminated sites - code of practice (BSI 10175:2011+A2:2017)
2. Land Contamination Risk Management (LCRM) - Environment Agency (April 2021)
3. Groundsure EnviroInsight - historical mapping and environmental data report.
4. Natural England Nature on the map:
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7. Reading History, all about the history of the town Reading in Berkshire
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APPENDIX I

Historical maps

Site Details:

LAND TO THE REAR OF 313,
OXFORD ROAD, READING,
RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: County Series

Map date: 1881

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1881
Revised 1881
Edition N/A
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Site Details:

LAND TO THE REAR OF 313,
OXFORD ROAD, READING,
RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: County Series

Map date: 1899-1900

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1899
Revised 1899
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Site Details:

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OXFORD ROAD, READING,
RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: County Series

Map date: 1911-1912

Scale: 1:2,500

Printed at: 1:2,500



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OXFORD ROAD, READING,
RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: County Series

Map date: 1931-1932

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1932
Revised 1932
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Surveyed 1931
Revised 1931
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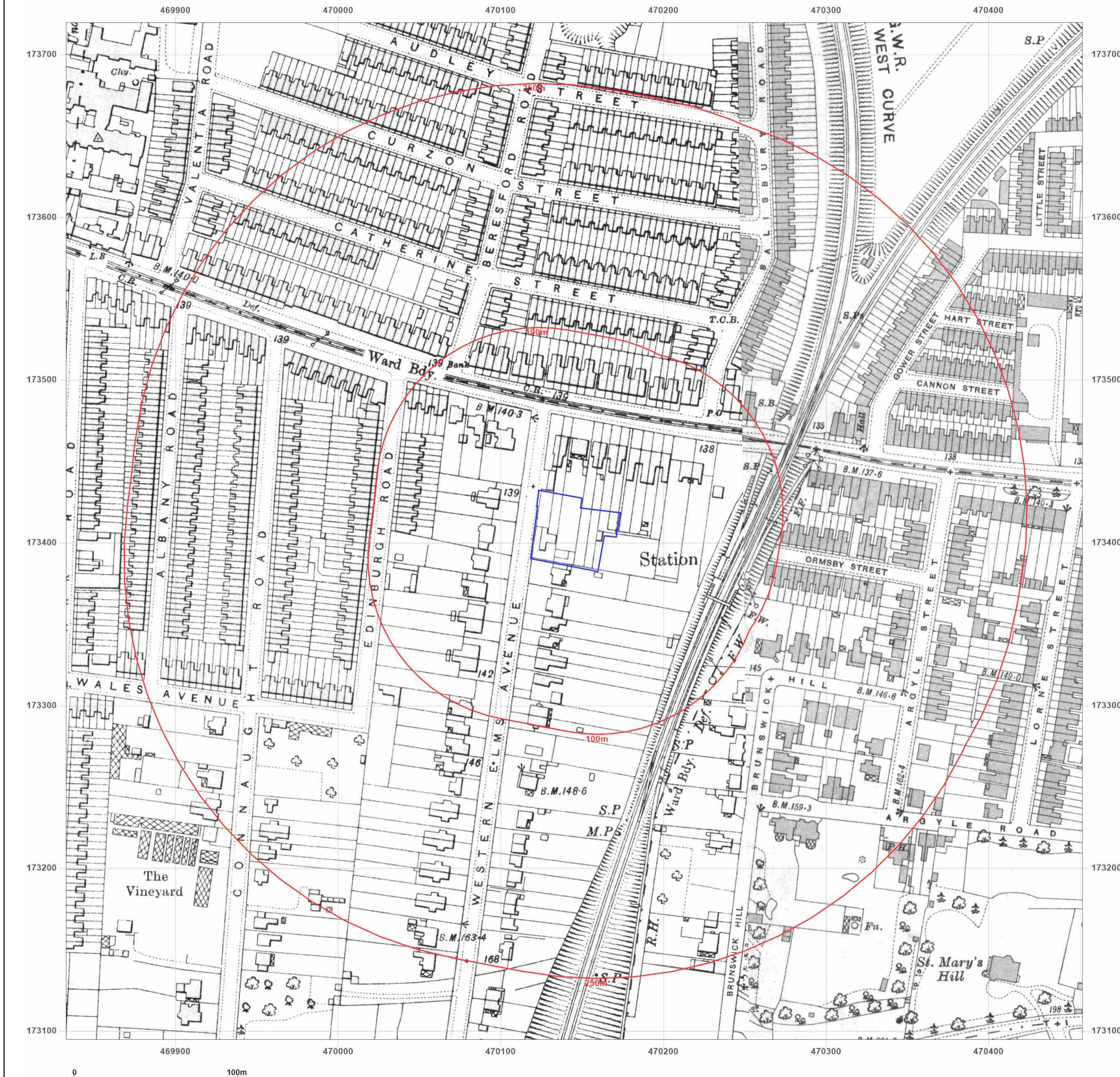


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Site Details:

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RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: National Grid

Map date: 1959

Scale: 1:1,250

Printed at: 1:2,000



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Revised 1958
Edition N/A
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Revised 1959
Edition N/A
Copyright 1959
Levelled 1951

Surveyed 1958
Revised 1958
Edition N/A
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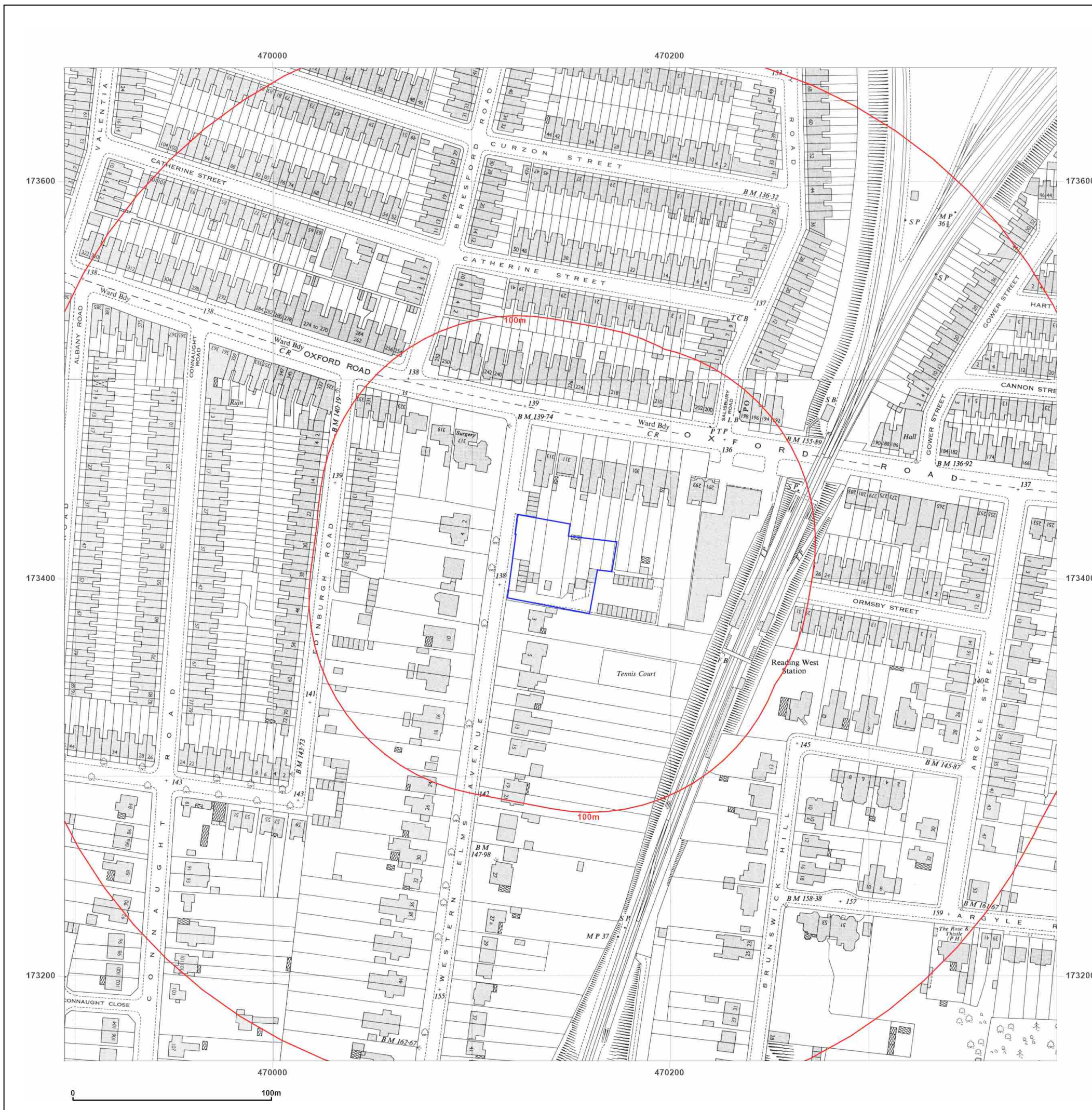


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Site Details:

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OXFORD ROAD, READING,
RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: National Grid

Map date: 1961-1962

Scale: 1:2,500

Printed at: 1:2,500



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Site Details:

LAND TO THE REAR OF 313,
OXFORD ROAD, READING,
RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: National Grid

Map date: 1969-1974

Scale: 1:1,250

Printed at: 1:2,000

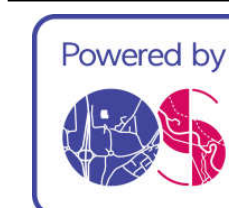


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Site Details:

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RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: National Grid

Map date: 1973-1978

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
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Edition N/A
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Revised 1978
Edition N/A
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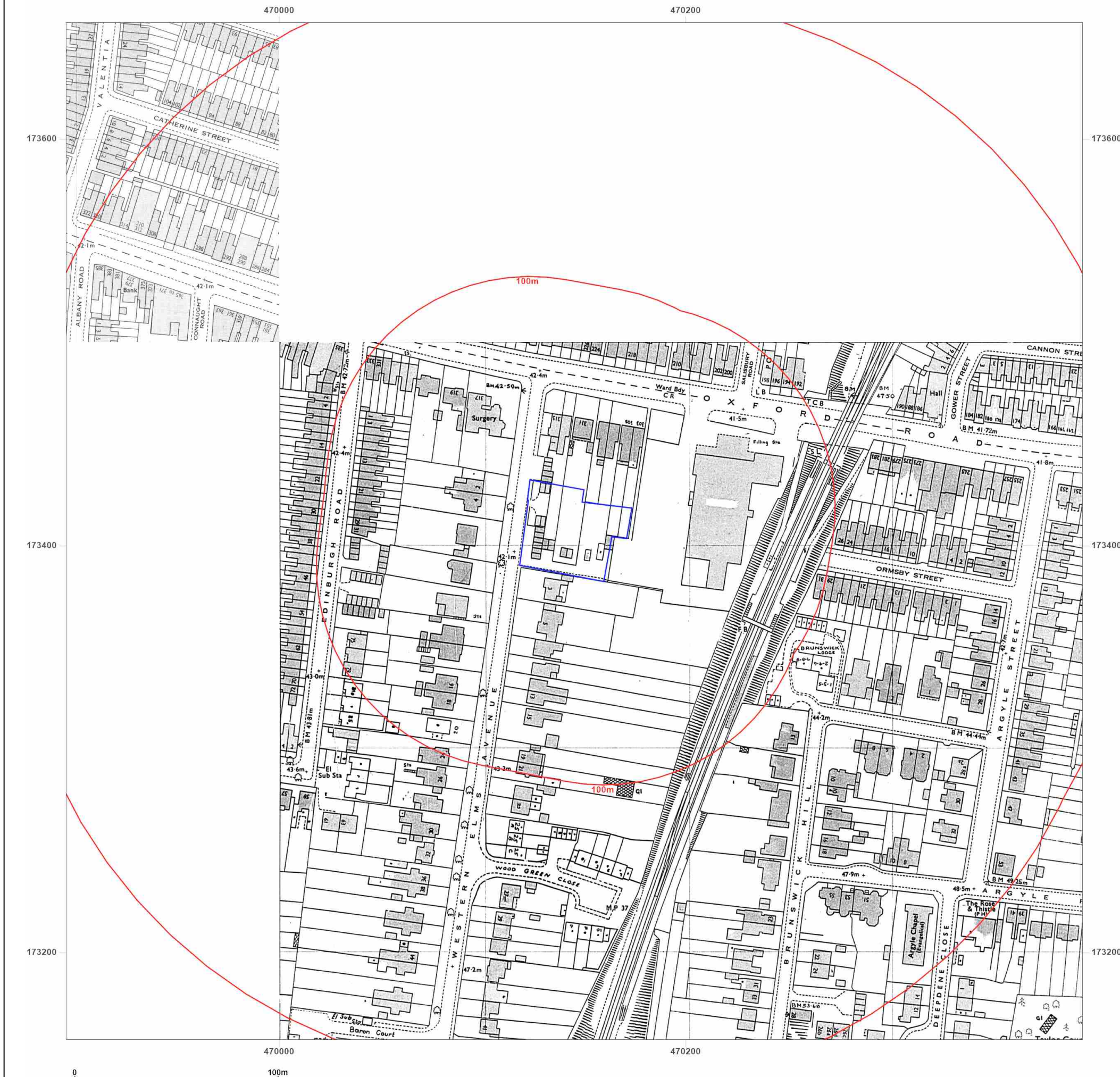


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Site Details:

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OXFORD ROAD, READING,
RG30 1AU

Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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Surveyed 1973
Revised 1993
Edition N/A
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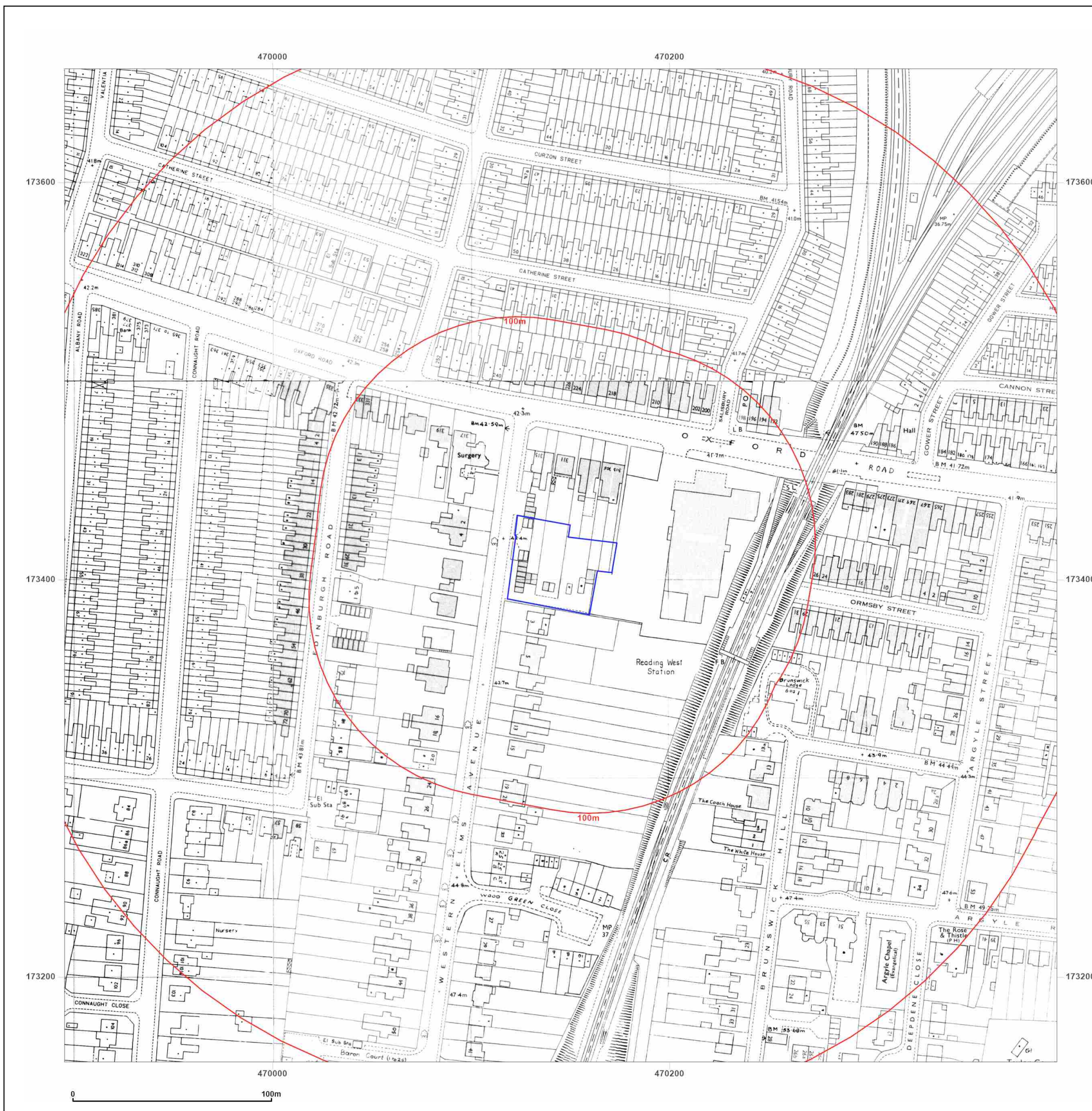


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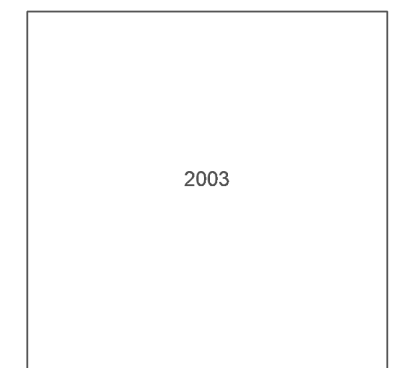
Client Ref: CL-3194-MF
Report Ref: GS-8017234
Grid Ref: 470145, 173407

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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