

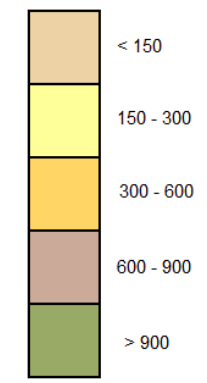
General

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

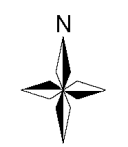
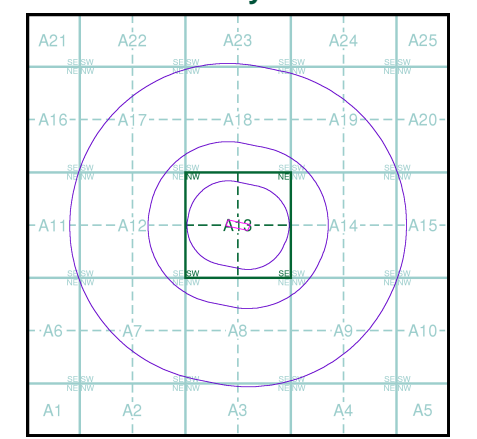
Urban Soil Chemistry Lead

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Lead Concentrations mg/kg



Urban Soil Chemistry Lead - Slice A

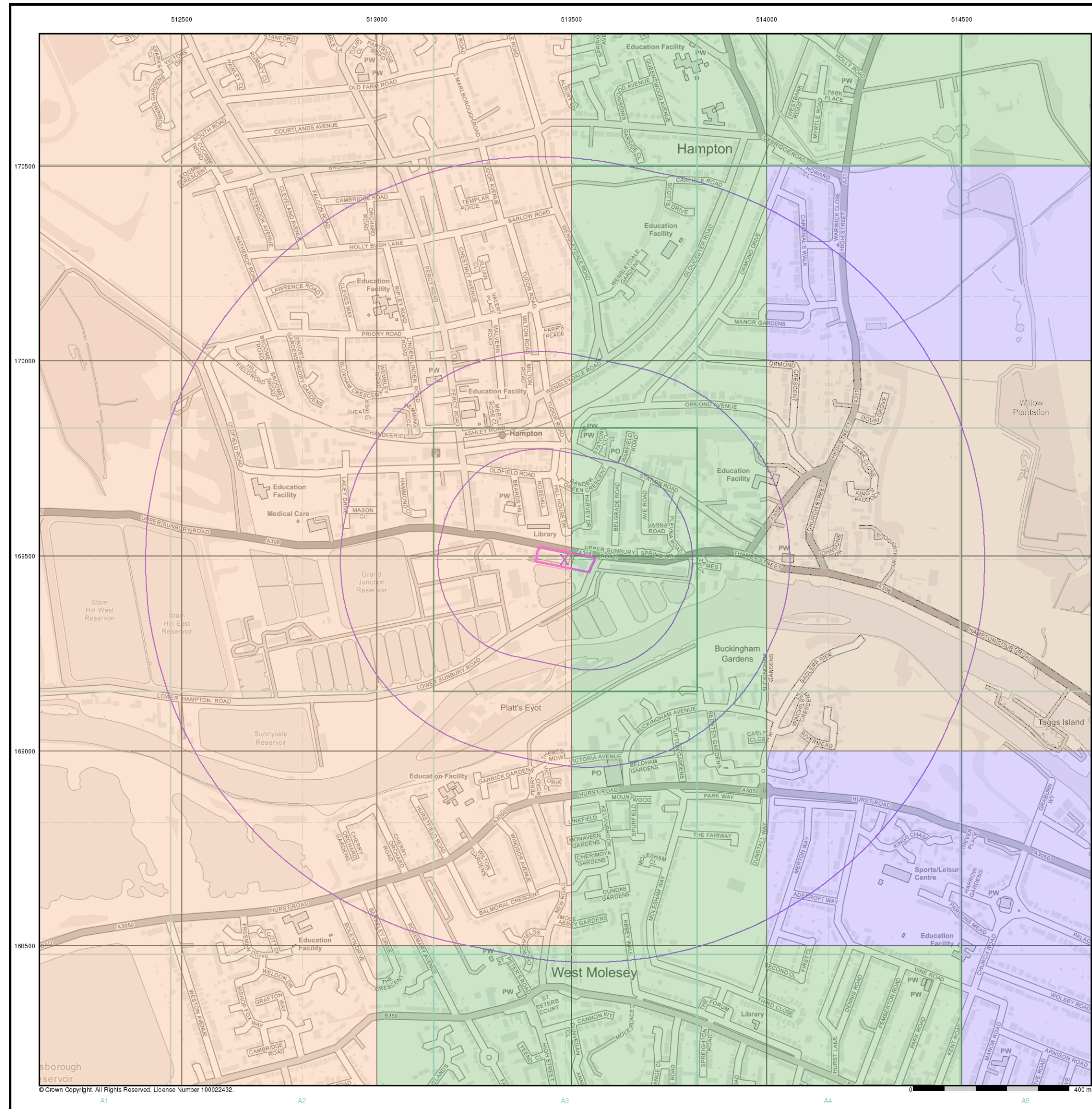


Order Details

Order Details: 207351560_1_1
 Customer Ref: C-12193-C
 National Grid Reference: 513480, 169490
 Slice: A
 Site Area (Ha): 0.57
 Search buffer (m): 1000

Site Details

Hampton Water Works, Upper Sunbury Road, HAMPTON, TW12 2DL

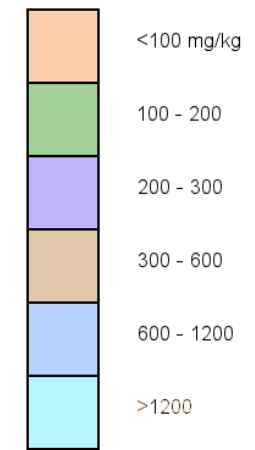


General

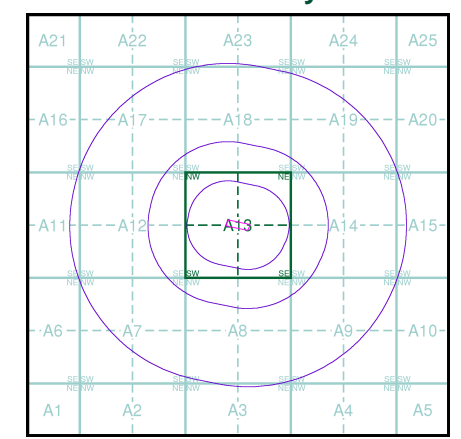
- Specified Site
- Specified Buffer(s)
- x Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A

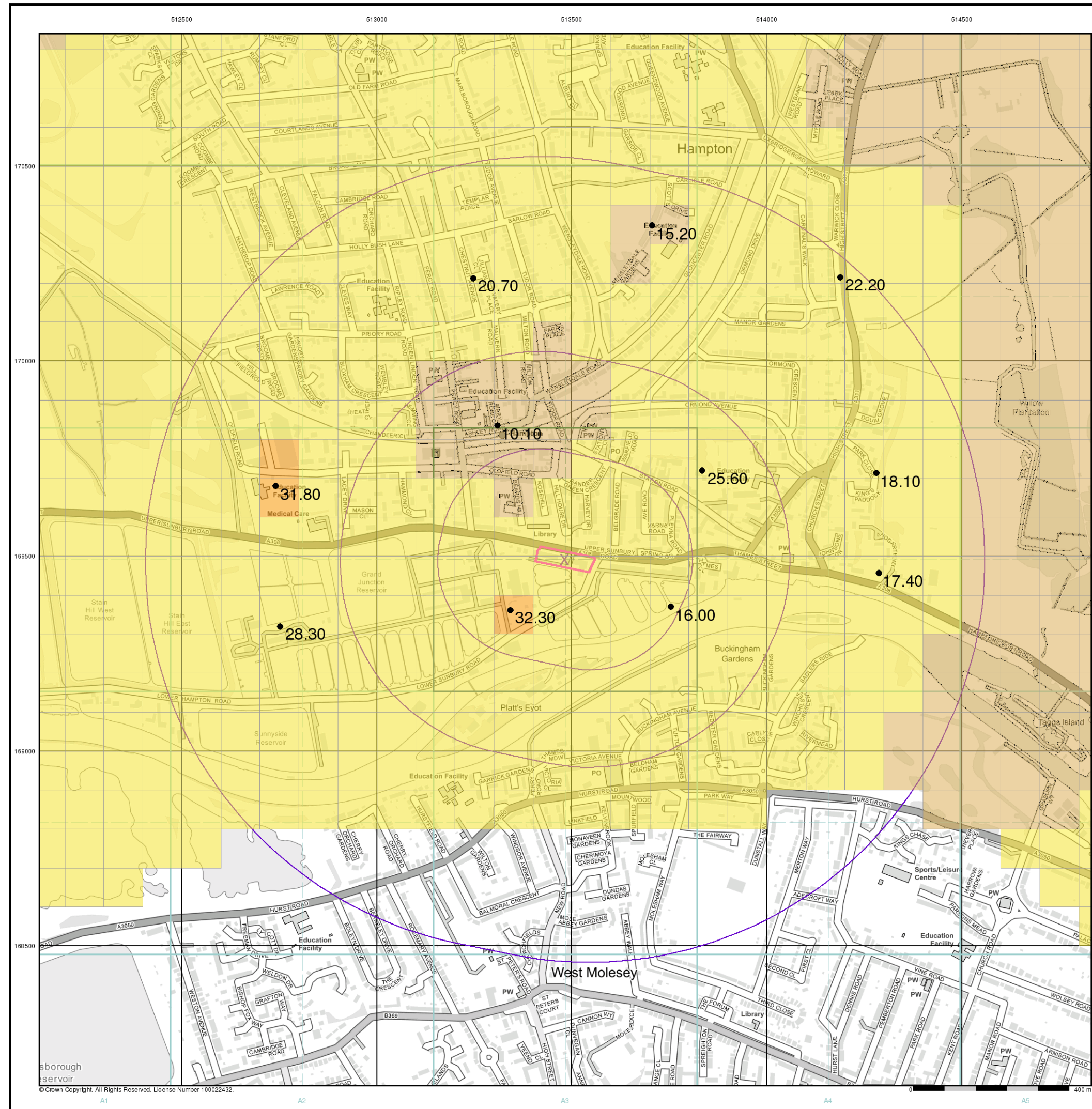


Order Details

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 Customer Ref: C-12193-C
 National Grid Reference: 513480, 169490
 Slice: A
 Site Area (Ha): 0.57
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Hydrock

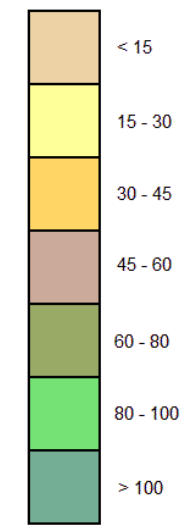
General

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

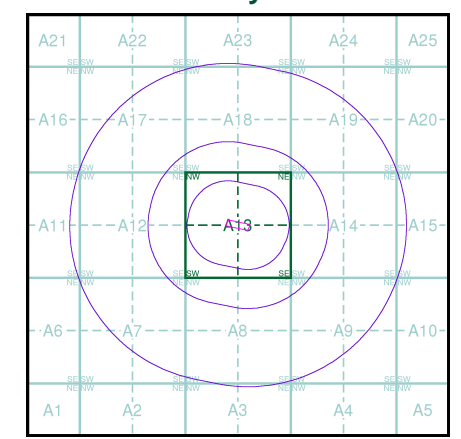
Urban Soil Chemistry Nickel

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Nickel Concentrations mg/kg



Urban Soil Chemistry Nickel - Slice A



Order Details

Order Details: 207351560_1_1
 Customer Ref: C-12193-C
 National Grid Reference: 513480, 169490
 Slice: A
 Site Area (Ha): 0.57
 Search buffer (m): 1000

Site Details

Hampton Water Works, Upper Sunbury Road, HAMPTON, TW12 2DL



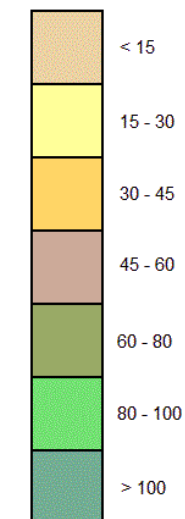
Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk

General

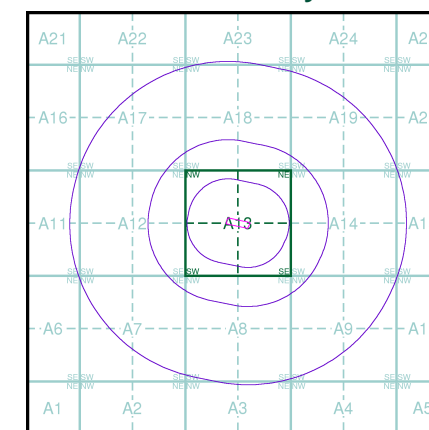
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A

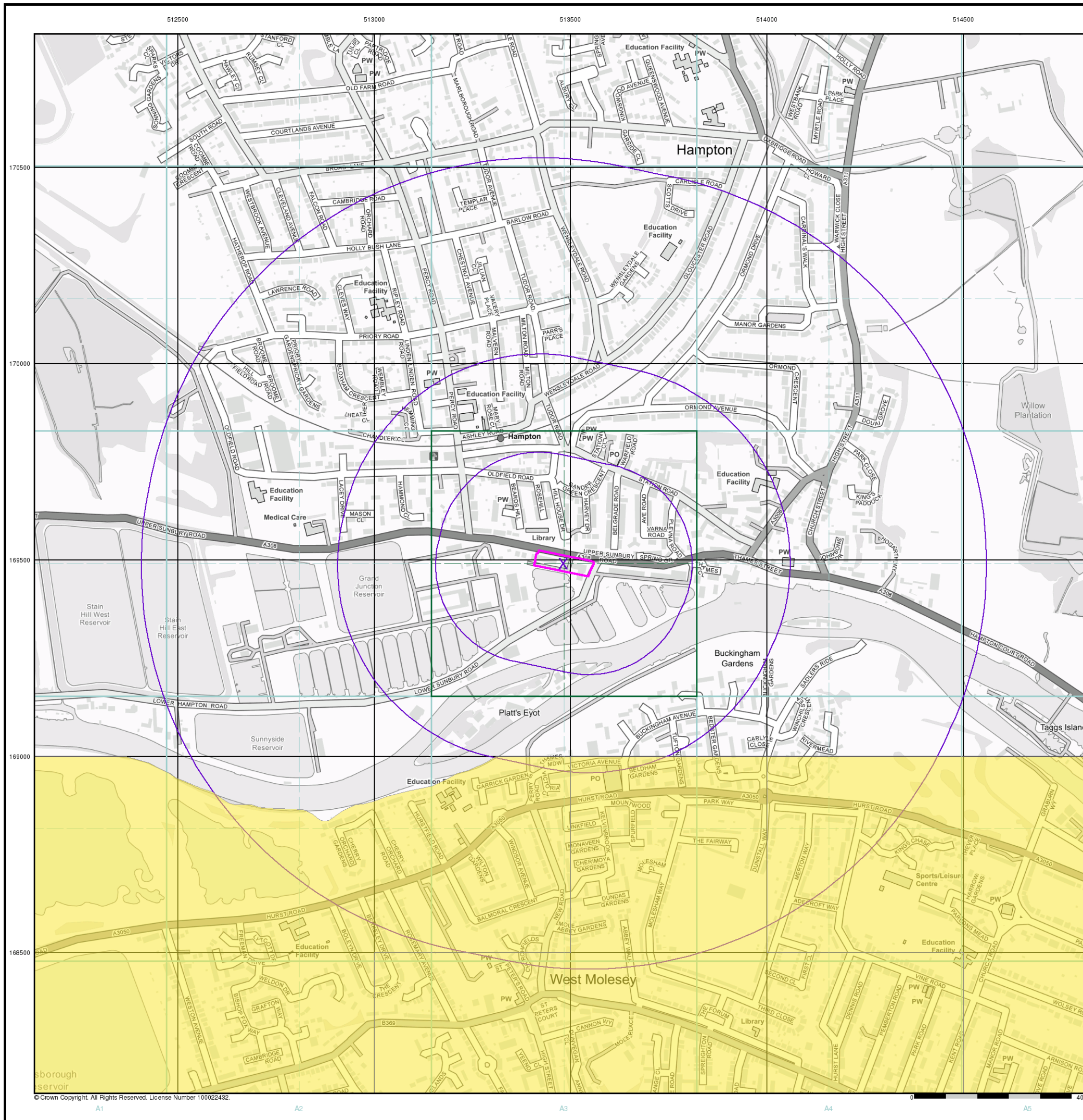


Order Details

Order Details: 207351560_1_1
 Customer Ref: C-12193-C
 National Grid Reference: 513480, 169490
 Slice: A
 Site Area (Ha): 0.57
 Search buffer (m): 1000

Site Details

Hampton Water Works, Upper Sunbury Road, HAMPTON, TW12 2DL



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London

Published 1850

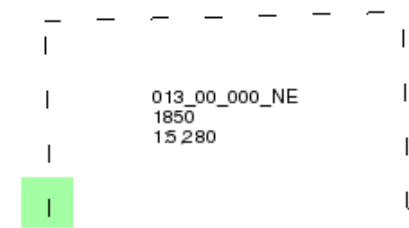
Source map scale - 1:5,280

The historical town plans shown derive from Ordnance Survey mapping from the early to mid 1850s. The 1:2640 scale was introduced in the early 1850s, to survey districts covered by the Local Boards of Health and for a map of the Osborne Estate of Queen Victoria. The general style is similar to that of the early 1:2500s published shortly afterwards.

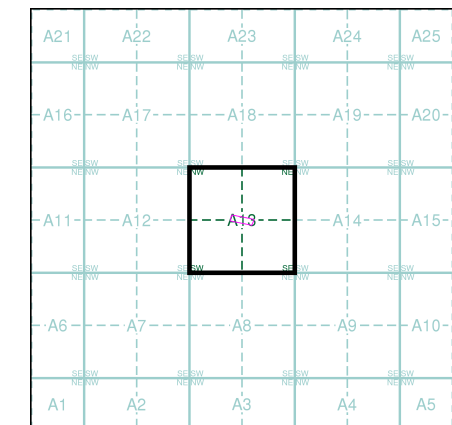
1:5280 scale was surveyed shortly afterwards in the mid 1850s as general purpose mapping with a standard of content similar to the more contemporary 1:10,560 mapping. The scale was also used for a reduction of the 1:1056 'skeleton survey' of London that was undertaken between 1848 and 1850.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)



Historical Town Plan - Segment A13

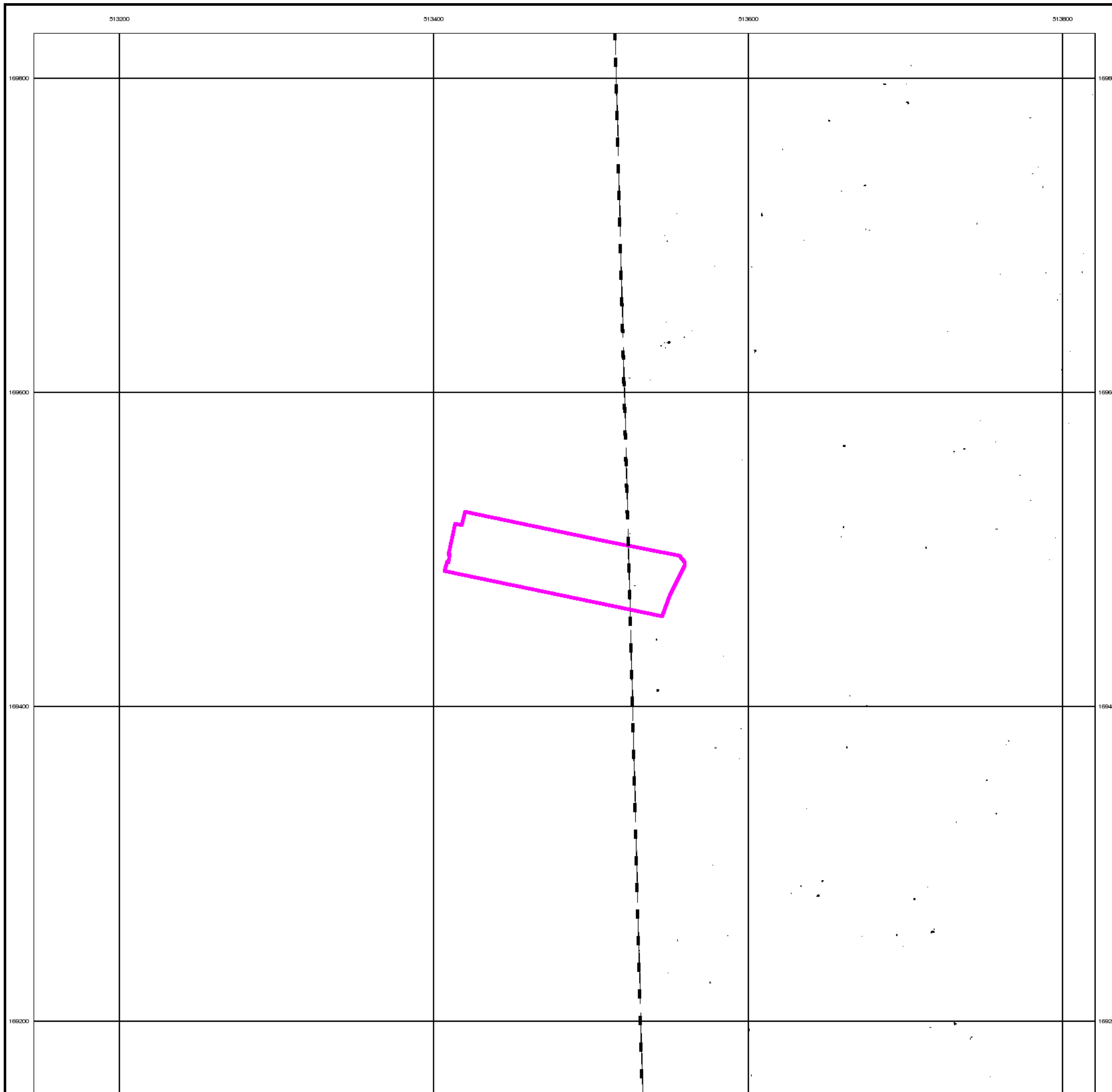


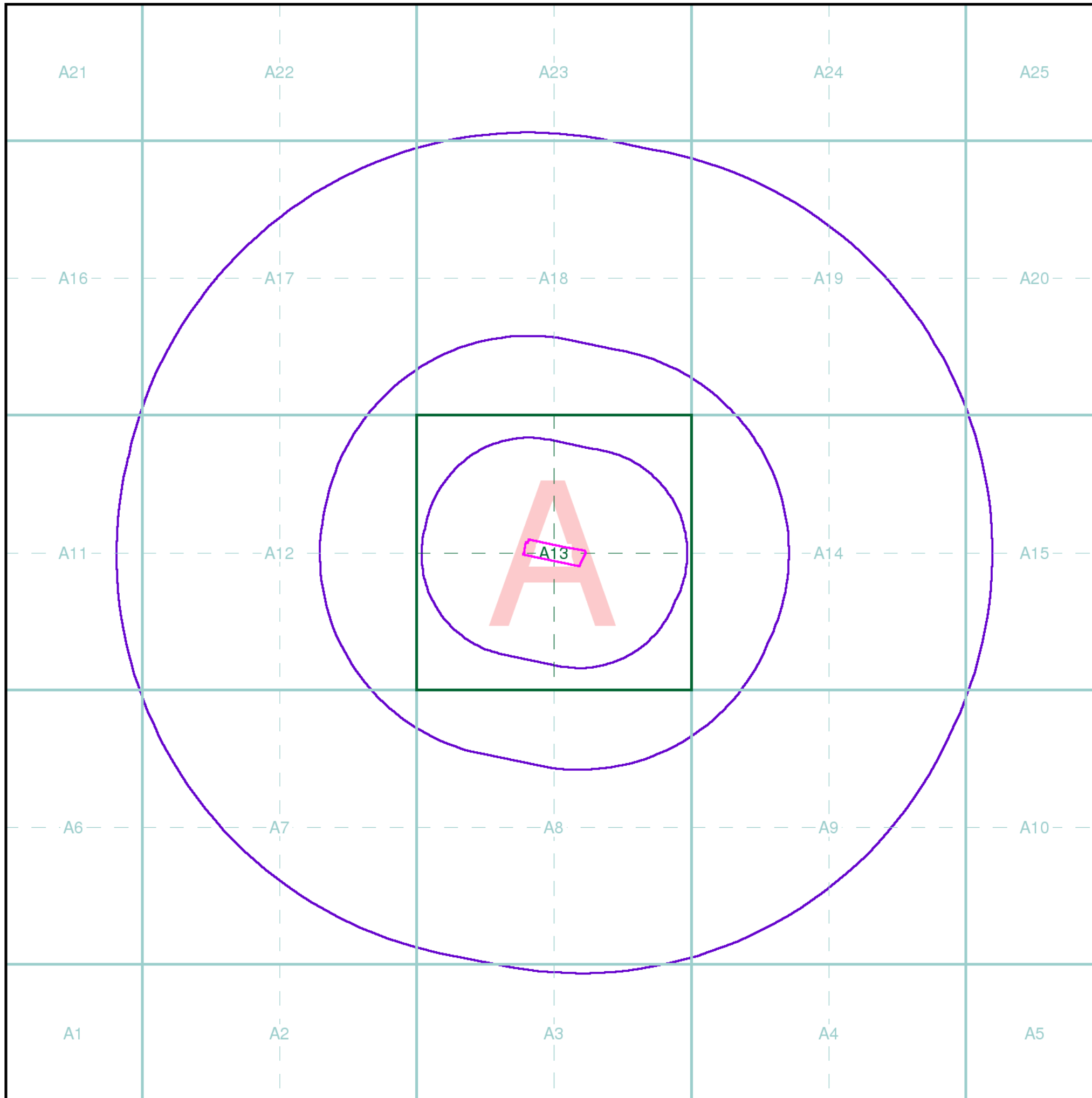
Order Details

Order Number: 207351560_1_1
 Customer Ref: C-12193-C
 National Grid Reference: 513480, 169490
 Slice: A
 Site Area (Ha): 0.57
 Search Buffer (m): 0

Site Details

Hampton Water Works, Upper Sunbury Road, HAMPTON, TW12 2DL





Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice

Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment

A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant

A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr R Swayne, Hydrock Consultants, Over Court Barns, Over Lane, Almondsbury, Bristol, BS32 4DF

Order Details

Order Number: 207351560_1_1
 Customer Ref: C-12193-C
 National Grid Reference: 513480, 169490
 Site Area (Ha): 0.57
 Search Buffer (m): 1000

Site Details

Hampton Water Works, Upper Sunbury Road, HAMPTON, TW12 2DL

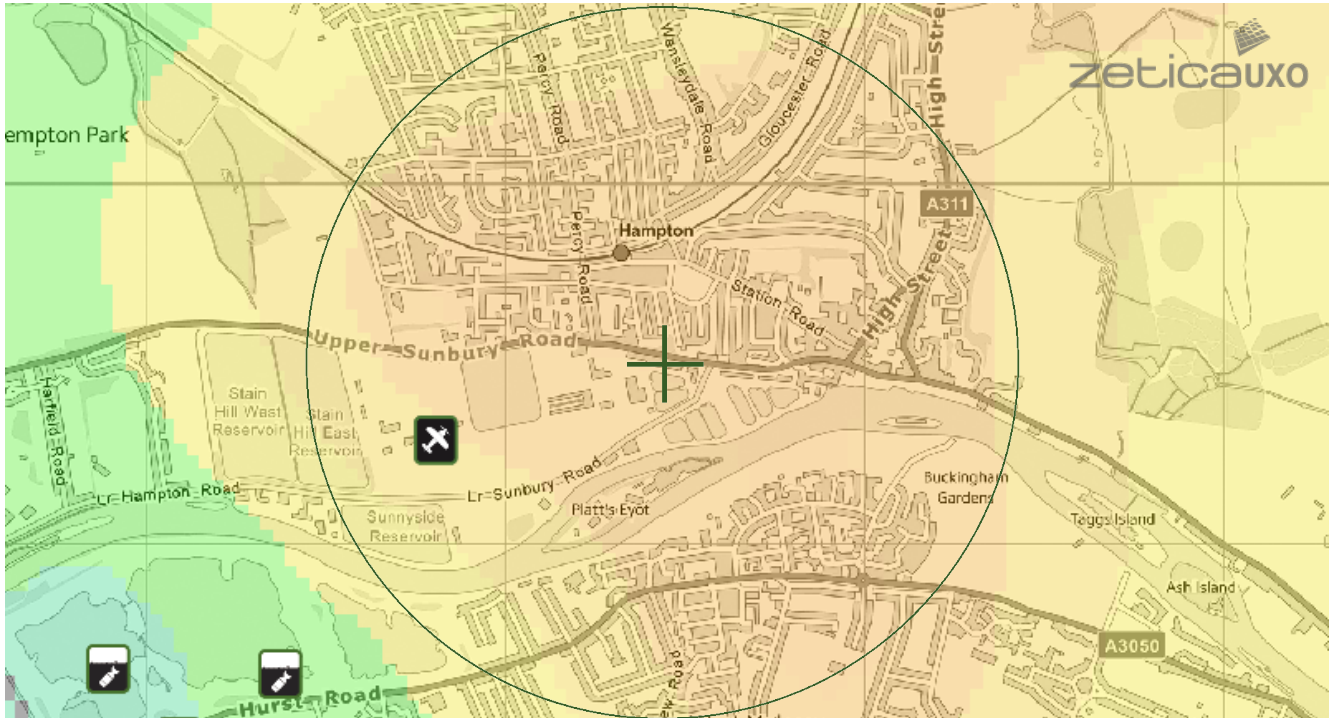
Full Terms and Conditions can be found on the following link:
<http://www.landmarkinfo.co.uk/Terms/Show/515>

Zetica UXB Risk Map

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 513448,169505



LEGEND

London Bomb Risk



- | | | | | | |
|--|-----------|--|----------|--|-------------------|
| | military | | industry | | UXO find |
| | transport | | dock | | Luftwaffe targets |
| | utilities | | other | | abandoned bombs |

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

Relative UXB risk across London

The relative risk for the London area is established by plotting the recorded bombing densities.

These are represented as counts of high explosive bombs in km2 area. The areas coloured green represent a record of less than 10 bombs per km2.

Compared to other areas of the UK, this still represents a significant density. However, this is much lower than parts of Central London, where the red colouration indicates in excess of 150 bombs falling per km2, representing a very significant bombing density.

What do I do if my site is in a moderate or high density area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites with a moderate or high bombing density.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: (<https://zeticauxo.com/downloads-and-resources/risk-maps/>)

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgment. The copyright remains with Zetica Ltd.

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Appendix E

Preliminary Geotechnical Risk Register

Geotechnical Hazard Identification – Desk Study Stage

Potential geotechnical hazards have been assessed in accordance with the general requirements of ICE/DETR Document ‘Managing Geotechnical Risk’ and the HE documents HD 41/15 and HD 22/08. The following pages set out the identified geotechnical risks and hazards which are associated with the proposed development and establish the approach which is to be taken to manage the risks including the geotechnical input and analysis.

Table E.1 is a preliminary assessment of possible geotechnical hazards at the site at Desk Study stage. This information is used to assist with site investigation design.

Table E.1: Possible geotechnical hazards

Hazard	Comment	Hazard status based on desk study (subject to final proposals)	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
Uncontrolled Made Ground (variable strength and compressibility).	Made Ground expected on site.	✓	-
Soft / loose compressible ground (low strength and high settlement potential).	Variable Made Ground expected on site.	✓	
Insufficient bearing capacity of ground for existing foundations after additional loading by construction of new storeys on top of existing buildings (where applicable)	-	✓	
Shrink swell of the clay fraction of soils under the influence of vegetation.	London Clay expected below Made Ground and superficial sands and gravels.	✓	
Variable lateral and vertical changes in ground conditions.	Variable thickness of Made Ground expected on site.	✓	
Elevated sulfates present in the soils.	Potential for sulphates in Made Ground and natural soils.	✓	
Adverse chemical ground conditions, (e.g. expansive slag).	-	✓	
Obstructions.	Risk of unacceptable total/differential settlements due to voiding or hard spots and risk of instability of excavations with the impact on construction staff, vehicles and plant operators.	✓	
Existing below ground structures to remain (gantry rails, foundations, buried slabs, and/or infilled cellars).		✓	
High groundwater.	Potential for groundwater flooding on site.	✓	
Changing groundwater conditions.		✓	
Risk from erosion.	-		✓
Risk from flooding.	Potential for groundwater flooding on site.	✓	
Loose Made Ground, leading to difficulty with excavation and collapse of side walls.	Associated with the presence of Made Ground	✓	

Hazard	Comment	Hazard status based on desk study (subject to final proposals)	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
	and natural sands and gravels.		
Slope stability issues – general slopes.	-		✓
Slope stability issues – retaining walls.	-		✓
Slope stability issues – to adjacent filter beds.		✓	
Earthworks – settlement (due to placement of fill on soft / loose ground).	-		✓
Earthworks – poor bearing capacity of new fill.	-		✓
Earthworks – unsuitability of site won material to be reused as fill.	-		✓
Solution features in Chalk.	-		✓
Cavities in the Superficial Deposits due to solution features.	-		✓
Dissolution (associated with “wet rock head”).	-		✓
Brine extraction.	-		✓
Mining.	-		✓
Cambered ground with gulls possibly present.	-		✓
Relict Slip Surfaces.	-		✓
Solifluction.	-		✓
Problematic soils (silts and rewetting etc.).	-		✓

Appendix F

Plausible Source-Pathway-Receptor Contaminant Linkages

Summary of Potential Contaminant Linkages

Table F.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in CLR 11 and additional risk assessment is required.

Source – Pathway – Receptor Linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland et al 2001) but with the addition of a ‘no linkage’ category (See Table F.1). More details are given in the relevant Hydrock methodology, referenced in Appendix G, including descriptions of typical examples of probability and consequences.

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to site demolition and redevelopment workers, consideration of occupational health and safety issues is beyond the scope of this report and need to be considered separately in the Construction Phase Health and Safety Plan.

Table F.1: Consequence versus probability assessment.

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Low risk	Very low risk
	Low Likelihood	Moderate risk	Low risk	Low risk	Very low risk
	Unlikely	Low risk	Very low risk	Very low risk	Very low risk
	No Linkage	No risk			

Table F.2: Exposure model – preliminary risk assessment of source-pathway-receptor contaminant linkages

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Made Ground material due to former use of buildings – contamination may include metals, metalloids, asbestos, PAH, petroleum hydrocarbons, chlorine, flocculating agents, acid's, alkali's.	Ingestion, inhalation or direct contact.	Site users.	Likely	Severe	High	There is potentially variable Made Ground below the entire site. Further intrusive investigation is required to categorise the potential risks.
	Inhalation of fugitive dust.	Neighbours.	Low likelihood	Severe	Moderate	
	Leaching through unsaturated zone.	Groundwater.	Likely	Medium	Moderate	
	Surface run-off.	Aquatic ecosystems. Surface water and possible abstractors.	Likely	Medium	Moderate	
	Base flow from contaminated groundwater.		Likely	Medium	Moderate	
	Root uptake.	Landscape planting	Likely	Minor	Very Low	Private gardens are not proposed.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Hydrocarbon fuels, chlorine, flocculating agents, acid's, alkali's, lubricants and solvents (metals, hydrocarbons, solvents, degreasers, etc.) from the operation of the historic plant on the site including leakages from the steam engines, pipework between tanks, underground storage tanks and pumps, and general spillage, together with uncontrolled disposal and spillage from waste receptacles (oil drums and chemical containers). Contamination from stored coal, and ash from furnaces of steam-driven pumps and other machinery.	Ingestion, inhalation or direct contact.	Site users.	Likely	Medium	Moderate	In addition to the industrial nature of the site which includes plant and rail lines chemical storage, there is visual evidence of contamination staining on site along with waste barrels and containers. Further intrusive investigation is recommended.
	Vapours.	Neighbours.				
	Leaching through unsaturated zone.	Groundwater and possible abstractors.	Likely	Medium	Moderate	
	Direct contact	Water supply pipes.				
Ground gases (carbon dioxide and methane) from organic materials in the Made Ground and natural ground beneath the site and possibly migrating from nearby alluvial deposits.	Migration, build up and asphyxiation.	Site users.	Likely	Medium to Severe	Moderate to High	There is potentially variable Made Ground and the potential for organic material within the natural deposits below the entire site. Gas monitoring is required to categorise the potential risks.
		Neighbours.				
		Buildings on site.				
		Buildings on adjacent sites.				

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Asbestos fibres within soils from insulation or asbestos-containing materials in the buildings.	Fugitive dust.	Site users.	Likely	Severe	High	Asbestos may be present in Made Ground. Further assessment is required to quantify the long-term risk to future site users.
		Neighbours.	Unlikely	Severe	Low	Dust suppression can limit exposure to neighbours during construction.

Appendix G

Hydrock Methodologies

This report has utilised Hydrock Desk Study Template V12.1.

This appendix provides additional background information on certain approaches and methods used by Hydrock Consultants Limited in the preparation of this report.

The following Hydrock Methodologies apply to this report. These are not included, but are available on request by quoting the methodology reference, revision and date.

Reference	Name	Revision	Date
001	Desk Study	001	30/07/2018