

CITY OF LONDON

Contaminated Land Inspection Strategy 2015-2020



This document has been prepared by the Pollution Control Team of the City of London Corporation Department of Markets and Consumer Protection.

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Foreword

In 2000, new contaminated land legislation came into force (Part 2A of the Environmental Protection Act 1990). The legislation gave local authorities a number of statutory duties relating to the inspection and remediation of contamination.

This draft strategy revises and updates the original 2001 strategy and its review in 2004. It contains information about the characteristics of the City and seeks to set out clearly the City's approach to dealing with contamination using Part 2A over the next 5 years. It also includes the City's wider approach to considering and regulating contaminated land through development management, whilst reflecting the uniqueness of the Square Mile.

The strategy has been written to reflect the revised Statutory Guidance issued by Defra in April 2012, which provides clarity to regulators and reflects the experience since Part 2A was introduced. As well as fulfilling our statutory obligations to have a targeted approach, rather than a blanket approach, it is intended that this draft strategy will be a useful resource for developers and their consultants.

The strategy supports other City policies and strategies and it is intended to support the City's Code of Practice for Deconstruction and Construction, which ensures the potential negative health implications of developments are mitigated.

I hope you will find this strategy informative and useful.

Wendy Mead CC

Chairman of Port Health and Environmental Services Committee

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Executive Summary

Historically, land contamination could be dealt with through the development management process, where development or a change of use of land provided the opportunity to deal with contamination. In 2000, Part 2A of the Environmental Protection Act 1990 (EPA) was introduced. The legislation gave local authorities a number of statutory duties relating to the inspection and remediation of contamination, based on its *current land use*, i.e. it facilitates remediation outside the development and management process or other legislation. Other legislation continues to be applicable and may still be used and take precedence over Part 2A, for example approved document C of the Building Regulations 2010 (paragraphs 0.90, 0.10 and 0.11).

The City of London Corporation as a regulator of Part 2A must:

- Inspect the City to identify and categorise contaminated land
- Establish responsibility for the remediation of the land
- Ensure that appropriate remediation takes place
- Keep a public register detailing regulatory action taken to deal with contamination

In 2001, the City of London produced a Strategy outlining its approach to dealing with contaminated land in the ‘Square Mile’ using Part 2A. This document supersedes the 2001 Strategy and 2004 review, taking into the account Defra Guidance produced in 2012 (‘the Guidance’).

The Guidance recognises two types of inspection: ‘strategic inspection’ (desk-top study) and ‘detailed inspection’ (should it be required) to establish if the ‘contaminant-pathway-receptor’ models exist. This Strategy considers the City’s approach to these two types of inspection. This Strategy also details the City’s broader approach to contaminated land through the development management process.

The high concentration of buildings and hard cover means the direct contact with soil and inhalation of soil dust pathways will be largely interrupted. It is further considered that some

contamination will have been removed as a result of the development management process (to form basements etc.).

The City is not aware of any changes in circumstance since the original Strategy and review; however, in light of the revised guidance, this Strategy review concludes there is scope for further 'strategic inspection' (desktop study) to provide a more robust assessment in accordance with the Guidance.

It is noted that the strategic inspection may identify sites requiring more detailed inspection. Any decision to progress sites to the detailed inspection stage would be taken following a prioritised approach in accordance with the published Guidance and internal resources available to manage the process.

Section 1: Background to the regulation of Land Contamination and the City's approach

1.1 Background to dealing with contamination

Development or a change of land use provides an opportunity to deal with land contamination. Part 2A of the Environmental Protection Act 1990 ('EPA') was introduced in 2000 to enable the remediation of land which meets the definition of contaminated land, based on its *current land use*, and outside the development management process. Other legislation continues to be applicable and may still be used and may take precedence over Part 2A:

- Building Regulations 2010 (as amended)
- Environmental Permitting Regulations 2010
- Environmental Damage (Prevention and Remediation) Regulations 2009
- Water Framework Directive 2000
- Private Water Supply Regulations 1999
- Pollution Prevention and Control Act 1999
- Water Resources Act 1991
- Town and Country Planning Act 1990
- Radioactive Substances Act 1993
- Waste Management Licensing (Part II of the Environmental Protection Act 1990)
- Statutory Nuisance (Part III of the Environmental Protection Act 1990)

As the Part 2A regime is one of several ways in which land contamination can be addressed, the Department for Environment, Food and Rural Affairs (Defra) Guidance ('the Guidance') published in April 2012 states that "*enforcing authorities should seek to use Part 2A only where no appropriate alternative solution exists*" (Defra Guidance 1.5).

1.2 Environmental Protection Act 1990 – Part 2A - Legislative Requirements

Section 57 of the Environment Act 1995 created Part 2A of the EPA and together with the Contaminated Land (England) Regulations 2006 is the legislative framework for the

contaminated land regime. The regime places responsibility on the City of London as a regulator to:

- Identify any contaminated land within its boundaries (EPA s78B)
- Require remediation of contaminated land (EPA s78E – unless deemed a ‘Special Site’, in which case the Environment Agency becomes the enforcing authority)
- Establish responsibility for the remediation of contaminated land (EPA s78F)
- Ensure that any necessary remediation action takes place, either by agreement or enforcement action
- Determine liability for the costs of any remediation
- Maintain a public register of contaminated land matters as may be prescribed (s78R of EPA 1990).

1.3 Part 2A Definition of Contaminated Land

Although a site may contain contaminants, it will not necessarily be categorised as ‘contaminated land’ under Part 2A. This decision is based on the potential which any contamination has to cause harm, under the current use of the land. The EPA s78A (2) defines ‘contaminated land’ as *any land which appears to the local authority in whose area the land is situated to be in such a condition, by reason of substances in, on or under the land, that (a) significant harm is being caused or there is a significant possibility of such harm being caused; or (b) significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused.*

The terms ‘current use’, ‘harm’, ‘significant harm’ and ‘significant possibility of such harm’ (SPOSH) have specific meanings explored in the statutory Guidance issued by Defra and summarised in [Appendix A](#).

1.4 Pollutant Linkage

The Guidance defines what is meant by a ‘contaminant linkage’. This linkage must occur for the land to be defined as ‘contaminated land’ under Part 2A and all three elements must exist in relation to a particular area of land:

1. **A contaminant** – defined as *‘a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause*

Significant pollution of controlled waters'. There must be evidence of the actual presence of contaminants.

2. **A pathway** – defined as *'a route by which a receptor is or might be affected by a contaminant'*.
3. **A receptor** – defined as *'something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property or controlled waters'*.

1.5 Categories of Land

It is the responsibility of the City of London Corporation (the City of London) to decide, in accordance with the Guidance, whether land in the City is 'contaminated land'. Where the potential receptors are humans or controlled waters, the Guidance requires the City of London to use 4 categorisations:

Categories 1 and 2 *'encompass land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health'*, or *'cases where the authority considers that a significant possibility of significant pollution of controlled water exists'*.

Categories 3 and 4 *'encompass land which is not capable of being determined on such grounds' (human health), or 'cases where the authority considers that a significant possibility of such pollution does not exist'*.

Part 2A makes this decision a "positive legal test", and so the starting assumption should be that land is not contaminated unless there is reason to consider otherwise (rather than assuming that all land is contaminated and then demonstrating that it is not).

Where the potential receptors are ecological systems or property, the Guidance does not require 4 categorisations. It does however clarify what receptor types are relevant, and what should be considered 'significant harm' or 'significant possibility of significant harm'.

1.6 Role of the Environment Agency

When contaminated land is identified, the Local Authority must ensure it is managed and dealt with in an appropriate manner, other agencies and authorities can also have a role. In certain cases, the Environment Agency (EA) will provide site-specific guidance to Local Authorities on land contaminated and assist in identifying contaminated land where there is a risk of pollution of controlled water.

The EA can take over as the enforcing authority where the Local Authority identifies a 'Special Site', as defined in the legislation. These can be described as sites which are likely to present the greatest threat to controlled waters, health or the environment.

1.7 Defra Guidance 2012

Section 78B (2) of the EPA 1990 states that in performing functions under s78B (1) a Local Authority shall act in accordance with any Guidance. The Guidance is therefore legally binding on enforcing authorities.

The revised Guidance sets out a number of changes, reflecting national experience since the introduction of Part 2A in 2000. The main legislative requirements have not changed and the requirement for local authorities to identify contaminated land still exists. There are requirements for how Local Authorities should carry out their inspection duties, and this Strategy is designed to address those requirements. The Guidance states Local Authorities should:

- Take a 'strategic approach' to carrying out their inspection duties (Defra Guidance 2.3) and this approach should be '*rational, ordered and efficient*', and should '*reflect local circumstances*'. Where there is a reasonable possibility that a significant contamination linkage (as defined) exists, move to a more 'detailed inspection', giving priority to particular areas of land that are most likely to pose the greatest risk to human health or the environment. The Guidance provides for the categorisation of land into one of the four categories following 'detailed inspection'.
- The approach taken should be set out as a written strategy, formally adopted and published to a timescale to be set by the authority. Strategies produced in accordance with the previous Guidance should be updated or replaced to reflect the current Guidance (Defra Guidance 2.4).

- The written strategy should be kept under periodic review to ensure it remains up to date, at a frequency that the authority deems appropriate (Defra Guidance 2.5).
- The Strategy should include those items detailed in sections 2.6 (a-f) of the Guidance. Those items set the framework for this document and the next five years (see sections 2 and 4 and subsections 1.9, 3.1, 3.2 and 3.8).

The City of London will adopt the inspection strategy detailed in Section 3 of this Strategy. If required, the City of London would then, in accordance with the Guidance and this Strategy, determine whether the site is contaminated land.

1.8 The Environmental Damage (Prevention and Remediation) Regulations 2015

The Environmental Damage Regulations replace Part 2A of the Environmental Protection Act 1990 for any incidence of contamination, or environmental damage to land, controlled waters, etc. which take place on or after 1 March 2009. In accordance with the regulations, the City of London provides an annual return regarding incidents. Since the introduction of the initial regulations in 2009, no incidents have been declared.

1.9 Introduction to the City of London Strategy

The City published a Contaminated Land Strategy in May 2001. This Strategy was adopted by the Port Health and Environmental Services Committee in July 2001. It set out the City's duties and responsibilities and the approach it takes in relation to contaminated land. The main objectives of the strategy were to:

- a) Identify and record all sensitive receptors;
- b) Identify and record sites that have the potential to be contaminated;
- c) Assess whether a pathway exists between the potential contaminant and receptor;
- d) If a potential pathway exists carry out a further detailed inspection of the site.

The 2001 strategy contained a timetable of activities. These were completed by 2004, and a review was undertaken. In light of the revised guidance this strategy review concludes there is scope for further 'strategic inspection' (desktop study). Depending on the outcome of the revised 'strategic inspection', the City may need to proceed to 'detailed inspection' should that become applicable and appropriate.

This revised Strategy ensures that the City of London's approach to fulfilling its statutory duties and the management of contaminated land continues to be suitable and appropriate. In order to address the City's obligations, paragraph 2.6 of the Guidance lists what a strategy should include:

- a) The Strategy's aims, objectives and priorities, taking into account the characteristics of the City of London's area
- b) A description of relevant aspects of the City of London
- c) The City of London's approach to 'strategic inspection' of the City or parts of it
- d) The City of London's approach to the prioritisation of 'detailed inspection' and remediation activity
- e) How the City's approach under Part 2A 'fits with its broader approach to dealing with land contamination', so that sites do not become a capable of being determined 'contaminated land' under Part 2A in the future
- f) How the City of London will seek to minimise unnecessary burdens on the taxpayer, businesses and individuals.

This Strategy is structured to address the items specified above. Consultation has been undertaken (as detailed in [Appendix G](#)) and Committee approval has been sought. This Strategy is published online.

1.10 The City's Strategy Aims, Objectives and Priorities

Defra Guidance 2.6(a): The local Authority should include in its Strategy its aims, objectives and priorities, taking into account the characteristics of its area.

The overall aim of this Strategy is to set out how the City of London will continue to address its duties under section 57 of the Environmental Protection Act 1990 ('Part 2A'), in accordance with the Guidance. The overriding priorities of this Strategy are:

- To protect human health
- To protect controlled waters
- To protect designated ecosystems
- To prevent damage to property
- To prevent further contamination of land

The City of London has a number of strategies and plans which support and require the Contaminated Land Strategy to achieve their aims. These documents can be found on the City of London [website](#).

1.9.1 The City's Corporate Plan:

The City of London's Corporate Plan is supported by a series of other plans and is the City's main strategic planning document which provides a framework for the delivery of services and is a clear statement of the City's Vision, Strategic Aims and Key Policy Priorities (KPP). The work on contaminated land sits within Strategic Aim 1 (SA1) of the Corporate Plan: *'To support and promote The City as the world leader in international finance and business services'*. KPP1 is *'Supporting and promoting the international and domestic financial and business sector'*. To do this the City encourages quality developments in the built environment that support the Square Mile as a location for financial and business services and as a place to live and work.

1.9.2 The City Together Strategy:

The City Together Strategy is the sustainable community strategy for the Square Mile. It contains five themes, for the City, including: ***to protect, promote and enhance our environment***. The City does this by continuing to minimise noise, land and water pollution and improve air quality where this is possible. The Contaminated Land Strategy supports this theme (together with the Open Spaces Strategy). It also crosses into the theme of ensuring the City ***is safer and stronger***, by continuing to ensure the City is a safe place to do business, work, visit, and live. Under the theme of ***Promoting Opportunity***, the City of London has an adopted Local Plan. Policy DM15.8 in the Plan deals with contaminated land:

Policy DM 15.8 Contaminated Land and Water Quality

Where development involves ground works or the creation of open spaces, developers will be expected to carry out a detailed site investigation to establish whether the site is contaminated and to determine the potential for pollution of the water environment or harm to human health and non-human receptors. Suitable mitigation must be identified to remediate any contaminated land and prevent potential adverse impacts of the development on human and non-human receptors, land or water quality.

1.9.3 Health and Wellbeing Strategy:

The contaminated land strategy also supports the Health and Wellbeing Strategy's overarching aims to promote the health and wellbeing of residents and workers in the City.

Section 2: Characteristics of the City of London

Defra Guidance 2.6(b): A description of the relevant aspects of the City of London

2.1 Introduction to the City

The City of London is located in the historic heart of London, to the north of the Thames. It provides local authority services for a relatively small area, known colloquially as the ‘Square Mile’. It has approximately 9,000 residents and a working population of approximately 400,000. It is a commercial area with a rich history and iconic London landmarks, attracting thousands of tourists per annum. The City of London Corporation also owns leases and manages property and land within and outside the Square Mile.

2.2 Potential receptors within the City of London

The Guidance specifies sensitive receptors which should be protected from harm. These sensitive receptors are then considered during the inspection prioritisation process. The sensitive receptors are summarised below (tables 1 and 2 of the Guidance provides more detail).

Humans / Ecological Systems	
<ul style="list-style-type: none"> • Open spaces (including recreational / parks / playing fields) • Allotments • Residential with and without Gardens • Sensitive receptors: (schools / Nurseries / Playgrounds / Hospitals / Surgeries with soft landscaping) • SSSIs • Nature Reserve (National / Local) 	
Controlled Waters	Property (buildings)
<ul style="list-style-type: none"> • private drinking water abstraction • surface water • source protection zones • groundwater 	<ul style="list-style-type: none"> • Listed Buildings • Conservation areas • Ancient monuments

2.3 Human and Ecological Receptors in the City

The distribution of residential accommodation, at the time of publishing, is shown on the following map:



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- Hotels
- Residential Units

Map 1: City of London residential properties, including hotels

The majority of residential properties in the City is flats and are concentrated in particular areas: The Barbican Estate, Golden Lane Estate, Middlesex Street Estate and Mansell Street. Much of the open space around the estates is hard-standing, with raised planter beds; pockets of managed green open space also exist in some areas.

There are a number of properties within the City which are detached, semidetached and terraced. Some of these properties and flats have private and communal gardens which would create a direct contact or inhalation pathway for exposure if contaminants are present.

There are a number of managed public spaces and gardens throughout the City which could be utilised by the 400,000 worker population and residents; these are shown below in Map 2 and on the City’s [interactive map](#). Some of these areas contain soft landscaping and others are hard standing and contain raised planter beds. There are no nature reserves or SSSIs within the Square Mile. See [Appendix B](#) for a summary of the City’s green open spaces.



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Open Spaces

- | | | | |
|---|--------------------------|---|---|
|  | Primary Civic Space |  | Natural and Semi-Natural Green Spaces |
|  | Secondary Civic Spaces |  | Provision for Children and Young People |
|  | Parks & Gardens |  | Outdoor Sports Facilities |
|  | Cemeteries & Churchyards |  | Local Green Corridors |
|  | Amenity Greenspace |  | Under Construction |

Map 2: [City of London Open Spaces](#)

2.4 Buildings as a Receptor (Archaeology and Built Heritage)

The City has a rich historical heritage and land use and there are more than six hundred listed buildings and other structures in the City. Map 3 which follows is an interactive map on the City of London website and details conservation areas, listed buildings and scheduled ancient monuments within the Square Mile. It demonstrates that much of the City is covered in areas which are protected. See Appendix B for the list of scheduled ancient monuments.



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Map 3: City of London Listed Buildings and Structures

The City of London is the historic core from which the rest of London developed. The entire City is considered to have archaeological potential except where there is evidence that remains have been lost and archaeology is a material consideration of the planning process. The archaeological potential of a site is considered as part of development management process.

Where a development affects a monument or archaeological remains, assessment and evaluation are required which may lead to modifications to a development to avoid archaeology. Any protection measures, investigation and recording would be required as a condition of the planning permission. This would ensure the preservation in-situ of important archaeological remains and that a record of the remains is made in a programme of archaeological work and recording carried out as an integrated part of the development. Contaminated land matters are also a material consideration of the development management process and are dealt with in parallel to archaeology matters.

2.5 Controlled Waters

2.5.1 Geology, hydrology and hydrogeology

The superficial geology across the City includes a mixture of alluvium, silts and River Terrace Deposits. The thickness of the gravels and alluvium varies across the City and during the development management process, the excavation and construction of basements has resulted in the removal of superficial deposits in many areas.

The City's Strategic Flood Risk Assessment demonstrates that the solid geology of the City of London comprises London Clay overlying the Lambeth Group, a mixture of sands, silts and clays. The Thanet Sand Formation and Upper Chalk underlie the Lambeth group. Borehole logs indicate the London Clay is approximately 35m thick and the Upper Chalk is encountered at approximately 60-70m below ground level. In addition to the creation of basements in the superficial geology, there has also been an increase in the number of developments where the bored pile foundations extend down to the Thanet Sands.

There are two historic rivers flowing through the City, The Fleet and the Walbrook. Both rivers are now canalised and are incorporated into the sewer system, reducing the risk from Contamination.

An aquifer is defined by the EA as ‘*underground layers of water-bearing permeable rock or drift deposits from which groundwater can be extracted*’. As well as maintaining the flow in some rivers, the EA states that groundwater provides a third of England and Wales’ drinking water and the EA ensure it remains protected from contamination. Groundwater vulnerability zones are classified by the EA as high, intermediate or low vulnerability. More detail regarding aquifers can be found on the [EA website](#).

With reference to the aquifer and groundwater vulnerability data on the EA website, much of the City is classified as having a ‘Secondary An aquifer (High)’ status (formally minor aquifer). A ‘Secondary An aquifer’ is defined as “*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*”. The classification of much of the City as ‘High’ vulnerability means that ensuring contamination in soil which could find its way into the surface groundwater and contaminate rivers should remain a priority through the development management process.

With respect to the Secondary an aquifer, where groundwater is in hydraulic continuity with the River Thames, where contamination is found the EA would expect the developer to investigate, assess and if appropriate remediate. Please see the EA’s [Groundwater Protection: Principles and Practice](#) (in particular part J) for further information.

The risk to groundwater beneath the London Clay is reduced due to the significant thickness of London Clay underlying the City. Where the London Clay is fully penetrated (for example high buildings requiring deep piled foundations and/or ground source heat pump installations), the risk to the groundwater beneath the London Clay is increased.

2.5.2 Groundwater Source Protection Zones

To ensure groundwater water is safe to drink, the EA define Source Protection Zones (SPZ) and have done so for 2000 groundwater sources (wells, boreholes and springs) used for public drinking water supply.

By defining the zone, the EA monitor the risk of contamination from any activities that might cause pollution in those areas. The closer the activity is, the greater the risk. Pollution

Prevention measures are put in place and activities of the potential pollution source are monitored.

Within the City of London boundary there are no SPZs. Further to this with reference the [EA on-line data](#), the following areas and zone are not present in the City of London:

- Surface Water Drinking Water Protected Area
- Surface Water Safeguard Zone
- Groundwater Drinking Water Protected Area
- Groundwater Safeguard Zones
- Water Protection Areas

2.5.3 Groundwater abstraction and Private Water Supplies

Numerous premises within the City are licensed by the EA to abstract groundwater. At the time of writing, none of the identified premises use treated groundwater for drinking purposes, but some sites use the water for domestic purposes (e.g. flushing toilets). The location and information relating to the private water supplies in the City is periodically reviewed and updated and is shown on the City's online [interactive map](#).

The impact of ground water contamination is reduced due to the lack of SPZ's in the City or premises which use borehole water for drinking purposes. Notwithstanding this, there is still a requirement to ensure groundwater is protected.

2.6 Liaison with the EA

There is guidance with regard to which planning applications the EA wish to be consulted upon; this includes those which relate to contamination from past or future land use which may affect groundwater.

The EA would automatically be consulted upon all developments which are large enough to require an Environmental Impact Assessment (EIA) and the EA would potentially use an informative for developments to ensure piling does not cause contamination to be taken into the groundwater. The EA would also be consulted with regard to applications within 20m of the River Thames, ensuring that surface water is protected from potential contamination. The EA is also consulted in the preparation of statutory development plans, including the City's Local Plan.

2.7 Potential Sources of Contamination - Historic and Current Land Use

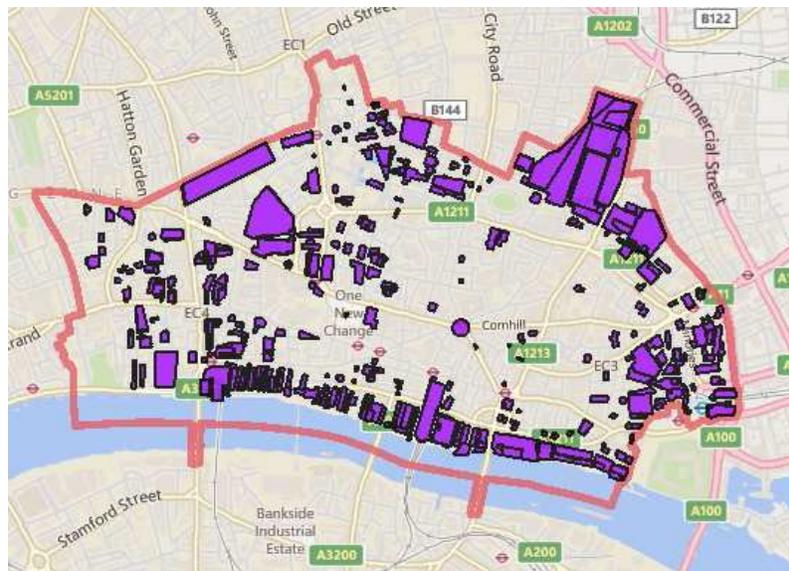
The City of London dates from Roman times, and has a rich history. Although predominantly non-industrial, there have been a wide range of historic land uses, which could potentially have given rise to contamination.

2.7.1 Historic Land Use 1875 to 1971

Map 4 which follows was generated as part of the original contaminated land strategy and review using historic land use maps from 1875, 1894, 1914 and 1938 (scale 1:1056) and 1951 and 1971 (scale 1:1250). It is available on the City's [interactive map](#).

The identified sites are unlikely to be exhaustive and additional, as yet unidentified historical land uses are likely to have been present, but not shown in the maps reviewed to date. This Strategy review provides an opportunity to consider whether additional or alternative maps would provide further information.

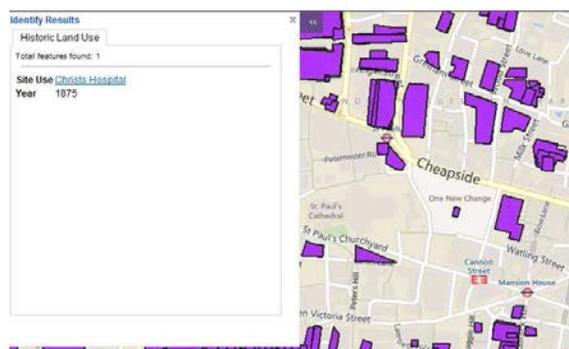
Please note that the information in the historic land use and war damaged interactive maps have been compiled from information available in the City's records and information supplied by third parties and the Corporation cannot guarantee the accuracy or completeness of the data.



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Map 4: City of London Historic Land Uses

The map can be used to focus on specific sites to create a pop-up of site use and the year:



Identified historic land uses in the square mile include:

- Wharves and docks
- Rail stations and railways infrastructure
- Almshouses and hospitals
- Warehouses and depots
- Bookbinding and printing works
- Breweries and distilleries
- Foundries & smithies
- Burial grounds and graveyards
- Telephone exchanges and electricity substations
- Tobacco and snuff manufacture
- Colourworks and hat manufacture
- Garages and petrol stations
- Gasometers and gas works
- Glass foundry
- Gun factory
- Chimneys
- The City Mortuary
- Mustard factory
- Wire works
- Chemical works
- Markets

Although some of the above land uses remain (e.g. markets and railway stations), the major industrial processes have ceased operating in the City, with the last industry group (the newspaper printers) leaving in the late 1980's. The identified land uses listed could present a risk to controlled water and human health, even if total hard cover is present, due to organic and volatile vapour contamination. The role of the local authority under Part 2A is to prioritise sites for consideration and to ascertain if a significant contaminant linkage exists.

The City of London is constantly changing and there has been extensive redevelopment of the City during its history. Due to war damage and subsequent redevelopment, evidence of the historic land use may not be evident above ground. New developments have often maximised space by creating deep basements and as part of the construction process, it is considered that a large proportion of the near surface (most likely contaminated materials) would have been

Excavated and disposed of off-site to make way for development. Projects have also identified historic land uses which were unknown to the City, such as Crossrail which has identified unknown burial grounds.

Where there is a building, unless there is evidence of complete contaminant-pathway-receptor linkage there is no way of confirming the presence of contamination without digging beneath the building. This would only be necessary if there was evidence of the complete contaminant-pathway-receptor linkage and evidence of significant harm or significant possibility of significant harm to humans or the environment.

2.6.3 War Damaged Sites

Due to the City's position, historic maps indicate the extensive areas of the City that were damaged during war time bombing (see Map 5 overleaf and interactively [online](#)). Historic land uses which may have led to contamination prior to this time will have been destroyed in part during the bombing. Thereafter, post bombing site redevelopment would have created areas of made ground of significant thickness locally and the composition of this made ground is unknown (see 2.6.4 below). Material may also have been removed or redistributed within the City during the post war redevelopment and thereafter; this would all be undocumented.

Due to the intensive bombing across the City, unexploded ordinance (UXO) has been found during excavations. Buried UXO therefore remain a risk and this risk should be managed during excavations.



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Map 5: War Damaged Sites

2.6.4 Landfill sites, made ground and ground gas

The City of London does not have any documented landfill sites within its area. A review of the data held by the EA confirms this and indicates that the closest disused landfill site is to the SE of the City in the Wapping Basin, as indicated in their [online interactive map](#).

Notwithstanding this, until the latter part of the 20th Century, particularly before the mid 1970's, backfill and hardcore was used for both road and building works and reclaiming land, for example along the River Thames. The content of the backfill and hardcore was not specified or controlled and as a result, poor quality backfill and made ground will exist in the City, especially as a result of bomb damage. There is therefore residual risk if such materials are disturbed, during maintenance or redevelopment. All land in the City has been subject to some form of development and it can be assumed that made ground exists at varying depths throughout the City, which will have an unknown composition.

Ground gas and vapour can build up or be released where organic or volatile vapour contamination is found in the ground, for example, methane produced as a result of landfill

degradation. Although there are no documented landfills in the City, the unknown composition of made ground, particularly associated with bomb damaged areas, means there is a residual risk. A large percentage of the City's land area is built on or is hard standing, minimising direct contact exposure via the contaminant-pathway-receptor model; however, hard standing would not necessarily prevent gas and vapour inhalation.

Further to the above, gasses can build up in confined spaces and the possible explosive, as well as flammable consequences, mean that during the development management process ground gas levels are often monitored. Where required, gas protection measures can then be put in place.

It has been identified as part of this review that in order to inform the 'strategic inspection' process, data needs to be collated with regard to the ground gas occurrence and monitoring conducted in the City as part of the development management process and reviewed.

2.6.5 Current Industry

The final printing process left the City in the 1980's and the only 'industrial' processes which remain in the City of London boundary are three premises authorised under the Environmental Permitting Regulations 2010, which are all dry cleaners and are regulated by the City of London. The location of these premises is shown on the City's [interactive map](#) under 'environmental information' and is located at:

- 34-36 Lime Street, London, EC3M 7AT
- 57-60 Aldgate High Street, London, EC3N 1AL
- 24 Goswell Road, London, EC1M 7AA

Registered users of radioactive materials are also present in the City of London, for example St Bartholomew's Hospital, such uses are regulated by the EA. There is one Waste Transfer Station which is also regulated by the EA.

There is the potential for other sources of contamination to exist within the City, such as above and below ground storage tanks which have the potential leak into the ground. The risk from this type of activity can be identified through regular building and maintenance checks or identified at the development management stage.

2.6.6 Airborne contamination and cross boundary issues

Despite the lack of recent industrial use, being at the heart of the City, localised and trans boundary air pollution from traffic and historical industry will have been deposited on soil throughout the years. It has been documented that traffic and industry have been significant sources of lead and PAHs (poly aromatic hydrocarbons) in soils across London and as such, background levels of contaminants in the urban area are a factor when considering risks from contaminated land.

The City of London shares a boundary with the London Boroughs of Hackney, Lambeth, Camden, Tower Hamlets and the City of Westminster. The migration of airborne contamination does not adhere to local authority boundaries and as such liaison between authorities is key when considering contamination issues which may affect neighbouring authorities. All neighbouring authorities have produced a Contaminated Land Strategy and have been consulted with regarding this revised strategy.

2.7 Background levels of contamination

The 'normal' presence of contaminants is the natural presence of contamination in soil as a consequence of common human activity (other than specific industrial processes) and local geology. In late 2011, early 2012, The British Geological Society (BGS) was commissioned by Defra to provide guidance on normal levels of contaminants in English soils. The following eight contaminants were tested: arsenic, asbestos, benzo[a]pyrene (BaP), lead, cadmium, copper, mercury and nickel.

Normal background concentrations (for contaminant domains) define what is the upper limit of 'normal' levels of contaminants in soil as described in the Guidance. When considering results from intrusive investigations and when making any determination decisions, 'normal presence of contaminants' within the urban environment would need to be considered, in accordance with appropriate methodologies and Guidance. See [Appendix C](#) for details.

The disparity between Defra's Category 4 Screening Level for lead and the urban background level determined by the BGS is noted. The City's 'normal' presence of contaminants will be

considered as part of the City's 'strategic inspection' process over the next 5 years (as detailed in Section 3).

2.8 Summary

This section has detailed that sensitive receptors (as defined by Defra) do exist in the Square Mile. The City of London has had a rich, historic land use and some of this may have led to land contamination. Due to the constant redevelopment of the City and the need to maximise space through the creation of basements, it is likely that some contamination would have been removed over the years during re-development, thus interrupting the contaminant-pathway-receptor model. Due to made ground associated with bomb damage and the use of backfill and rubble prior to the latter part of the 20th Century, this means residual issues could remain and this review provides an opportunity for further strategic inspection (desktop study) and detailed inspection (as required), as detailed in Section 3.

Section 3: City of London Inspection Strategy

3.1 Background to the City of London's Inspection Strategy

As part of the 2001 Strategy development the City of London set about strategically investigating the Square Mile. The City of London:

- identified and recorded sensitive receptors;
- identified and recorded current potential sources of contamination
- assessed all information provided by the EA for the identification of potentially contaminated land
- assessed geological data for the City;
- reviewed groundwater quality from private well abstraction points within the City
- developed a GIS system of data management;
- developed procedures for:
 - site inspections in the event of contaminated land being suspected;
 - dealing with pollution incidents or spillages
 - dealing with complaints or concerns about potentially contaminated land
- assessed Corporation owned and leased land;

Following the 2001 Strategy and review in 2004, there was no strong evidence suggesting contamination (as defined by the legislation). The requirement to 'periodically review' (Defra Guidance section 2.5) enables the City to consider whether the City's approach is sufficient and whether any new information is available, for example re-assessing City of London owned and leased land, reviewing additional historic maps and the location of current sensitive receptors.

3.2 Strategic Inspection – (stages 1-4)

Defra 2.6(c). Design and describe an appropriate approach to ‘strategic inspection’, of the City of London, including a description of what might trigger detailed inspection.

The aim of ‘strategic inspection’ is to establish if there is likely to be any significant contaminant linkages. This is dependent on the nature of the current land use. Based on the ‘strategic inspection’ (desk top study) the City of London is able to decide which sites might require a more detailed inspection. The City’s ‘strategic inspection’ involves four stages:

- 1 – Identification of potentially contaminated sites
- 2 – Identification of sensitive receptors
- 3 – Identification of a potential contaminant-pathway-receptor
- 4 – Preliminary risk assessment in accordance with section 2.2 of CLR11

3.1.1 Stage One – Information regarding the presence of contamination

The first stage of strategic inspection was the City-wide identification of potential ‘sources’. Potential sources of contamination were identified by a desktop study as part of the 2001 Strategy. As detailed in section 2, this involved the analysis of historic land use directories (Kelly Directories) and historic land use maps.

The Strategy review has identified the limitations of the Kelly’s directory information (due to Road renaming and street number changes) and that there is scope to review the information obtained from historic maps consulted as part of the 2001 Strategy. The review also provides an opportunity to ascertain if there is new local knowledge or additional information relating to potential contamination. This information may have been received through intrusive investigations and reports received as part of the development management process. Conducting a desk based review of existing, and identifying new information, therefore forms part of the ‘strategic inspection’ process over the next 5 years. The information feeds into Stage Three of the City’s approach.

3.1.2 Stage Two –Identification of Receptors

The Guidance specifies sensitive receptors which should be protected from harm. These sensitive receptors are then considered during the ‘strategic inspection’ process, to see if sites require ‘detailed inspection’. The sensitive receptors identified in the City are detailed in section 2, which include residents, workers, visitors, controlled waters, ecological systems and property. Sensitive receptors have been identified and mapped on the Corporation’s GIS system.

The Strategy review has identified that there is scope to review the presence and location of existing sensitive receptors. Conducting a desk based review of existing, and identifying new information, therefore forms part of the ‘strategic inspection’ process over the next 5 years. This information will feed into Stage Three of the City’s approach.

3.1.3 Stage Three – Potential Pathways for Contamination - PRIORITISATION

The third stage is the consideration of land where receptors could potentially be exposed to contamination. The City will prioritise sites for inspection based on the reviewed contaminant potential (historic land use and knowledge) and reviewed current receptor information.

By assigning a sliding scale score to each receptor type and historic land use type, the City is able to determine the priority with which a site is given for further consideration. For example, a residential property with a garden, with a historic contaminative use, will be ranked higher than a commercial site with no outside soft landscaping, which has a similar historic use.

The deliverable is a list of sites which merit further consideration under stage 4. If there is an unknown associated with a site or if at any stage additional information comes to light the City of London will re-visit the decision in order to decide if a site should move to stage 4.

Sites will be considered in order of priority, according to the ranked lists. Higher ranking sites will be investigated first.

This prioritisation approach would be reviewed on an on-going basis to ensure it remains suitable for use.

3.1.4 Stage 4: Preliminary Risk Assessment

The fourth stage considers whether the current land use might satisfy a full contaminant linkage (contaminant-pathway-receptor).

Stage 4 involves conducting a site reconnaissance visit(s) to establish possible signs of contamination and gain additional information regarding receptors or pathways and to see if there is any reason why the site can be excluded. If it is excluded, then this is recorded.

During the reconnaissance visit preliminary evidence such as photographs and site plan would be obtained. To inform the decision to move to 'detailed inspection', soil samples may be sampled and tested if applicable (in accordance with relevant British Standards) and with reference to 3.2.2.

A preliminary risk assessment would be conducted based on section 2.2 of the EA's *'Model Procedures for the Management of Land Contamination (CLR11)'* to decide if the site should move to detailed inspection. The site would then be categorised under the following:

Category A: This category of site would move to detailed inspection. This is land where a past or present contaminative use has been identified and where there is a possibility that it might affect a receptor based on visual or documentation supporting a potential contaminative source in the past or at present. The given site could be subdivided into the following priority areas: high, medium and low where applicable.

Category B: Current or past land use may have led to contamination, but there is not a complete contaminant-pathway-receptor link. This category of site is considered suitable for its current use and any contamination found at a later date would be dealt with through the development management process.

Category C: This is land where no pollution linkage has been identified. It would be difficult in the City to say that no contamination is present at any site, due to the lack of virgin soil within the Square Mile.

The next section considers the approach should 'detailed inspection' be required following stages 1-4.

3.2 Detailed Inspection (Stages 5 and 6)

Defra 2.6 (d) Describe the City of London's approach to prioritisation of 'detailed inspection', and remediation activity should the need arise.

3.2.1 Detailed Inspection Procedure

Where the 'strategic inspection' indicates that a site may be at risk of being considered 'contaminated land', then that site will be assessed in greater detail; so desk studies (strategic inspection) will always be conducted in the first instance. With regard to the 'detailed inspection' phase, as per the Guidance:

- 1) Inspection would be in accordance with a prioritisation list
- 2) The City of London would consult with the land owner before inspecting land
- 3) If powers of entry are required the City of London will be satisfied that there is a reasonable possibility that a significant contaminant linkage may exist.
- 4) Any intrusive investigations will be undertaken with due regard to best practice and British Standards, such as BS 10175:2011 (or subsequent revisions).

3.2.2 Intrusive investigations

Where there is no chemical analysis of soil, initial and limited site work can be undertaken by the City with reference to relevant British Standards and an accredited laboratory for analysis. The City will utilise the Category 4 Screening Levels (C4SL), Soil Guideline Values (SGVs) and other screening values as appropriate, to conduct risk screening to see if additional site specific risk assessments are required. During 'detailed inspection', the most up to date screening values will be used. See [Appendix D](#) for information relating to screening values, SGVs and C4SLs.

3.2.3 Stage 5 – Generic Quantitative Risk Assessment

Where the preliminary risk assessment conducted during stage 4 indicates more information is required a **generic** quantitative risk assessment will follow based on section 2.3 of CLR11. At the end of this stage, there are number of options and the decision made will be recorded:

- no further investigation, site categorised as 1,2,3 or 4
- options for appraisal considered
- move to 'detailed quantitative risk assessment'(stage 6)

3.2.4 Stage 6 – Detailed Quantitative Risk Assessment

A ‘detailed quantitative risk assessment’ will be carried out in accordance with section 2.4 of CLR11. Qualified consultants would be employed in order to conduct this stage of the investigation. At the end of this process, the following will be decided:

- no further investigation, site categorised as 1,2,3 or 4
- options for appraisal considered

3.3 Site Categorisation (Defra Guidance - Chapter 4)

If a contaminant linkage is established, the City will need to decide whether the linkage is ‘significant’. The Guidance has identified four categories of possible contamination:

- Category 1 - a high probability that harm would occur if no action was taken
- Category 2 - there is a strong case that there is a significant possibility of significant harm and benefits of remediating the site outweigh the potential risks of remediation.
- Category 3 - there not is a strong case that there is a significant possibility of significant harm
- Category 4 - a low probability of risk

The City would therefore, in accordance with the Guidance and consultation with appropriate bodies, determine whether the site can be classified as a Category 1, 2 3 or 4 site.

3.4 Determination of Contaminated Land (Defra Guidance - Section 5)

The City of London has not determined any sites within the square mile as contaminated land under Part 2A. The Guidance states that the “*local authority is likely to inspect land that it then considers is not contaminated land*” and that “*the authority should issue a statement to that fact*” This means that should a site in the City of London be subject to ‘detailed inspection’, then in order to minimise potential blight associated with conducting the investigation, the City of London will come to a formal decision with regard to the land and issue a statement. The City will also keep records of its decision (Defra Guidance 5.4).

With Part 2A, the starting point is that land is not contaminated unless there is a reason to consider otherwise and as such, following ‘strategic’ and ‘detailed assessment’, if the City determines that there are one or more significant contaminant linkage(s) then the City will

refer to the Guidance to determine the physical extent of land to be determined, informing interested parties and record keeping.

With reference to paragraph 5.15 of the Guidance, determination can be postponed if the problem will be dealt with without determination, for example through voluntary action or if the significant contamination linkage would only exist if the land use were to change in the future.

A site would only be determined as contaminated under Part 2A once the City had sufficient evidence to be satisfied that ‘significant harm (to a human / relevant non-human receptor) or pollution of controlled waters’ is being caused or there is a ‘significant possibility of such harm (to a human or relevant non-human receptor) or pollution of controlled waters’ being caused.

3.5 Special Sites

Where a site meets the definition of contaminated land the City must determine whether the land constitutes a ‘Special Site’. The categories of special sites are:

- contamination affecting water
- contamination by acid tars
- land used for the manufacture of petroleum or explosives
- land regulated by the EA under Schedule A of the EPA
- land used by a nuclear facility or the military
- land contaminated by radioactivity

Where a site is identified as a Special Site the EA becomes the enforcing authority.

3.6 Remediation (Defra Guidance - Section 6)

If through the Part 2A process, land is determined as contaminated and it is not declared a ‘Special Site’, the City of London retains control and must consider how the land should be remediated and issue a remediation notice (if required).

As per 6.4 of the Guidance, the City of London will have regard to the Guidance when:

- a) deciding what remediation action it should specify in a remediation notice as being required to be carried out;

- b) satisfy itself that appropriate remediation is being, or will be, carried out without the service of notice ; or
- c) deciding what remediation action it should carry out itself

The City of London will also seek advice from a suitably qualified experienced practitioner where required and refer to the Guidance when deciding:

- a) Remediation techniques
- b) Securing remediation without a remediation notice
- c) Standard of remediation
- d) Reasonableness of remediation
- e) Revision of remediation notices
- f) verification

3.7 Liability and Recovering Costs (Section 7 and 8 of the Guidance)

Where the City of London has determined a site as contaminated, there would be liability and cost recovery considerations. The City will refer to the core legislation and the Guidance to identify which individuals or organisations would need to be excluded from liability and costs and to apportion liability and costs to those responsible. The City of London should also seek to recover costs where appropriate in line with s78P (2) of EPA 1990.

3.8 Minimising Burden

Defra 2.6(f) Set out how the City will seek to minimise unnecessary burdens on the taxpayer, businesses and individuals.

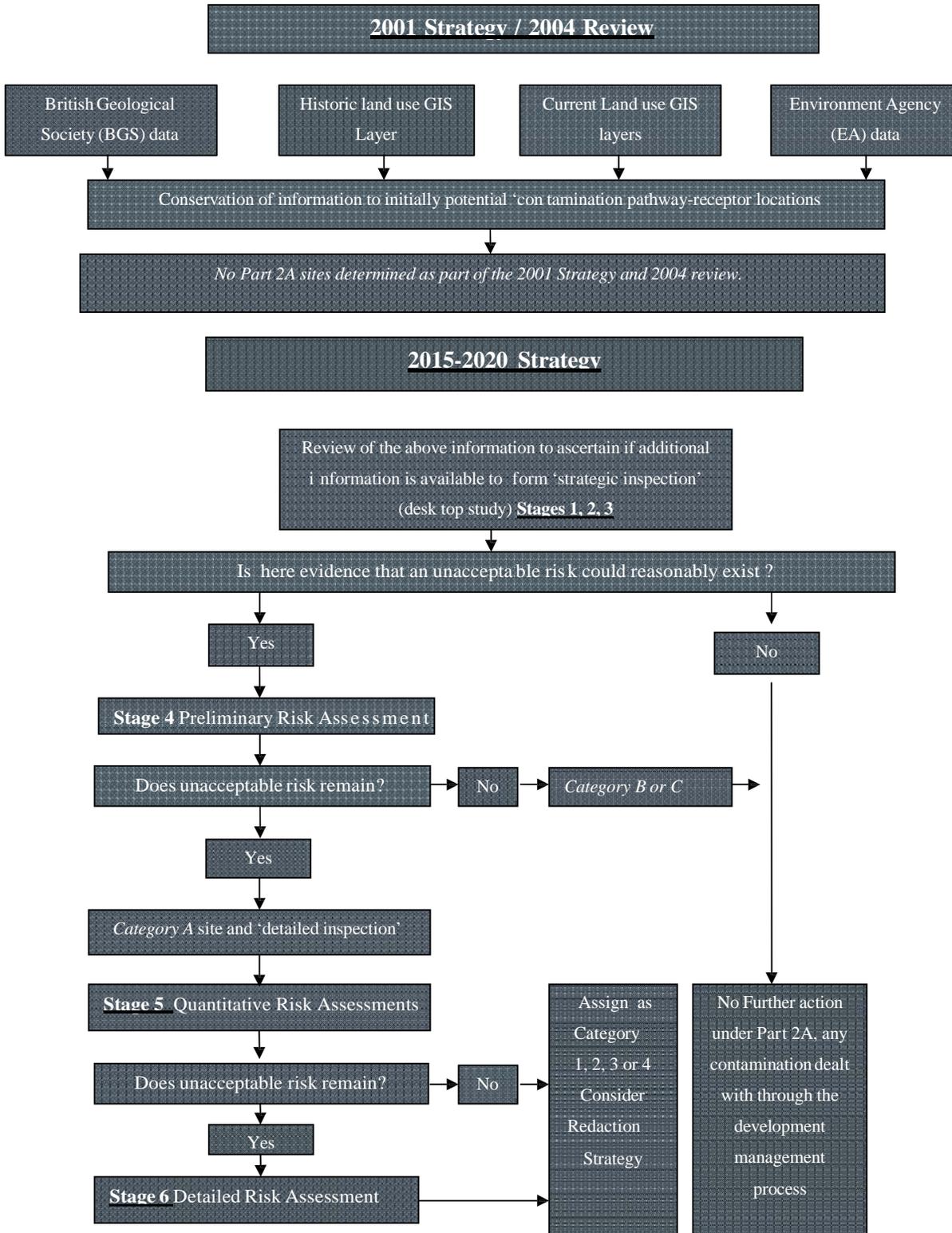
Where contaminated land is identified, there are a number of burdens on a range of stakeholders, including landowners, the City of London itself, and neighbouring landowners. The City of London can minimise *unnecessary* burdens by always encouraging voluntary action to deal with contamination issues in the first instance, by ensuring that any determinations made are robust and evidence based, and by being as decisive as possible (i.e. not compiling or issuing lists of ‘potentially contaminated’ sites).

Further to the above, in accordance with the Guidance, the City can only require remediation action if the City *'is satisfied that those actions are reasonable'*. When deciding what is reasonable, the City will therefore consider (as defined in the Guidance) the:

- a) practicality, effectiveness and durability of remediation
- b) health and environmental impacts of the chosen remediation options
- c) financial cost
- d) benefits of remediation with regard to seriousness of the harm or pollution of controlled waters.

In accordance with 6.21, the City will consider remediation action as reasonable if it is satisfied that the benefits of remediation are likely to outweigh the cost of remediation and will choose the *'best practicable technique'*, whilst having regard to the above factors.

3.9 Overview of Strategic and Detailed assessment process



Section 4: City of London's broader Approach to Land Contamination

Defra 2.6 (e) set out how the City of London's approach to Part 2A fits with its broader approach of dealing with land contamination

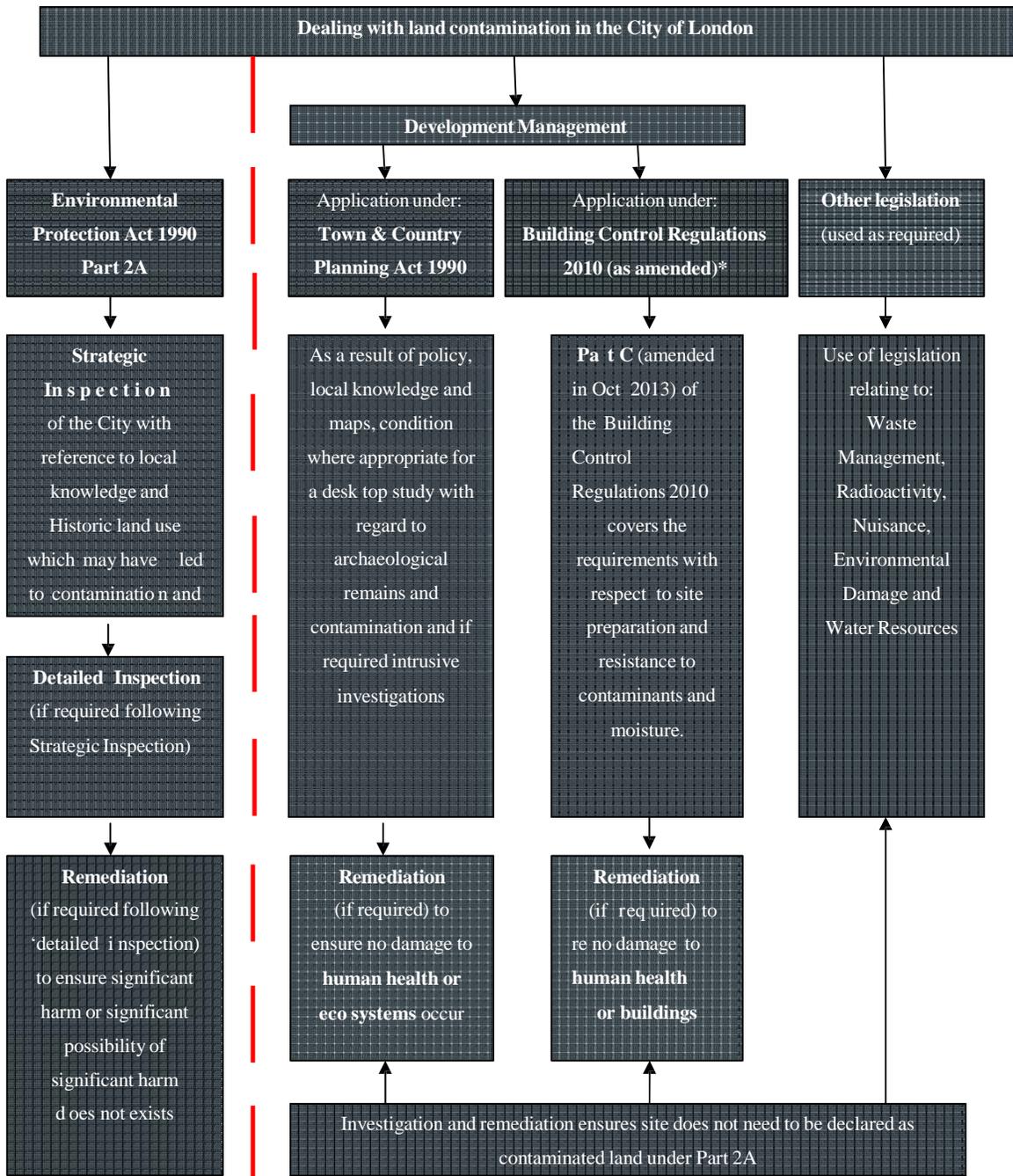
4.1 Introduction

Paragraph 1.5 of the Guidance states that “*Enforcing Authorities should seek to use Part 2A only where no appropriate alternative solution exists. The Part 2A regime is one of several ways in which land contamination can be addressed. For example, land contamination can be addressed when land is developed (or redeveloped) under the planning system, during the building control process, or where action is taken independently by landowners....*” The City of London has historically dealt with land contamination issues through these alternative means where possible, will continue to do so in favour of using Part 2A.

4.2 Other Legislation

Section one of this document details the legislation outside the Part 2A regime which can ensure that land contamination is dealt with. The City of London may therefore receive or request information about the condition of land within the City in several ways, this will inform the decision making process. This also means a developer has numerous opportunities to ensure they are aware of the land condition. By utilising the legislation in section one, sites are prevented from being declared under the Part 2A regime in the future.

The following flow diagram summarises how the City of London deals with land which is contaminated and where Part 2A regime sits:



**NOTE: where a developer chooses to utilise the services of an alternative Building Control Body, an ‘Approved Inspector’, the City has NO control through the Building Control Regulations; however, guidance refers to ‘notifying other authorities’.*

4.3 Building Control and Building Regulations 2010 (as amended)

Through Part C of the Building Control Regulations, the building must be suitable for the ground conditions and to ensure the health of future occupants are protected. Through the building control process conditions, such as that detailed in [Appendix E](#), should be added to the consent by the Building Control Body. The geotechnical reports submitted should include soil sampling results obtained from investigations carried out in accordance with industry best practice, which informs their Environmental Risk Assessment. Should the ground conditions not be deemed suitable, Environmental Health should be informed and additional investigations and a remediation strategy can be requested. The Building Control functions available through the City of London District Surveyor can be viewed [here](#).

4.4 Town and Country Planning Act 1990

[The National Planning Policy Framework \(NPPF\)](#) makes clear reference to dealing with land contamination (see [Appendix F](#)). Further detailed guidance on the implementation of the NPPF is set out in the online national [Planning Practice Guidance](#).

The City of London is able to specify planning conditions which relate to the investigation and management of contamination. Planning conditions have been developed by the City of London in line with the requirements of Local Plan policy DM15.8. The first condition requires the developer to contact the Local Planning Authority if they become aware of any contamination during their development and the second 'full' condition requires a desk based and if required, intrusive site investigation, and (prior to the breaking of the basement slab, if applicable). Both conditions require the developer to conduct the investigations in accordance with CLR 11. A condition also exists for the protection of groundwater, which can be used where deep piling is planned.

The requirement to investigate a site is currently applied to any development for a sensitive end use, such as the inclusion of open space or residential gardens. The conditions are used where there may have been a contaminative historic land use (as indicated by the historic land use GIS layer) and war damaged sites, due to the potential for deep made ground. As a result of the strategic inspection process, alternate sites may also be included.

4.5 Code of Practice for Deconstruction and Construction and SPD

The City of London has a Code of Practice document which sets out acceptable site practice on Deconstruction and Construction Sites in its area. This document sets out a number of requirements for management of land contamination:

- Contractor(s) should review records and ensure that they have undertaken a thorough risk assessment, with a view to both the receptors identified in the Part 2A regime, and operational risks such as unexploded ordnances
- The City of London should be notified where issues are identified
- The above documents are requested through the ‘Scheme of Protective Works’ which is requested to discharge the planning condition requiring compliance with the code.

In addition to Town and Country and Building Regulation approvals, Section 80 of the Building Act 1984 requires the City of London to be notified prior to the demolition of any building in the City. See the District Surveyor webpage and Code of Practice further advice on demolition control.

The City of London is currently drafting a Supplementary Planning Document (SPD) to be a reference point for developers. Within this document will be the contaminated land considerations that should form part of the planning application.

4.6 Environment Agency

The Environment Agency has clear guidance with regard to which planning applications they wish to be consulted upon. During the consultation process they are able to add conditions or informative to ensure controlled waters are protected; however, as detailed in section one, the City of London does not contain any SPZs. The proximity to the River Thames means the EA would want to comment on any applications within 20m of the river.

4.7 Providing Information regarding Contamination in the City

To facilitate access to information regarding contaminated land, the City of London is developing a database of environmental and intrusive investigation reports submitted. At present, all Environmental Impact Assessments and environmental reports submitted as part Of the planning process are available on the City of London Planning Portal.

The City's Historic Land use GIS layer is available via the City's website at [cityoflondon.gov.uk/contaminated land](http://cityoflondon.gov.uk/contaminated-land). This page is also used to provide a copy of the City's Contaminated Land Strategy. From time to time Consultants contact the City with regard to 'Contaminated Land Searches'. The City refers consultants to this page in the first instance and if further information is required, then it is dealt with on a case by case basis. Should further information become available as a result of the inspection process, (for example a site is determined as contaminated under the Part 2A regime), this information will also be made available on the website.

References

Defra Statutory Guidance ('the Guidance')

Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, Defra, April 2012

<https://www.gov.uk/government/publications/contaminated-land-statutory-guidance>

CLR11

Defra and the Environment Agency's '*Model Procedures for the management of Land Contamination, CLR 11*'

<https://www.gov.uk/government/publications/managing-land-contamination>

Appendix A - Definition of harm, significant harm and current use

EPA s78A(4): ‘Harm’ means: harm to the health of living organisms or other interference with the ecological systems of which they form part, and in the case of man, includes harm to his property.

Significant Harm: The EPA provides for statutory guidance to elaborate on what is meant by ‘significant harm’, and to assist local authorities in deciding whether there is a ‘significant possibility of significant harm’. See sections 4.1 to 4.3 of the Guidance.

Current Use: All risks should be considered in relation to the current use of land. ‘Current use’ is defined to mean:

- a) *“The use which is being made of the land currently.”*
- b) *“Reasonably likely future uses of the land that would not require a new or amended grant of planning permission”*
- c) *“Any temporary use to which the land is put, or is likely to be put, from time to time within the bounds of current planning permission.”*
- d) *“Likely informal use of the land, for example children playing on the land, whether authorised by the owners or occupiers, or not.”*

Appendix B – Green Open Spaces and Scheduled Ancient Monuments

The City of London has pockets of Green Open Space, including:

- Staple Inn
- Statue, Fetter Lane
- St Dunstan's House
- Hare Court
- Brick Court
- Middle Temple
- Inner Temple Garden
- King's Bench Walk
- Tower Gardens
- St Paul's Cathedral
- Postman's Park
- Finsbury Circus
- Custom House Walk
- Seething Gardens
- Barbican: Lambeth Jones Mews / Brandon Mews / Bunyan Court / Day Nursery

The City of London has over 60 ancient scheduled monuments, including:

- London Wall (various sections)
- Monument
- Fishmongers' Hall
- Roman Amphitheatre, Guildhall Yard
- Queenhithe dock
- Armourers' and Brasiers' Hall
- Tallow Chandlers' Hall
- below Billingsgate Market (archaeological interest)
- Roman wall in Basement of 90 Gracechurch St
- Remains of St Pancras Church, Pancras Lane
- The London Greyfriars, site of, Newgate St, Farringdon
- Roman Hypocaust and building on site of Coal Exchange
- Watermen's' Hall: 17 & 18 St Mary at Hill
- Vintners' Hall
- Roman governor's palace (site of)
- Huggin Hill Roman Baths
- Barnard's Inn Hall (Mercers' School)
- Skinners Hall
- Smiths' Wharf
- Baynard's Castle
- Merchant Taylors' Hall
- Goldsmiths' Hall
- Innholders' Hall
- Painters Stainers' Hall
- Inner Temple Hall Buttery
- Apothecaries' Hall
- Dyers' Hall

Appendix C - Background level of contaminants

Summary of domain normal background concentrations (NBCs) for the contaminants studied in the BGS project. See www.bgs.ac.uk for more details with regard to this project.

A series of technical guidance sheets (TGSs) have been developed for contaminants where NBCs could be determined.

As	DOMAIN					
	Principal	Mineralisation	Ironstone			
	NBC	32	290	220		
	N	41,509	187	437		
BaP	DOMAIN (Great Britain)					
	Principal	Urban				
	NBC	0.5	3.6			
	N	371	32			
Cd	DOMAIN					
	Principal	Min. Grp. 1	Min. Grp. 2	Urban	Chalk South	
	NBC	1.0	17	2.9	2.1	2.5
	N	4,418	224	95	9,308	265
Cu	DOMAIN					
	Principal	Mineralisation	Urban			
	NBC	62	340	190		
	N	34,504	153	7,475		
Hg	DOMAIN					
	Principal	Urban				
	NBC	0.5	1.9			
	N	1,126	512			
Ni	DOMAIN					
	Principal	Ironstone (Ni)	Peak District	Basic	Ultrabasic	
	NBC	42	230	120	*	*
	N	41,768	117	221	23	4
Pb	DOMAIN					
	Principal	Mineralisation	Urban			
	NBC	180	2,400	820		
	N	34,257	347	7,529		

Ref: www.bgs.ac.uk/gbase/NBCDefraProject.html

Appendix D – General Assessment Criteria, Category 4 Screening Levels and Soil Guideline Values

Screening Values

In order to determine whether a site needs to be investigated further, the results from intrusive investigations can be ‘screened’ against available assessment criteria (soil screening values). Progression to further investigation may be based on the outcome of the ‘screening processes. The values are derived with various assumptions and the applicability of use of the screening values should be considered on a site specific basis, by a competent person, along with the technical guidance associated with developing the value. Specialist environmental consultancies for example, may develop their own set of screening values using the CLEA framework and Defra and the EA have developed a set of screening values called Soil Guideline values (SGVs).

The revised Statutory Guidance presents a four category system for classifying land under Part 2A: from ‘Category 4’, where the level of risk posed is acceptably low, to ‘Category 1’, where the level of risk is unacceptable. Defra have prepared a methodology for developing screening values which can be used to decide that land is suitable for use and definitely **not** contaminated land; these are referred to as Category 4 Screening Levels (C4SLs).

Category 4 Screening levels

The methodology allows for the development of a C4SL by other parties, but Defra’s work initially has produced C4SL for 6 substances (benzo (a) pyrene, benzene, arsenic, chromium (VI), cadmium and lead), under a range of exposure parameters:

- Residential (with home grown produce)
- Residential (without home grown produce)
- Allotments
- Commercial
- Public Open Space - residential
- Public Open Space - park

The values can be used in assessments of sites being considered both under Part 2A and also in a redevelopment context, but with reference to the technical guidance. See:

<http://randd.defra.gov.uk/Default.aspx?Module=More&Location=None&ProjectID=18341>

Soil Guideline Levels

Soil Guideline Values (SGV) (and supporting technical guidance) is non-statutory technical guidance values developed by the DEFRA / Environment Agency which are used to help assess the long-term risk to human health from exposure to chemical contamination in soil.

The SGVs for the chemical substances they are available for varies with land use and the ways in which people are exposed to soil contamination:

- residential properties with gardens
- residential properties without gardens
- allotments
- commercial/industrial sites

Using human toxicity data, they estimate the amount of a substance that would be taken in through exposure to the soil relevant to Health Criteria Values (HCV). SGVs give an indication of “representative average levels of chemicals in soil below which the long-term health risks are likely to be minimal” (EA) and they are 'trigger values' for screening-out low risk areas of land contamination. Further investigation and evaluation may be required if the SGV is exceeded, but it does not necessarily mean the site requires remediation.

The EA states that SGV cannot be used:

- If they are not representative of the site under investigation.
- to assess other types of risk to human health or short-term and acute exposures
- to assess risks to controlled waters, property, pets and livestock, or ecological receptors.

SGVs do not have to be used and can be used to assess other chemicals using certain procedures and software e.g. CLEA. A guide to soil guideline values can be found:

<https://www.gov.uk/government/publications/contaminated-soil-assessing-risks-on-human->

Health

Soil Guideline values for individual contaminants can be found at:

<https://www.gov.uk/government/publications/land-contamination-soil-guideline-values-sgvs>

Appendix E - Building Control Regulations 2010 (Part C)***Preparation of site and resistance to contaminants.***

C1 (1) The ground to be covered by the building shall be reasonably free from any material that might damage the building or affect its stability, including vegetable matter, topsoil and pre-existing foundations.

(2) Reasonable precautions shall be taken to avoid danger to health and safety caused by contaminants on or in the ground covered or to be covered by the building and any land associated with the building.

(3) Adequate sub-soil drainage shall be provided if it is needed to avoid:

(a) the passage of ground moisture to the interior of the building;

(b) Damage to the building, including damage through the transport of water-borne contaminants to the foundations of the building.

(4) For the purpose of this requirement, 'contaminant' means any substance which is or may become harmful to persons or buildings including substances which are corrosive, explosive, flammable, radioactive or toxic.

Resistance to moisture

C2. The walls, floors and roof of the building shall adequately protect the building and people who use the building from harmful effects caused by:

(a) ground moisture;

(b) precipitation including wind-driven spray;

(c) interstitial and surface condensation; and

(d) spillage of water from or associated with sanitary fittings or fixed appliance

Through the building control process conditions (such as that detailed overleaf) should be added to the consent by the Building Control Body. The geotechnical reports submitted include soil sampling results. Should the ground conditions not be deemed suitable, additional investigations and a remediation strategy can be requested?

This is an extract from a typical condition by the City of London District Surveyor – the Building Control Body for the City of London Corporation. Further advice and information can be found [here](#).

PART C - SITE PREPARATION AND RESISTANCE TO CONTAMINANTS AND MOISTURE

All references in the following conditions to Sections and paragraphs relate to Approved Document C.

Precautions shall be taken to avoid danger to health and safety caused by substances found on and around the ground to be covered by the building or in any land associated with the building. Full site investigation report in accordance with paragraph 1.2 shall be submitted to this office together with immediate notification of any possible contaminants to the Environmental Health Officer.

Appendix F - National Planning Policy Framework

109. The planning system should contribute to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, geological conservation interests and soils;
- recognising the wider benefits of ecosystem services;
- minimising impacts on biodiversity and providing net gains in biodiversity
- where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

120. To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

121. Planning policies and decisions should also ensure that:

- the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;
- after remediation, as a minimum, land should not be capable of being determined as

Contaminated land under Part 2A of the Environmental Protection Act 1990; and adequate site investigation information, prepared by a competent person,

- is presented

143. In preparing Local Plans, local planning authorities should:

-set out environmental criteria, in line with the policies in this Framework, against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the natural and historic environment or human health, including from noise, dust, visual intrusion, traffic, tip- and quarry-slope stability, differential settlement of quarry backfill, mining subsidence, increased flood risk, impacts on the flow and quantity of surface and groundwater and migration of contamination from the site; and take into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality;.....
- put in place policies to ensure worked land is reclaimed at the earliest opportunity, taking account of aviation safety, and that high quality restoration and aftercare of mineral sites takes place, including for agriculture (safeguarding the long term potential of best and most versatile agricultural land and conserving soil resources), geodiversity, biodiversity, native woodland, the historic environment and recreation.

Appendix G Consultees

January 2014 - Internal Consultation with the following departments complete:

<ul style="list-style-type: none"> • <i>Environmental Enhancement</i> • <i>Legal</i> • <i>Development Management</i> • <i>Historic Environment</i> • <i>District Surveyor</i> • <i>Open Spaces</i> 	<ul style="list-style-type: none"> • <i>Transportation and Public Realm</i> • <i>Highways</i> • <i>Local Transportation</i> • <i>Community and Children's Services</i> • <i>Town Clerk</i> • <i>Public Health</i>
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March 2015: Port Health and Environmental Services Committee consultation approval

June 2015: External Consultation with the following organisations and agencies:

<ul style="list-style-type: none"> • <i>Environment Agency</i> • <i>Department for Food & Rural Affairs</i> • <i>Food Standards Agency</i> • <i>English Heritage</i> • <i>Natural England</i> • <i>Greater London Authority</i> • <i>PHE</i> • <i>DWI</i> • <i>Thames Water</i> • <i>LB Camden</i> • <i>LB Westminster</i> • <i>LB Lambeth</i> 	<ul style="list-style-type: none"> • <i>LB Southwark</i> • <i>LB Croydon</i> • <i>LB Tower Hamlets</i> • <i>LB Hackney</i> • <i>LB Islington</i> • <i>Barbican Estate</i> • <i>Guinness Partnership</i> • <i>National grid</i> • <i>HSE</i> • <i>Temple</i> • <i>TFL</i> • <i>London Underground</i>
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September 2015: Peer Review

November 2015: Port Health and Environmental Services Committee approval sought