

# Grenfell Investigation into Potential Land Contamination Impacts

Stage 2 Investigation Non-Technical Summary

Royal Borough of Kensington and Chelsea

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## Summary of Findings

Following on from the Stage 1 Investigation reported in 2019, this report sets out a non-technical summary of the Stage 2 Investigation into the potential land contamination impacts of the Grenfell Tower fire in 2017. These investigations are part of the soil and environmental checks being carried out by the UK Government. The full Stage 2 report and reporting from the Stage 1 investigation are available online at <https://www.gov.uk/guidance/soil-and-environmental-checks>.

### Evidence of Contamination Caused by the Fire

Stage 2 sampling did not find detectable concentrations of chemicals in soil that could be linked only to the fire. For chemicals that might come from the fire but are also known to be present in soil at background levels, there was no evidence of significant variation from background – when historic land-uses and diffuse pollution were taken into account – to provide evidence of impact by the fire.

This does not mean that there are not small increases in substances from the fire in the surrounding soil. However, it does mean that such increases, if present, are either below the detection limits of the standard soil testing methods, or are not distinguishable from the background levels present before the fire.

### Assessment of Risk to Human Health

The soil results from each of the forty-five Stage 1 and Stage 2 sampling areas were assessed in line with the objective to identify potential contamination arising from the Grenfell Tower fire. The results were also assessed for risk to human health taking into account the concentrations of potentially fire-related chemicals that could be present in soil from sources not related to the Grenfell Tower fire. The risk assessment has not considered potential soil contaminants not directly associated with the fire that might also be present in soil as a result of historic land-use activities.

The human health risk assessments for each individual sampling area concluded that the risk to human health from the chemicals of concern in soil did not exceed 'low' for any sampling areas except for lead concentrations at Treadgold House (communal garden to south and west of the building) and Avondale Park Gardens.

For Treadgold House and Avondale Park Gardens, it was concluded that it was not possible to decide whether or not lead in soil poses a significant possibility of significant harm – as defined by the Statutory Guidance to Part 2A of the Environment Protection Act 1990. This was due to high uncertainty associated with average soil concentrations and with the way the land is used by residents.

The Stage 2 Investigation has therefore recommended further assessment around Treadgold House and Avondale Park Gardens to resolve the uncertainty associated with health risk from exposure to lead in soil associated with historic contamination from before the Grenfell Tower fire.

### Part 2A Land Category Recommendations

In looking at soil contamination, land can be allocated to four categories, defined in the Statutory Guidance to Part 2A of the Environmental Protection Act 1990.

Forty-three of the forty-five sampling areas were recommended to be placed in Category 4, indicating no or low risk to human health. Land in Category 4 is safe to use normally and does not require further investigation, assessment or action to reduce the soil concentrations detected or control exposure by other means.

Due to remaining uncertainties mainly associated with average soil concentrations and how residents use the land, Treadgold House and Avondale Park Gardens could not be placed in a final category. These areas are not considered to meet the definition of Category 1 but the uncertainty means that the communal garden to the south and west of the building at Treadgold House could still fall into Category 2 or Category 3 (Category 4 has been ruled out), and Avondale Park Gardens could still fall into Category 2, Category 3 or Category 4. Further assessment is required in these two areas to resolve the uncertainty.

The definition of each category is presented in Section 2.2 and a full list of sampling areas with their recommended land category is shown in Table 1 in Section 3.2.

## **Contaminated Land under Part 2A**

Since the assessment has not identified any sampling areas that definitely fall into Category 1 or Category 2, the Stage 2 investigation has concluded that none of the individual sampling areas currently meet the statutory definition of Contaminated Land under Part 2A of the Environment Protection Act 1990.

This investigation has recommended further assessment on two areas of land: Treadgold House (communal garden to south and west of the building) and Avondale Park Gardens. A final Part 2A conclusion related to these two sampling areas should be made following completion of that further work.

## 1. Introduction

Following on from the Stage 1 Investigation reported in 2019, this report sets out a non-technical summary of the Stage 2 Investigation into the potential land contamination impacts of the Grenfell Tower fire in 2017. These investigations are part of the soil and environmental checks being carried out by the UK Government. The full Stage 2 report and reporting from the Stage 1 investigation are available online at <https://www.gov.uk/guidance/soil-and-environmental-checks>.

### 1.1 Regulatory Framework

This work has been carried out under the requirements of Part 2A of the Environmental Protection Act 1990 (Crown, 1990). This regulatory framework deals with land causing 'significant harm' or 'a significant possibility of significant harm' to human health. When considering the significant possibility of significant harm, land is categorised as follows:

- Category 1 – significant possibility of significant harm exists and significant harm likely to occur if no action were taken.
- Category 2 – risks of sufficient concern to take action on a precautionary basis.
- Category 3 – no strong case for action.
- Category 4 – no or low risk.

Land placed in Category 1 or Category 2 meets the legal definition of Contaminated Land and further action might be needed to reduce the health risk. Land placed in Category 3 is unlikely to need any further action. Land in Category 4 is safe to use normally and does not require further investigation, assessment or action to reduce the soil concentrations detected or control exposure by other means.

The term "unacceptable risk" is used to mean a risk that would give grounds for land to be placed in Category 1 or Category 2, that is, where a significant possibility of significant harm exists.

### 1.2 Stage 2 Scope of Work

The Stage 1 investigation informed a preliminary assessment of risk and the design of the Stage 2 Investigation. Stage 1's primary objective was to identify the nature and potential extent of soil contamination resulting from the debris, soot and ash fallout from the fire.

The recommendations for Stage 2 arising from Stage 1 were to investigate:

- Health risks associated with lead and polycyclic aromatic hydrocarbons because some sample concentrations were reported above normal urban background concentrations.
- Dioxins, furans and dioxin-like polychlorinated and polybrominated biphenyls because these have been identified as potential contaminants from the fire that might help to identify fire-related impact.
- Produce grown in community kitchen gardens and allotments as well as the soil.

The Stage 2 Investigation was designed to resolve remaining uncertainty from Stage 1, through targeted investigation in the areas identified by Stage 1. These areas are shown on Figure 1. Stage 2's specific objectives were to:

- Determine the geographical extent of any significant contamination.
- Carry out generic and detailed quantitative human health risk assessments.
- Classify sampled areas of land against the Category 1-4 criteria.
- Identify any areas that appear to meet the Part 2A legal definition of Contaminated Land.
- Undertake the Stage 2 investigation in accordance with the Environment Agency's guidance.

AECOM carried out the Stage 2 investigations between May 2020 and April 2021, with the sampling between September and November 2020. The programme of work included:

- Reviewing Stage 1 information and additional information arising since Stage 1 in order to define the final sampling plan.
- Community engagement and site walkovers to identify precise sampling locations.
- Implementation of the sampling plan, with laboratory analysis of soil and crop samples.
- Data assessment and reporting, including recommendations for further study.

## 2. Soil Sampling and Testing

For Stage 2, thirty-nine areas were chosen for sampling that met one or more of the following criteria:

- Land-use concerns raised by residents and community representatives, particularly local schools and community kitchen gardens / allotments.
- Within the geographical extent of the reported fire-debris and ash fallout.
- Within the Met Office's indicative smoke deposition plume area.
- Sufficient range of distance and direction from the Tower to measure potential variations in soil concentrations caused by changes in debris and ash fall-out.

Including Stage 1 sampling, this resulted in sampling in forty-five separate areas across both stages of the investigation. The majority of soil samples for Stage 1 were taken from a depth of 0-5cm but, following consultation with community representatives and members of the multi-agency partnership, Stage 2 sampling depths were as follows:

- Turf and undisturbed ground 0m-0.02m
- Disturbed ground 0m-0.05m.
- Crop or vegetable growing areas 0m-0.2m.

Deeper soil samples (from 0.5-0.6m) were taken in five areas to test whether differences in chemical concentrations at different depths could be identified.

In addition to soil samples, crop samples were collected from fruit trees, vegetable growing beds and plots.

440 soil samples and 35 crop samples were tested at accredited laboratories for the potential contaminants identified from Stage 1 including lead, polycyclic aromatic hydrocarbons and asbestos in all samples, and dioxins, furans and dioxin-like PCBs in 1 in 5 soil samples. In some areas not tested during Stage 1, a smaller sub-set of samples was tested for the full range of contaminants initially tested at Stage 1.

Fifty samples were tested for lead bioaccessibility and ten samples were tested for polycyclic aromatic hydrocarbon bioaccessibility. Bioaccessibility testing provides an indication of the amount of the chemical that a human body can absorb when soil is ingested as opposed to the standard tests which provide a total amount of the chemical in the soil. Bioaccessibility measurements are used to help refine the risk assessment by allowing a better understanding of what proportion of the chemical is potentially taken up into the body and what proportion just passes through.

Sampling areas are shown on Figure 1. Further details of the samples collected in each area, and the testing carried out on the samples, are included in Table A 1 and Table A 2 in Appendix A.

## 3. Interpretation of Investigation Results

The two key objectives were:

- Identify any evidence of soil contamination caused by debris, soot and ash fall-out from the fire.
- Assess whether there are unacceptable risks to human health from any soil contaminants, whatever the source.

### 3.1 Evidence of Fire-related Impact

Potential chemicals from the Grenfell Tower fire that are not routinely expected to be present in urban soils, including flame retardants and isocyanates, were not detected or were only rarely detected in Stage 1 and Stage 2 samples.

Soil testing results for other chemicals (lead, polycyclic aromatic hydrocarbons, dioxins & furans) that can result from fires but that are typically expected at background levels in urban soils were compared to available background datasets published by the Environment Agency and British Geological Survey. They were also compared to data from pre-fire investigations that were suitable for use as a baseline. The comparison did not identify results that exceeded the average background or baseline concentrations or their ranges to an extent that indicated impact from the fire.

The spatial distribution of the same chemicals in soil was also assessed relative to the position of the Tower. This assessment did not identify any patterns indicating impact from the fire.

The variations compared to background and spatial variations around the tower were considered to be attributable to historic diffuse pollution and different historic land-uses for different sampling areas, since lead, PAHs and dioxins & furans are all known to be present in urban soils due to historic contaminative land-use and diffuse urban pollution.

The conclusion is that soil contamination specifically associated with the fire has not been found. This does not mean there are not small increases in substances from the fire in the surrounding soil. It does mean that such increases, if present, are either below the detection limits of the standard soil testing methods, or are not distinguishable from the background levels present before the fire.

### 3.2 Human Health Risk Assessment

The risk assessment included screening of soil concentrations against generic criteria designed to indicate low or minimal risk to health.

Since the results of the analysis demonstrated that there was no detectable change in the concentrations of chemicals of concern arising from the fire, the risk assessment considered chemicals of concern that were more than likely to be present in the soil before the Grenfell Tower fire.

The assessment identified asbestos, PAHs, metals (arsenic, barium, beryllium, cadmium, lead), and non-dioxin-like PCBs above generic screening criteria in some samples.

For those six sampling areas with average sample concentrations exceeding the generic screening criteria, further assessment was undertaken to determine whether the chemical concentrations could cause a significant possibility of significant harm.

Based on this more detailed quantitative risk assessment the level of risk was concluded to be low in four of these six sampling areas, with the exception of the risk caused by lead in soil at Treadgold House and Avondale Park Gardens. For these two areas it was concluded that, due to high uncertainty associated with average soil concentrations and with the way the land is used by residents, it was not possible to decide whether or not there was a significant possibility of significant harm caused by lead found in soil samples.

A summary of the risk assessment outcome for each area is provided in Table 1 below.

**Table 1. Risk Assessment Outcomes for Each Sampling Area**

Area Type	Area Name	Low or no risk after generic screening	Low risk after detailed risk assessment	Land Category
Schools and Nurseries	Latimer Alternative Provision Academy	Y		4
	Burlington Danes School	Y		4
	Bassett House School (St Helen's Church)	Y		4
	Thomas Jones Primary School	Y		4
	All Saints Catholic College	Y		4
	Barlby Primary School	Y		4

Area Type	Area Name	Low or no risk after generic screening	Low risk after detailed risk assessment	Land Category
	St. Francis Primary School	Y		4
	St. Anne's and Avondale Primary School and Nursery	Y		4
	Oxford Gardens Primary School	Y		4
	Golborne and Maxilla Children's Centre Forest School	Y		4
	Grenfell Creche Under 3s' Centre / Grenfell Nursery	Y		4
	New Studio pre-school	Y		4
	St Quintin Children and Family centre	Y		4
Community Kitchen Gardens and Allotments	Longstone Avenue allotments	N Contaminant: Lead, PAH	Y	4*
	St Quintin Gardens	Y		4
	St Charles Centre for Health and Wellbeing	Y		4
	Equal People	Y		4
	Nottingwood House	Y		4
	Portland Road CKG	N Contaminant: Lead	Y	
	The Grove	Y		4
Combined Community Kitchen Gardens and Public Open Space	Eynham Road, railway land	N Contaminant: Lead	Y	4**
	Hurstway, Grenfell, Testerton and Barandon Walks (Lancaster Walkways)	Y		4
	Henry Dickens Court	Y		4
	Silchester East	Y		4
	Allom House and Barlow House	Y		4
	Morland House and Talbot Grove House	Y		4
	Bramley House	Y		4
	Kensington Memorial Park	Y		4
	Treadgold House (communal garden to the north of the building)		Y	4
	Treadgold House (communal garden to south and west of the building)	N Contaminant: Lead	N Contaminant: Lead	Uncertain, 2/3 – further assessment to resolve
Public Open Space	Verity Close	Y		4
	Little Wormwood Scrubs Including Adventure Playground	Y		4
	Darfield Way	Y		4
	Lancaster Green	Y		4
	Robinson House	Y		4
	Wesley Square	Y		4
	Silchester West (North and North West area)	Y		4
	Maxilla Walk - Maxilla Hall / Maxilla Green	Y		4
	Stonebridge recreation ground	Y		4
	Wormwood Scrubs	Y		4
	Tower cordon ( <i>not currently accessible to public</i> )	Y		4
	Waynflete Square	Y		4

Area Type	Area Name	Low or no risk after generic screening	Low risk after detailed risk assessment	Land Category
	Communal Space at Camelford Walk	Y		4
	Avondale Park ( <i>public park</i> )	Y		4
	Avondale Park Gardens ( <i>open space on residential street</i> )	N Contaminant: Lead	N Contaminant: Lead	Uncertain 2/3/4 –
	West London Bowling Club	N Contaminant: Lead	Y	4
	St Quintin's Roundabout	Y		4

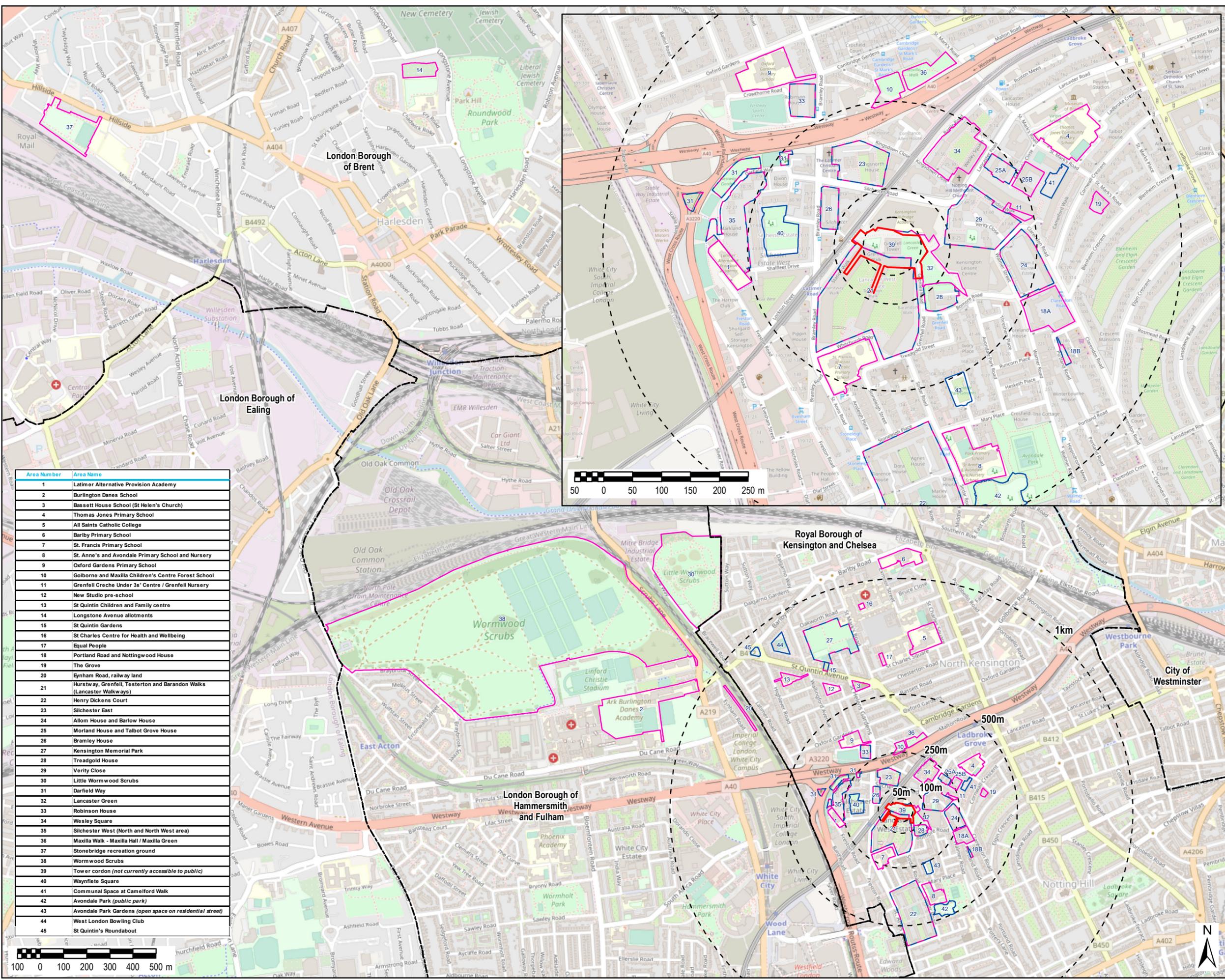
\* At Longstone Avenue allotments there is a slight possibility of individual plots (around Plot 6) falling into Category 3, though they are more likely than not to be Category 4. If more confidence in this decision was required in the future then some additional limited sampling in this area would be beneficial.

\*\* This category applies to the assumption that land is assumed as a single averaging area and that the use of the land (in terms of exposure frequency and exposure duration) is more similar to POSresi+HP than Resi+HP land-use. If this assumption is not considered sufficiently precautionary then further sampling and a land use survey could be considered, particularly for the area around sample locations S183 and S184

## Figure 1

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

- LEGEND**
- Tower Cordon
  - Stage 1 Sample Areas
  - Stage 2 Sample Areas
  - Stage 1 and 2 Sample Areas
  - Radial Distance from Tower
  - Council Boundaries



Area Number	Area Name
1	Latimer Alternative Provision Academy
2	Burlington Danes School
3	Bassett House School (St Helen's Church)
4	Thomas Jones Primary School
5	All Saints Catholic College
6	Barby Primary School
7	St. Francis Primary School
8	St. Anne's and Avondale Primary School and Nursery
9	Oxford Gardens Primary School
10	Golborne and Maxilla Children's Centre Forest School
11	Grenfell Creche Under 3s' Centre / Grenfell Nursery
12	New Studio pre-school
13	St Quintin Children and Family centre
14	Longstone Avenue allotments
15	St Quintin Gardens
16	St Charles Centre for Health and Wellbeing
17	Equal People
18	Portland Road and Nottingwood House
19	The Grove
20	Eynham Road, railway land
21	Hurstway, Grenfell, Testerton and Barandon Walks (Lancaster Walkways)
22	Henry Dickens Court
23	Silchester East
24	Allom House and Barlow House
25	Morland House and Talbot Grove House
26	Bramley House
27	Kensington Memorial Park
28	Treadgold House
29	Verity Close
30	Little Wormwood Scrubs
31	Darfield Way
32	Lancaster Green
33	Robinson House
34	Wesley Square
35	Silchester West (North and North West area)
36	Maxilla Walk - Maxilla Hall / Maxilla Green
37	Stonebridge recreation ground
38	Wormwood Scrubs
39	Tower cordon (not currently accessible to public)
40	Waynflete Square
41	Communal Space at Camelford Walk
42	Avondale Park (public park)
43	Avondale Park Gardens (open space on residential street)
44	West London Bowling Club
45	St Quintin's Roundabout

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Client  
**ROYAL BOROUGH OF KENSINGTON & CHELSEA**

Project Title  
**GRENFELL STAGE 2 ASSESSMENT NON-TECHNICAL SUMMARY**

Drawing Title  
**STAGE 1 AND STAGE 2 SAMPLING AREAS**

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## Appendix A – Sample Details

Table A 1. Sample Details

Area Type	Area No.	Area Name	Number soil samples collected and depths (m) <i>(not including crop root zone soil)</i>	Laboratory testing suite soil*	Bed type - soil	Ground cover - soil	Stage 2 Crop samples collected (& root zone soil)	Laboratory testing suite - crop and root zone soil	Bed type - crop root zone soil
Schools and Nurseries	1	<b>Latimer Alternative Provision Academy</b>	10 from depths 0-0.02 and 0-0.05	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 1 x Pb Bioaccessibility	5 x raised soil bed 5 x ground level soil	4 x bare soil - disturbed 2 x bare soil - undisturbed 4 x turf			
	2	<b>Burlington Danes School</b>	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 3 x Pb Bioaccessibility 1 x PAH Bioaccessibility	10 x ground level soil	10 x turf			
	3	<b>Bassett House School (St Helen's Church)</b>	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Pb Bioaccessibility 1 x PAH Bioaccessibility	10 x ground level soil <i>(2 x alongside raised vegetable beds)</i>	10 x bare soil - undisturbed			
	4	<b>Thomas Jones Primary School</b>	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2	10 x ground level soil <i>(2 x adjacent to unused raised beds)</i>	4 x bare soil - undisturbed 6 x turf			
	5	<b>All Saints Catholic College</b>	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 3 x Pb Bioaccessibility	10 x ground level soil	1 x bare soil - undisturbed 9 x turf			
	6	<b>Barlby Primary School</b>	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 1 x Pb Bioaccessibility	1 x raised planter 9 x ground level soil	10 x bare soil - undisturbed			

Area Type	Area No.	Area Name	Number soil samples collected and depths (m) (not including crop root zone soil)	Laboratory testing suite soil*	Bed type - soil	Ground cover - soil	Stage 2 Crop samples collected (& root zone soil)	Laboratory testing suite - crop and root zone soil	Bed type - crop root zone soil
	7	St. Francis Primary School	10 from depths 0-0.02 to 0-0.2	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2	10 x ground level soil (3 x in disused ground level growing beds)	10 x bare soil - undisturbed	Apple, Apple, Grapes	1 x Lead + PAH	1 x ground level bed
	8	St. Anne's and Avondale Primary School and Nursery	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 1 x Pb Bioaccessibility	1 x raised planter 9 x ground level soil	10 x bare soil - undisturbed			
	9	Oxford Gardens Primary School	10 from depths 0-0.02 and 0-0.05	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 1 x Pb Bioaccessibility	1 x raised planter 9 x ground level soil	1 x bare soil - disturbed 9 x bare soil - undisturbed			
	10	Golborne and Maxilla Children's Centre Forest School	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2	10 x ground level soil	9 x bare soil - undisturbed 1 x turf			
	11	Grenfell Creche Under 3s' Centre / Grenfell Nursery	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Pb Bioaccessibility	10 x ground level soil	7 x bare soil - undisturbed 3 x turf			
	12	New Studio pre-school	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Pb Bioaccessibility	10 x ground level soil	3 x turf / scrubby vegetation 7 x turf			
	13	St Quintin Children and Family centre	10 from depths 0-0.02 and 0-0.05	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2	10 x ground level soil	1 x bare soil - disturbed 5 x bare soil - undisturbed 4 x turf			
Community Kitchen Gardens and Allotments	14	Longstone Avenue allotments	20 from depths 0-0.02, 0-0.05, 0-0.2, 0.5 and 0.5-0.6	10 x Suite 1 3 x Suite 2 7 x Suite 3 3 x Pb Bioaccessibility 2 x PAH Bioaccessibility	20 x ground level vegetable bed	17 x bare soil - disturbed 3 x bare soil - undisturbed	Potato, Horseradish, Butternut Squash, Marrow, Raspberry, Rhubarb	6 x Lead + PAH	6 x ground level vegetable bed

Area Type	Area No.	Area Name	Number soil samples collected and depths (m) (not including crop root zone soil)	Laboratory testing suite soil*	Bed type - soil	Ground cover - soil	Stage 2 Crop samples collected (& root zone soil)	Laboratory testing suite - crop and root zone soil	Bed type - crop root zone soil
	15	St Quintin Community Kitchen Garden	22 from depths 0-0.02, 0-0.05, 0-0.2, 0.3-0.4 and 0.5-0.6	15 x Suite 1 1 x Suite 1 + TOC 4 x Suite 2 2 x Suite 3	20 x raised vegetable bed 2 x ground level soil	20 x bare soil - disturbed 2 x bare soil - undisturbed	Grapes, Horseradish, Spinach, Tomato, Beans	3 x Lead + PAH	3 x raised vegetable bed
	16	St Charles Centre for Health and Wellbeing	5 from depth 0-0.2	3 x Suite 1 1 x Suite 1 + TOC 1 x Suite 2	5 x raised vegetable bed	5 x bare soil - disturbed	Rhubarb, Runner Beans, Beetroot	2 x Lead + PAH	2 x raised vegetable bed
	17	Equal People	5 from depth 0-0.2	3 x Suite 1 1 x Suite 1 + TOC 1 x Suite 2	5 x raised vegetable bed	5 x bare soil - disturbed	Kale, Beans, Potato	1 x Lead + PAH	1 x plant pot
	18	Portland Road and Nottingwood House	12 from depths 0-0.2 and 0-0.05	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3 2 x Pb Bioaccessibility	8 x raised vegetable bed 2 x ground level vegetable bed 2 x ground level soil	10 x bare soil - disturbed 2 x bare soil - undisturbed	Plum Tomato, Cabbage, Tomato, Celery, French Beans, Ruby Chard	3 x Lead + PAH	3 x raised vegetable bed
	19	The Grove	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Pb Bio	10 x ground level rooftop beds	10 x bare soil - disturbed			
Combined Community Kitchen Gardens and Public Open Space	20	Eynham Road Railway Land	20 from depths 0-0.02, 0-0.05, 0-0.2, and 0.5-0.6	15 x Suite 1 1 x Suite 1 + TOC 4 x Suite 2 5 x Pb Bioaccessibility	20 x ground level soil	3 x bare soil - disturbed 11 x bare soil - undisturbed 6 x turf	Pears, Figs, Horseradish, Tomato, Apple, Beetroot	4 x Lead + PAH	4 x ground level bed
	21	Hurstway, Grenfell, Testerton and Barandon Walks (Lancaster Walkways)	22 from depths 0-0.02, 0-0.05, 0-0.2, and 0.5-0.6	15 x Suite 1 1 x Suite 1 + TOC 4 x Suite 2 2 x Suite 3 3 x Pb Bioaccessibility 3 x PAH Bioaccessibility	7 x raised vegetable bed 3 x ground level vegetable bed 12 x ground level soil	6 x bare soil - disturbed 4 x bare soil - undisturbed 12 x turf	Spinach, Potato, Tomato, Rhubarb, Cabbage, Rhubarb	4 x Lead + PAH	3 x raised vegetable bed 1 x ground level vegetable bed

Area Type	Area No.	Area Name	Number soil samples collected and depths (m) (not including crop root zone soil)	Laboratory testing suite soil*	Bed type - soil	Ground cover - soil	Stage 2 Crop samples collected (& root zone soil)	Laboratory testing suite - crop and root zone soil	Bed type - crop root zone soil
	22	Henry Dickens Court	12 from depths 0-0.02, 0-0.05, and 0-0.2	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3 2 x Pb Bioaccessibility	4 x raised vegetable bed 1 x ground level vegetable bed 7 x ground level soil	5 x bare soil - disturbed 2 x bare soil - undisturbed 5 x turf			
	23	Silchester East (Whitstable House in Stage 1)	12 from depths 0-0.02, 0-0.05, and 0-0.2	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3	4 x raised vegetable bed 8 x ground level soil	4 x bare soil - disturbed 1 x bare soil - undisturbed 7 x turf	Cavolo Nero Kale, Turnip, Spring onion, Beans, Potato, Rosemary	3 x Lead + PAH	2 x raised vegetable bed 1 x large plant pot
	24	Allom House and Barlow House	12 from depths 0-0.02, 0-0.05, and 0-0.2	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3 1 x Pb Bioaccessibility	3 x raised vegetable bed 9 x ground level soil	3 x bare soil - disturbed 3 x bare soil - undisturbed 6 x turf	Runner Beans, Ruby Chard, Potato, Spinach or Chard	2 x Lead + PAH	2 x raised vegetable bed
	25	Morland House and Talbot Grove House	12 from depths 0-0.02, 0-0.05, and 0-0.2	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3 31 x Pb Bioaccessibility	4 x raised vegetable bed 2 x raised brick bed 1 x raised planter 5 x ground level soil	7 x bare soil - disturbed 3 x bare soil - undisturbed 2 x turf	Palm nut (Chusan / Windmill Palm), Callaloo, Tomato, Figs, Potato	3 x Lead + PAH	1 x raised vegetable bed 1 x raised brick bed 1 x ground level bed
	26	Bramley House	12 from depths 0-0.02, 0-0.05, 0.15-0.35, and 0.4-0.6	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3	2 x raised vegetable bed 3 x large plant pot 7 x ground level soil	2 x bare soil - disturbed 8 x bare soil - undisturbed 2 x turf	Runner Beans, Pumpkin, New Potato, Runner Beans, Grapes, Olives	3 x Lead + PAH	2 x raised vegetable bed 1 x large plant pot
	27	Kensington Memorial Park	22 from depths 0-0.02, 0-0.05, and 0-0.2	14 x Suite 1 2 x Suite 1 + TOC 4 x Suite 2 2 x Suite 3 1 x Pb Bioaccessibility 1 x PAH Bioaccessibility	3 x raised vegetable bed 19 x ground level soil	4 x bare soil - disturbed 6 x bare soil - undisturbed 12 x turf			

Area Type	Area No.	Area Name	Number soil samples collected and depths (m) (not including crop root zone soil)	Laboratory testing suite soil*	Bed type - soil	Ground cover - soil	Stage 2 Crop samples collected (& root zone soil)	Laboratory testing suite - crop and root zone soil	Bed type - crop root zone soil
	28	Treadgold House	12 from depths 0-0.02, 0-0.05, and 0-0.2	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3 3 x Pb Bioaccessibility	3 x raised vegetable bed 9 x ground level soil	4 x bare soil - disturbed 3 x bare soil - undisturbed 5 x turf			
Public Open Space	29	Verity Close	12 from depths 0-0.02 and 0-0.05	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3 1 x Pb Bioaccessibility	12 x ground level soil	1 x bare soil - disturbed 4 x bare soil - undisturbed 7 x turf			
	30	Little Wormwood Scrubs Including Adventure Playground	10 from depth 0-0.02	7 x Suite 1 2 x Suite 1 + TOC 2 x Suite 2 2 x Pb Bioaccessibility 1 x PAH Bioaccessibility	10 x ground level soil	10 x turf			
	31	Darfield Way	12 from depths 0-0.02 and 0-0.05	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3	12 x ground level soil	12 x turf			
	32	Lancaster Green	14 from depths 0-0.02, 0-0.2, 0.35-0.44 and 0.5-0.6	9 x Suite 1 1 x Suite 1 + TOC 4 x Suite 2 2 x Pb Bioaccessibility	14 x ground level soil	7 x bare soil - undisturbed 7 x turf			
	33	Robinson House	12 from depths 0-0.02 and 0-0.05	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3 1 x Pb Bioaccessibility	12 x ground level soil	5 x bare soil - undisturbed 7 x turf			

Area Type	Area No.	Area Name	Number soil samples collected and depths (m) (not including crop root zone soil)	Laboratory testing suite soil*	Bed type - soil	Ground cover - soil	Stage 2 Crop samples collected (& root zone soil)	Laboratory testing suite - crop and root zone soil	Bed type - crop root zone soil
	34	Wesley Square	10 from depths 0-0.02, 0-0.05, and 0-0.2	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 1 x Pb Bioaccessibility	3 x ground level herb bed 7 x ground level soil (1 x ground level alongside raised vegetable beds)	4 x bare soil - disturbed 4 x bare soil - undisturbed 2 x turf			
	35	Silchester West (North and North West area) (Markland House in Stage 1)	12 from depths 0-0.02 and 0-0.05	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2 2 x Suite 3 1 x Pb Bioaccessibility	12 x ground level soil	2 x bare soil - undisturbed 10 x turf			
	36	Maxilla Walk - Maxilla Hall / Maxilla Green	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2	10 x ground level soil	2 x bare soil - undisturbed 8 x turf			
	37	Stonebridge recreation ground	10 from depth 0-0.02	5 x Suite 1 5 x Suite 3 1 x PAH Bioaccessibility	10 x ground level soil	10 x turf			
	38	Wormwood Scrubs	10 from depth 0-0.02	7 x Suite 1 1 x Suite 1 + TOC 2 x Suite 2	10 x ground level soil	10 x turf			
(Currently inaccessible public open space)	39	Tower cordon	20 from depths 0-0.02, 0-0.05, 0-0.2, and 0.5-0.6	7 x Suite 1 3 x Suite 2 10 x Suite 3 1 x PAH Bioaccessibility	20 x ground level soil	10 x bare soil - undisturbed 10 x turf			
	40	Waynflete Square	26 from depths 0-0.05 and 0.1-0.15	26 x Suite 3	26 x ground level soil	26 x turf			
	41	Communal Space at Camelford Walk	2 from depth 0-0.05	2 x Suite 3	2 x ground level soil	2 x turf			

Area Type	Area No.	Area Name	Number soil samples collected and depths (m) (not including crop root zone soil)	Laboratory testing suite soil*	Bed type - soil	Ground cover - soil	Stage 2 Crop samples collected (& root zone soil)	Laboratory testing suite - crop and root zone soil	Bed type - crop root zone soil
	42	Avondale Park	2 from depth 0-0.05	2 x Suite 3	2 x ground level soil	2 x turf			
	43	Communal Space at Avondale Park	2 from depth 0-0.05	2 x Suite 3	2 x ground level soil	2 x turf			
	44	West London Bowling Club	2 from depth 0-0.05	2 x Suite 3	2 x ground level soil	1 x bare soil - undisturbed 1 x turf			
	45	St Quintin's Roundabout	2 from depth 0-0.05	2 x Suite 3	2 x ground level soil	2 x turf			

\*see Table A2 for details

**Table A 2. Laboratory Testing Details**

Laboratory Test Suite	Chemicals Tested
Suite 1	PAHs; lead; asbestos (+ asbestos quantification where fibres are detected).
Suite 2	PAHs; lead; asbestos (+ asbestos quantification where fibres are detected); antimony; chlorinated dioxins & furans; brominated dioxins & furans; dioxin-like polychlorinated biphenyls (PCBs); total organic carbon (TOC).
Suite 3	Metals; volatile organic compounds (VOCs) + tentatively identified compounds (TICs), semi-volatile organic compounds (SVOCs) + TICs, PAHs, non dioxin-like PCBs, chlorinated dioxins and furans, brominated dioxins and furans, dioxin-like PCBs, organophosphorous flame retardants; polybrominated diphenyl ethers (PBDEs); polybrominated biphenyls (PBBs); tetrabromobisphenol A; hexabromocyclododecane (1,2,5,6,9,10-); isocyanates; cyanides; TOC; asbestos (+ asbestos quantification where fibres are detected); synthetic vitreous fibres (SVF) / man-made mineral fibres (MMMF).
Bioaccessibility	Lead, PAHs

## Quality information

Prepared by	Checked by	Verified by	Approved by
			
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## Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	22 April 2021	Draft		Liz Philp	Technical Director
1	14 May 2021	Draft		Liz Philp	Technical Director
2	1 June 2021	Final		Liz Philp	Technical Director
3	11 June 2021	Final2		Liz Philp	Technical Director

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AECOM Limited ("AECOM") has prepared this Report for the sole use of **Royal Borough of Kensington and Chelsea** ("Client") in accordance with the terms and conditions of appointment (**Project number: 60632092**) dated **25 May 2020** (Client reference number Prj\_RBKC\_17067). No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by AECOM. This Report may not be relied upon by any other party without the prior and express written agreement of AECOM.

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The methodology adopted and the sources of information used by AECOM in providing its services are outlined in this Report. The work described in this Report was undertaken between **25<sup>th</sup> May 2020** and **19<sup>th</sup> March 2021** and is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances. AECOM disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to AECOM's attention after the date of the Report.

The exploratory holes carried out during the fieldwork, which investigate only a small volume of the ground in relation to the size of the investigation area, can only provide a general indication of conditions within that investigation area. The comments made and recommendations given in this Report are based on the ground conditions apparent at the locations of the exploratory holes. There may be exceptional ground conditions elsewhere in the investigation area which have not been disclosed by this investigation and which have therefore not been taken into account in this Report.

The opinions expressed in this Report concerning any contamination found and the risks arising there from are based on current good practice assessment and comparison with available soil guideline values, generic assessment criteria and other guidance values.

It should be noted that the effects of ground and water borne contamination on the environment are constantly under review, and authoritative guidance values are potentially subject to change. The conclusions presented herein are based on the guidance and guideline values available at the time this Report was prepared, however, no liability by AECOM can be accepted for the retrospective effects of any changes or amendments to guidance or guideline values. Unless otherwise stated in this Report, the assessments made assume that the sampling areas will continue to be used for their current purpose without significant changes.

Reference to historical Ordnance Survey (OS) maps and/or data provides invaluable information regarding the land use history in the investigation area. However, it should be noted that historical evidence will be incomplete for the period pre-dating the first edition and between the release of successive maps and/or data.

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