

# **GROUND ENGINEERING**

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**PHASE ONE DESK STUDY REPORT**  
**AT**  
**HYLANDS ROAD**  
**UPPER WALTHAMSTOW**  
**LONDON**  
**E17**

**Report Reference No. C14872**

**On behalf of:**

**London Borough of Waltham Forest  
Waltham Forest Town Hall Complex  
Forest Road  
Walthamstow  
London  
E17 4JF**

**August 2019**

## **CONTENTS**

	Page
INTRODUCTION	1
LOCATION, DESCRIPTION & TOPOGRAPHY OF THE SITE	2
SERVICE SEARCH	4
DESK STUDY	6
Geology	6
Site History	7
Summary of Historical Background	9
Preliminary UXO Threat Assessment	9
Environmental Database Information	10
PRELIMINARY RISK ASSESSMENT	13
Preliminary Conceptual Model	15
CONCLUSIONS	16
Contaminated Soil	16
Drainage & Existing Buildings	16
Soil Gas	17
Water Environment	17
Ground Contamination Outside Site Boundary	17
FURTHER WORKS	18
Existing Site Layout Plan	
Proposed Site Layout Plan	
Site Walkover Photographs	
APPENDIX 1	Utility Search Information
APPENDIX 2	Historical Map & Aerial Photograph Extracts
APPENDIX 3	Preliminary UXO Risk Assessment
APPENDIX 4	Environmental Database Search

## **EXECUTIVE SUMMARY**

The site was occupied by part of the Hylands Estate which consisted of seven blocks of two-storey and three-storey houses, a row of dilapidated garages, a single-storey community building, paths, a former school playground and intervening lawned areas with several trees.

The central northern part of the site was formerly occupied by a large Victorian house, with outbuildings in the southern part of the plot. These were cleared when the site was developed as the Hylands housing estate in the 1960s. The site layout has remained unchanged to the present day. The far north-eastern corner of the site includes a former school playground, together with an adjacent single-storey community centre building, which was previously used as a general store.

The site is bordered by residential developments to the north, west and south, allotment gardens to the south-east, and covered reservoirs to the east.

A preliminary UXO threat assessment gives an unlikely risk of a UXO encounter.

The site is underlain by the ‘Unproductive’ stratum of the London Clay Formation.

The south-western end of the site is crossed by approximately 3m deep foul and surface water trunk sewers. Smaller drains, gas mains, electricity cables and other services are also present beneath the site.

The site walkover identified no significant potential contaminative hazards, other than possible asbestos containing materials within existing buildings and garages.

There is a low likelihood that either soil contaminants or soil gases are present that could affect groundworkers or end users of a residential development.

The number of trees on and around the site is likely to influence the design of new foundations, although the proposed multi-storey development will most likely require a piled foundation scheme.

## **LONDON BOROUGH OF WALTHAM FOREST**

**NPS (LONDON) LIMITED**  
**CONSULTING ENGINEERS**

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### **INTRODUCTION**

The London Borough of Waltham Forest intends to redevelop an area of two-storey and three-storey housing at Hylands Road, Upper Walthamstow, London E17. The proposals are to erect four blocks of apartments/flats between four-storey and nine-storey in height, together with associated amenity space.

A phase one desk study, including a preliminary UXO risk assessment, was undertaken by Ground Engineering Limited on behalf of London Borough of Waltham Forest, following instructions from NPS London Limited. The purpose was to detail the site history and search available information for any potential environmental issues.

## **LOCATION, DESCRIPTION & TOPOGRAPHY OF THE SITE**

The 0.71 hectare site is located on the south and east sides of Hylands Road, at the eastern end of Fernhill Court, to the south of Forest Road (A503). The site is centred at National Grid Reference TQ 3893 9007, approximately 500m south-west of the A104 junction with Southend Road (A406).

The northern and western site boundaries were defined by the pavement of Hylands Road, whilst the eastern and south-eastern site boundaries were defined by a tree-lined hedgerow, with the western fringe of Epping Forest immediately to the east and bordering extensive allotment gardens immediately to the south-east of the site. The far southern end of the site was bounded by the rear gardens of neighbouring residential properties fronting Hillside Gardens to the south. The far north-eastern corner of the site was bordered by the former Hylands House Primary School, with the southern part of the school playground forming the corner of the site area. Adjacent residential properties flank the site to the north and west.

The following site description is based on a site walkover conducted on 20<sup>th</sup> August 2019. Photographs are included to the rear of this report text.

The site was occupied by six blocks of two-storey and three-storey housing, together with a pair of two-storey houses (No. 58-59) and a disused single-storey community building (the Hydro Centre) close to the north-eastern corner of the plot. The blocks of houses were flanked by communal lawned areas and were crossed by paths. An asphalt surfaced road extended from the north-eastern corner of Hylands Road, where it provided access to a row of dilapidated garages along the south-eastern edge of the site, which were partly overgrown by vegetation from the boundary hedge.

The northern part of the plot included several mature and semi-mature Ash, Sycamore, Oak, Cypress and Maple trees within it, whilst the eastern and southern site boundary also included many mature trees.

The Hylands estate stands on ground that falls south-west from Forest Road to the north. The lowest, southern most part of the site stands at an elevation of approximately 42.5mOD, with ground levels rising by about 2.5m to the northern part of the site at Hylands Road.

## **SERVICES SEARCH**

A search for information on services crossing the site was made through the following utility companies:

British Telecommunications plc – for Telephony

National Grid Gas plc – for Gas

Thames Water Utilities Limited – for Water and Sewerage

UK Power Networks – for Electricity

Linesearch – for electricity, gas and oil pipelines

Extracts of plans from these searches are included in Appendix 1. Full details are held by Ground Engineering Limited and can be made available on request.

Water mains 100mm and 125mm diameter are shown to extend beneath Hylands Road and Fernhill Court by the Thames Water plan. Water meters are located within the pavement alongside Hylands Road, and a single hydrant is located within the pavement to the east of Nos. 60-67.

The south-western corner of the site is traversed by a 229mm diameter trunk foul sewer and a 229mm diameter trunk surface water sewer. These sewers drain west beneath Fernhill Court from covers located immediately west of the northern end of Nos. 96-107. The foul sewer drains west at an invert depth of 3.00m (39.75mOD) whilst the surface water sewer drains west at an invert depth of 2.83m (39.88mOD).

Several gas mains cross the site. These extend beneath the pavements of Hylands Road and Fernhill Court as 90mm and 75mm polyethylene pipes within 100mm and 150mm steel pipes, before extending beneath the pavement east of Nos. 60-67, and a 63mm diameter polyethylene pipe looping around the blocks in the central and western parts of the site. A 90mm diameter polyethylene gas main branches across the southern end of the site around Nos. 1-4 where it supplies adjacent housing.

BT apparatus is shown beneath the site, extending from Hylands Road directly to the existing buildings.

Electricity cables of UK Power Networks are shown extending within ducts across Hylands Road in the north-western corner as three ducts (Section 12) and as pairs of ducts in the north-eastern part of the site (Sections 24, 25, and 26). Cables extend from tee junctions to the existing buildings from the pavements of Hylands Road, and into the northern end of the block Nos. 60-67 and Nos. 58-59 in the north-eastern corner of the plot.

## **DESK STUDY**

The desk study was conducted using data from the following sources:

- Maps and Publications of the British Geological Survey & Ground Engineering Limited Database
- Historical Maps & Aerial Photographs
- Public Register Database Information (Groundsure Database)

## **Geology**

The 1996 geological map, Sheet 256 at 1:50,000 scale, illustrates the site to be underlain directly by solid geology of the London Clay Formation, although the elevated ground about 25m to the east of the site is shown to be capped with a Pre-Anglian deposit of Woodford Gravel Formation. The London Clay to the south-west of the site is indicated to have a propensity for Head Deposits to mantle the upper part of the solid geology.

The land immediately east of the site is shown as an area of made ground, believed to be associated with the installation of water reservoirs beneath this area.

Previous work by Ground Engineering Limited about 185m to the south of the site found the anticipated London Clay Formation from shallow depth and proved the London Clay to extend to at least 15.00m depth.

## Site History

Historical maps, aerial photographs and historical information obtained on the internet, dating between 1822 and the most recent Ordnance Survey (OS) map have been reviewed as part of this desk study. Selected map extracts are reproduced in Appendix 2 as Figures A to O with relevant descriptions given below.

<i>Map Extract Studied</i>	<i>Description</i>
<b>1822</b> J. Coe's Map of Walthamstow Scale 1:4800 <b>Figure A</b>	The site lies against the western edge of Epping Forest within a parcel of land denoted as belonging to the 'Poor of Walthamstow'. To the north of the site is Hagger Lane, beyond which are the grounds of Bellevue House which includes a large lake. Some smaller ponds are shown within the fields to the south-west of the site.
<b>1863</b> OS Sheet: Essex LXV.SW Scale: 1:10,560 <b>Figure B</b>	The site and surrounding area were unchanged. The land immediately east of the site and along the south side of Hagger Lane had been cleared of trees.
<b>1876</b> OS Sheet: Essex LXV.10 Scale: 1:2500 <b>Figure C</b>	The eastern, southern and part of the western site boundaries of the open field within which the site was located, are shown to be tree-lined. A small pond is located about 10m north of the north-eastern corner of the site, with other ponds 80m to the south-west and 70m to the north-west and 110m to the west. The cleared area immediately east of the site is shown sub-divided into allotments, or plots for cultivation on common land.
<b>1896</b> OS Sheet: Essex LXV.10 Scale: 1:2500 <b>Figure D</b>	By the time of this map, the road forming the northern site boundary had been renamed Forest Road and Hylands House had been erected immediately north of the site. The site itself was occupied by a house sited in the central northern part of the plot, with several outbuildings and glasshouses in the southern part of the site. Residential development alongside Hempstead Road had extended about 100m west of the site.
<b>1919</b> OS Sheet: Essex LXXVIII.5 Scale: 1:2500 <b>Figure E</b>	The site layout remained largely unchanged. Beyond the neighbouring allotment gardens to the north-east are raised earthworks associated with recently installed water reservoirs. To the north of Forest Road, the former grounds of Belle Vue were being developed with roads and terraced housing. A former pond 70m to the south-west had been infilled.
<b>1939</b> OS Sheet: Essex LXXVIII.5 Scale: 1:2500 <b>Figure F</b>	The site layout remained unchanged. The southern site boundary was now formed by the rear gardens of terraced houses fronting Hillside Gardens. Residential properties or flats had also been erected about 50m to the west of the site. The North Circular Road (A406) had been routed just north-east of the site to join Forest Road.
<b>1947</b> Aerial Photograph <b>Figure G</b>	The site layout remained unchanged. Numerous mature trees are visible both on and around the site margins. There is a possible area of clearance which may indicate bomb-damage about 150m to the north-west of the site.
<b>1955</b> OS Sheets: TQ3890 & TQ3889 Scale: 1:2500 <b>Figure H</b>	The site and surrounding area were unchanged, although most of the outbuildings in the southern part of the site had been removed. New blocks of flats had been established and bordered the west of the site on Fernhill Court. Electricity sub-stations were shown 70m to the north and 100m to the west.

<i><b>Map Extract Studied</b></i>	<i><b>Description</b></i>
<b>1966</b> OS Sheets: TQ3890SE & TQ3889NW Scale: 1:1250 <b>Figure I</b>	By the time of this map, the site had been redeveloped with Hylands Road extending east from Fernhill Court into the site, which together with land to the north and north-west was developed with blocks of houses and a row of garages. The Victorian Hylands House remained to the north of the site.
<b>1975-1976</b> OS Sheets: TQ39SE & TQ38NE Scale: 1:10,000 <b>Figure J</b>	The site layout was unchanged. Earthworks to the east of the site and north of the allotments indicate additional covered reservoirs. The A406 North Circular Road had been re-routed with Woodford New Road junction about 500m north-east of the site.
<b>1980</b> OS Sheet: TQ3890SE Scale: 1:1250 <b>Figure K</b>	The site and most of the surrounding area were unchanged. The adjacent northern area of land to the east is denoted as 'Water Works', confirming the presence of buried reservoirs.
<b>1991</b> OS Sheets: TQ3890SE, TQ3990SW, TQ3889NE & TQ3989NW Scale: 1:1250 <b>Figure L</b>	The site and surrounding area were unchanged.
<b>2003</b> OS Sheets: TQ3890SE, TQ3990SW, TQ3889NE & TQ3989NW Scale: 1:1250 <b>Figure M</b>	The site and surrounding area remained unchanged. The far north-eastern corner is shown to be part of Hyland House School and is bordered to the north by a new (timber) school building.
<b>2013</b> Aerial Photograph <b>Figure N</b>	This photograph shows the predominantly two-storey houses on the site. The surrounding area is unchanged. Several mature trees are visible towards the southern, eastern and northern site margins, together with a wooded area immediately to the east of the site.
<b>August 2016</b> Aerial Photograph First Page of Groundsure Report (Appendix 3)	The site and surrounding area are unchanged.
<b>2017</b> Aerial Photograph <b>Figure O</b>	The site and surrounding area are unchanged.

## **Summary of Historical Background**

The site area was developed in late Victorian times, around the 1890s when a single large house was erected on the site and another (Hylands House) erected immediately north of the site. The north-eastern part of the site included part of the grounds of Hylands House and several outbuildings were located at the southern part of the site. The Victorian property was cleared, and the site subsequently developed as its present day layout of Hylands Road and blocks of houses in the 1960s. The site layout has remained unchanged to the present day.

The adjacent land to the east was formerly part of Epping Forest and was cleared to form areas of extensive allotments from late Victorian times. Since the 1970s, the land immediately to the north-east was used to house extensions to the neighbouring system of covered reservoirs. The neighbouring blocks of flats to the west forming Fernhill Court were erected prior to the Hylands Road extension in the 1950s. Hylands House immediately to the north-east of the site operated as the Forest Hydro Treatment Centre until it became a Primary School and operated for many years until it relocated in Tottenham in 2015, with the premises since remaining unoccupied, and the southern part of the playground forming the north-eastern corner of this site. The Hydro Community Centre is a single-storey disused building in the north-eastern part of the site, which was formerly used as a general store.

## **Preliminary Unexploded Ordnance (UXO) Threat Assessment**

A preliminary unexploded ordnance (UXO) threat assessment has been prepared in accordance with the requirements of Phase I of CIRIA C681 ‘Unexploded Ordnance (UXO) – A Guide for the Construction Industry’. The risk assessment is presented in Appendix 3. This indicates that there were no recorded WWII high explosive bomb strikes on the site, with the closest bomb strikes recorded 60m, 150m and 195m to the north-west. The UXO threat potential on this site is rated as unlikely. The report concludes that no further action is required to address the UXO risk.

## Environmental Database Information

Appendix 4 contains information derived from Environmental Databases for a radius of up to 2,000m from the site. The information covers datasets held by Groundsure with contributors including the local authority, the Environment Agency (EA), British Geological Survey, Ordnance Survey and the Coal Authority and the results, within a radius of 250m, are summarised below:

<b>1. Historical Industrial Sites</b>	<b>On-Site</b>	<b>0 - 250m</b>
Potentially Contaminative Uses (1:10,000 mapping)	0	3
Historical Tank Database	0	0
Historical Energy Features Database	0	9
Historical Petrol & Fuel Site Database	0	0
Historical Garage & Motor Vehicle Repair Database	0	0
Historical Military Sites	0	0
Potentially Infilled Land	0	14
<b>2. Environmental Permits, Incidents and Registers</b>	<b>On-Site</b>	<b>0 - 250m</b>
Sites Holding Environmental Permits/Authorisations	0	0
Records of COMAH and NIHHS Sites	0	0
Environment Agency Recorded Pollution Incidents	0	0
Sites Determined as Contaminated Land under Part IIA EPA 1990	0	0
<b>3. Landfill and Other Waste Sites</b>	<b>On-Site</b>	<b>0 - 250m</b>
Landfill Sites	0	1
Landfill and Other Waste Sites	0	0
<b>4. Current Land Uses</b>	<b>On-Site</b>	<b>0 - 250m</b>
Current Industrial Sites Data	0	6
Records of Petrol and Fuel Sites	0	0
National Grid Oil/Gas Pipelines & Electricity Cables	0	0
<b>5. Geology</b>		
Artificial Ground or Made Ground records within 50m buffer		Identified
Superficial Ground and Drift Geology records within 50m buffer		Identified
<b>6. Hydrogeology and Hydrology</b>	<b>On-Site</b>	<b>0 - 250m</b>
Productive strata within superficial geology beneath the site		No
Productive strata within solid geology beneath the site		No
Groundwater Abstraction Licences	0	0
Surface Water Abstraction Licences	0	0
Potable Water Abstraction Licences	0	0
Source Protection Zones	0	0
River Quality Data	0	0
Detailed River Network Entries	0	18
Surface Water Features	No	Yes

<b>7. Flooding</b>					
Environment Agency indicative Zone 2 floodplains within 250m of site					None
Environment Agency indicative Zone 3 floodplains within 250m of site					None
Risk of flooding from rivers & the sea (RoFRaS) rating within 50m					Very Low
Flood defences within 250m of site					No
Any areas benefitting from flood defences within 250m of site					No
Flood storage areas within 250m of site					No
Maximum BGS groundwater flooding susceptibility within 50m of site					Potential Below Surface
BGS confidence rating for groundwater susceptibility areas					High
<b>8. Designated Environmentally Sensitive Sites</b>				<b>On Site</b>	<b>0 - 250m</b>
Environmentally sensitive sites				3	10
<b>9. Natural Hazards (on site)</b>					
Hazard	Negligible	Very Low	Low	Moderate	High
Shrink Swell Clay	-	-	-	On-site	-
Landslides	-	On-site	-	-	-
Soluble Rocks	On-site	-	-	-	-
Compressible Ground	-	On-site	-	-	-
Collapsible Rocks	-	On-site	-	-	-
Running Sand	-	On-site	-	-	-
<b>9.2. Radon</b>					
The property is not in a Radon Affected Area, as less than 1% of properties are above the action level.					
No Radon Protective Measures are required for new properties or extensions.					
<b>10. Mining</b>					
Coal mining areas within 75m of site				None	
Non coal-mining areas within 50m of site				None	
Brine affected areas within 75m of site				None	

## Database Summary

The potentially contaminative uses identified from historical mapping within 250m of the site are for three pumping stations to the east; nine electricity sub-stations 66m to 243m north, north-west, west and south-west of the site; and six entries for reservoirs 116m to 139m to the east. Eight potentially infilled ponds were identified between 217m and 249m to the south-east and north.

There are no environmental permits, pollution incidents or register entries listed on or within 250m of the site. The adjacent Forest Road Allotments held a waste licence between 1968 and 1970 for inert waste on the site 1m to the south-east.

The six current industrial land uses within 250m of the site include the water works 10m to the south-east; three electricity sub-stations to the north, west and south-west; and

a leisure wear and engineering services to the south and north of the site at Hillside Gardens and Hillcrest Road respectively.

The site, including a 50m buffer, records both artificial/made ground and a superficial deposit of the Woodford Gravel Formation, a ‘Secondary (A) Aquifer’ 21m to the south-east. However, the site is underlain by the solid geology of the London Clay Formation, which is designated by the EA as an ‘Unproductive’ stratum. The site does not lie within any Source Protection Zones, floodplains or flood zones and has a very low RoFRaS flood rating. There are eighteen water network records and seven surface water features within 250m north, north-east and east of the site. The closest is a southward flowing watercourse 170m east of the site.

The site is within a nitrate vulnerable zone and area of Green Belt, designated environmentally sensitive areas. The site is 80m south and 92m north of Epping Forest, an ancient woodland, designated a Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC). The site is not within an identified mining area, or brine affected area. No radon protection measures are required for new residential properties or extensions on the site.

The site is assessed as having a ‘moderate’ hazard from shrink-swell of clays. The site is assessed as having a ‘very low’ hazard for landslides, collapsible rocks, compressible ground and running sand; and as having a ‘negligible’ hazard from soluble rocks.

## **PRELIMINARY RISK ASSESSMENT**

In order to assess the risks associated with the presence of ground contamination the linkages between the sources and potential receptors to contamination need to be established and evaluated. This is in accordance with the Environmental Protection Act 1990, which provides a statutory definition of Contaminated Land. To fall within this definition it is necessary that, as a result of the condition of the land, substances may be present on or under the land such that

- *Significant harm is being caused or there is a significant possibility of such harm being caused; or*
- *Pollution of controlled waters is being, or is likely to be, caused*

There are three principal factors that are assessed whilst undertaking a qualitative risk assessment for any site. These are the presence of a contamination source, the existence of migration pathways and the presence of a sensitive target(s). It should be noted that it is necessary for each element of source, pathway and target to be present in order for exposure of a human or environmental receptor to occur.

UK Government guidance on the assessment of contaminated land, requires risk to human health and the environment to be reviewed using source – pathway – target relationships. If each of these elements is present, the linkage provides a potential risk to the identified targets.

***Contaminants or potential pollutants*** identified as ***sources*** in relation to the identified previous uses are listed below in Table 1.

**Table 1: Identified Potential Contaminant Sources**

<b><i>Contaminant Source</i></b>	<b><i>Comments</i></b>
Drainage/Buildings	Effluent from existing drains could provide a contaminant source. The existing buildings/garages may have asbestos containing materials within them.
Soil Beneath Site	Contamination may be present within made ground beneath the site.
Soil Gas	Potential soil gas generated from made ground or underlying geology.
Ground Contamination Outside Site Boundary	Ground contamination migrating from adjacent or neighbouring sites.

A **Pathway** is defined as one or more routes through which a receptor is being, or could be, exposed to, or affected by, a given contaminant.

Potential **Target or Receptors** fall within the categories of Human Health, Water Environment, Flora and Fauna, and Building Materials.

There are a number of possible pathways for the contaminants identified on the site to impact human and/or environmental receptors and these are summarised in Tables 2 and 3.

**Table 2: Human Receptors and Pathways**

<b><i>Human Receptor-Mechanism</i></b>	<b><i>Typical Exposure Pathway</i></b>
Human Inhalation	Breathing Dust and Fumes Breathing Gas emissions
Human Ingestion	Eating -contaminated soil, for example by small children -plants grown on contaminated soil Ingesting dust or soil on fruit or vegetables Drinking contaminated water
Human Contact	Direct skin contact with contamination Direct skin contact with contaminated liquids

**Table 3: Water Receptors and Pathways**

<b><i>Receptor-Water Environment</i></b>	<b><i>Typical Exposure Pathway</i></b>
<b>Groundwater</b>  The site is underlain by the 'Unproductive' strata of the London Clay Formation.	Surface infiltration of atmospheric waters into the soils beneath the site could wash or dissolve potential contaminants and migrate to underlying groundwater.  Contamination leads to restriction/prevention of use as a resource, for example, drinking water, and can have secondary impacts on other resources, which depend on it.
<b>Surface Water</b>  A watercourse flows southwards 170m east of the site.	Surface infiltration of atmospheric waters into the soils beneath the site could wash or dissolve potential contaminants and laterally migrate.  Contamination leads to a restriction/prevention of use: -as drinking water resource -for amenity use Effects on aquatic life.

## Preliminary Conceptual Model

Assessment of the potential linkage between ground contamination sources and human or environmental receptors have been assessed based on the desk study research documented in the preceding sections of this report. A generalised preliminary conceptual model relative to the construction phase and completed development is presented below in Table 4.

**Table 4: Preliminary Conceptual Model Relative to Residential Redevelopment**

<b>Receptors</b>	<b>Pathway</b>	<b>Estimated Potential for Linkage with Contaminant Sources</b>			
		<b>Drainage/ Existing Buildings</b>	<b>Soil Beneath Site</b>	<b>Soil Gas</b>	<b>Ground Contamination Outside Site Boundary</b>
Human Health – groundworkers	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Likely	Low likelihood	Low likelihood	Unlikely
Human Health – users of completed development	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Unlikely	Low likelihood	Low likelihood	Unlikely
Water Environment	Migration through ground into surface water or groundwater	Unlikely	Low likelihood	Unlikely	Unlikely
Flora	Vegetation on site growing on contaminated soil	Unlikely	Unlikely	Unlikely	Unlikely
Building Materials	Contact with contaminated soil	Unlikely	Low likelihood	N/A	Unlikely

<b>Key to Table 4 Estimated Potential for Linkage with Contaminant Source</b>	<b>Definition</b>
<b>High likelihood</b>	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
<b>Likely</b>	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
<b>Low likelihood</b>	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place and is less likely in the shorter term.
<b>Unlikely</b>	There is a pollution linkage, but circumstances are such that it is improbable that an event would occur even in the very long term.
<b>N/A</b>	Not Applicable.

## **CONCLUSIONS**

Anticipated exposure scenarios relating to the continued residential end use of the site in the context of the preliminary conceptual model, are discussed as follows.

Potential sources of contamination present on or beneath the site would relate primarily to; made ground soils beneath the site; and asbestos containing materials within the existing buildings.

### **Contaminated Soil**

The site is likely to have a surface layer of made ground, which locally thickens where the site has been levelled, and where former or existing buildings were located. There is a low likelihood that contaminants are present within the made ground soils such that they could affect groundworkers, and there is a low likelihood that end users could come into contact with contaminants if the made ground soils are re-used within an open space or private garden setting.

### **Drainage & Existing Buildings**

Both trunk foul and surface water sewers up to 229mm in diameter and up to 3.00m deep extend beneath the south-western part of the site. The integrity of all existing drainage should be checked and cleared where necessary, to ensure that they are free-flowing, and a plan implemented to ensure that they remain unblocked and well maintained or are re-routed. Redundant drain runs and other services should be removed from beneath the site and precautions should ensure that any remaining effluent or sediment is directly disposed off-site. These measures should remove any future risk to human health and the water environment.

The existing buildings, and in particular the row of garages, may contain asbestos containing materials. It is recommended that an asbestos survey be conducted in order to determine the presence, type and nature of such materials prior to any demolition. Suitable

precautions, in line with current best practice, should be put in place to protect workers and neighbours from the effects of asbestos material, during the demolition phase.

### **Soil Gas**

The site lies within an area where less than 1% of homes are above the BRE action level for radon, and where radon protection measures are not required for new housing.

Areas of thick made ground, infilled former ponds and sewer trenches may provide potential sources of soil gases. It is considered a low likelihood that groundworkers or end users would be affected by ground gases generated from the made ground.

### **Water Environment**

The site is underlain directly by the solid geology London Clay Formation, designated by the E.A. as an ‘Unproductive’ stratum. The historical, now infilled former ponds to the south-west and west of the site reflect the impermeable nature of the underlying London Clay. Perched groundwater levels are likely to seasonally occur beneath the site and the direction of groundwater flow would be downslope to the south and south-west.

The likelihood of any near-surface soil contaminants affecting groundwater or the water within the neighbouring elevated reservoirs is considered to be unlikely.

### **Ground Contamination Outside Site Boundary**

The potentially contaminative uses close to the site include the allotments immediately south-east of the site, and the water storage reservoirs to the east. It is unlikely that any contamination on these adjacent sites would affect groundworkers or end users of the proposed residential development on this site.

## FURTHER WORKS

It is recommended that an intrusive ground investigation is undertaken to determine the nature of any ground conditions and identify whether ground contamination is present. Such investigation will also need to establish the geotechnical nature of the ground for design and construction of future foundations and drainage. This could be achieved by means of window sampled boreholes and deep cable percussion boreholes for the proposed multi-storey development. Foundation design will need to consider the effects of the many trees on and around the site, although high anticipated column loads are likely to dictate a piled foundation scheme for the proposed four-storey to nine-storey development.

Chemical testing should include a suite of tests which would encompass a wide range of potential contaminants. Soil gas and groundwater monitoring should also be undertaken, targeting areas of thicker fill.

## GROUND ENGINEERING LIMITED



C.M.J. EBELING

M.Sc.(Eng.), M.A.E.G.,  
Geol., F.G.S.

Director



S. WEATHERLEY

B.Eng.(Hons.),  
C.Geol., F.G.S.

Senior Geo-Environmental Engineer

# **Site Walkover Photographs (20 August 2019)**

**South-Western & Western Parts of Site**



View south from Hylands Road of Nos. 1-10 and Fernhill Court to the right



View south-east of Nos. 96-107



View south along the eastern side of Hylands Road (Nos. 80-107)

**Project : Hylands Road, Walthamstow, London E17**

**Client : London Borough of Waltham Forest**

**GROUND  
ENGINEERING  
LIMITED**  
Peterborough Tel : 01733 566566

**Project No.  
C14872**

# Site Walkover Photographs (20 August 2019)

## North & North-Eastern Parts of Site



View east along Hylands Road forming the northern site boundary



View from eastern end of Hylands Road to fenced playground of Hyland House Primary School, including mature Oak, Ash and Cypress trees



View south-east in the north-eastern corner of site, showing single-storey community centre building & No. 58



View south-west of Nos. 60-67 in north-eastern part of site, together with mature trees

**Project : Hylands Road, Walthamstow, London E17**

**Client : London Borough of Waltham Forest**

**GROUND  
ENGINEERING  
LIMITED**  
Peterborough Tel : 01733 566566

**Project No.  
C14872**

# Site Walkover Photographs (20 August 2019)

Eastern & Central parts of Site



View north from central southern part of site towards block Nos. 60-67



Row of dilapidated and overgrown garages along tree-lined south-eastern site boundary.  
Garages have corrugated roofs (possibly asbestos containing materials)



Views of the rear communal gardens on the eastern sides of the two-storey blocks comprising Nos. 96-107 and Nos. 68-79

**Project : Hylands Road, Walthamstow, London E17**

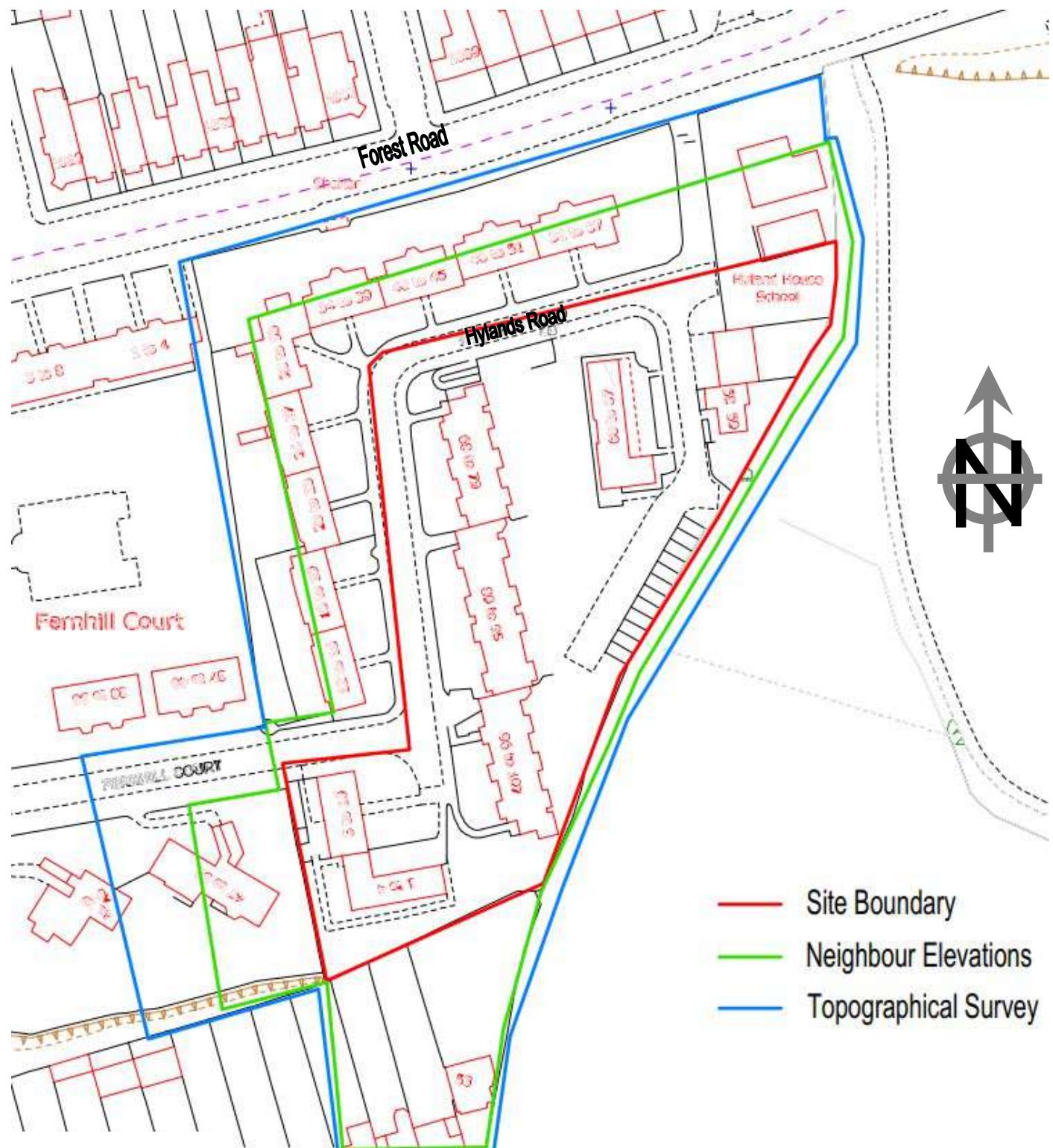
**Client : London Borough of Waltham Forest**

**GROUND  
ENGINEERING  
LIMITED**  
Peterborough Tel : 01733 566566

**Project No.  
C14872**

# Existing Site Layout Plan

Based on Drawing No. NPS-DR-A-(00)-000-P1  
Not to Scale



**Project:** Hylands Road, Upper Walthamstow,  
London E17  
**Client:** London Borough of Waltham Forest

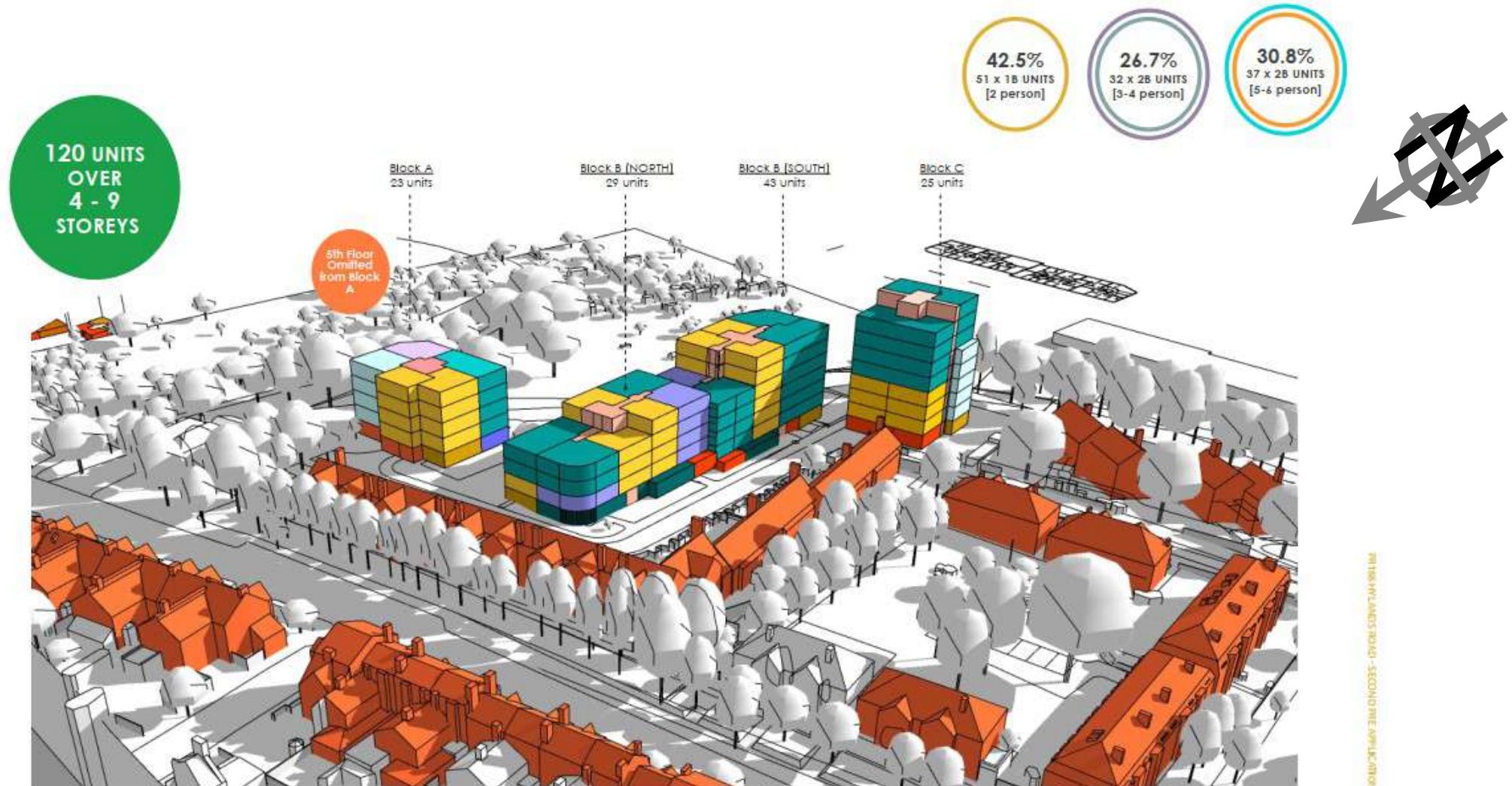
**GROUND  
ENGINEERING  
LIMITED**  
Peterborough

**Project No.**  
**C14872**  
Tel : 01733 566566

# Proposed Site Layout Plan

Not to Scale  
Based on Revised Brief Massing Scheme 04

21/08/19 HYLANDS ROAD: REVISED BRIEF MASSING / SCHEME 04



Project: Hylands Road, Upper Walthamstow, London E17

Client: London Borough of Waltham Forest

GROUND  
ENGINEERING  
LIMITED

Peterborough

Tel : 01733 566566

Project No.  
C14872

## **APPENDIX 1**

### **PUBLIC UTILITY SEARCH INFORMATION**

Asset Location Search Sewer Map - ALS/ALS Standard/2019 4061287



NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
9102	48.28	n/a
0201	56.18	55.32
0101	50.74	49.32
0102	56.27	55.42
1203	51.86	49.6
1202	n/a	n/a
1201	52.16	50.58
99ZS	n/a	n/a
9001	42.71	39.88
92XZ	n/a	n/a
9002	42.75	39.75
99ZR	n/a	n/a
92YQ	n/a	n/a
91XY	n/a	n/a
91YS	n/a	n/a
92YR	n/a	n/a
91YT	n/a	n/a
92YX	n/a	n/a
92WZ	n/a	n/a
92YY	n/a	n/a
92YZ	n/a	n/a
92XT	n/a	n/a
921A	n/a	n/a
92XV	n/a	n/a
91YU	n/a	n/a
93ZW	n/a	n/a
9101	47.66	43.76
92WX	n/a	n/a
92XS	n/a	n/a
9204	48.81	47.27
9203	48.95	44.92
9105	48.27	46.74
9110	48.63	45.68
9106	48.38	47.6
821B	n/a	n/a
821C	n/a	n/a
82ZU	n/a	n/a
82ZR	n/a	n/a
82ZT	n/a	n/a
82TR	n/a	n/a
82UY	n/a	n/a
82VW	n/a	n/a
82ZS	n/a	n/a
82ZQ	n/a	n/a
8201	45.82	n/a
82TQ	n/a	n/a
82YS	n/a	n/a
82YU	n/a	n/a
82YQ	n/a	n/a
8204	45.89	43.81
8202	46.02	44.42
92YU	n/a	n/a
93WZ	n/a	n/a
91YX	n/a	n/a
92YV	n/a	n/a
92YT	n/a	n/a
9111	46.15	44.48
91YW	n/a	n/a
91YR	n/a	n/a
92XX	n/a	n/a
92XY	n/a	n/a
93ZU	n/a	n/a
8302	44.94	43.31
93XR	n/a	n/a
93WU	n/a	n/a
83VV	n/a	n/a
83VU	n/a	n/a
93XQ	n/a	n/a
801D	n/a	n/a
80ZR	n/a	n/a
80YW	n/a	n/a
80YX	n/a	n/a
81YT	n/a	n/a
81YU	n/a	n/a
81YV	n/a	n/a
811A	n/a	n/a
81YW	n/a	n/a
81YQ	n/a	n/a
81YS	n/a	n/a
81YR	n/a	n/a
7101A	38.21	36.66
7106	n/a	n/a
81XY	n/a	n/a
8101	39.05	36.37
71UW	n/a	n/a
8102	n/a	n/a
81XW	n/a	n/a
8104	41.75	40.33
7105	39.26	37.06
8103	n/a	n/a
81WS	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
71UZ	n/a	n/a
71VQ	n/a	n/a
71VR	n/a	n/a
9104	45.94	44.39
881S	44.55	43.95
881Q	44.55	43.95
881E	44.45	43.868
881G	44.55	43.95
981B	44.55	43.43
881D	44.55	43.95
981A	44.55	43.95
881A	44.55	43.95
881B	44.55	43.95
881C	44.55	43.9
8801	44.02	42.24
8802	43.97	40.68
981C	44.55	43.58
881R	44.55	43.95
881T	n/a	n/a
881U	n/a	n/a
881V	n/a	n/a
78YW	n/a	n/a
78ZS	n/a	n/a
78ZT	n/a	n/a
78ZU	n/a	n/a
8006	40.22	37.87
8004	41.59	39.39
701B	n/a	n/a
80YS	n/a	n/a
8007	41.46	39.22
80WY	n/a	n/a
701A	n/a	n/a
80XQ	n/a	n/a
801A	n/a	n/a
80YT	n/a	n/a
80WZ	n/a	n/a
80XY	n/a	n/a
80YQ	n/a	n/a
80XS	n/a	n/a
80XT	n/a	n/a
80YU	n/a	n/a
80XU	n/a	n/a
80XV	n/a	n/a
80XW	n/a	n/a
80XR	n/a	n/a
80YY	n/a	n/a
80XX	n/a	n/a
80YZ	n/a	n/a
80ZQ	n/a	n/a
801B	n/a	n/a
81ZQ	n/a	n/a
81XX	n/a	n/a
8106	42.51	40.71
81WV	n/a	n/a
71WR	n/a	n/a
71WS	n/a	n/a
81ZS	n/a	n/a
71XX	n/a	n/a
81XS	n/a	n/a
71WU	n/a	n/a
81XT	n/a	n/a
71WZ	n/a	n/a
71VV	n/a	n/a
71VW	n/a	n/a
81XQ	n/a	n/a
7104	40.61	36.56
81XV	n/a	n/a
71WV	n/a	n/a
82UV	n/a	n/a
72WR	n/a	n/a
8203	43.32	39.87
72WQ	n/a	n/a
72ZT	n/a	n/a
82US	n/a	n/a
82UT	n/a	n/a
82WX	n/a	n/a
721A	n/a	n/a
72ZS	n/a	n/a
82WR	n/a	n/a
72ZW	n/a	n/a
82WU	n/a	n/a
82WV	n/a	n/a
72ZQ	n/a	n/a
72ZR	n/a	n/a
82VZ	n/a	n/a
72XX	n/a	n/a
82VY	n/a	n/a
72YU	n/a	n/a
821A	n/a	n/a
72XU	n/a	n/a
82XU	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
72XV	n/a	n/a
82VX	n/a	n/a
82XR	n/a	n/a
72YS	n/a	n/a
82VQ	n/a	n/a
82XS	n/a	n/a
821D	n/a	n/a
82VT	n/a	n/a
72YR	n/a	n/a
82VR	n/a	n/a
82UW	n/a	n/a
72YQ	n/a	n/a
8303	41.74	37.57
79XV	n/a	n/a
701C	n/a	n/a
791A	n/a	n/a
79XW	n/a	n/a
7804	34.12	32.26
79XX	n/a	n/a
79XY	n/a	n/a
79XZ	n/a	n/a
89WY	n/a	n/a
88ZU	n/a	n/a
8001	38.77	37.37
8005	38.79	36.33
8002	38.75	37.77
89WZ	n/a	n/a
88ZV	n/a	n/a
89XQ	n/a	n/a
89WX	n/a	n/a
8901	37.56	35.99
8003	40.31	38.14
89ZR	n/a	n/a
89ZU	n/a	n/a
89ZS	n/a	n/a
89ZV	n/a	n/a
89ZW	n/a	n/a
89ZT	n/a	n/a
8902	39.69	37.96
99ZX	n/a	n/a
99ZY	n/a	n/a
73WY	n/a	n/a
83VY	n/a	n/a
83VZ	n/a	n/a
73VT	n/a	n/a
73VS	n/a	n/a
73WW	n/a	n/a
72WZ	n/a	n/a
72WX	n/a	n/a
72VV	n/a	n/a
71XT	n/a	n/a
71UU	n/a	n/a
71XR	n/a	n/a
72WW	n/a	n/a
71XQ	n/a	n/a
72XY	n/a	n/a
7202	39.67	36.11
72VU	n/a	n/a
71ZQ	n/a	n/a
71ZR	n/a	n/a
71ZS	n/a	n/a
71ZT	n/a	n/a
71YQ	n/a	n/a
71XY	n/a	n/a
691A	n/a	n/a
7907	33.85	32.6
7902	33.86	31.46
7908	32.29	30.58
7903	32.52	31.6
7906	33.99	33.13
79XU	n/a	n/a
791B	n/a	n/a
68YQ	n/a	n/a
68XX	n/a	n/a
68YS	n/a	n/a
7803	32.46	30.98
78XR	n/a	n/a
78YU	n/a	n/a
78YV	n/a	n/a
61ZS	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.



## ALS Sewer Map Key

### Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Trunk Surface Water
	Trunk Foul
	Storm Relief
	Vent Pipe
	Proposed Thames Surface Water Sewer
	Proposed Thames Water Sewer
	Gallery
	Sludge Rising Main
	Vacuum
	Foul Rising Main
	Combined Rising Main
	Proposed Rising Main

### Sewer Fittings

	A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.
	Dam Chase
	Fitting
	Meter
	Vent Column

### Operational Controls

	Control Valve
	Drop Pipe
	Ancillary
	Weir

### End Items

	Outfall
	Undefined End
	Inlet
	Foul Sewer
	Combined Sewer
	Culverted Watercourse
	Proposed
	Abandoned Sewer

### Other Sewer Types (Not Operated or Maintained by Thames Water)

	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

#### Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or '0' on a manhole level indicates that data is unavailable.

Asset Location Search Water Map - ALS/ALS Standard/2019\_4061287



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 538940, 190064.

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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## ALS Water Map Key

### Water Pipes (Operated & Maintained by Thames Water)

**Distribution Main:** The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

**Trunk Main:** A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

**Supply Main:** A supply main indicates that the water main is used as a supply for a single property or group of properties.

**Fire Main:** Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

**Metered Pipe:** A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

**Transmission Tunnel:** A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

**Proposed Main:** A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

### Operational Sites

Symbol	Description
+	General Purpose Valve
◆	Air Valve
▲	Pressure Control Valve
X	Customer Valve
	Service Reservoir
▲	Pumping Station
●	Other (Proposed)
○	Shaft Inspection
○	Treatment Works
○	Unknown
☒	Water Tower

### Valves

Symbol	Description
+	General Purpose Valve
◆	Air Valve
▲	Pressure Control Valve
X	Customer Valve
	Service Reservoir
▲	Pumping Station
●	Other (Proposed)
○	Shaft Inspection
○	Treatment Works
○	Unknown
☒	Water Tower

### End Items

Symbol	Description
□	Symbol indicating what happens at the end of a water main.
□	Data Logger
□	Blank Flange
□	Capped End
○	Emptying Pit
○	Undefined End
□	Manifold
○	Customer Supply
○	Fire Supply

### Other Symbols

Symbol	Description
□	Data Logger
□	Blank Flange
□	Capped End
○	Emptying Pit
○	Undefined End
□	Manifold
○	Customer Supply
○	Fire Supply

### Other Water Pipes (Not Operated or Maintained by Thames Water)

Symbol	Description
—	Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.
—	Private Main: Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.
—	Other Water Pipes (Not Operated or Maintained by Thames Water)

**Other Water Company Main:** Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

**Private Main:** Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

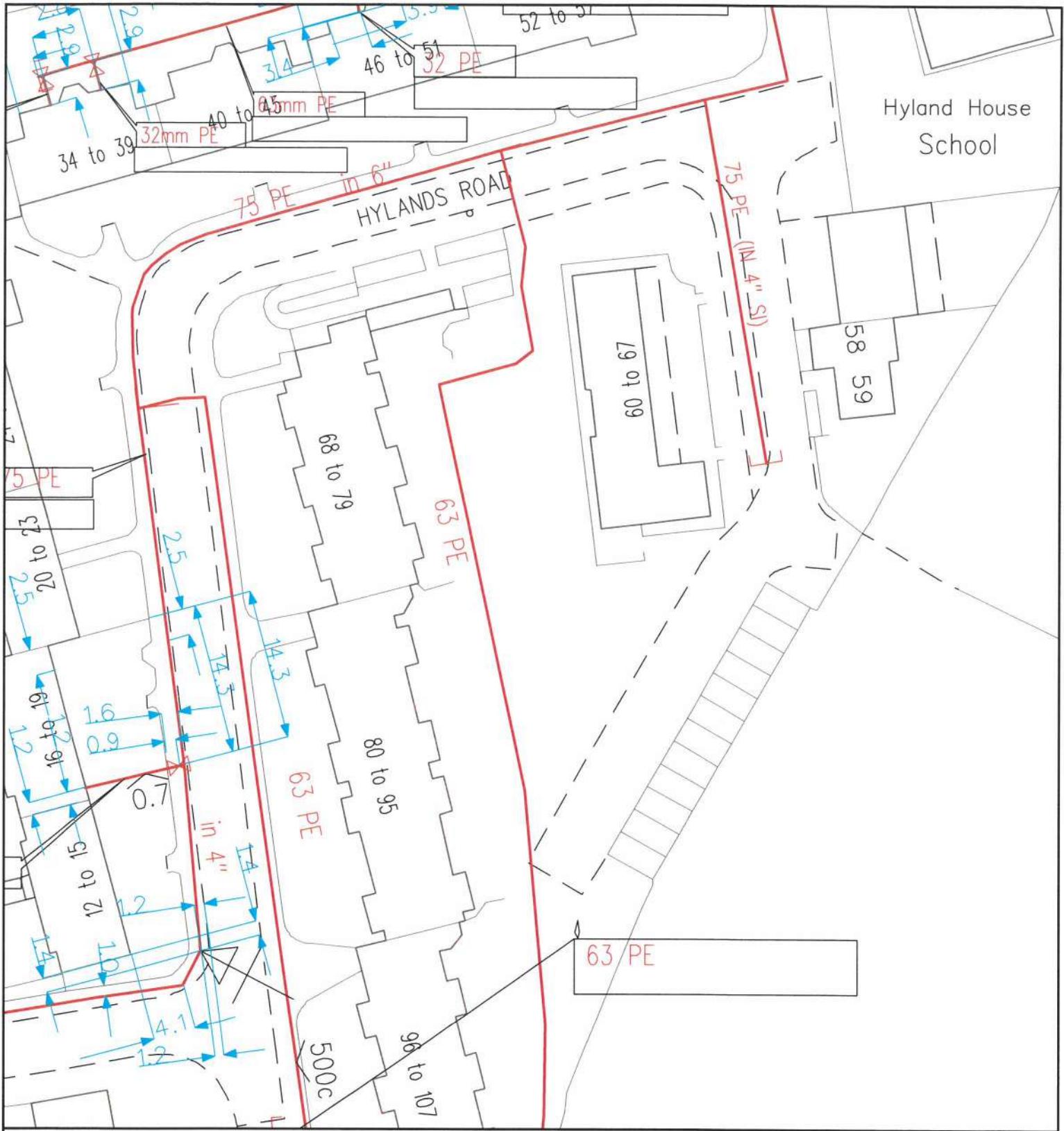


MAPS Viewer Version 5.8.0.1

This plan shows those pipes owned by Cadent Gas Ltd in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, siphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Ltd or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HSI(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue. Further information on all DR4s can be determined by calling the DR4 hotline on 01455 892426 (9am-5pm) A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

SCALE: 1 : 1250	LP MAINS
USER ID: alison	MP MAINS
DATE: 19/08/2019	IP MAINS
EXTRACT DATE: 10/06/2019	LHP MAINS
MAP REF: TQ3890	
CENTRE: 538929, 190080	
Some examples of Plant items:	
Valve	Depth of Cover
Syphon	Diameter Change
Material Change	Out of Service

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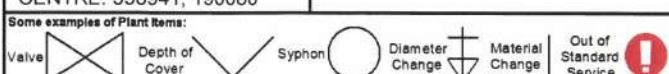
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CENTRE: 538941, 190080

LP MAINS  
MP MAINS  
IP MAINS  
LHP MAINS

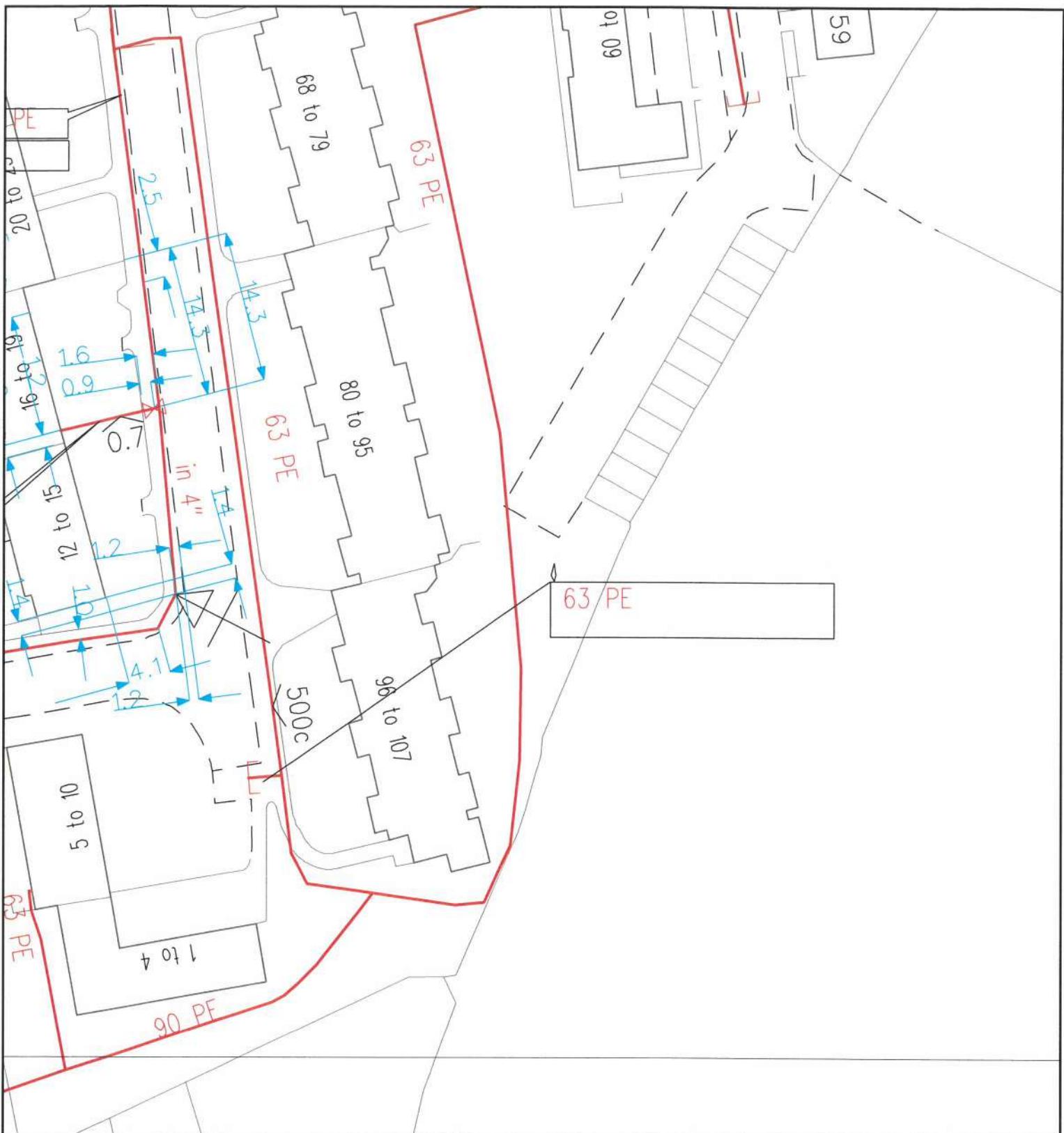
MAPS Viewer Version 5.8.0.1

Local Machine

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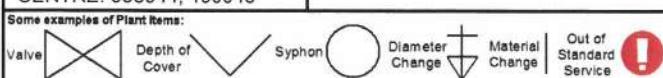
SCALE: 1 : 500  
USER ID: alison  
DATE: 19/08/2019  
EXTRACT DATE: 10/06/2019  
MAP REF: TQ3890  
CENTRE: 538944, 190046

LP MAINS  
MP MAINS  
IP MAINS  
LHP MAINS

MAPS Viewer Version 5.8.0.1

#### Local Machine

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A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

# Maps by email Plant Information Reply



## IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.



**openreach**

## CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email [cbyd@openreach.co.uk](mailto:cbyd@openreach.co.uk)

ADVANCE NOTICE REQUIRED  
(Office hours: Monday - Friday 08:00 to 17:00)  
[www.openreach.co.uk/cbyd](http://www.openreach.co.uk/cbyd)

## Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

KEY TO BT SYMBOLS		Change Of State	+	Hatchings
		Split Coupling	X	Built
PCP	●	□	▲	Planned
Pole	○	○	■	Inferred
Box	■	■	Kiosk	Duct
Manhole	□	□		
Cabinet	●	□		

Other proposed plant is shown using dashed lines.  
BT Symbols not listed above may be disregarded.  
Existing BT Plant may not be recorded.  
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

	Pending Add	In Place	Pending Remove	Not In Use
Power Cable	—/—	—/—	—/—	—/—
Power Duct	—/—	—/—	—/—	N/A

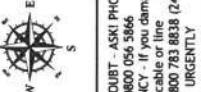
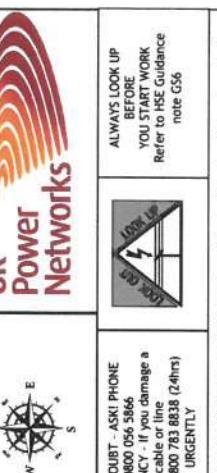
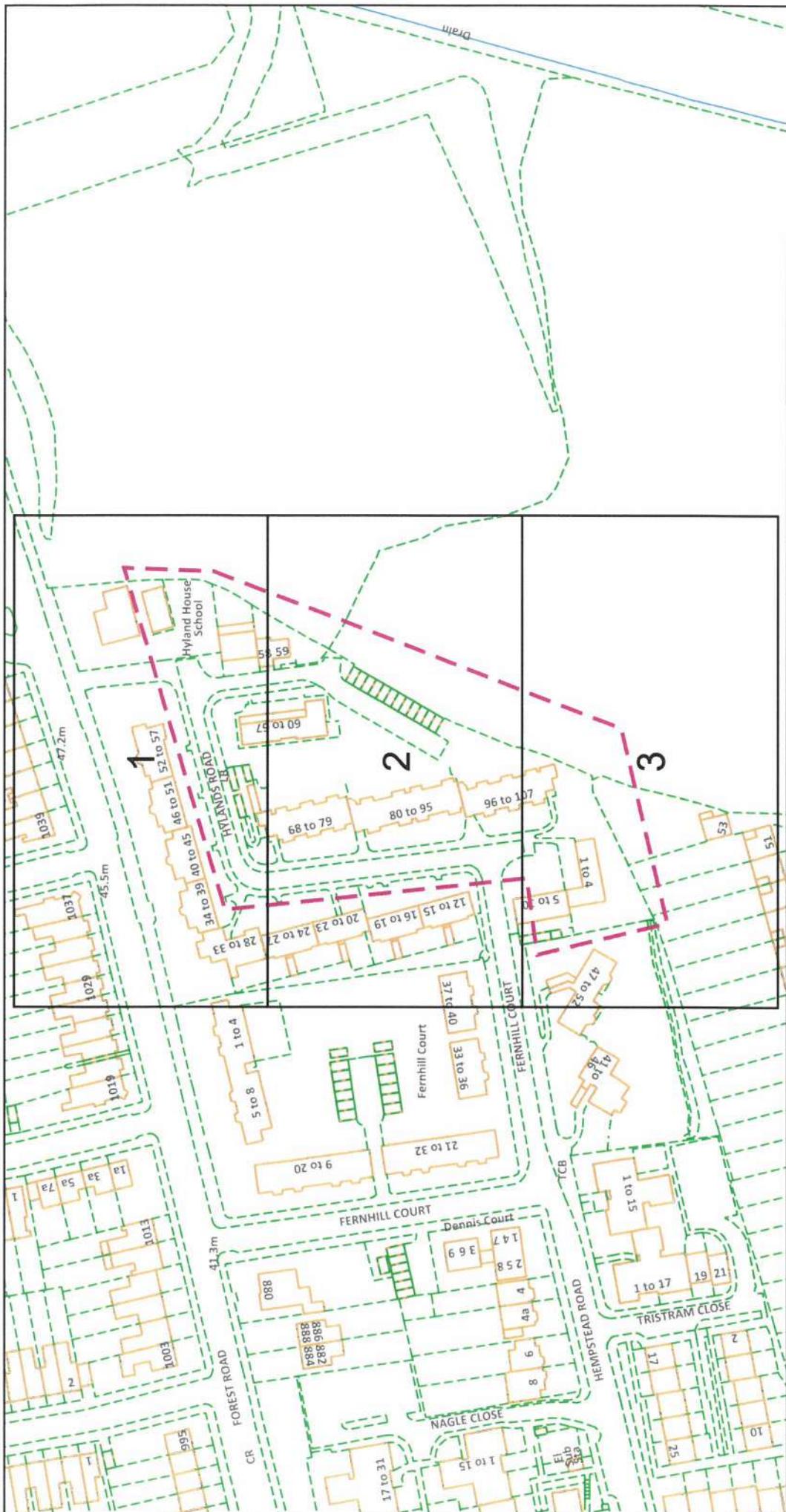
BT Ref : NNJ125560

Map Reference : (centre) TQ3892990080

Easting/Northing : (centre) 538929,190080

Issued : 19/08/2019 12:55:39

**WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: [nnhc@openreach.co.uk](mailto:nnhc@openreach.co.uk)**



N  
S  
E  
W

The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.

Dig Sites	Area:	Line:
1	2	3

1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.
2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person.
3. Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of goodwill, loss of business, loss of savings, loss of use or any special or consequential loss or damage whatsoever).
4. It must be assumed that there is a service cable into each property, lamp column and street sign.
5. You are advised to take care when excavating and to understand the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use this plan.
6. Please note that the information contained in this plan is for the benefit of UK Power Networks plant and equipment only and is not intended to be of use to all people involved in other construction projects.
7. Please be aware that all electric cables are live and could be dangerous. It is the responsibility of the customer to identify distribution systems make, model and it is the responsibility of the customer to identify their location.
8. Please be aware the Low Voltage Overhead power lines are not currently displayed for the Eastern Region via this service. If you require records on the location of these please contact our Plan Provision Team directly via [plans@ukpowernetworks.co.uk](mailto:plans@ukpowernetworks.co.uk).

This plan must be used with the attached 'Symbols' document.  
 Date Requested: 19/08/2019  
 Job Reference: 16272798  
 Site Location: 538781 189949  
 Requested by:  
 Mrs Alison McGuinness  
 Your Scheme / Reference:  
 C14872  
 Scale: 1:1538 (When plotted at A4)

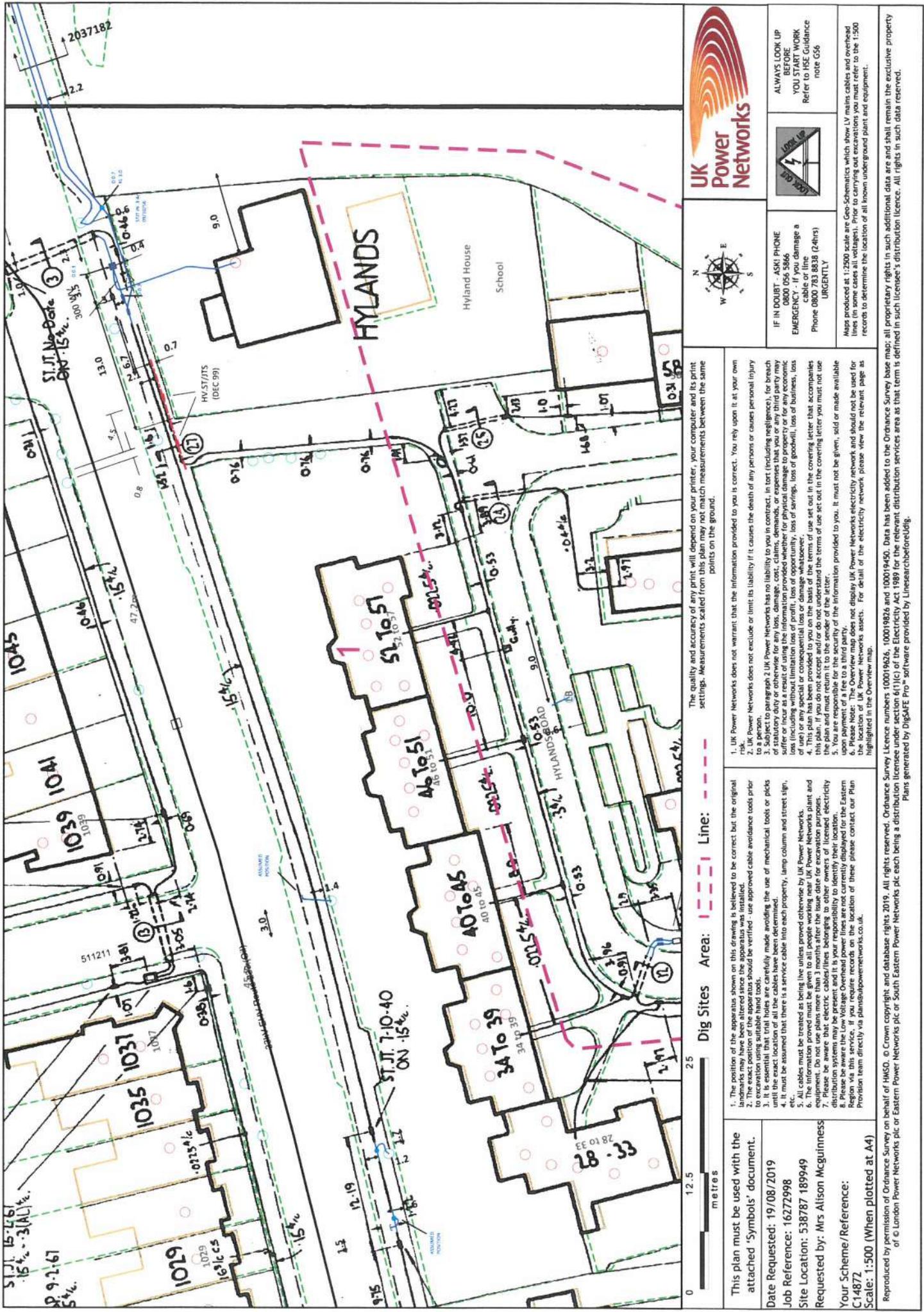
Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database rights 2019. All rights reserved. Ordnance Survey Licence Number 00019626, 100019826 and 100019450. Data has been added to the Ordnance Survey base map; all proprietary rights in such additional data are and shall remain the exclusive property of London Power Networks plc or South Eastern Power Networks plc under section 6(1)(c) of the Electricity Act 1989 for the relevant distribution services area as that term is defined in such licensee's distribution licence. All rights in such data reserved.

Plans generated by DigSAFE Pro® software provided by Linesearchbeforedigging.

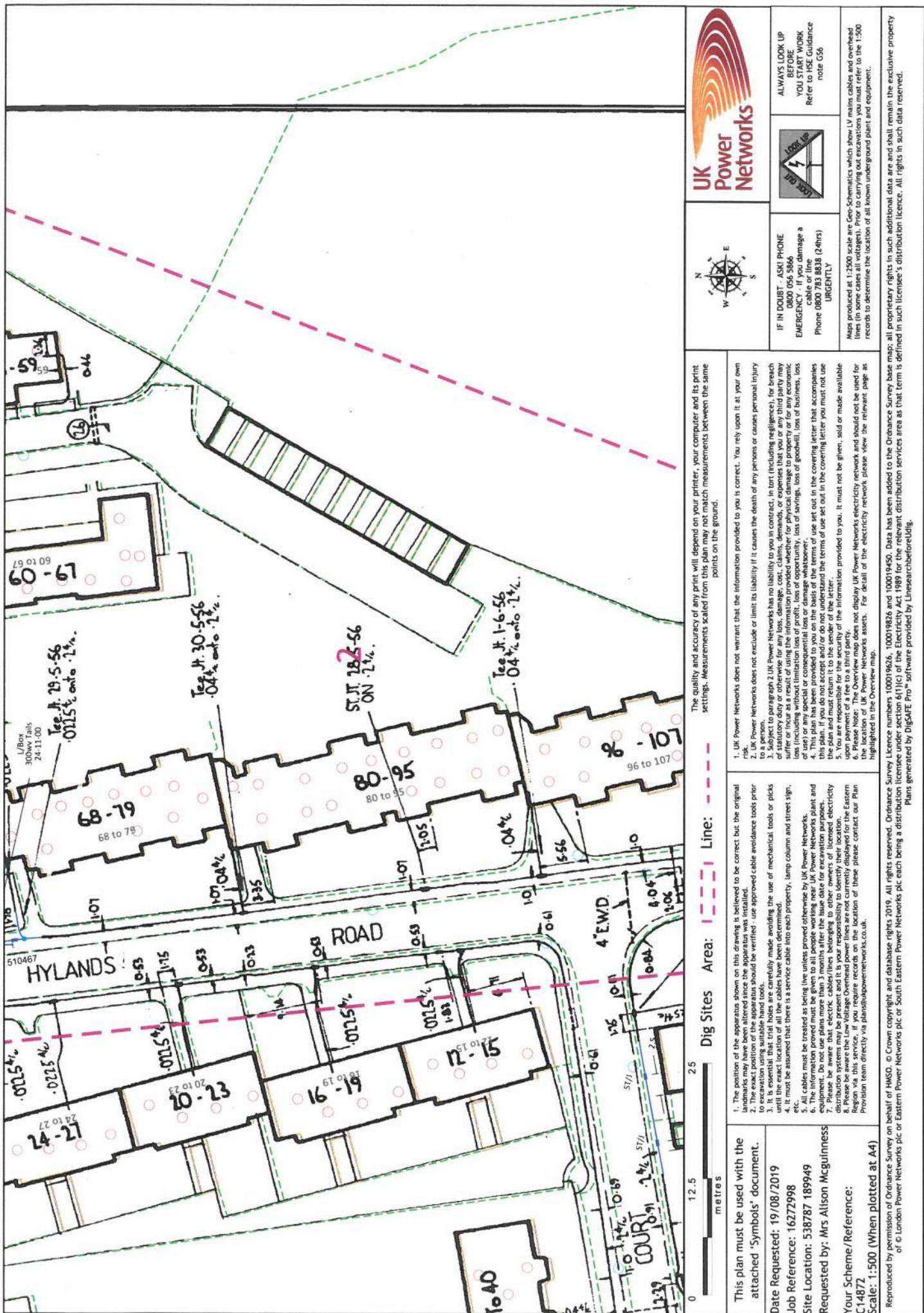
Maps produced at 1:2500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:2000 records to determine the location of all known underground plant and equipment.

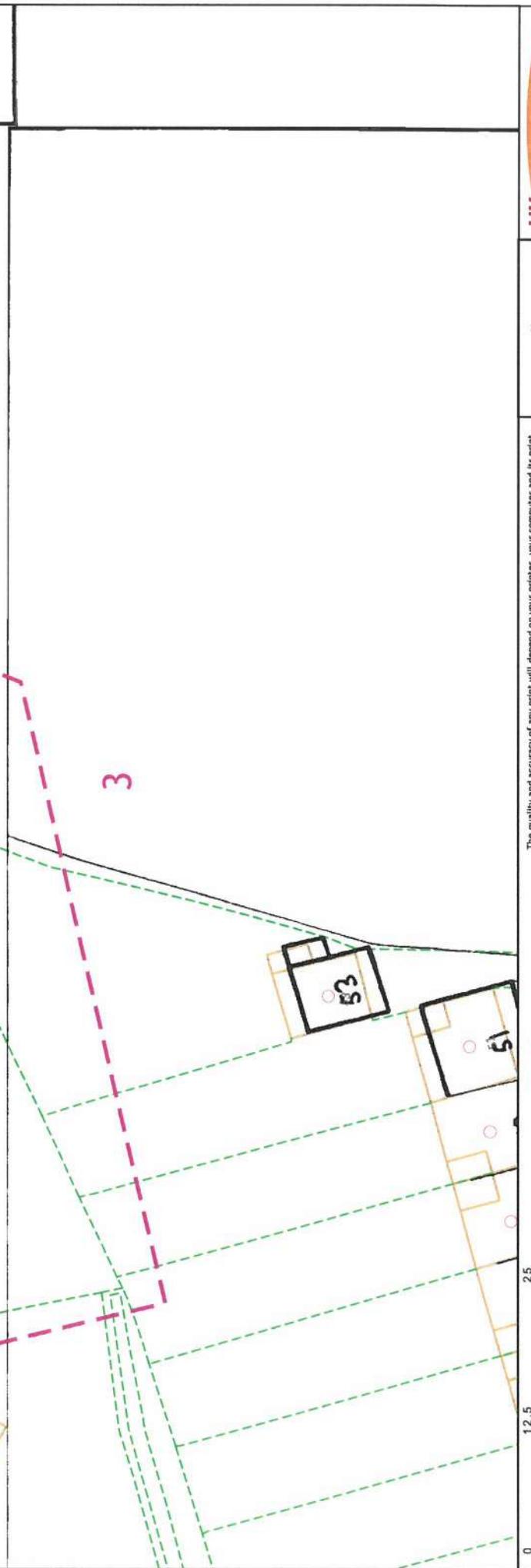
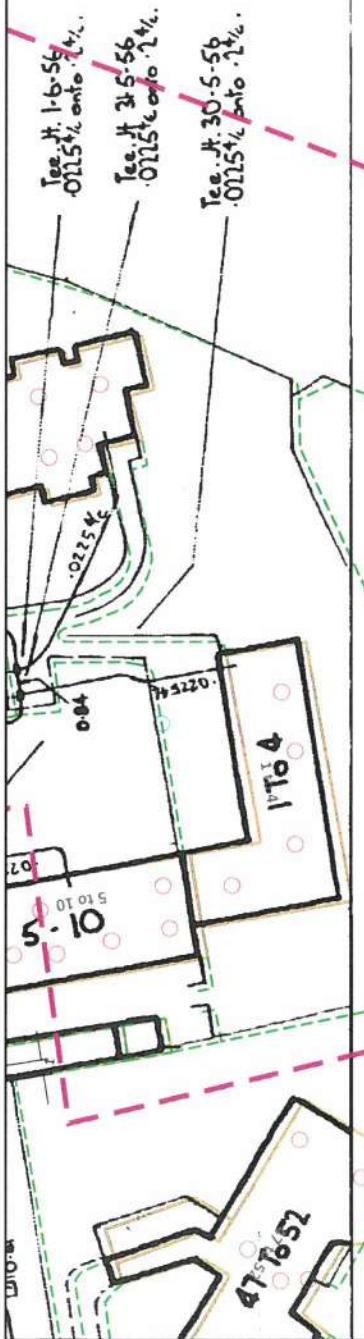
Always look up before you start work Refer to HSE Guidance note GS6

If in doubt - ask phone 0800 056 5866 Emergency - If you damage a cable or line phone 0800 763 8838 (24hrs)

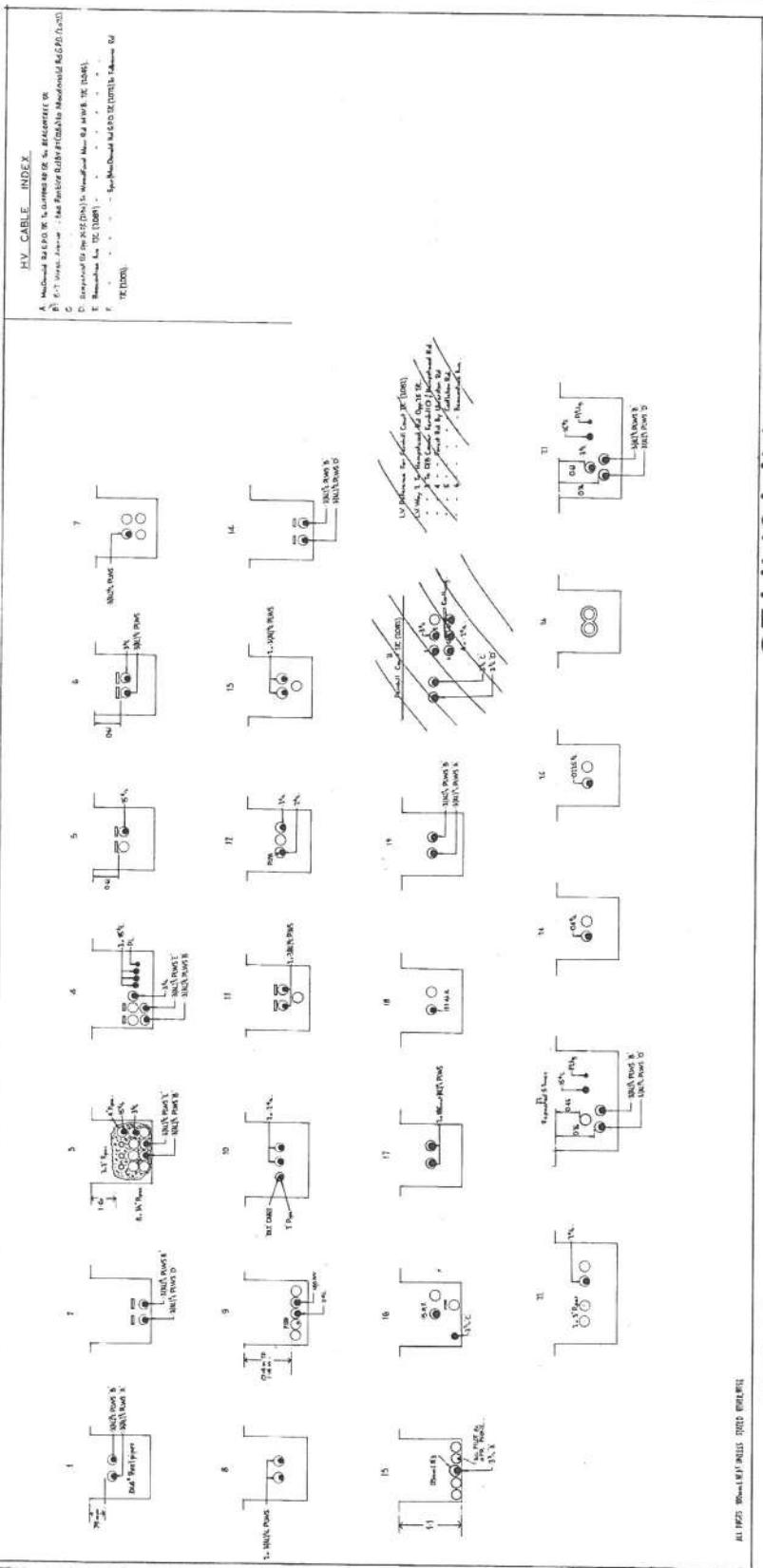


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<p><b>This plan must be used with the attached 'symbols' document.</b></p> <p>Date Requested: 19/08/2019 Job Reference: 16277998 Site Location: 538787 189949 Requested by: Mrs Alison McGuinness Your Scheme/Reference: C14872 Scale: 1:500 (When plotted at A4)</p>		<p>The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.</p> <p>1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk. 2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person. 3. Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever. 4. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanied this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use this plan and must return it to the sender of the letter. 5. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party. 6. Please note: The Overview map does not display UK Power Networks electricity network and should not be used for identification of UK Power Networks assets. For details of the electricity network please view the relevant page as highlighted in the Overview map. 7. Please be aware that electric cables/tapes belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location. 8. Please be aware the low voltage overhead power lines are not currently displayed for the Eastern Power Network's service. If you require records on the location of these please contact our Plan Provision team directly via plans@easternpower.co.uk.</p>	
		<p>1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk. 2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person. 3. Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever. 4. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanied this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use this plan and must return it to the sender of the letter. 5. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party. 6. Please note: The Overview map does not display UK Power Networks electricity network and should not be used for identification of UK Power Networks assets. For details of the electricity network please view the relevant page as highlighted in the Overview map. 7. Please be aware that electric cables/tapes belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location. 8. Please be aware the low voltage overhead power lines are not currently displayed for the Eastern Power Network's service. If you require records on the location of these please contact our Plan Provision team directly via plans@easternpower.co.uk.</p>	
<p>0 12.5 metres</p> <p><b>Dig Sites Area:</b> - - - Line: - - -</p> <p><b>N</b>  W E S S</p> <p><b>UK Power Networks</b></p> <p><b>ALWAYS LOOK UP BEFORE YOU START WORK</b> Refer to HS2 Guidance note G56</p> <p><b>IF IN DOUBT - ASK PHONE NUMBER 0800 056 5866</b> <b>EMERGENCY - If you damage a cable or line Phone 0800 783 8838 (24hrs)</b></p> <p><b>LOOK UP</b></p> <p><b>Maps produced at 1:2500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:5000 base map; all proprietary rights in such additional data are and shall remain the exclusive property of the licensor. Data has been added to the Ordnance Survey base map; all rights reserved. Ordnance Survey Licence numbers 00019626, 100019826 and 100019450. Data has been added to the Ordnance Survey base map; all rights reserved. Ordnance Survey Licence under section 6(1)(c) of the Electricity Act 1989 for the relevant distribution services area as that term is defined in such licensee's distribution licence. All rights in such data reserved.</b></p> <p><b>Plans generated by DigiSafe Pro® software provided by LineSearch before digging.</b></p>			



III 1925 HV&amp;MV PAGES 2020 REPRINT

TQ 3890 SE-S

**85.HV&MV. SECTIONS.**

## Enquirer

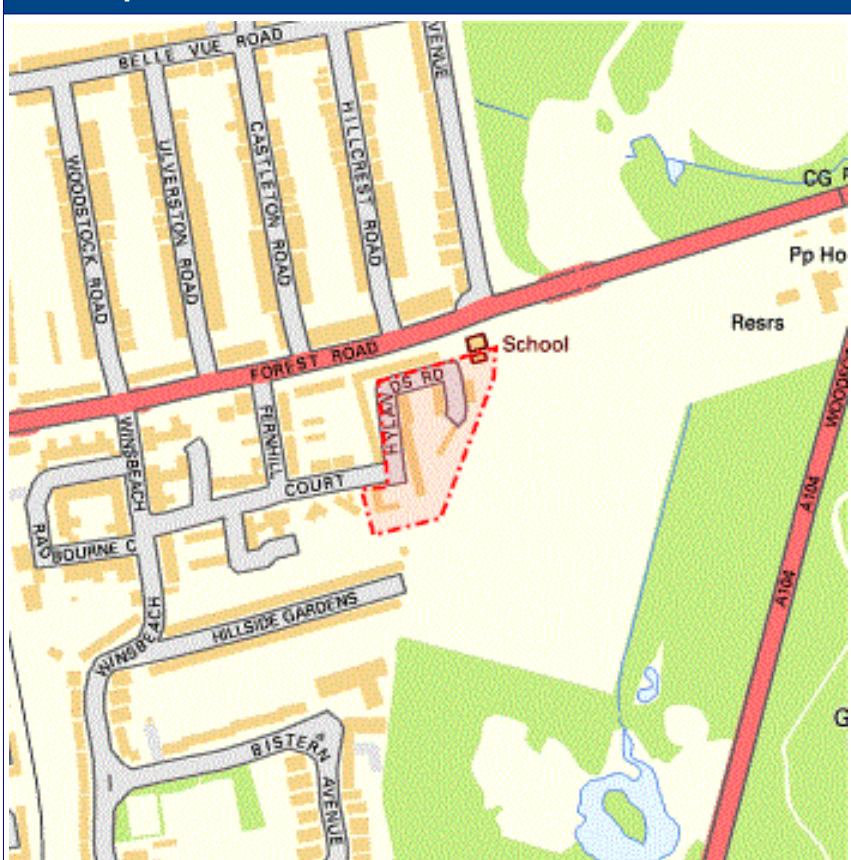
Name	Mrs Alison McGuinness	Phone	01733566566
Company	Ground Engineering Ltd	Mobile	Not Supplied
Address	Newark Road Newark Road Peterborough Cambridgeshire PE1 5UA		
Email	utilities@groundengineering.co.uk		

## Enquiry Details

Scheme/Reference	C14872		
Enquiry type	Planned Works	Work category	Development Projects
Start date	23/08/2019	Work type	Housing
End date	23/08/2019	Site size	10063 metres square
Searched location	XY= 538929, 190080	Work type buffer*	25 metres
Confirmed location	538940 190071		
Site Contact Name	Not Supplied	Site Phone No	Not Supplied
Description of Works	Not Supplied		

\* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

## Site Map



## Asset Owners

**Terms and Conditions.** Please note that this enquiry is subject always to our standard terms and conditions available at [www.linesearchbeforeudig.co.uk](http://www.linesearchbeforeudig.co.uk) ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

**Notes.** Please ensure your contact details are correct and up to date on the system in case the LSBUD Members need to contact you.

**Validity and search criteria.** The results of this enquiry are based on the confirmed information you entered and are valid only as at the date of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LinesearchbeforeUdig accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.

**Asset Owners & Responses.** Please note the enquiry results include the following:

1. "LSBUD Members" who are asset owners who have registered their assets on the LSBUD service.
2. "Non LSBUD Members" are asset owners who have not registered their assets on the LSBUD service but LSBUD is aware of their existence. Please note that there could be other asset owners within your search area.

Below are three lists of asset owners:

1. LSBUD Members who have assets registered within your search area. ("Affected")
  - a. These LSBUD Members will either:
    - i. Ask for further information ("Email Additional Info" noted in status). The additional information includes: Site contact name and number, Location plan, Detailed plan (minimum scale 1:2500), Cross sectional drawings (if available), Work Specification.
    - ii. Respond directly to you ("Await Response"). In this response they may either send plans directly to you or ask for further information before being able to do so, particularly if any payments or authorisations are required.
2. LSBUD Members who do not have assets registered within your search area. ("Not Affected")
3. Non LSBUD Members who may have assets within your search area. Please note that this list is not exhaustive and all details are provided as a guide only. It is your responsibility to identify and consult with all asset owners before proceeding.

**National Grid.** Please note that the LSBUD service only contains information on National Grid's Gas above 7 bar asset, all National Grid Electricity Transmission assets and National Grid's Gas Distribution Limited above 2 bar asset.

For National Grid Gas Distribution Ltd below 2 bar asset information please go to [www.beforeyoudig.nationalgrid.com](http://www.beforeyoudig.nationalgrid.com)

**LSBUD Members who have assets registered on the LSBUD service within the vicinity of your search area.**

**List of affected LSBUD members**

Asset Owner	Phone/Email	Emergency Only	Status
UK Power Networks	08000565866	08000565866	Await response

**LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area. Please be aware that LSBUD Members make regular changes to their assets and this list may vary for new enquiries in the same area.**

**List of not affected LSBUD members**

AWE Pipeline	Balfour Beatty Investments Limited	BOC Limited (A Member of the Linde Group)
BP Exploration Operating Company Limited	BPA	Carrington Gas Pipeline
CATS Pipeline c/o Wood Group PSN	Cemex	Centrica Storage Ltd
CLH Pipeline System Ltd	CNG Services Ltd	Concept Solutions People Ltd
ConocoPhillips (UK) Ltd	DIO (MOD Abandoned Pipelines)	Drax Group
E.ON UK CHP Limited	EirGrid	Electricity North West Limited
ENI & Hmor c/o Penspen Ltd	EnQuest NNS Limited	EP Langage Limited
ESP Utilities Group	ESSAR	Esso Petroleum Company Limited
Fulcrum Pipelines Limited	Gamma	Gateshead Energy Company
Gigaclear Ltd	Gtt	Hafren Dyfrdwy
Heathrow Airport LTD	Humbly Grove Energy	IGas Energy
INEOS FPS Pipelines	INEOS Manufacturing (Scotland and TSEP)	INOVYN Enterprises Limited
Intergen (Coryton Energy or Spalding Energy)	Mainline Pipelines Limited	Manchester Jetline Limited
Manx Cable Company	Marchwood Power Ltd (Gas Pipeline)	Melbourn Solar Limited
Murphy Utility Assets	National Grid Gas (Above 7 bar), National Grid Gas Distribution Limited (Above 2 bar) and National Grid Electricity Transmission	Northumbrian Water Group
NPower CHP Pipelines	Oikos Storage Limited	Ørsted
Perenco UK Limited (Purbeck Southampton Pipeline)	Perenco UK Limited (Purbeck Southampton Pipeline)	Petroineos
Phillips 66	Premier Transmission Ltd (SNIP)	Prysmian Cables & Systems Ltd (c/o Western Link)
Redundant Pipelines - LPDA	RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station)	RWEnpower (Little Barford and South Haven)
SABIC UK Petrochemicals	Scottish Power Generation	Seabank Power Ltd
Severn Trent (Chester area only)	SGN	Shell (St Fergus to Mossmorran)
Shell Pipelines	SSE (Peterhead Power Station)	Tata Communications (c/o JSM Construction Ltd)
Total (Colnbrook & Colwick Pipelines)	Total Finaline Pipelines	Transmission Capital
Uniper UK Ltd	Vattenfall	Veolia ES SELCHP Limited
Wales and West Utilities	Western Power Distribution	Westminster City Council
Zayo Group UK Ltd c/o JSM Group Ltd		

**The following Non-LSBUD Members may have assets in your search area. It is YOUR RESPONSIBILITY to contact them before proceeding. Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.**

Non-LSBUD members (Asset owners not registered on LSBUD)			
Asset Owner	Preferred contact method	Phone	Status
BT	<a href="https://www.swns.bt.com/pls/mbe/welcome.home">https://www.swns.bt.com/pls/mbe/welcome.home</a>	08009173993	Not Notified
Cadent Gas	plantprotection@cadentgas.com	0800688588	Not Notified
CenturyLink Communications UK Limited	plantenquiries@instalcom.co.uk	02087314613	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
Energetics Electricity	plantenquiries@energetics-uk.com	01698404646	Not Notified
ENGIE	nrsa@cofely-gdfsuez.com	01293 549944	Not Notified
GTC	<a href="https://pe.gtc-uk.co.uk/PlantEnqMembership">https://pe.gtc-uk.co.uk/PlantEnqMembership</a>	01359240363	Not Notified
KPN (c-/Instalcom)	kpn.plantenquiries@instalcom.co.uk	n/a	Not Notified
Mobile Broadband Network Limited	mbnl.plant.enquiries@turntown.com	01212 621 100	Not Notified
Sky UK Limited	nrsa@sky.uk	02070323234	Not Notified
Sota	SOTA.plantenquiries@instalcom.co.uk		Not Notified
Teliasonera	telenttelia.plantenquiries@telent.com	0800526015	Not Notified
Thames Water	<a href="http://www.digdat.co.uk">http://www.digdat.co.uk</a>	08450709145	Not Notified
Utility assets Ltd	assetrecords@utilityassets.co.uk		Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	<a href="http://www.digdat.co.uk">http://www.digdat.co.uk</a>	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified
Waltham Forest London Borough Council	Nrsa.Admin@walthamforest.gov.uk	02084962520	Not Notified

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## **APPENDIX 2**

### **HISTORICAL MAP & AERIAL PHOTOGRAPH EXRACTS**

# Site History

Figure A

Reproduced from the 1822 J. Coe's Map of Walthamstow originally at 1:4800 scale.



Project : Hylands Road, Walthamstow, London E17

GROUND  
ENGINEERING  
LIMITED

Project No.

C14872

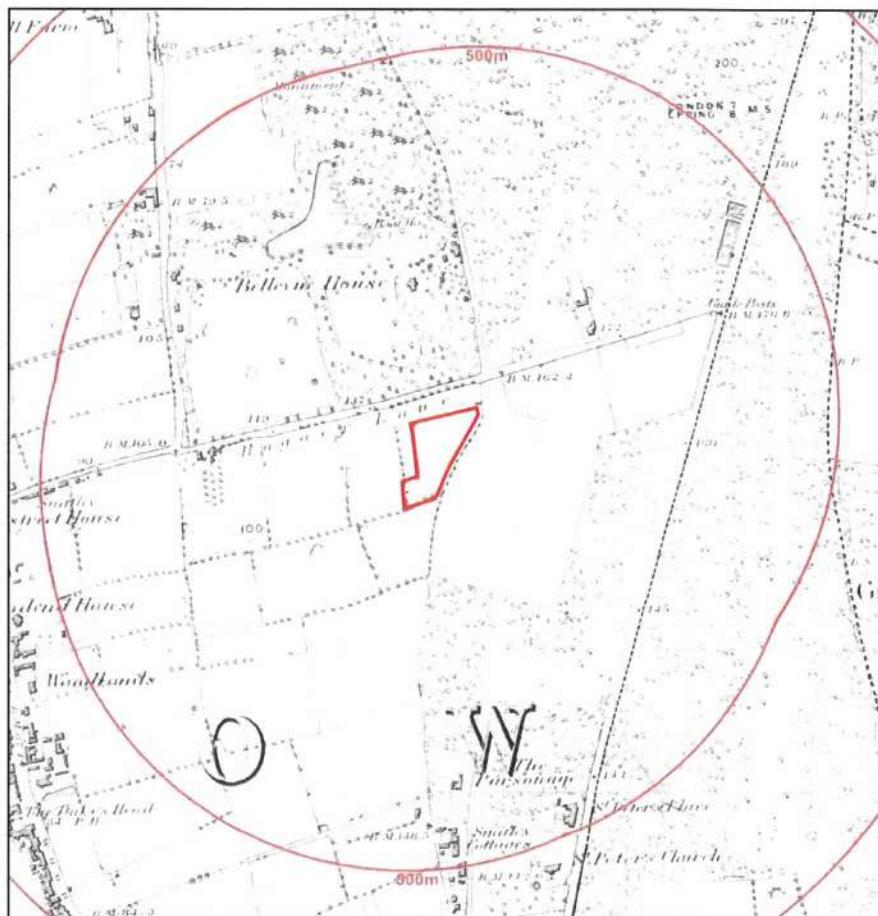
Client : London Borough of Waltham Forest

Peterborough Tel : 01733 566566

# Site History

Figure B

Reproduced from the 1863 edition Ordnance Survey sheet Essex LXV.SW at 1:10,560 scale with the permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright. All rights reserved. Licence number AL100005523



Project : Hylands Road, Walthamstow, London E17

Client : London Borough of Waltham Forest

GROUND  
ENGINEERING  
LIMITED

Peterborough Tel : 01733 566566

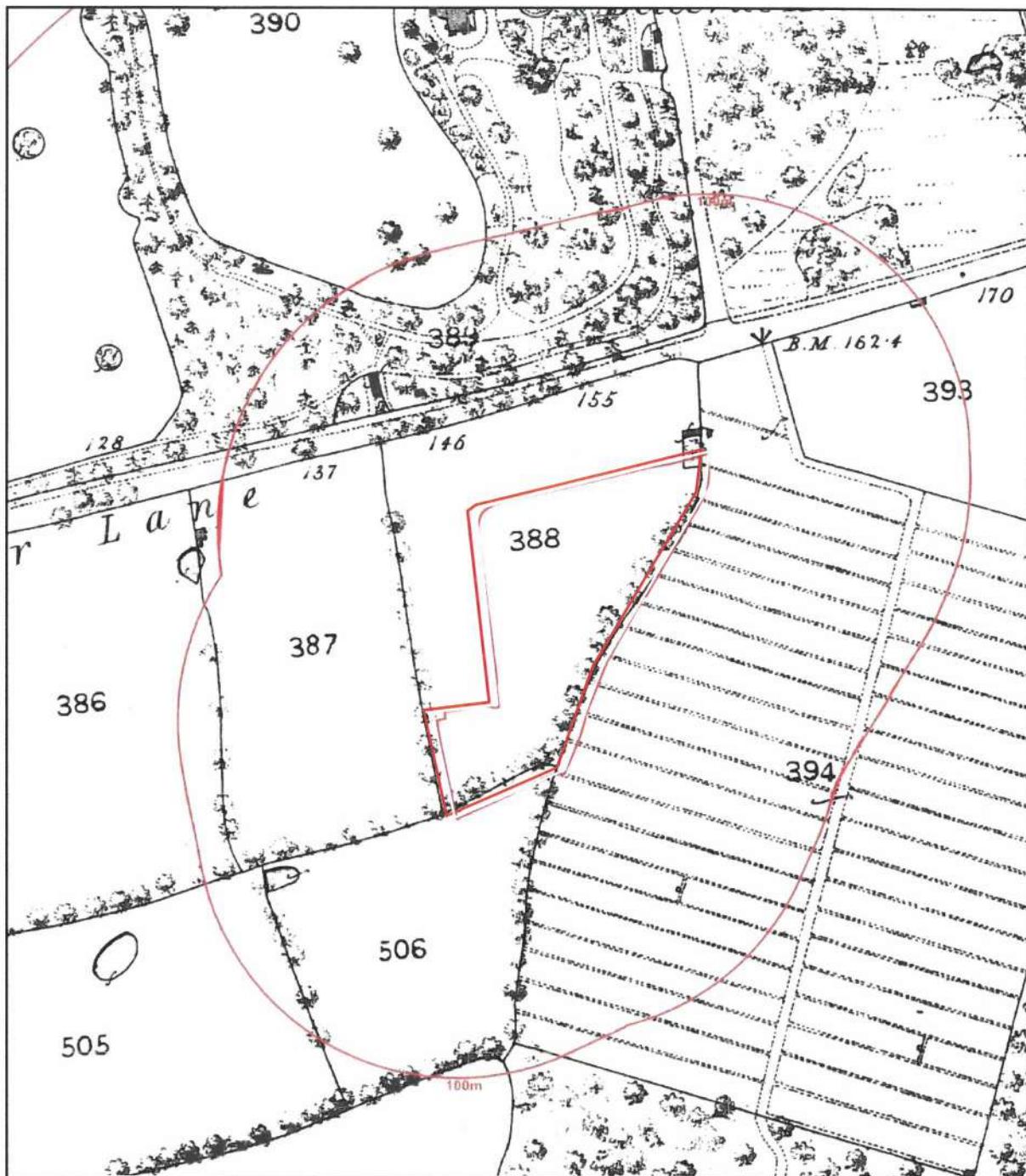
Project No.

C14872

# Site History

Figure C

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Project : Hylands Road, Walthamstow, London E17

GROUND  
ENGINEERING  
LIMITED

Project No.

C14872

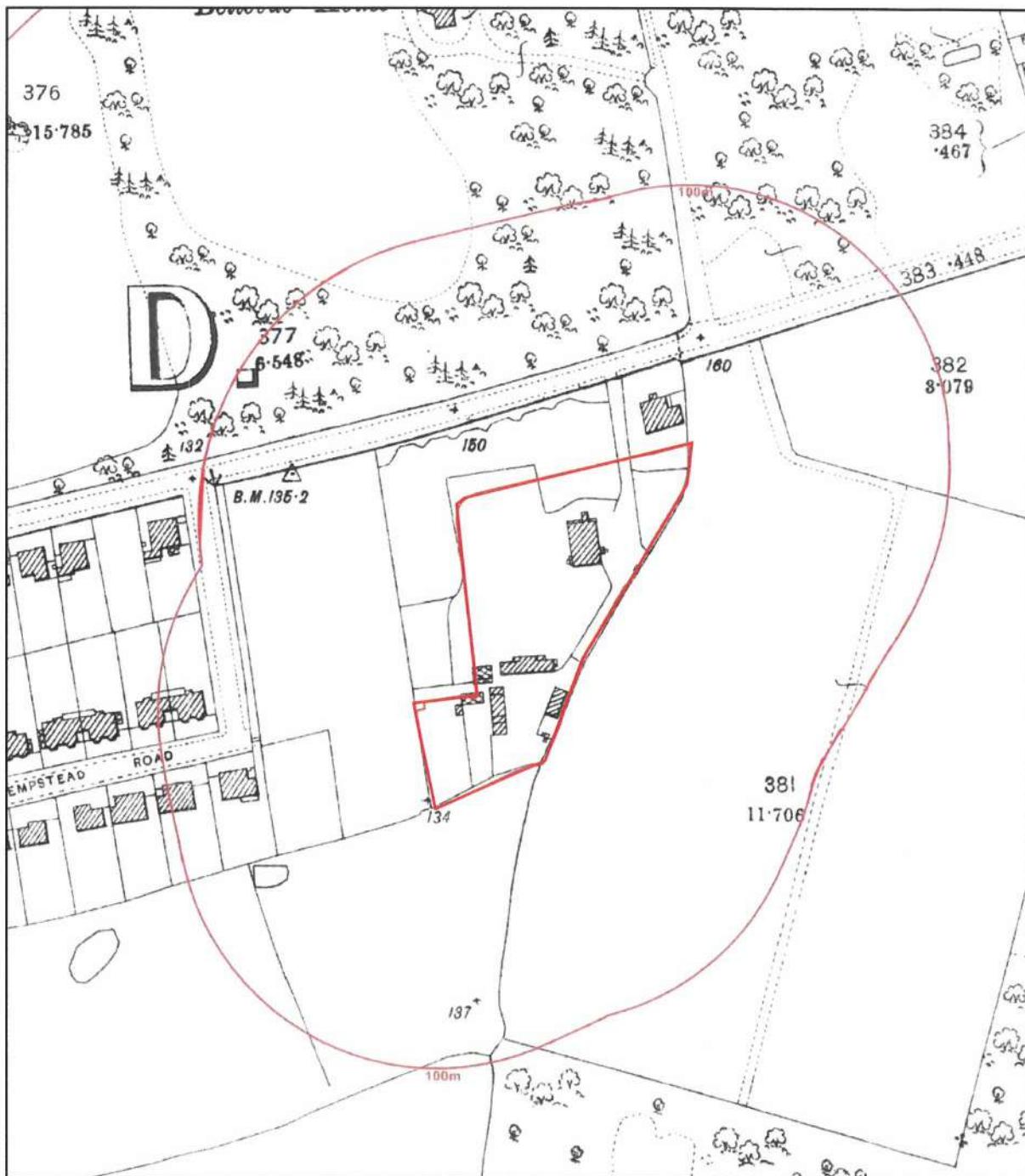
Client : London Borough of Waltham Forest

Peterborough Tel : 01733 566566

# Site History

Figure D

Reproduced from the 1896 edition Ordnance Survey sheet Essex LXV.10 at 1:2500 scale with the permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright. All rights reserved. Licence number AL100005523



Project : Hylands Road, Walthamstow, London E17

GROUND  
ENGINEERING  
LIMITED

Project No.

Client : London Borough of Waltham Forest

Peterborough Tel : 01733 566566

C14872

# Site History

Figure E

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Project : Hylands Road, Walthamstow, London E17

Client : London Borough of Waltham Forest

GROUND  
ENGINEERING  
LIMITED

Peterborough Tel : 01733 566566

Project No.

C14872

# Site History

Figure F

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Project : Hylands Road, Walthamstow, London E17

Client : London Borough of Waltham Forest

GROUND  
ENGINEERING  
LIMITED

Peterborough Tel : 01733 566566

Project No.

C14872

## Site History

Figure G

1947 Aerial Photograph



Project : Hylands Road, Walthamstow, London E17

Client : London Borough of Waltham Forest

GROUND  
ENGINEERING  
LIMITED

Peterborough Tel : 01733 566566

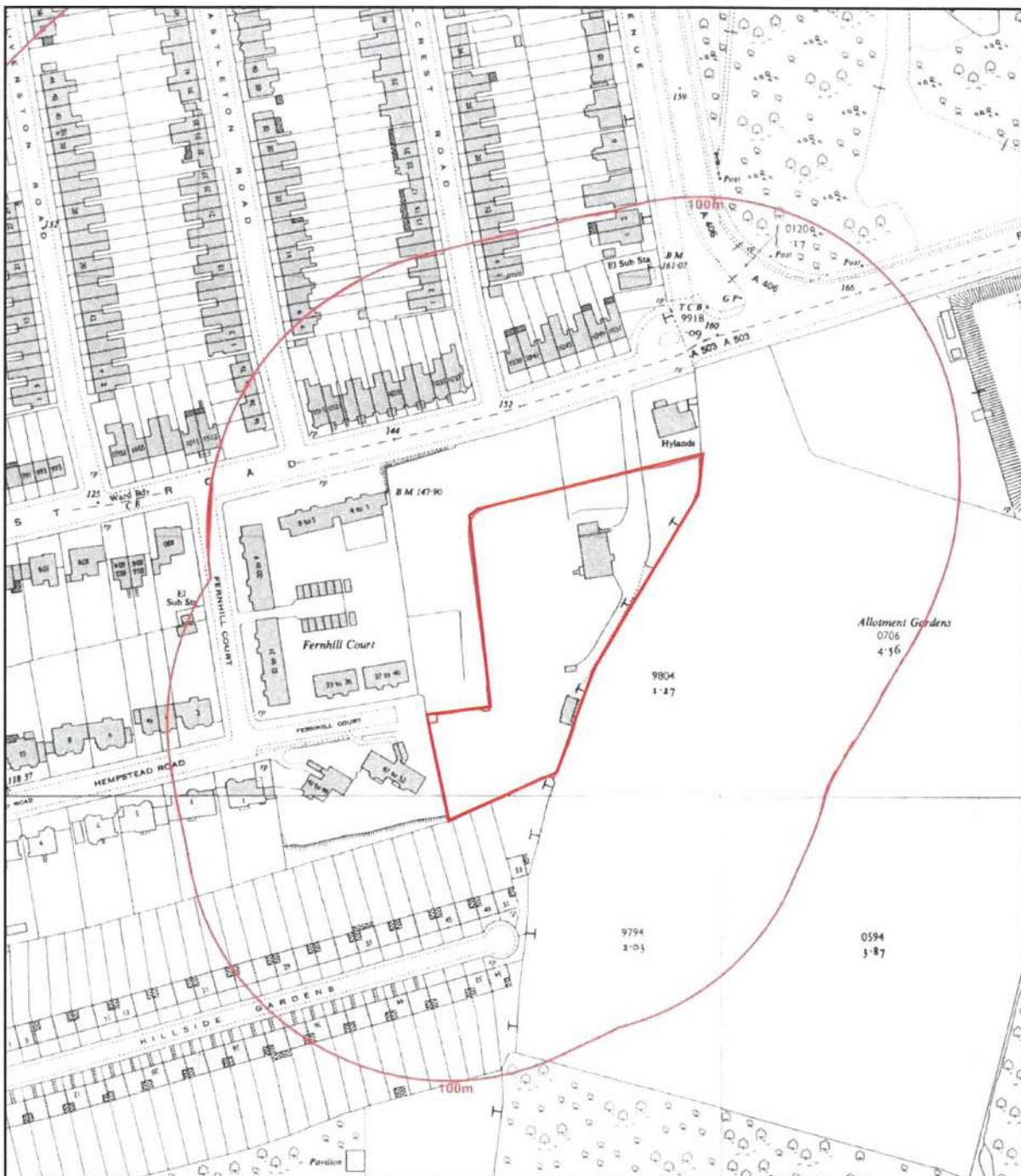
Project No.

C14872

# Site History

Figure H

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Project : Hylands Road, Walthamstow, London E17

GROUND  
ENGINEERING  
LIMITED

Project No.

Client : London Borough of Waltham Forest

Peterborough Tel : 01733 566566

C14872

# Site History

Figure I

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# Site History

Figure J

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Project : Hylands Road, Walthamstow, London E17

GROUND  
ENGINEERING  
LIMITED

Project No.

Client : London Borough of Waltham Forest

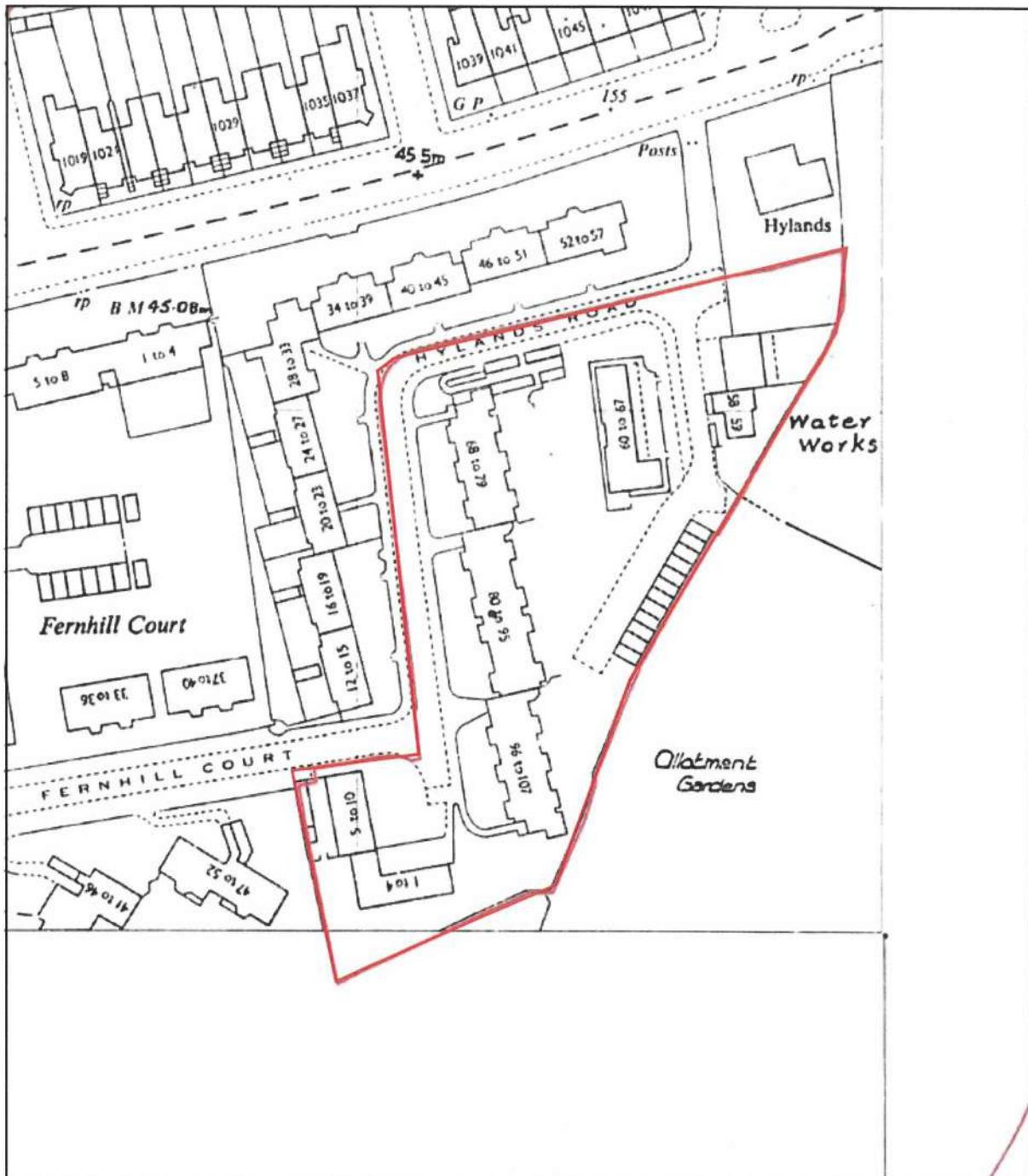
Peterborough Tel : 01733 566566

C14872

# Site History

Figure K

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Project : Hylands Road, Walthamstow, London E17

GROUND  
ENGINEERING  
LIMITED

Project No.

C14872

Client : London Borough of Waltham Forest

Peterborough Tel : 01733 566566

## Site History

## Figure L

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**Project : Hylands Road, Walthamstow, London E17**

**GROUND  
ENGINEERING  
LIMITED**

**Project No.**

**Client : London Borough of Waltham Forest**

# Site History

Figure M

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Project : Hylands Road, Walthamstow, London E17

GROUND  
ENGINEERING  
LIMITED

Project No.

Client : London Borough of Waltham Forest

Peterborough Tel : 01733 566566

C14872

# Site History

Figure N

2013 Aerial Photograph



Project : Hylands Road, Walthamstow, London E17

Client : London Borough of Waltham Forest

GROUND  
ENGINEERING  
LIMITED

Peterborough Tel : 01733 566566

Project No.

C14872

# Site History

Figure O

2017 Aerial Photograph



Project : Hylands Road, Walthamstow, London E17

Client : London Borough of Waltham Forest

GROUND  
ENGINEERING  
LIMITED

Peterborough Tel : 01733 566566

Project No.

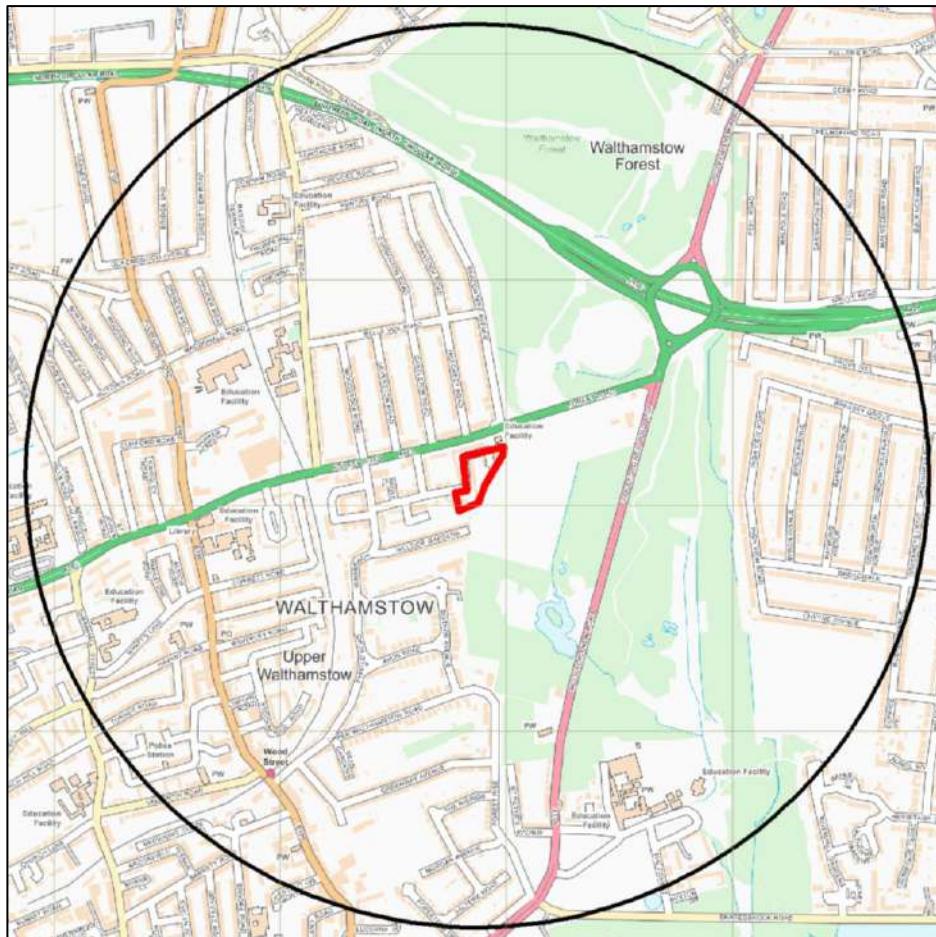
C14872

## **APPENDIX 3**

### **PRELIMINARY UXO THREAT ASSESSMENT**

# PRELIMINARY UNEXPLDED ORDNANCE (UXO) THREAT ASSESSMENT

Meeting the requirements of CIRIA C681 'Unexploded Ordnance (UXO) – A guide for the Construction Industry' Risk Management Framework



PROJECT NUMBER	P7566	ORIGINATOR	L. Hayes
VERSION NUMBER	1.0	REVIEWED BY	S. Barratt (21 <sup>st</sup> August 2019)
CLIENT	Ground Engineering	RELEASED BY	R. Griffiths (22 <sup>nd</sup> August 2019)
SITE	Hylands Road, Off Forest Road, Walthamstow, London, E17 4AN		
RECOMMENDATION	No further action is required to address the UXO risk at this Site		

## STUDY SITE

The Study Site is described as "Hylands Road, Off Forest Road, Walthamstow, London, E17 4AN", and it is centred on National Grid Reference 538936, 190066.

## THREAT POTENTIAL AND RECOMMENDATIONS

The potential for a UXO hazard to occur, and more specifically, the potential for unexploded WWI and WWII ordnance to exist at this site is assessed as being UNLIKELY (*Figure 2*).

In accordance with *CIRIA C681 Chapter 5* on managing UXO risks, *6 Alpha* concludes that **NO FURTHER ACTION** is required to address the UXO risk at this Study Site. Should you have any queries, please contact *6 Alpha*.



## REPORT SUMMARY

During WWII, the Study Site was situated within *Walthamstow Municipal Borough*, which recorded 26 High Explosive (HE) bomb strikes per 100 hectares; a moderate level of bombing.

*Luftwaffe* aerial reconnaissance photography associated with the Site did not identify any primary bombing targets within 1,000m of the Site.

*Air Raid Precaution (ARP)* records did not identify any HE bomb strikes within the Site. However, five HE bomb strikes were identified within 365m of the Site boundary; the closest being 60m to the north-west.

Official bomb damage mapping did not cover the Site. However, photographic evidence identified a destroyed building 650m south-west of the Site. However, an analysis of post-war mapping did not identify any further areas of potential bomb damage on-site or within 1,000m.

Despite bombing being recorded within the wider area during WWII; there is no evidence to suggest that further investigation into UXO is warranted.

## USING THIS REPORT

This Preliminary Assessment is designed to inform environmental and construction professionals of the potential threat of military related explosives and/or ordnance on, or in, the vicinity of the Study Site.

This assessment is designed to be employed as a site-screening tool to meet with the requirement of Phase One of the *CIRIA UXO Risk Management Framework*; there are two broad prospective outcomes; either the threat level requires a detailed threat & risk assessment; or no further action is required. In the former instance we can provide a report within 10 working days (or more quickly upon application).

Two figures accompany the report, the *Second World War (WWII)* High Explosive (HE) Bomb Density and the final Probability of UXO Encounter. The purpose of this approach is to demonstrate that whilst bomb density statistics give an indication for WWII bombing, they should not be relied upon exclusively to generate a holistic assessment.

For further information, please contact *6 Alpha*:

Website: <http://www.6alpha.com>

Telephone: +44 (0)2033 713 900

Email: [enquiry@6alpha.com](mailto:enquiry@6alpha.com)

## DATA FINDINGS

Threat Source (within 1,000m)	Detail	
	Identified	Comments
 Airfields/Military Facilities	✗	None recorded within 1,000m.
 Ordnance Manufacture/Storage	✗	None recorded within 1,000m.
 WWII Decoy Bombing Sites	✗	None recorded within 1,000m.
 WWII Defensive Features	✓	A heavy anti-aircraft battery (685m south-east) and anti-tank blocks (915m north-north-west, 920m north-west and 930m north-west).
 WWII Luftwaffe Designated Bombing Targets	✗	<i>Luftwaffe</i> aerial photography did not identify any primary bombing targets within 1,000m.
 WWII Bomb Strikes Within Site Boundary	✗	ARP records did not identify any HE bomb strikes on-site.
 WWII Bomb Strikes Near Site Boundary	✓	ARP records identified HE bomb strikes 60m north-west, 150m north-west, 195m north-east, 340m north-west and 365m north-west.
 WWII Bomb Damage	✓	Photographic evidence identified a destroyed building 650m south-west.
 Abandoned Bomb Register	✗	The official abandoned bomb list did not identify any abandoned bombs located within 1,000m.
 Potential Threat Sources	✗	Further research has not uncovered any potential UXO threat sources associated with the Study Site.
 WWII Bombing Density Per 100 Hectares	✓	The Site was located within <i>Walthamstow Municipal Borough</i> , which recorded 26 HE bomb strikes per 100 hectares.

## IMPORTANT NOTES

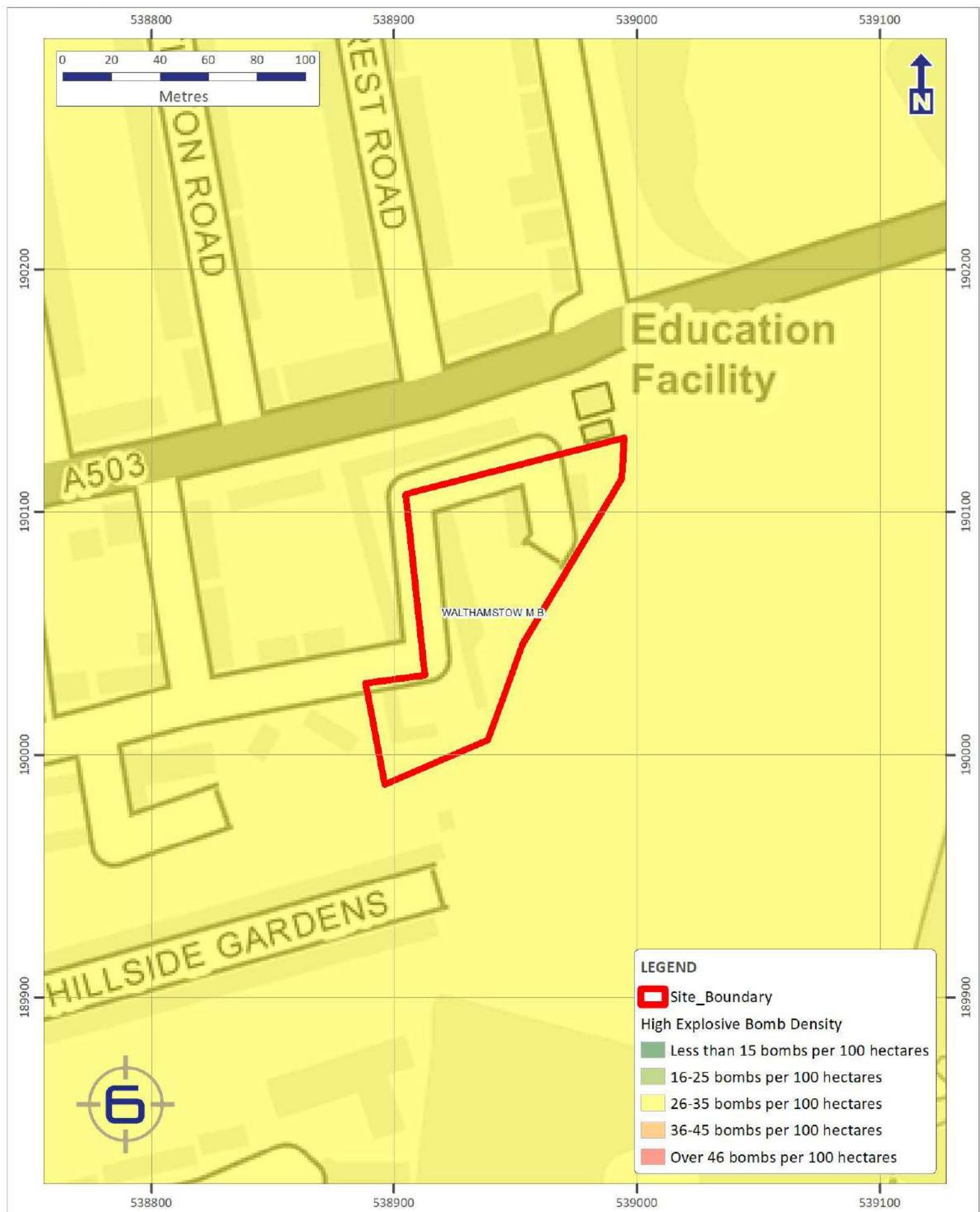
1. The term 'Preliminary UXO Threat Assessment' has been used to describe this report, to fall in line with the *CIRIA C681* guidelines. Whilst the term 'Risk' can be justifiably used at this stage, the reader should note that the 'Consequence' function of 'Risk' is not considered. Should it be required, this would be addressed in the 'Detailed UXO Threat & Risk Assessment' (Stages 2 and 3).
2. This report is accurate and up to date at the time of writing.
3. The assessment levels have been generated from historical data and third-party sources. Where possible *6 Alpha* have sought to verify the accuracy of such data, but cannot be held accountable for inherent errors that may be in third party data sets (e.g. *National Archives* or library sources).
4. *6 Alpha* have exercised all reasonable care, skill and due diligence in producing this service.
5. Whilst every effort has been used to identify all potential UXO/explosive threats, there were a number of private facilities, which may not have released privately recorded information concerning UXO/explosive threats into the public domain. It is therefore possible that some of the aforementioned sites may not be included within the database.



HYLANDS ROAD, OFF FOREST ROAD,  
WALTHAMSTOW, LONDON, E17 4AN

BOMB  
SEARCH  
[WWW.6ALPHA.COM](http://WWW.6ALPHA.COM)

## WWII High Explosive Bomb Density



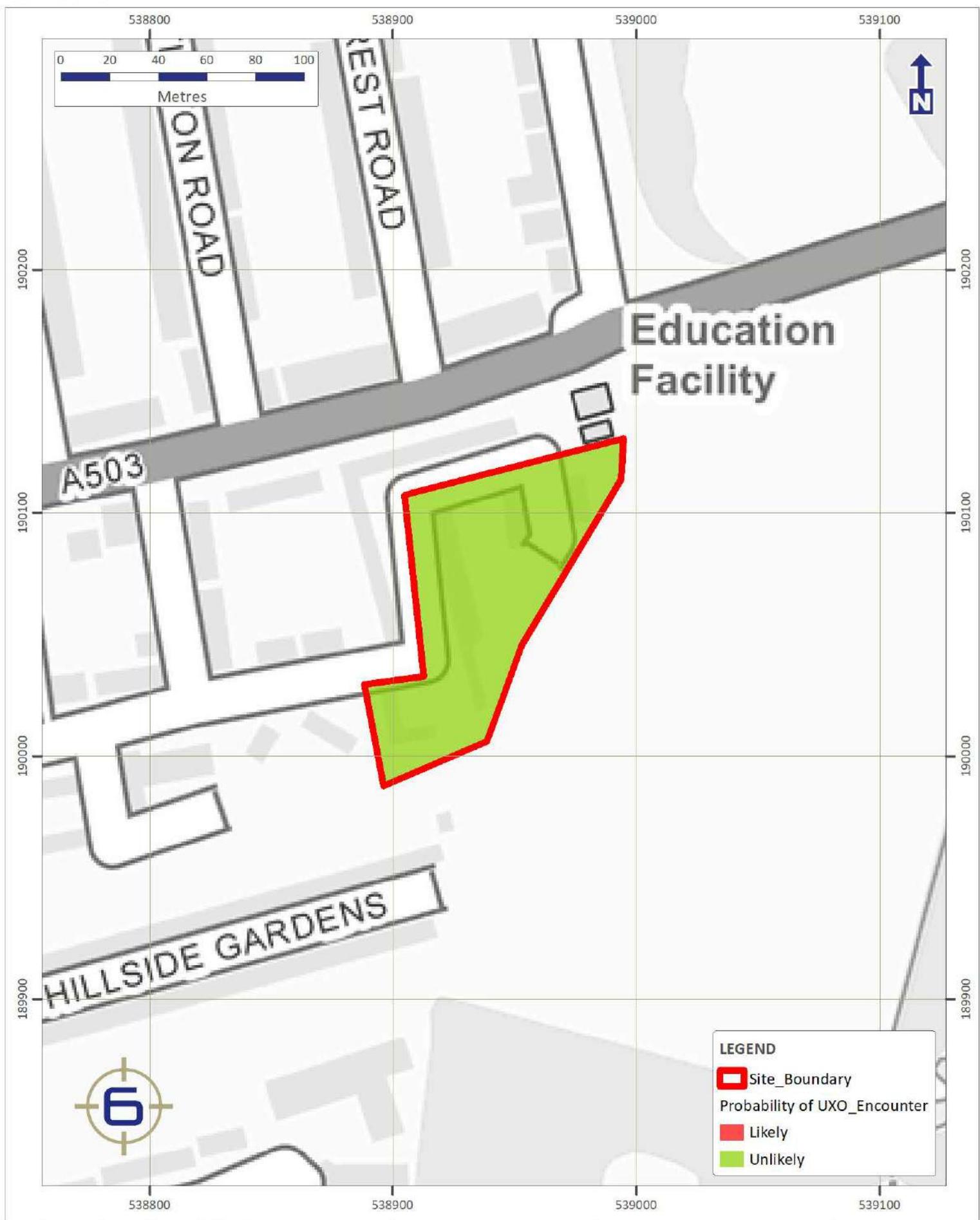
PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE	Contains Ordnance Survey data © Crown copyright and database right 2017	Produced by and Copyright to 6 Alpha Associates Ltd. Users noting any errors please notify 6 Alpha.	alpha ASSOCIATES
P7566	1	CC	SB	20 August 2019			



BRITISH NATIONAL GRID

HYLANDS ROAD, OFF FOREST ROAD,  
WALTHAMSTOW, LONDON, E17 4AN**BOMB  
SEARCH**  
WWW.6ALPHA.COM

## Probability of UXO Encounter



PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE	Contains Ordnance Survey data © Crown copyright and database right 2017	Produced by and Copyright to 6 Alpha Associates Ltd. Users noting any errors please notify 6 Alpha.	alpha ASSOCIATES
P7566	2	CC	SB	20 August 2019			

## **APPENDIX 4**

### **ENVIRONMENTAL DATABASE SEARCH**

# Enviro Insight

Address: HYLANDS ROAD, WALTHAMSTOW, E17 4AN

Date: 19 Aug 2019

Reference: HMD-6252352

Client: Ground Engineering Limited

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 12-Aug-2016

Grid Reference: 538935,190072

Site Size: 0.7067ha

Report Reference: HMD-6252352

Client Reference: C14872

# Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1.1 Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping.....	12
1.2 Additional Information – Historical Tank Database.....	13
1.3 Additional Information – Historical Energy Features Database.....	13
1.4 Additional Information – Historical Petrol and Fuel Site Database.....	14
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database.....	14
1.6 Historical military sites.....	14
1.7 Potentially Infilled Land.....	15
2. Environmental Permits, Incidents and Registers Map	17
2. Environmental Permits, Incidents and Registers	18
2.1 Industrial Sites Holding Licences and/or Authorisations.....	18
2.1.1 Records of historic IPC Authorisations within 500m of the study site:.....	18
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:.....	18
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:.....	18
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:.....	18
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:.....	18
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site: .....	19
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:.....	19
2.1.8 Records of Licensed Discharge Consents within 500m of the study site:.....	19
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site: .....	19
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:.....	19
2.2 Dangerous or Hazardous Sites.....	19
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents.....	20
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:.....	20
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:.....	20
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990.....	20
3. Landfill and Other Waste Sites Map	21
3. Landfill and Other Waste Sites	22
3.1 Landfill Sites.....	22
3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site: .....	22
3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site: .....	22
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:.....	22
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:.....	23
3.2 Other Waste Sites.....	23
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site: .....	23
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site: .....	23
4. Current Land Use Map	24
4. Current Land Uses	25
4.1 Current Industrial Data.....	25
4.2 Petrol and Fuel Sites.....	25
4.3 National Grid High Voltage Underground Electricity Transmission Cables.....	25
4.4 National Grid High Pressure Gas Transmission Pipelines.....	26

5. Geology	27
5.1 Artificial Ground and Made Ground.....	27
5.2 Superficial Ground and Drift Geology .....	27
5.3 Bedrock and Solid Geology .....	27
6 Hydrogeology and Hydrology	28
6a. Aquifer Within Superficial Geology	28
6b. Aquifer Within Bedrock Geology and Abstraction Licences	29
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences	30
6d. Hydrogeology – Source Protection Zones within confined aquifer	31
6e. Hydrology – Watercourse Network and River Quality	32
6.Hydrogeology and Hydrology	33
6.1 Aquifer within Superficial Deposits.....	33
6.2 Aquifer within Bedrock Deposits.....	33
6.3 Groundwater Abstraction Licences.....	34
6.4 Surface Water Abstraction Licences.....	34
6.5 Potable Water Abstraction Licences.....	35
6.6 Source Protection Zones.....	35
6.7 Source Protection Zones within Confined Aquifer.....	36
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	36
6.9 River Quality.....	36
6.9.1 Biological Quality:.....	36
6.9.2 Chemical Quality:.....	36
6.10 Ordnance Survey MasterMap Water Network.....	37
6.11 Surface Water Features.....	40
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)	41
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map	42
7 Flooding	43
7.1 River and Coastal Zone 2 Flooding.....	43
7.2 River and Coastal Zone 3 Flooding.....	43
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	43
7.4 Flood Defences.....	43
7.5 Areas benefiting from Flood Defences.....	43
7.6 Areas benefiting from Flood Storage.....	44
7.7 Groundwater Flooding Susceptibility Areas.....	44
7.8 Groundwater Flooding Confidence Areas.....	44
8. Designated Environmentally Sensitive Sites Map	45
8. Designated Environmentally Sensitive Sites	46
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	46
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	46
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	46
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	47
8.5 Records of Ramsar sites within 2000m of the study site:.....	47
8.6 Records of Ancient Woodland within 2000m of the study site: .....	48
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	48
8.8 Records of World Heritage Sites within 2000m of the study site:.....	48
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site: .....	49
8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site: .....	49
8.11 Records of National Parks (NP) within 2000m of the study site: .....	49
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	49
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	49

8.14 Records of Green Belt land within 2000m of the study site:.....	50
<b>9. Natural Hazards Findings</b>	<b>51</b>
9.1 Detailed BGS GeoSure Data.....	51
9.1.1 Shrink Swell.....	51
9.1.2 Landslides.....	51
9.1.3 Soluble Rocks.....	51
9.1.4 Compressible Ground.....	52
9.1.5 Collapsible Rocks.....	52
9.1.6 Running Sand.....	52
9.2 Radon.....	53
9.2.1 Radon Affected Areas.....	53
9.2.2 Radon Protection.....	53
<b>10. Mining</b>	<b>54</b>
10.1 Coal Mining.....	54
10.2 Non-Coal Mining.....	54
10.3 Brine Affected Areas .....	54
<b>Contact Details</b>	<b>55</b>
<b>Standard Terms and Conditions</b>	<b>57</b>

# Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	2	1	48
1.2 Additional Information – Historical Tank Database	0	0	0	6
1.3 Additional Information – Historical Energy Features Database	0	0	9	10
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	14	32
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	1
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	1	0	0	0	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	1
Section 4: Current Land Use	On-site	0-50m	51-250	251-500		
4.1 Current Industrial Sites Data	0	2	4		Not searched	
4.2 Records of Petrol and Fuel Sites	0	0	0		0	
4.3 National Grid Underground Electricity Cables	0	0	0		0	
4.4 National Grid Gas Transmission Pipelines	0	0	0		0	
Section 5: Geology						
5.1 Records of Artificial Ground and Made Ground present beneath the study site					Identified	
5.2 Records of Superficial Ground and Drift Geology present beneath the study site					Identified	
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.						
Section 6: Hydrogeology and Hydrology		0-500m				
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site					Identified	
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site					Identified	
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	4
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	3
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	0	1	0	0	Not searched	Not searched

## Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	18	18	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

## Section 7: Flooding

7.1 Environment Agency Zone 2 floodplains within 250m of the study site	None identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential below Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	High

## Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	2	2	1	2
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	3	3	1	2
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	3	2	0	7
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	2	0	1	1	0	4
8.14 Records of Green Belt land	1	1	0	0	2	5

## Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Moderate
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Very Low
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

## Section 10: Mining

10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

# Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

## 1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

## 2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

## 3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

## 4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

## 5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

## 6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

## 7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

## 8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

## 9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

## 10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

## 11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

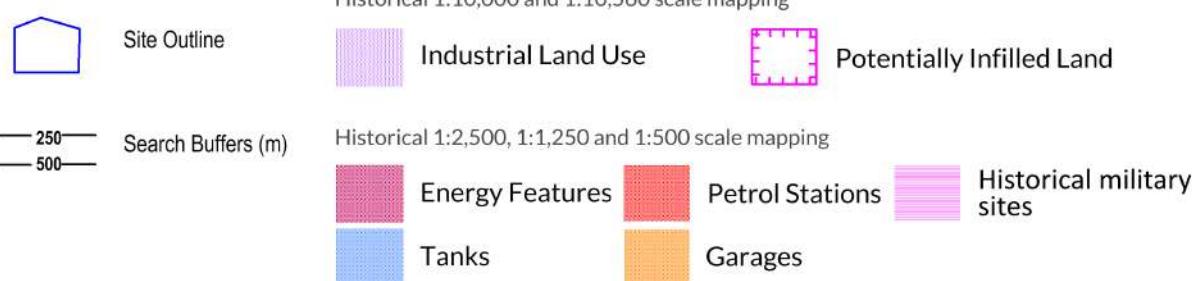
## Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

# 1. Historical Land Use



# 1. Historical Industrial Sites

## 1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 51

ID	Distance [m]	Direction	Use	Date
1A	38	E	Pumping Station	1938
2A	38	E	Pumping Station	1921
3B	249	E	Pumping Station	1895
4B	273	E	Pumping Station	1895
5	273	N	Boat House	1863
6B	277	E	Pumping Station	1951
7B	281	E	Unspecified Tanks	1938
8F	306	W	Railway Sidings	1894
9C	306	W	Cuttings	1894
10D	308	W	Cuttings	1894
11C	309	W	Cuttings	1895
12D	309	W	Cuttings	1895
13E	318	W	Railway Sidings	1921
14E	318	W	Railway Sidings	1938
15F	319	W	Railway Sidings	1895
16	319	W	Railway Sidings	1951
17	319	N	Unspecified Tank	1938
18E	322	W	Railway Sidings	1962
19	322	W	Railway Sidings	1952
20G	331	W	Cuttings	1951
21D	333	W	Railway Building	1921
22G	340	W	Cuttings	1921
23G	341	W	Cuttings	1938
24H	353	W	Unspecified Works	1988
25H	353	W	Unspecified Works	1974
26H	353	W	Unspecified Works	1968
27	391	W	Railway Sidings	1951
28AA	411	NE	Cuttings	1974
29AB	417	N	Cuttings	1988
30I	419	W	Railway Sidings	1968
31I	419	W	Railway Sidings	1974
32I	419	W	Railway Sidings	1988
33J	434	SW	Railway Building	1921
34J	434	SW	Railway Building	1938

35J	435	SW	Railway Building	1952
36J	435	SW	Railway Building	1962
37J	446	SW	Railway Building	1894
38J	447	SW	Railway Building	1895
39	447	W	Unspecified Works	1951
40	451	W	Smithy	1938
41	454	E	Nursery	1895
42J	457	SW	Railway Building	1952
43AC	457	NE	Cuttings	1988
44K	468	W	Smithy	1921
45K	481	W	Smithy	1863
46	485	W	Corporation Depot	1951
47L	486	SW	Railway Building	1952
48L	492	SW	Railway Building	1921
49M	496	NW	Unspecified Works	1951
50M	498	NW	Unspecified Works	1988
51M	498	NW	Unspecified Works	1974

## 1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary:

6

ID	Distance (m)	Direction	Use	Date
52N	272	E	Tanks	1939
53N	283	E	Tanks	1954
54N	283	E	Tanks	1955
55N	287	E	Tanks	1982
56N	287	E	Tanks	
57	429	W	Unspecified Tank	

## 1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary:

19

ID	Distance (m)	Direction	Use	Date
580	66	N	Electricity Substation	1955

59O	67	N	Electricity Substation	1955
60P	93	NW	Electricity Substation	1955
61P	94	NW	Electricity Substation	1955
62Q	149	W	Electricity Substation	1991
63Q	149	W	Electricity Substation	1980
64R	241	SW	Electricity Substation	1991
65R	243	SW	Electricity Substation	1990
66R	243	SW	Electricity Substation	1991
67S	253	W	Electricity Substation	1991
68S	254	W	Electricity Substation	1991
69S	254	W	Electricity Substation	1990
70B	269	E	Electricity Substation	1991
71B	269	E	Electricity Substation	1991
72T	341	S	Electricity Substation	1990
73T	341	S	Electricity Substation	1991
74T	341	S	Electricity Substation	1955
75U	461	NW	Electricity Substation	1955
76U	461	NW	Electricity Substation	

#### 1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

---

#### 1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

#### 1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary:

Database searched and no data found.

## 1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 46

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
77A	116	E	Reservoirs	1921
78A	116	E	Reservoirs	1938
79V	135	E	Reservoirs	1968
80V	135	E	Reservoirs	1974
81V	135	E	Reservoirs	1988
82V	139	E	Reservoirs	1951
83	217	SE	Pond	1952
84W	245	SE	Pond	1985
85W	245	SE	Pond	1994
86W	246	SE	Pond	1952
87	249	N	Water Body	1863
88W	249	SE	Pond	1962
89W	249	SE	Boating Pond	1975
90W	249	SE	Boating Pond	1968
91X	257	NE	Reservoir	1974
92X	257	NE	Reservoir	1988
93C	306	W	Cuttings	1894
94D	309	W	Cuttings	1894
95C	309	W	Cuttings	1895
96D	309	W	Cuttings	1895
97Y	322	N	Pond	1951
98Y	322	N	Pond	1988
99G	331	W	Cuttings	1951
100G	340	W	Cuttings	1921
101G	341	W	Cuttings	1938
102Z	380	NE	Ponds	1895
103Z	381	NE	Ponds	1895
104Z	381	NE	Ponds	1921
105Z	386	NE	Ponds	1863
106Z	388	NE	Ponds	1938
107AA	411	NE	Cuttings	1974
108AB	417	N	Cuttings	1988
109	438	SE	Pond	1952
110AC	457	NE	Cuttings	1988
111AD	472	SE	Ponds	1975

112AD	477	SE	Ponds	1994
113AD	477	SE	Ponds	1985
114AD	478	SE	Pond	1952
115AD	478	SE	Ponds	1968
116AD	478	SE	Ponds	1962
117AE	484	SE	Pond	1975
118AE	488	SE	Pond	1952
119AE	491	SE	Pond	1985
120AE	491	SE	Pond	1994
121AE	491	SE	Pond	1968
122AE	491	SE	Pond	1962

---

## 2. Environmental Permits, Incidents and Registers Map



-  Site Outline
-  Search Buffers (m)
  - 250 —
  - 500 —
-  Recorded Pollution Incident
-  Dangerous Substances (List 1)
-  Dangerous Substances (List 2)
-  Water Industry Referrals
-  Licenced Discharge Consents
-  Red List Discharge Consents
-  RAS 3 & 4 Authorisations
-  Part A(1) Authorised Processes and Historic IPC Authorisations
-  Part A(2) and Part B Authorised Processes
-  COMAH / NIHHS Sites
-  Sites Determined as Contaminated Land
-  Hazardous Substance Consents and Enforcements

# 2. Environmental Permits, Incidents and Registers

## 2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

### 2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

---

### 2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

---

### 2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

### 2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

---

### 2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

---

#### 2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

0

Database searched and no data found.

---

#### 2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

---

#### 2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

1

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	267	NE	539200 190300	Address: Woodford Forest Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: TEMP.0293 Permit Version: 1	Receiving Water: CHING BROOK Status: REVOKED - UNSPECIFIED Issue date: 15/09/1989 Effective Date: 15-Sep-1989 Revocation Date: 05/10/2000

#### 2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

---

#### 2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

---

## 2.2 Dangerous or Hazardous Sites

#### Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

---

## 2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

### 2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

0

Database searched and no data found.

---

### 2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

---

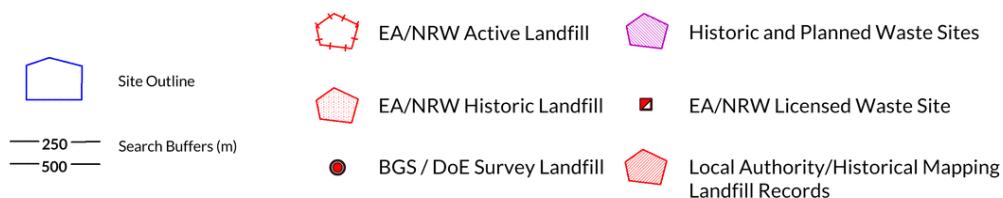
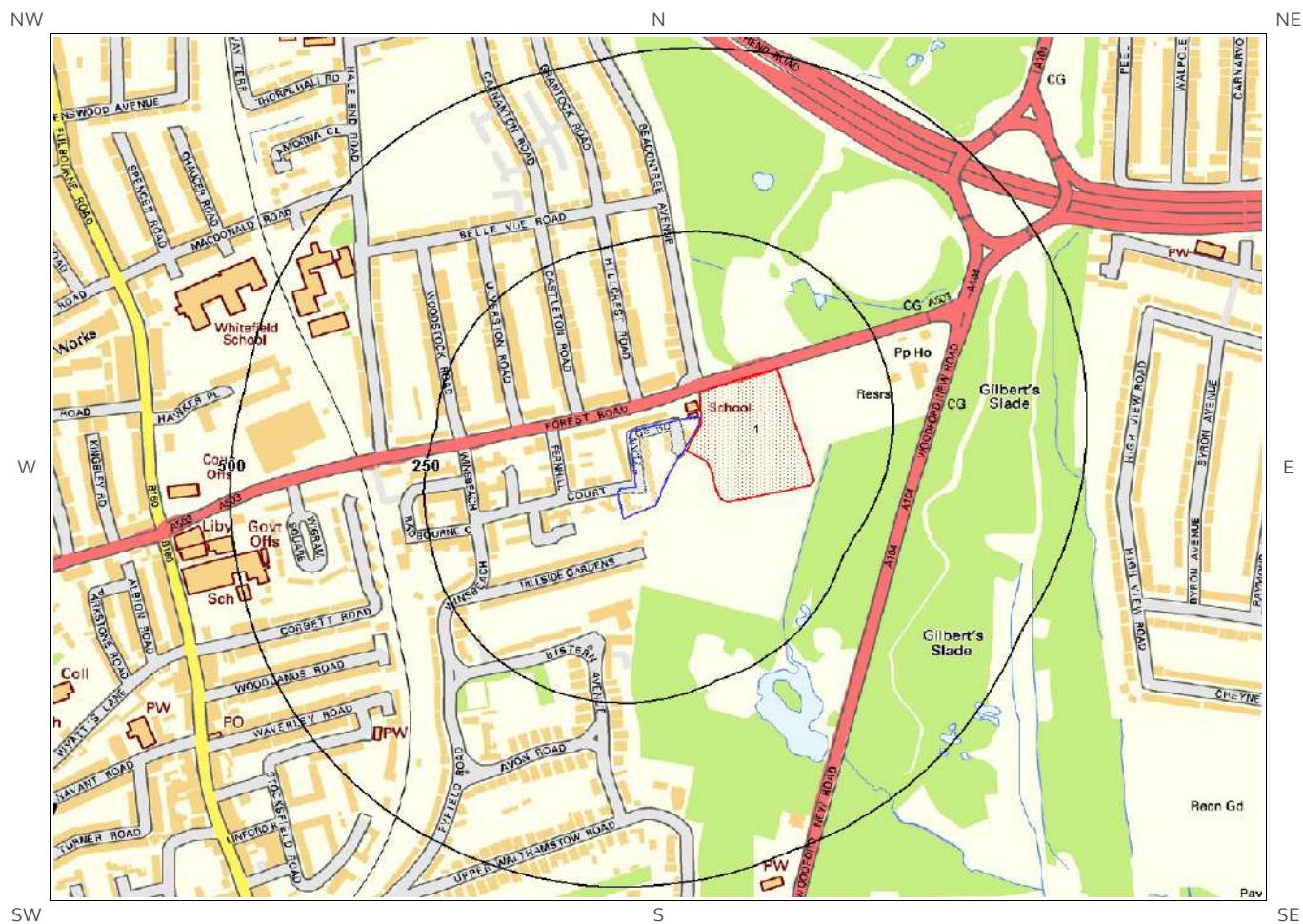
## 2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

---

### 3. Landfill and Other Waste Sites Map



# 3. Landfill and Other Waste Sites

## 3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

---

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

2

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
1	1	SE		Site Address: Forest Road Allotment Site, Forest Road Waste Licence: - Site Reference: 8WF008, WAL008 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -
Not shown	1078	S		Site Address: Ex-Whipps Cross Lido, Whipps Cross Waste Licence: Yes Site Reference: DL128, 8WF009 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -

---

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

---

### 3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

---

## 3.2 Other Waste Sites

### 3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

Database searched and no data found.

---

### 3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

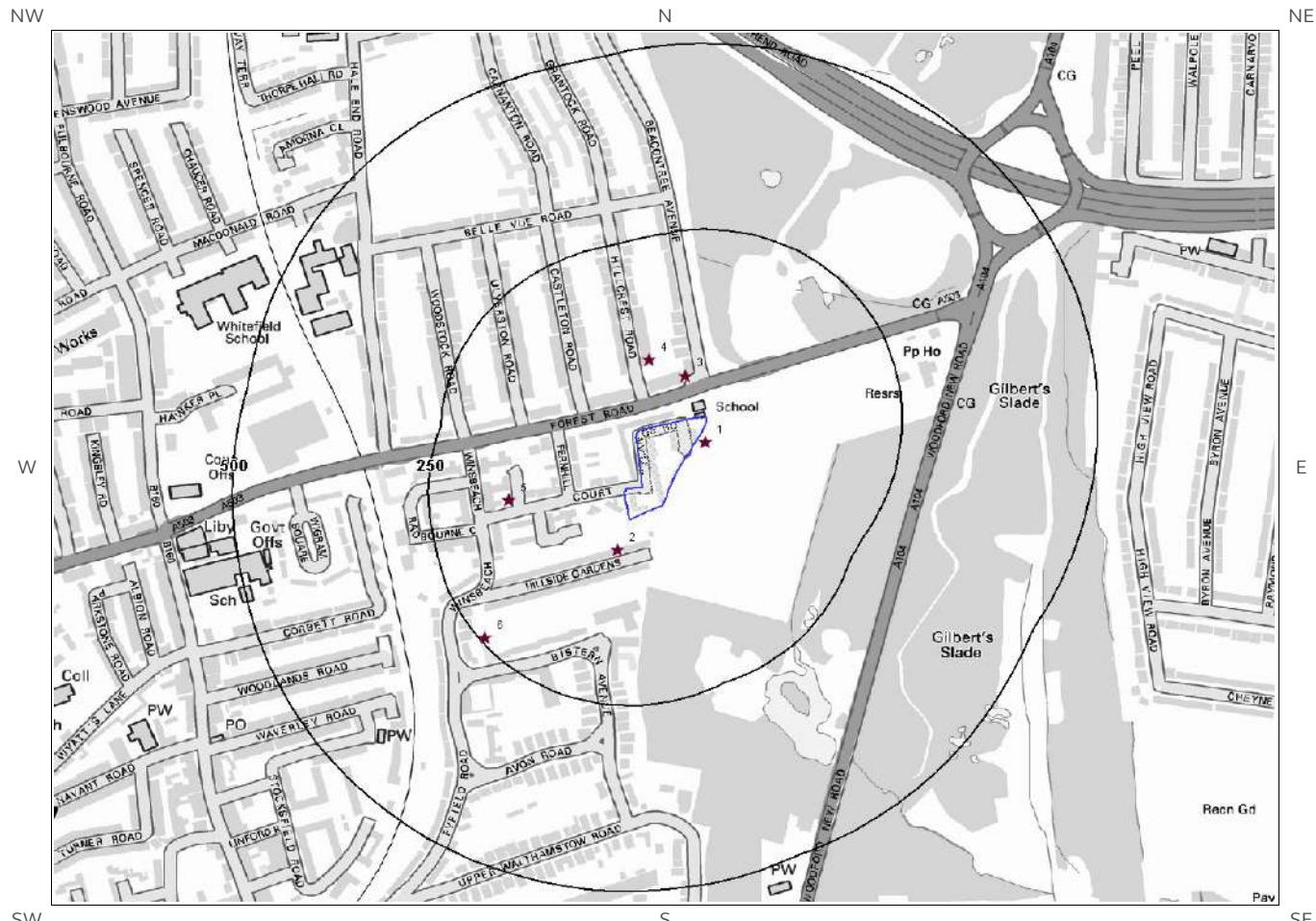
1

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	1226	SW	538047 189105	<p>Site Address: Unit 8 Ravenswood Ind Estate, Shernhall Street, Walthamstow, London, E17 9HQ</p> <p>Type: Material Recycling Treatment Facility</p> <p>Size: &lt; 25000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: BJE001</p> <p>EPR reference: EA/EPR/MP3093EC/A001</p> <p>Operator: B J Electronics ( U K ) Ltd</p> <p>Waste Management licence No: 80770</p> <p>Annual Tonnage: 5000.0</p> <p>Issue Date: 19/03/2007</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: B J Electronics, Walthamstow</p> <p>Correspondence Address: -</p>

---

## 4. Current Land Use Map



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Site Outline



Current Industrial Sites



Electricity Transmission Cables



Search Buffers (m)

250

500



Petrol & Fuel Sites



Gas Transmission Pipelines

# 4. Current Land Uses

## 4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

6

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	10	SE	Water Works	538991 190095	Greater London, E17	Non Alcoholic Drinks	Foodstuffs
2	43	S	Elite Leisurewear Ltd	538879 189950	41, Hillside Gardens, London, Greater London, E17 3RH	Textiles, Fabrics, Silk and Machinery	Industrial Products
3	59	N	Electricity Sub Station	538966 190185	Greater London, E17	Electrical Features	Infrastructure and Facilities
4	89	N	Britsign	538920 190206	4, Hillcrest Road, London, Greater London, E17 4AP	Structural Engineers	Engineering Services
5	148	W	Electricity Sub Station	538740 190017	Greater London, E17	Electrical Features	Infrastructure and Facilities
6	244	SW	Electricity Sub Station	538710 189832	Greater London, E17	Electrical Features	Infrastructure and Facilities

## 4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

0

Database searched and no data found.

## 4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site:

0

Database searched and no data found.

#### 4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site:

0

Database searched and no data found.

---

# 5. Geology

## 5.1 Artificial Ground and Made Ground

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

## 5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
WOGR-XSV	WOODFORD GRAVEL FORMATION	SAND AND GRAVEL
WOGR-XSV	WOODFORD GRAVEL FORMATION	SAND AND GRAVEL

## 5.3 Bedrock and Solid Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LC-XCZS	LONDON CLAY FORMATION	CLAY, SILT AND SAND

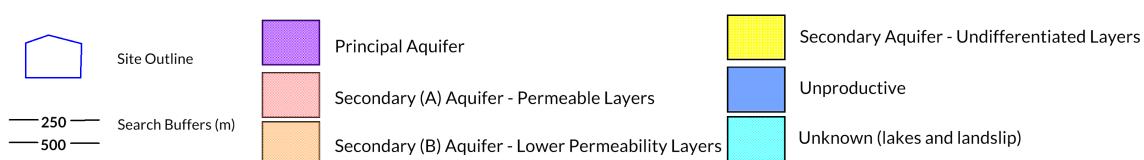
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

# 6 Hydrogeology and Hydrology

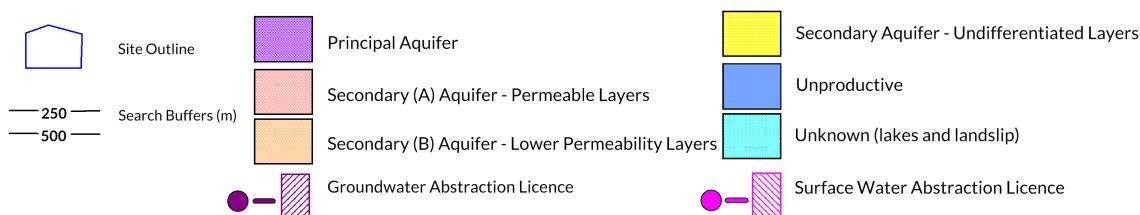
## 6a. Aquifer Within Superficial Geology



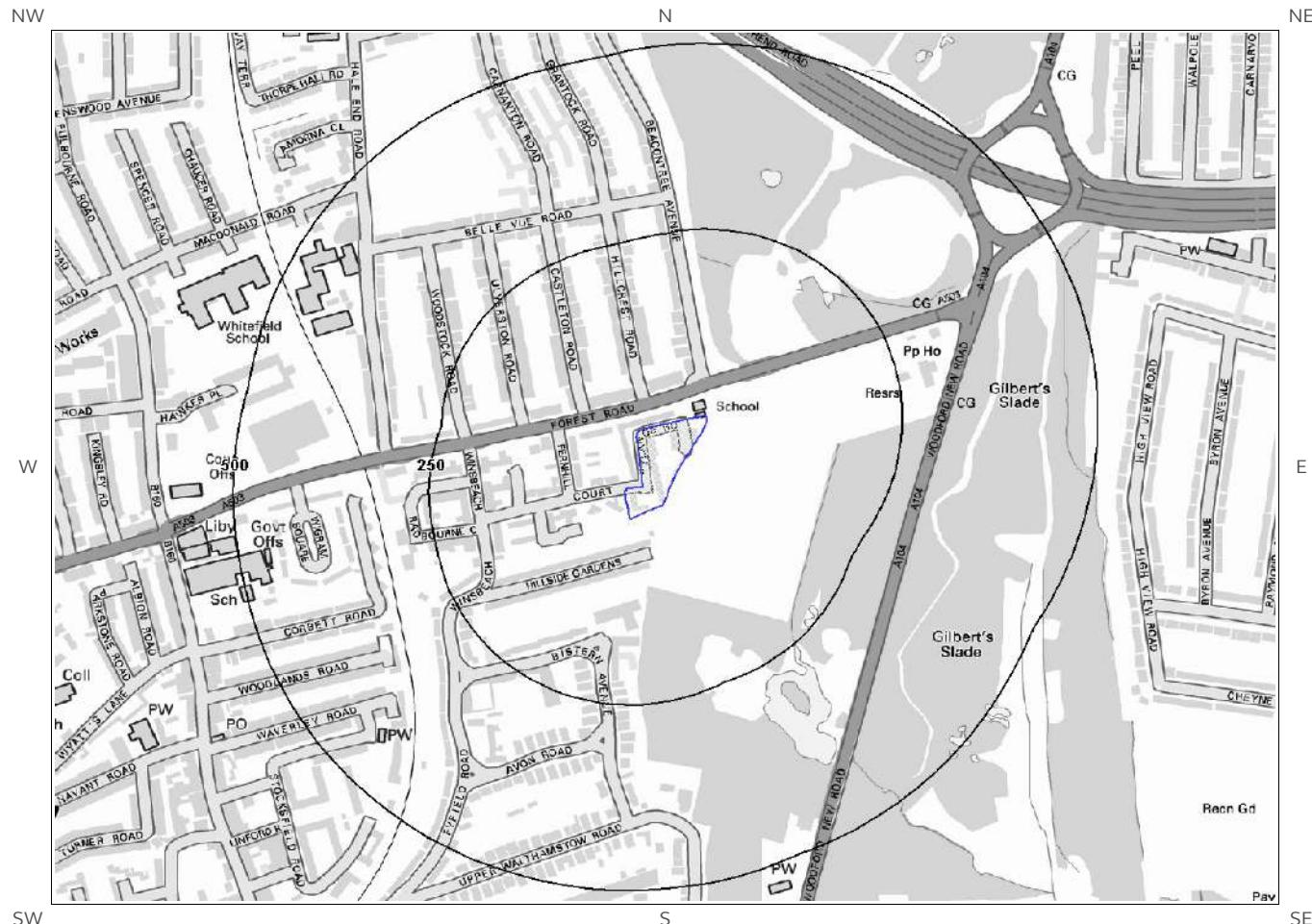
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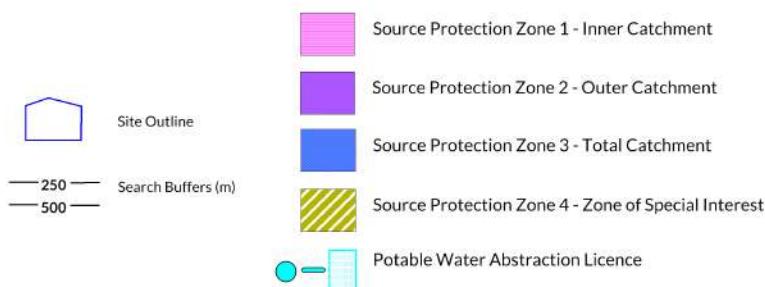
# 6b. Aquifer Within Bedrock Geology and Abstraction Licences



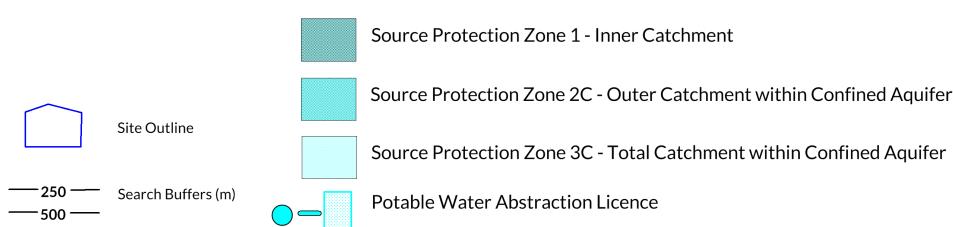
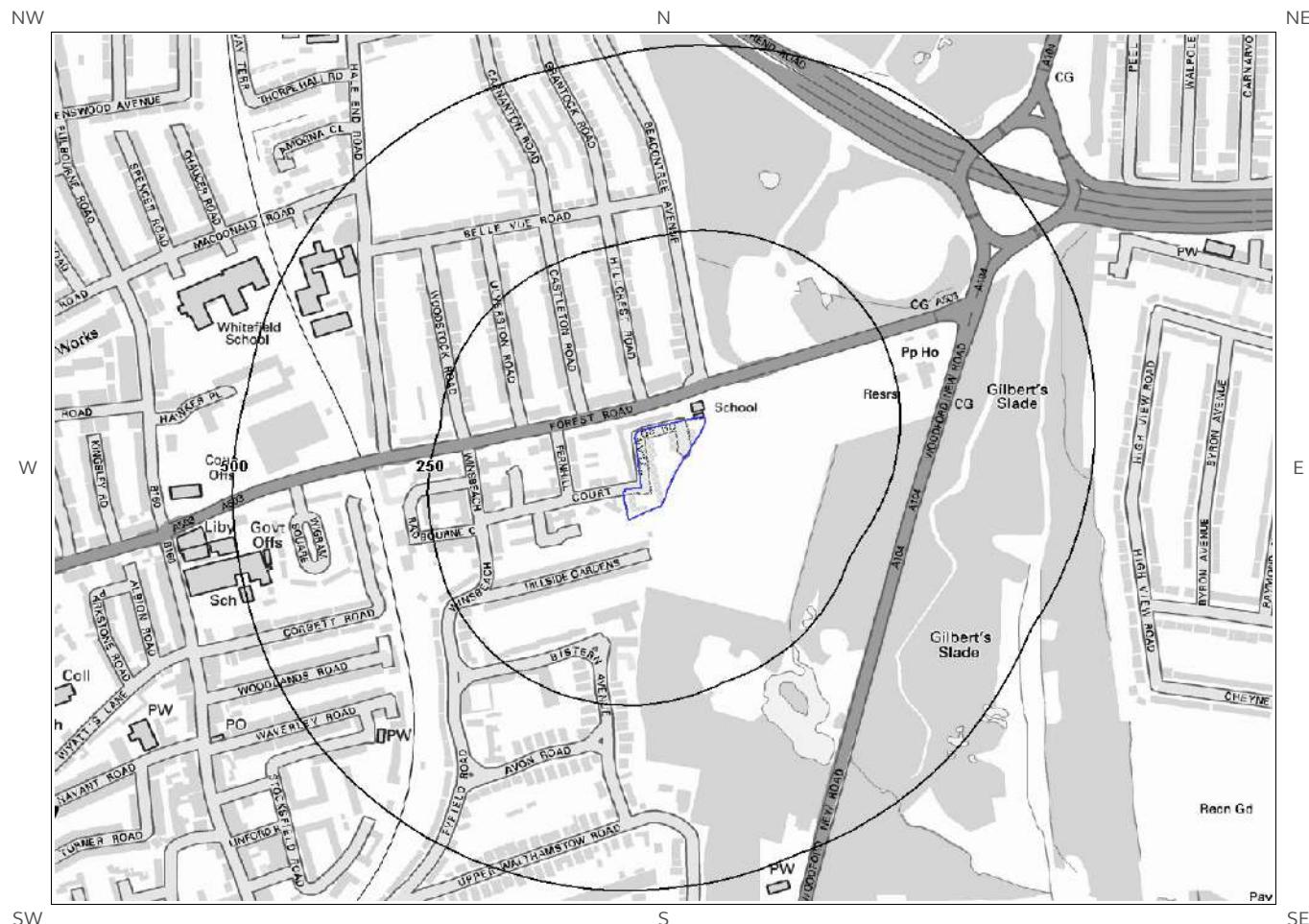
# 6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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# 6d. Hydrogeology – Source Protection Zones within confined aquifer



# 6e. Hydrology – Watercourse Network and River Quality



Watercourse type		Watercourse level	
	Tidal River		On ground surface
	Inland River		Underground or Elevated
250	Canal		Level unknown
500	Lock or Flight of Locks		General Quality Assessment: Biology
	Lake, Reservoir, or Marsh		General Quality Assessment: Chemistry
	Foreshore		
	Drain or Transfer		

# 6. Hydrogeology and Hydrology

## 6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	21	SE	Secondary A	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
2	44	SE	Secondary A	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
3	49	N	Secondary A	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

## 6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

## 6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site

Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
Not shown	1503	S	538700 188500	Status: Historical Licence No: 29/38/09/0156 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: WHIPPS CROSS HOSPITAL Data Type: Point Name: FOREST HEALTHCARE NHS TRUST
Not shown	1695	NW	537700 191300	Status: Historical Licence No: 29/38/09/0117 Details: Large Garden Watering Direct Source: THAMES GROUNDWATER Point: THE STADIUM, WALTHAMSTOW Data Type: Point Name: WALTHAMSTOW STADIUM LTD
Not shown	1800	S	538900 188190	Status: Active Licence No: 29/38/09/0156 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: WHIPPS CROSS HOSPITAL BHA Data Type: Point Name: Whipps Cross University Hospital NHS Trust
Not shown	1820	S	538890 188170	Status: Active Licence No: 29/38/09/0156 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: WHIPPS CROSS HOSPITAL BH B Data Type: Point Name: Whipps Cross University Hospital NHS Trust

## 6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

## 6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
Not shown	1503	S	538700 188500	Status: Historical Licence No: 29/38/09/0156 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: WHIPPS CROSS HOSPITAL Data Type: Point Name: FOREST HEALTHCARE NHS TRUST
Not shown	1800	S	538900 188190	Status: Active Licence No: 29/38/09/0156 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: WHIPPS CROSS HOSPITAL BHA Data Type: Point Name: Whipps Cross University Hospital NHS Trust
Not shown	1820	S	538890 188170	Status: Active Licence No: 29/38/09/0156 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: WHIPPS CROSS HOSPITAL BH B Data Type: Point Name: Whipps Cross University Hospital NHS Trust

## 6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

None identified

Database searched and no data found.

## 6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site      None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

## 6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site      Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
9	SE	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

## 6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site      None identified

### 6.9.1 Biological Quality:

Database searched and no data found.

### 6.9.2 Chemical Quality:

Database searched and no data found.

## 6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	170 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	170 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
2	204 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	204 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	205 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	205 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	217 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	217 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	223 NE	-	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.0

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
9	223 NE	-	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.0
6	231 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	231 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	237 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	237 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	248 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	248 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	250 SE	-	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 21.9
13	250 SE	-	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 21.9
10	353 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	353 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	354 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	354	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: Not provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SE			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	409 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	409 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	455 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	455 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	459 E	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	459 E	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	460 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	460 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	472 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	472 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
17	473 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8
Not shown	473 SE	Inland river not influenced by normal tidal action.		Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 0.8
18	496 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	496 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

## 6.11 Surface Water Features

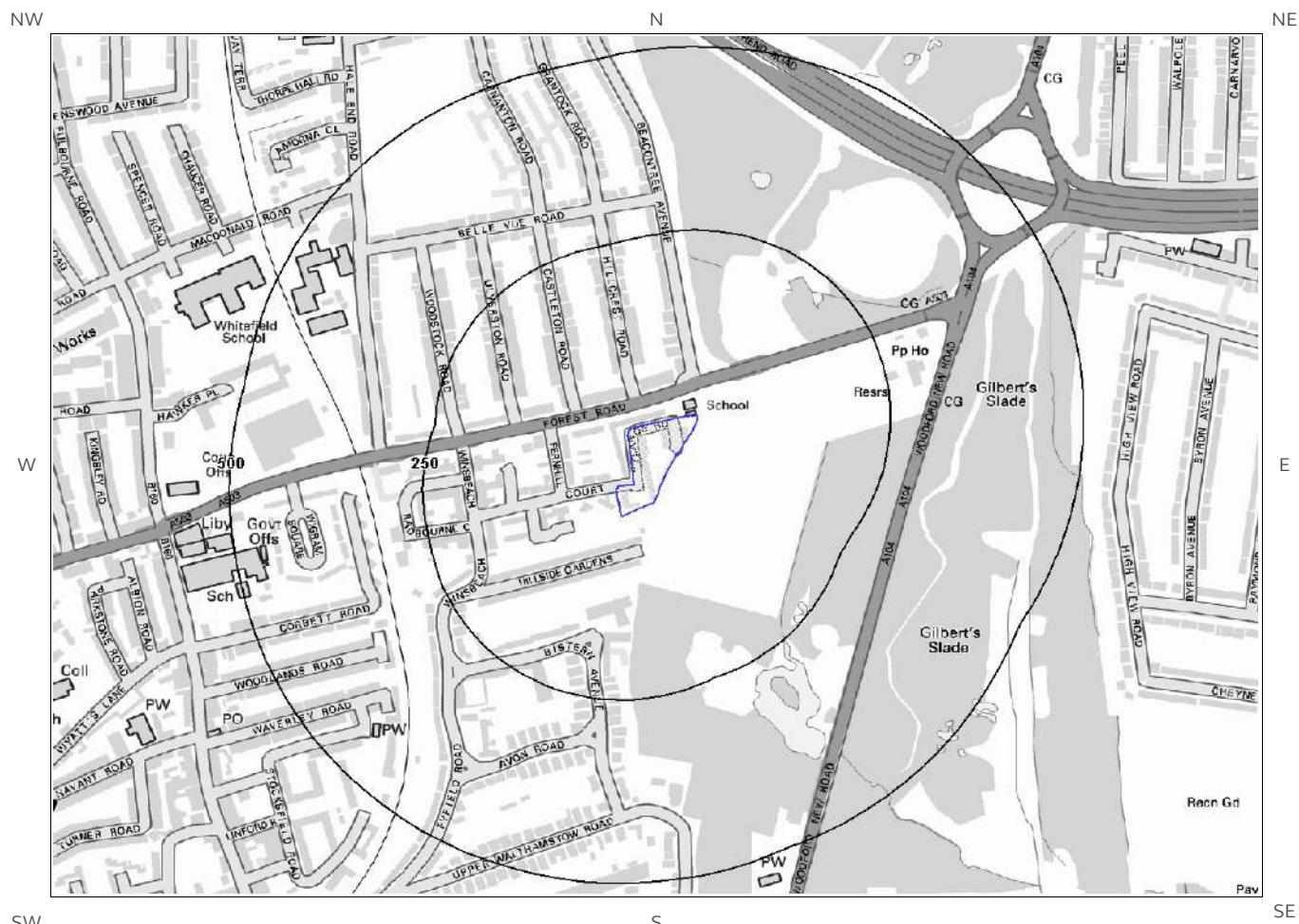
Surface water features within 250m of the study site

Identified

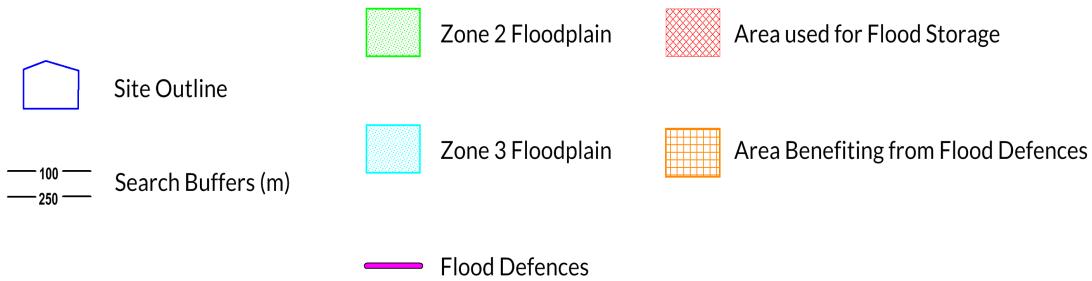
The following surface water records are not represented on mapping:

Distance (m)	Direction
170	E
204	N
205	NE
231	NE
231	SE
239	SE
249	SE

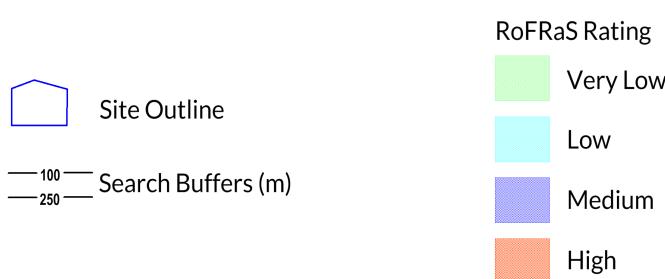
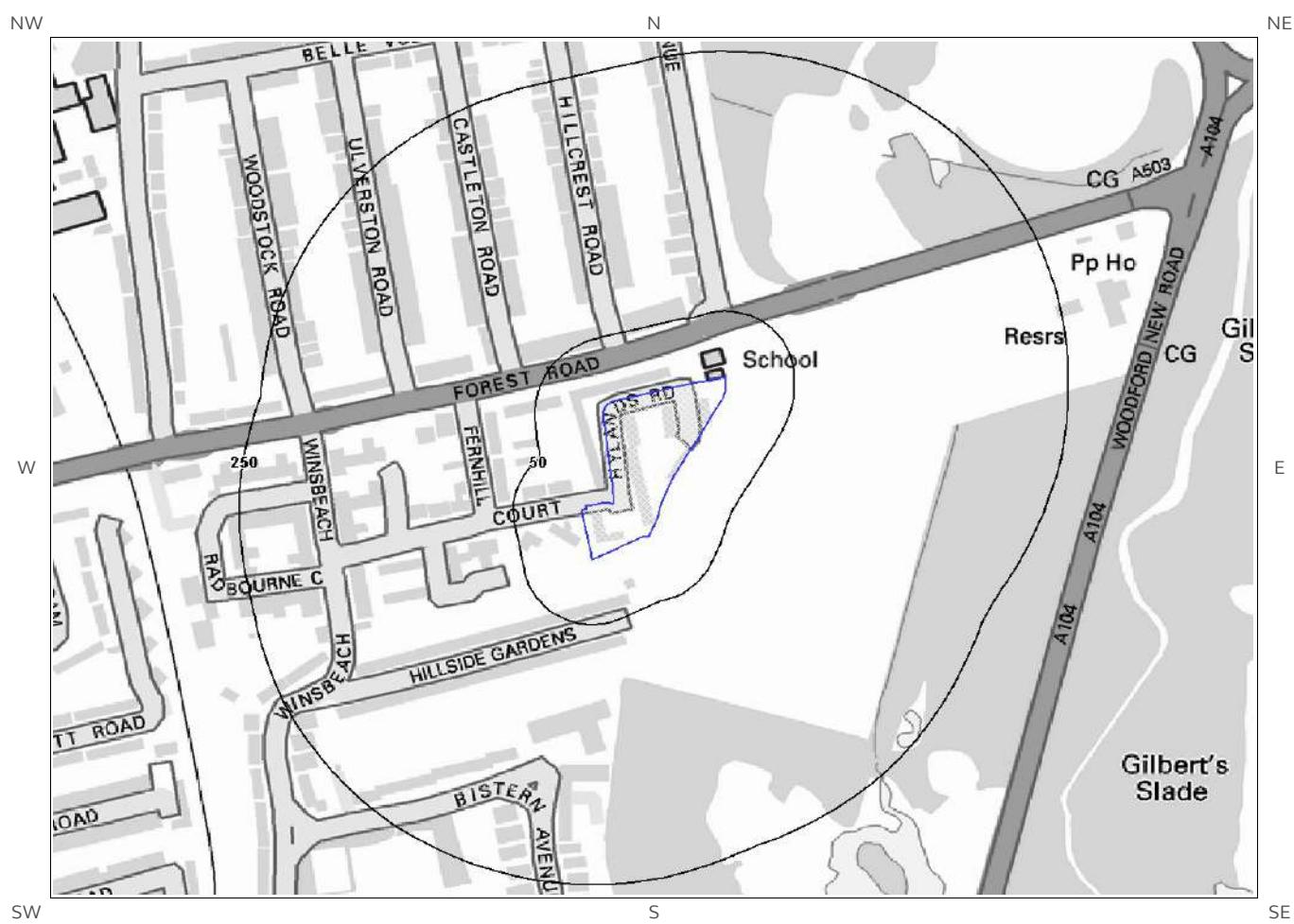
## **7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)**



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# 7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



# 7 Flooding

## 7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m None identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

Database searched and no data found.

## 7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m None identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

Database searched and no data found.

## 7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

## 7.4 Flood Defences

Flood Defences within 250m of the study site None identified  
Database searched and no data found.

## 7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site None identified

## 7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site

None identified

## 7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site  
Identified

Clearwater Flooding or Superficial Deposits Flooding

Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential below Surface

Where potential for groundwater flooding of property situated below ground level is indicated, this means that given the geological conditions there may be a groundwater flooding hazard to basements and other below surface infrastructure. Unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area you need take no further action in relation to groundwater flooding hazard. If there are records of previous incidences of groundwater flooding, then it is recommended that other information e.g. rainfall history, property type, and land drainage information in addition to previous records of flooding be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

## 7.8 Groundwater Flooding Confidence Areas

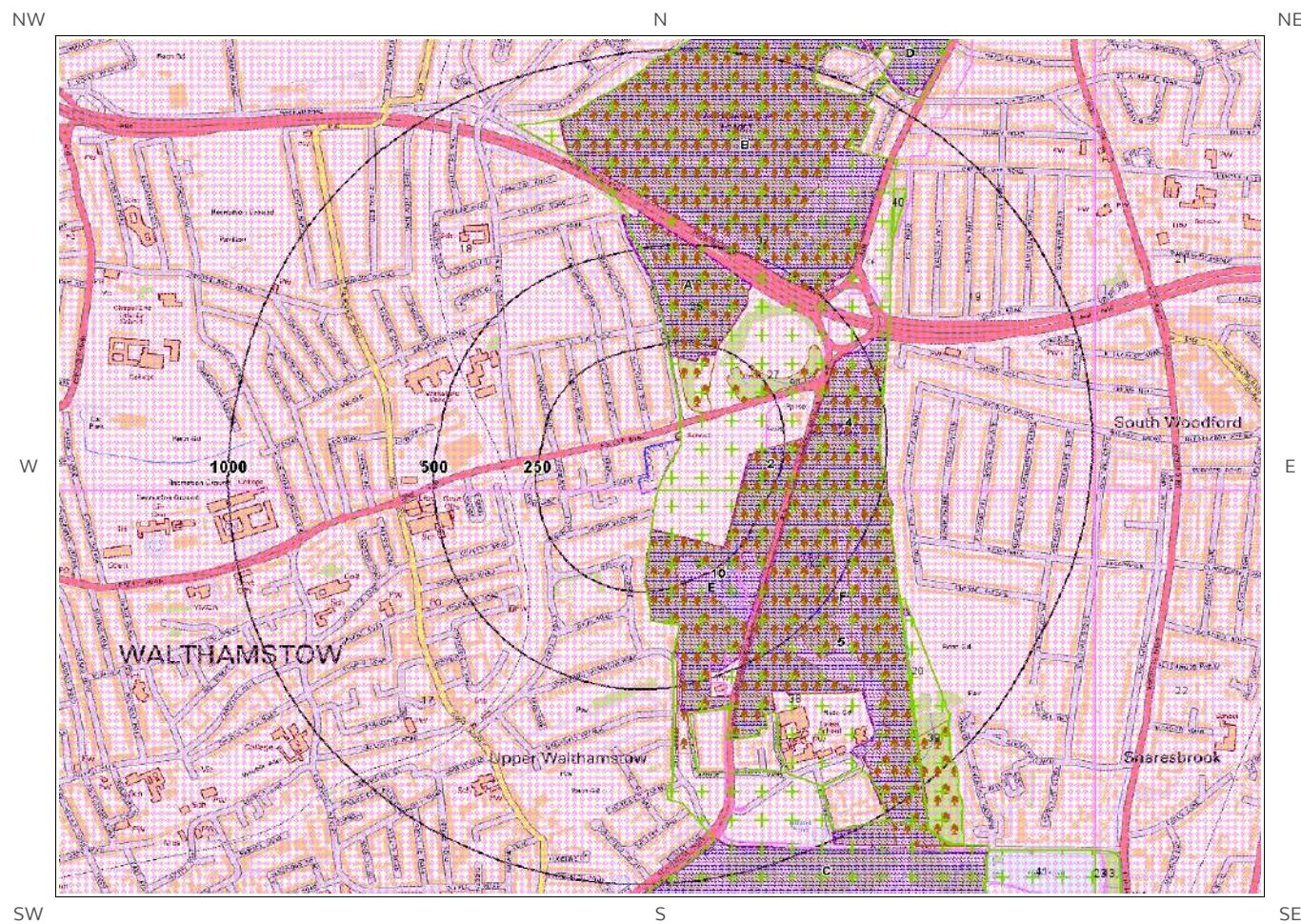
British Geological Survey confidence rating in this result

High

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

# 8. Designated Environmentally Sensitive Sites Map



# 8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site

Identified

## 8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

7

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
10	92	S	Epping Forest	Natural England
11A	203	N	Epping Forest	Natural England
12F	292	E	Epping Forest	Natural England
13B	483	NE	Epping Forest	Natural England
14C	903	S	Epping Forest	Natural England
15D	1044	NE	Epping Forest	Natural England
Not shown	1759	N	Epping Forest	Natural England

## 8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

## 8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

9

The following Special Area of Conservation (SAC) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SAC Name	Data Source
1E	92	S	Epping Forest	Natural England
2	167	E	Epping Forest	Natural England
3A	203	N	Epping Forest	Natural England
4	292	E	Epping Forest	Natural England

ID	Distance (m)	Direction	SAC Name	Data Source
5	295	SE	Epping Forest	Natural England
6B	483	NE	Epping Forest	Natural England
7C	903	S	Epping Forest	Natural England
8D	1044	NE	Epping Forest	Natural England
Not shown	1759	N	Epping Forest	Natural England

---

#### 8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

---

#### 8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

---

## 8.6 Records of Ancient Woodland within 2000m of the study site:

12

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
25	80	NE	UNKNOWN	Ancient and Semi-Natural Woodland
26E	92	S	UNKNOWN	Ancient and Semi-Natural Woodland
27	174	NE	UNKNOWN	Ancient and Semi-Natural Woodland
28F	292	E	UNKNOWN	Ancient and Semi-Natural Woodland
29B	483	NE	EPPING-WALTHAMSTOW FOREST	Ancient and Semi-Natural Woodland
30D	1091	NE	EPPING-WALTHAMSTOW FOREST	Ancient and Semi-Natural Woodland
Not shown	1276	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1278	N	EPPING-WALTHAMSTOW FOREST	Ancient Replanted Woodland
Not shown	1345	N	EPPING-WALTHAMSTOW FOREST	Ancient Replanted Woodland
Not shown	1540	N	EPPING-WALTHAMSTOW FOREST	Ancient Replanted Woodland
Not shown	1588	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1822	N	EPPING-WALTHAMSTOW FOREST	Ancient and Semi-Natural Woodland

---

## 8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

0

Database searched and no data found.

---

## 8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

## 8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

## 8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

## 8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

## 8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

## 8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

8

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
17	0	On Site	Existing	DEFRA
18	0	On Site	Existing	DEFRA
19	207	E	Existing	DEFRA
20	263	SE	Existing	DEFRA
21	1007	E	Existing	DEFRA
22	1015	E	Existing	DEFRA
23	1414	SE	Existing	DEFRA
Not shown	1998	NE	Existing	DEFRA

## 8.14 Records of Green Belt land within 2000m of the study site:

9

Green Belt data contains Ordnance Survey data © Crown copyright and database right [2015].

ID	Distance	Direction	Green Belt Name	Local Authority Name
37	0	On Site	London Area Greenbelt	Waltham Forest London Boro
38	8	S	London Area Greenbelt	Waltham Forest London Boro
39	653	SE	London Area Greenbelt	Redbridge London Boro
40	731	NE	London Area Greenbelt	Redbridge London Boro
41	1232	SE	London Area Greenbelt	Redbridge London Boro
Not shown	1400	NE	London Area Greenbelt	Redbridge London Boro
43	1414	SE	London Area Greenbelt	Redbridge London Boro
Not shown	1695	NE	London Area Greenbelt	Redbridge London Boro
Not shown	1847	NW	London Area Greenbelt	Waltham Forest London Boro

---

# 9. Natural Hazards Findings

## 9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

### 9.1.1 Shrink Swell

Maximum Shrink-Swell* hazard rating identified on the study site	Moderate
------------------------------------------------------------------	----------

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

#### Hazard

Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.	
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### 9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site	Very Low
---------------------------------------------------------------	----------

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

#### Hazard

Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.	
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### 9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site	Negligible
-------------------------------------------------------------------	------------

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

#### Hazard

Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.	
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

\* This indicates an automatically generated 50m buffer and site.

## 9.1.4 Compressible Ground

Maximum Compressible Ground\* hazard rating identified on the study site      Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

## 9.1.5 Collapsible Rocks

Maximum Collapsible Rocks\* hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

**Hazard**  
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

## 9.1.6 Running Sand

Maximum Running Sand\*\* hazard rating identified on the study site

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

**Hazard**  
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

---

\* This indicates an automatically generated 50m buffer and site.

## 9.2 Radon

### 9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

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### 9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

# 10. Mining

## 10.1 Coal Mining

Coal mining areas within 75m of the study site

None identified

Database searched and no data found.

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## 10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

None identified

Database searched and no data found.

---

## 10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

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# Contact Details

**Groundsure Helpline**  
 Telephone: 08444 159 000  
[info@groundsure.com](mailto:info@groundsure.com)



**Groundsure**  
 LOCATION INTELLIGENCE

**British Geological Survey Enquiries**  
 Kingsley Dunham Centre  
 Keyworth, Nottingham NG12 5GG  
 Tel: 0115 936 3143.  
 Fax: 0115 936 3276.  
 Email:  
[Web: www.bgs.ac.uk](http://www.bgs.ac.uk)  
 BGS Geological Hazards Reports and general geological enquiries:  
[enquiries@bgs.ac.uk](mailto:enquiries@bgs.ac.uk)



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 Email: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)



**Public Health England**  
 Public information access office  
 Public Health England, Wellington House  
 133-155 Waterloo Road, London, SE1 8UG  
[www.gov.uk/phe](http://www.gov.uk/phe)  
 Email: [enquiries@phe.gov.uk](mailto:enquiries@phe.gov.uk)  
 Main switchboard: 020 7654 8000



**Public Health  
England**

**The Coal Authority**  
 200 Lichfield Lane  
 Mansfield  
 Notts NG18 4RG  
 Tel: 0345 7626 848  
 DX 716176 Mansfield 5  
[www.coal.gov.uk](http://www.coal.gov.uk)



**The Coal  
Authority**

**Ordnance Survey**  
 Adanac Drive, Southampton  
 SO16 0AS  
 Tel: 08456 050505



**Local Authority**  
 Authority: London Borough of Waltham Forest  
 Phone: 020 8496 3000  
 Web: <http://www.walthamforest.gov.uk/pages/index.aspx>  
 Address: Town Hall, Forest Road, Walthamstow, London, E17 4JF

