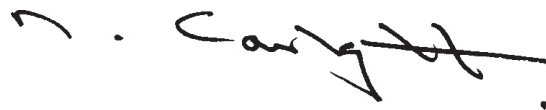


Foreword

In Hammersmith & Fulham, we are fortunate not to have significant problems related to contaminated land. However since April 2000, Local Authorities in England have had a legal duty to develop and implement a Contaminated Land Inspection Strategy as part of the Government's new contaminated land regime. The aim of the Strategy is for Local Authorities to identify and remediate any remaining contaminated sites in their area.

Contaminated land issues sometimes arise where sites come forward for redevelopment. The powers given to Local Authorities under the new regime enable us to take action to deal with contamination at an earlier stage and to also deal with land where development is not proposed.

This Contaminated Land Inspection Strategy sets out how the Council intends to deal with any contaminated land issues in the borough over the next few years.



Councillor Michael Cartwright
Deputy for Environment and Contract Services

Executive Summary

Part IIA of the Environmental Protection Act 1990, which came into force in April 2000, sets out a new regime for dealing with the legacy of contaminated land in England. The legislation requires Local Authorities to develop and implement a Strategy for the identification and remediation of contaminated land in their area. In preparing the Strategy, the Council has had regard to Statutory Guidance issued by the former DETR.

Part IIA states that for land to meet the definition of 'contaminated land', a significant pollutant linkage must be present, that is a CONTAMINANT, a RECEPTOR that can be adversely affected by that contaminant, and a plausible PATHWAY by which the contaminant can reach the receptor.

The Council will identify potential pollutant linkages using a GIS-information database that will be developed to map and record information about potential contaminant sources and receptors in the borough, and neighbouring boroughs where appropriate. If the GIS indicates that a source of contaminant[s] and receptor[s] coincide, or are in close proximity, then the possibility of a plausible pathway will be considered.

Sites with potential pollutant linkages will be prioritised in order for inspection. A prioritisation model will be used to identify which sites pose greatest risk of harm to receptors so that they can be investigated first. The Council has currently ranked the 'receptors' in the following order of priority:

1. Humans and human health
2. Controlled waters
3. Ecosystems and property

Prioritised sites will be subject to a site inspection and, where deemed necessary, an intrusive investigation (usually soil, water and gas sampling and analysis). A risk assessment based on the principles of 'suitable for use', will then be conducted to finally determine whether the land meets the statutory definition of 'contaminated land'.

Liability for remediation of contaminated land rests with the 'appropriate person[s]' for that land. In most cases this will be the person[s] who 'knew or knowingly permitted' the contamination of that site (Class A person, in terms of the Government Guidance); where such a person[s] cannot be found, liability will usually be transferred to the current owner or occupier of the site (Class B person). If no appropriate person can be identified (orphan site), or there are hardship considerations, the Council may undertake the remediation. The Council will always seek voluntary remediation, but will use its statutory powers where necessary.

Contaminated land will continue to be treated as a material consideration under the town planning process. Therefore if the Council suspects that contamination may be present on a site proposed for redevelopment, site investigation and if necessary remediation will be a condition of any planning permission. If the planning process deals satisfactorily with contaminated land, the Council will not use its powers under Part IIA.

Part IIA also requires the Council to maintain a contaminated land register, which will be available for the public to view through the Council website, and on request at the Environment Department Reception, Hammersmith Town Hall Extension.

1 Introduction

Part IIA of the Environmental Protection Act 1990.

1.1 On 1 April 2000, Part IIA of the Environmental Protection Act 1990 (EPA 1990) came into force to deal with the legacy of Contaminated Land in England. Section 57 of the Environment Act 1995 inserted Part IIA into the EPA 1990. The detailed provisions of this legislation are specified in the Contaminated Land (England) Regulations 2000, the Statutory Guidance in Department of Environment, Transport and the Regions (DETR) Circular 2/2000 and the DETR advice note of May 2001.

1.2 Government Policy states that the existence of contaminated land presents a threat to sustainable development. Contaminated land can impede social and economic development, and pose a risk to human health, ecosystems, property and controlled waters. Furthermore, Government Policy requires up to 60% of new development to be on brownfield sites, which might be historically contaminated. Contamination could obstruct such development by placing a high cost and time burden on the developer for site remediation.

1.3 The Part IIA contaminated land regime therefore aims to provide a new and improved system for the identification and remediation of land where contamination could cause unacceptable risks to human health or the wider environment, assessed in the context of the current use and circumstances of the land.

1.4 Part IIA requires Local Authorities to research and develop a Strategy for inspecting land within their boundaries for contaminated land and for ensuring that it is made suitable for use.

1.5 This is the Council's Contaminated Land Strategy - it will play an important role in aiming to ensure that the borough is a safe and sustainable environment. In developing the Strategy, the Council has had regard to maintaining transparency, public access to information and the use of new and efficient technologies. Public consultation and communication of risk associated with contaminated land are also important aspects of this strategy.

Definition of Contaminated Land

1.6 Part IIA gives a new definition of contaminated land¹. This is shown in Box 1.1.

Box 1.1 Definition of contaminated land (S.78A(2) of Part IIA)

'Contaminated land' is defined as any land which appears to the Local Authority in whose area it 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 significant possibility of such harm being caused, or
- (b) pollution of controlled waters is being, or is likely to be caused.

Pollution of controlled waters is defined in S.78a(9) as 'the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'. However, it has been proposed that the definition of contaminated land be amended by the forthcoming Water Bill, to become 'significant pollution of controlled waters is being, or is likely to be caused'.

¹ When determining whether any land appears to be contaminated land, the local authority will act in accordance with the Statutory Guidance on contaminated land

1.7 The definition of contaminated land is based upon the principles of risk assessment. Risk is the combination of:

- (a) the probability, or frequency, of occurrence of a defined hazard
- (b) magnitude (including the seriousness) of the consequences.

1.8 The Statutory Guidance follows established approaches to risk assessment, including the concept of pollutant linkage, that is contaminant - pathway - receptor. This approach is outlined for contaminated land in Figure 1.1. Unless all three elements of the pollutant linkage are identified with respect to a site, or part of a site, the site should not be identified as contaminated land.

1.9 There may be more than one pollutant linkage on a site.

Figure 1.1 Pollutant Linkage (definition is taken from DETR Circular 2/2000 Statutory Guidance)

CONTAMINANT ('SOURCE')	PATHWAY	RECEPTOR
<p>A substance which is in, on or under the land and which has the potential to cause harm or to cause the pollution of controlled waters</p> <p><i>(Potentially contaminative land uses listed in Appendix 2)</i></p>	<p>One or more routes or means by, or through, which a receptor:</p> <ul style="list-style-type: none"> (a) is being or could be exposed to, or affected by, a contaminant (b) could be so exposed or affected 	<p>Either:</p> <ul style="list-style-type: none"> (a) a living organism, a group of living organisms, an ecological system or property which <ul style="list-style-type: none"> (i) is in a category listed in Table A as a type of receptor (ii) is being, or could be harmed by a contaminant, or (b) controlled waters which are being, or could be, polluted by a contaminant <p><i>(Table A shown in Appendix 3)</i></p>
<p>Examples:</p> <ul style="list-style-type: none"> Gas (gas works, made ground) Petrol (petrol station) Lead (rifle range, made ground) Sulphate (chemical works) 	<ul style="list-style-type: none"> Gas ingress to building Migration to water table Uptake by plant roots Direct contact 	<ul style="list-style-type: none"> Humans Controlled waters Plants, ecosystem Concrete building foundations

1.10 In order to meet the definition of contaminated land, the Guidance requires that the pollutant linkage:

- is resulting in significant harm being caused to the receptor
- presents a significant possibility of significant harm being caused to the receptor
- is resulting in the pollution of controlled waters (which constitute the receptor)
- is likely to result in the pollution of controlled waters

1.11 'Significant harm' and 'significant possibility of significant harm' are defined in Appendix 3 (Tables A and B respectively).

1.12 The enforcing authority must ensure that a site is 'suitable for use', that is suitable for its current use or new use (given planning permission). Therefore the pollutant linkage should only be considered for receptors likely to be on that site given its existing or proposed use. If land is found to be contaminated, it should be remediated to at least a standard that makes it suitable for such use.

Part II A interactions with other regimes

1.13 Where contaminated land is identified, regulatory action can currently be taken under a number of regimes, summarised in Table 1.1. Regulatory action under Part IIA will only be taken where other legislation does not apply and where the statutory criteria for Part IIA are met. In instances where regimes overlap with Part IIA, action will be taken under Part IIA where it is considered to be the most appropriate course of action.

Table 1.1 Interacting regimes for dealing with contaminated land

Regime	Application
Planning (PPG23 Planning and Pollution Control, Environmental Impact Assessment (EIA))	Land contamination is a material consideration in the planning process. Consideration of contaminated land is required in the UDP and when screening planning applications. Contaminated land conditions may be applied to planning permissions requiring site investigation and remediation if necessary to make 'suitable for use'. Contaminated land consideration may also be required under EIA legislation.
Building Control (Building Regulations 1991 Part C, Building Act 1984)	Developers must comply with the Building Regulations 1991, which make provisions for remediation and mitigation of contaminants (including ground gas) The Guidance aims to protect the fabric of new buildings and their future occupants from effects of contamination.
Water Pollution (Water Resources Act 1991)	This gives the Environment Agency power to prevent or remedy pollution of controlled waters.
Waste Management Licensing (Part II, EPA 1990)	EPA 1990 places controls over the handling, treatment and disposal of wastes. Where a waste management licence is in force at a site, Part IIA does not normally apply.
Integrated Pollution Control (IPC) (Part I, EPA 1990). soon to be replaced by Pollution Prevention and Control (PPC)	EPA 1990 places a requirement on operators of prescribed industrial processes to operate within the terms of permits issued by the Environment Agency to control harmful environmental discharges. PPC will also include a specific requirement that permits for industrial plants and installations must include conditions to prevent the pollution of soil
Other regimes	Food safety, Health & Safety, Landfill Tax, Major Accident Hazards, Wildlife and Countryside Act 1981, PPG9 Nature Conservation

1.14 Since nearly all new development in this borough takes place on brownfield sites, it is likely that the majority of contaminated land issues (if any) will continue to be dealt with under the town planning process (see Table 1.1). The UDP policy EN21A (see Appendix 4) states the Council's planning policy in relation to land contamination.

Role of the Council under Part IIA

1.15 Under Part IIA S.78B, a Local Authority has a primary regulatory role, with a duty to inspect its area from time to time for the purpose of:

- identifying contaminated land as defined (see Box 1.1).
- to decide if any such land is required to be designated as a 'special site' (see Box 1.2).

- to act as enforcing authority for all contaminated land sites other than those that meet the statutory definition of a ‘special site’ (see Box 1.2).

1.16 If an area of contaminated land is so identified, there are four main functions required of the Local Authority, as regulator:

- to establish who the “appropriate person(s)” is/are that should bear the responsibility for the remediation of a specific site.
- to decide what remediation is necessary, after consultation, and to ensure that it takes place, ideally through voluntary agreement or alternatively by means of a Remediation Notice if agreement is not reached. In certain situations, the Authority may have to carry out the work itself.
- to determine whom should bear what proportion of the liability for meeting the costs of the remedial works.
- to record prescribed information relating to regulatory action in a public register.

Role of the Environment Agency under Part IIA

1.17 The Environment Agency (EA) also has an important role under Part IIA. The EA is required to:

- act as the enforcing authority for any land designated as a “special site” by the Local Authority (see Box 1.2)
- assist Local Authorities in identifying contaminated land, especially in cases where water pollution is involved
- provide site specific guidance on the remediation of contaminated land within the Local Authority
- publish periodic reports on the state of contaminated land in England and Wales

Box 1.2 Definition of a ‘special site’

- ‘Special sites’ are designated under S.78C of Part IIA, and under Regulations 2 and 3 of Statutory Instrument 2000, No 227 (refer to Appendix 5)
- Regulations only relate to a site that has already been classified as contaminated.

Development of the Strategy

Strategic Approach to Inspection

1.18 The Statutory Guidance states that the Local Authority should take a strategic approach to inspecting its land.

The approach should:

- Be rational, ordered and efficient
- Be proportionate to the seriousness of any actual or potential risk
- Seek to ensure that the most pressing and serious problems are located first
- Ensure that resources are concentrated on investigating in areas where the authority is most likely to find contaminated land

- Ensure that the local authority efficiently identifies requirements for the detailed inspection of particular areas of land.

1.19 In order to meet these requirements, the Strategy has been developed with reference to the former DETR documents Contaminated Land Inspection Strategies - Technical Advice for Local Authorities (May 01) and DETR Circular No.2/2000.

Council aims and priorities

1.20 The Council's aims for the Strategy, and with respect to contaminated land in general, are to ensure that 'receptors' are not subject to harm (or pollution, for controlled waters) due to contaminated land in the borough, and to ensure that the Council meets its requirements under Part IIA.

1.21 The Council considers that receptors in this borough should be in the following order of priority for protection from harm:

1	Humans	↓	Higher priority
2	Controlled waters		
3	Ecosystems, property		Lower priority

The Council has currently ranked ecosystems and property (includes buildings, crops, owned animals) equally. This is because there are few protected ecosystems or protected buildings within the borough. If prioritisation in terms of workload is required, this should be done on the basis of an assessment of risk rather than solely the nature of the receptor.

Council objectives of the Strategy

1.22 In order to meet its requirements under Part IIA, the Council has set the following objectives:

- To provide a clear, practical, accountable framework for the identification and remediation of contaminated land in the borough.
- To ensure that the risks posed by contamination are effectively addressed under either the development control process when a site is subject to redevelopment, or under the new regime or other appropriate regimes where the existing use is to remain.
- To set up an efficient contaminated land information management system, using information technology as effectively as possible. This will be designed to collate, analyse and output the required data, and will include the contaminated land register. This will enable clear, effective and speedy information to be provided to the public, relevant Agencies (particularly Environment Agency), developers etc.
- To inspect the Council's existing and proposed land holdings in order to address any liability issues associated with current or intended land ownership. To develop a system to deal with the Council's own liabilities as landowner and prevent the acquisition of further liabilities.
- To develop an effective contaminated land risk communication strategy.
- To regularly monitor and review the Strategy and Council policy in dealing with contaminated land.

Internal management arrangements

1.23 The implementation of the contaminated land strategy will principally involve the following Council functions:

- Environment Policy
- Information technology (IT)/Geographical Information Systems (GIS)
- Land Survey
- Valuation and Property
- Land Charges
- Environmental Protection
- Building Control
- Development Control
- Legal Services

The responsible officers have been consulted in the creation of this Strategy.

1.24 With the exception of Legal Services, these functions are all the responsibility of groups in Divisions of the Environment Department. This means that a co-ordinated management structure is already in place to deal with contaminated land issues effectively and efficiently. Overall co-ordination is to be provided by the Environment Department Policy Group.

1.25 Implementation of the Strategy will also involve those Council Departments that have responsibility for Council land and buildings, that is mainly Housing, Education, Social Services and Direct Services.

Statutory consultation

1.26 The Statutory Guidance requires the local authority to consult the Environment Agency and other appropriate bodies in the development of the Strategy. The following organisations have been consulted and their comments incorporated in this document:

- Department for the Environment, Food and Rural Affairs
- Environment Agency
- English Nature
- English Heritage
- Food Standards Agency
- Health and Safety Executive
- London Development Agency
- English Partnerships
- Thames Water

Consultation during implementation of the Strategy

1.27 The Council recognises the importance of consulting the public and relevant stakeholders (for example, landowners, occupiers, businesses, local residents) during the implementation of the Strategy, as part of the process of gathering information about the sites. It is also important that appropriate stakeholders are kept informed about the process in general and about contamination issues on particular sites (especially where there may be public concern). Where any land is proposed for identification as contaminated land, an appropriate communication strategy will be drawn up (see 5.20 in Chapter 5).

Strategy review

1.28 The Strategy will undergo periodic review, starting in June 2002, to assess progress, and where necessary to revise timescales and procedures for ongoing work. Thereafter the Strategy will likely to undergo review at regular intervals, not exceeding 5 years. The Environment Agency will be formally consulted as part of the review process.

2 Borough Characteristics

Introduction

2.1 This chapter aims to give an overview of the general characteristics of the borough and to relate these to potential sources, pathways and receptors of contamination.

The Borough

2.2 The London Borough of Hammersmith & Fulham (LBHF) is situated on the western edge of Inner London in a strategic location between the City and Heathrow. The borough is bounded by the Royal Borough of Kensington and Chelsea to the East, LB Hounslow and LB Ealing to the West, LB Brent to the North and the River Thames to the South (see Figure 2.1). Excluding the City of London, it is the fourth smallest of the 33 London boroughs in geographical area, being only 5½ miles from north to south and is 1½ miles at its widest. The borough is made up of 23 Wards (16 wards from 2002) and has a population of approximately 162,600 (1999 figure), making it the fourth most densely populated London Borough.

Geology and hydrology

Surface water

2.3 Surface water represents a 'controlled water' - a potential receptor and pathway for contamination.

2.4 Surface water features in the borough are the River Thames, Chelsea Creek (runs along boundary with RBK&C) and Stamford Brook (runs along western edge of the borough, though the outlet has been covered since 1936). The Grand Union canal runs along the north-west of the borough, and there are several man-made ponds (for example in Ravenscourt Park), though these features are not in hydrological continuity with other water bodies.

Geology and groundwater

2.5 The geology of an area largely determines the location and behaviour of groundwater. Groundwater represents both a receptor and a pathway for contaminants.

2.6 An initial assessment of the British Geological Survey Solid & Drift Geology Maps and the National Rivers Authority map of Groundwater Vulnerability for West London have provided information about the general geology of the borough, groundwater and its 'vulnerability' to contamination.

2.7 The solid geology of the borough comprises London Clay overlying chalk. The principle body of groundwater (the major aquifer) is located in the chalk and is relatively protected by the thick impermeable band of London clay above.

2.8 The drift geology of the borough changes with distance from the River Thames:

- In the southern area of the borough (northern border approximately Goldhawk Road) this comprises River Terrace Deposits (Kempton Park gravels). This area is classed as a minor aquifer, with soils of high leaching potential.
- Between Goldhawk Road and the southern boundary of Wormwood Scrubs this comprises relatively impermeable River Brickearths

(Langley Silt). The area is classified as a non-aquifer, though a minor aquifer (comprising river terrace deposits) may lie beneath.

- The surface geology north of the southern boundary of Wormwood Scrubs comprises London Clay. This area is classed as a non-aquifer.

2.9 It should be noted that significant areas of the borough have undergone excavation and subsequent infilling. Examples of this are where brickearths have been excavated for brick production and infilled with made ground or waste. Where the relatively impermeable brickearth layer has been removed or compromised a pathway to the underlying minor aquifer may have been created. Made ground is often a source of contamination, and in some areas hosts a perched water table.

Ground gas

2.10 Ground gas can occur naturally due to decay of organic material within the river terrace deposits, or due to decay of organic material in the made ground.

2.11 Ground gas in the borough is typically carbon dioxide (an asphyxiant) or methane (explosive), though in some cases other gases such as hydrogen sulphide may be present.

Historical land use and development

2.12 It is important to consider the historical development of the borough as this indicates where potential sources of contamination might be located.

2.13 The physical development of the borough has taken place predominantly in the last 120 years. Up to the late 19th century the area was largely rural, with market gardening and nurseries, although some excavation of brickfields did occur.

2.14 The main development of the Borough coincided with the arrival of the railways (Metropolitan, District, Central and Piccadilly lines) between 1864 and 1906. The borough population increased rapidly and the area was almost completely built over, except for public open spaces. Industrial development was focused along the River Thames, the Grand Union Canal and the railways (see Figure 2.2).

2.15 Since the War, the riverside has gradually undergone (from Fulham Reach towards Hammersmith) transformation from industrial uses and working wharves to mostly private residential and office buildings. It is such sites, where potential contamination sources coincide with proposed sensitive uses (receptors), that contaminated land issues can arise. However, it is for the site inspection process to assess whether any contaminated land is present, having regard to any past remediation.

2.16 The north of the borough around Shepherd's Bush has also experienced significant land use change. The early 20th Century witnessed the construction of the White City Exhibition and Stadium. The former has now been redeveloped for residential use (White City Estate), and the other areas are due to be redeveloped as BBC buildings and a large shopping centre.

2.17 Table 2.1 indicates a preliminary assessment of potentially contaminative land uses in the borough, derived from archive maps and trade directories.

Table 2.1 Potentially contaminative land uses in the borough

Industry	Land use
Railway land	Railway lines, rail depots
Waste	Scrapyards, waste transfer station
Extraction Industry	Brickfields
Oil refineries and storage	Oil storage depots, power station, fuel station
Road vehicle fuelling, service and repair	Filling stations, mechanics' garages

Current land use characteristics

2.18 Current land use determines where sensitive receptors (such as humans, protected ecosystems) are likely to be found as well as potential contaminant sources and potential pathways.

Industry

2.19 17% of the borough is dedicated to employment-generating uses, of which the service sector dominates. The service sector is focused around Hammersmith Broadway and Embankment, Fulham Broadway and Shepherd's Bush. The service sector is unlikely to cause land contamination, though it may have been built on previously contaminated land. Further service sector development is taking place on the former White City sites around Shepherd's Bush. Industrial use, manufacturing and storage is still present in the borough and is concentrated in areas defined in the Unitary Development Plan as employment zones (e.g. Hythe Road) and other isolated sites. The borough now has 19 stations on 6 tube lines and 3 other rail routes. Rail land (including depots) is a potentially contaminative land use.

Residential land

2.20 Residential land with gardens or soft landscaping are 'sensitive uses'. This means that sensitive receptors may be present and that potential pathways may exist.

Buildings

2.21 There are many buildings in the borough, including a Scheduled Ancient Monument (Fulham Palace), Listed Buildings and Local Buildings of Merit. Part IIA states that property in the form of buildings is a potential 'receptor' to contamination, for example, 'significant harm' to buildings includes structural failure and substantial damage.

Open space

2.22 This constitutes approximately 17% of land in the borough. Sensitive receptors (particularly humans and protected ecosystems) are likely to be present in these areas. In addition, pathways may be present, especially in areas without hard cover. Open spaces in the borough include parks, nature conservation areas and allotments. Many of the open spaces in the borough are long established and therefore are unlikely to have had past contaminative uses. However, it will always be necessary to consider whether any new developments including areas of open space lie on land of past contaminative use.

2.23 Although there are currently no statutory protected nature sites in the borough, discussions have been taking place about the possibility of designating Old Oak Sidings Birch Wood as a Local Nature Reserve (LNR). LNRs are one of the protected sites designated as an eco-receptor under Part IIA (see Appendix 3). There are also a number of non-statutory sites of importance for nature conservation that have been identified by the former London Ecology Unit (now the GLA Biodiversity Unit). These will be identified during the data collection process for the GIS information database.

Council land

2.24 Council owned land includes schools, housing estates, parkland, depots and offices. Further, more detailed, information has being collated and recorded on the Council's corporate GIS system.

Previous remediation in respect of contaminated land

2.25 Contaminated land is treated as a material planning consideration in the planning process (see Table 1.1) in line with PPG23. Several sites within the borough have undergone remediation to make them suitable for use; information about these sites will feed into the information analysis process (see Chapter 3).

Future land use change

2.26 The LB Hammersmith & Fulham Unitary Development Plan 1994 (under review in 2001) states the Council's policies with respect to land use planning in the borough. It should be noted that in general, the policies seek to retain employment premises in employment use; therefore the future redevelopment of employment land to residential use will be constrained. However, in certain circumstances in accordance with UDP policies, redevelopment into residential use will still be possible, e.g. the redevelopment of the old riverside gasworks into residential development.

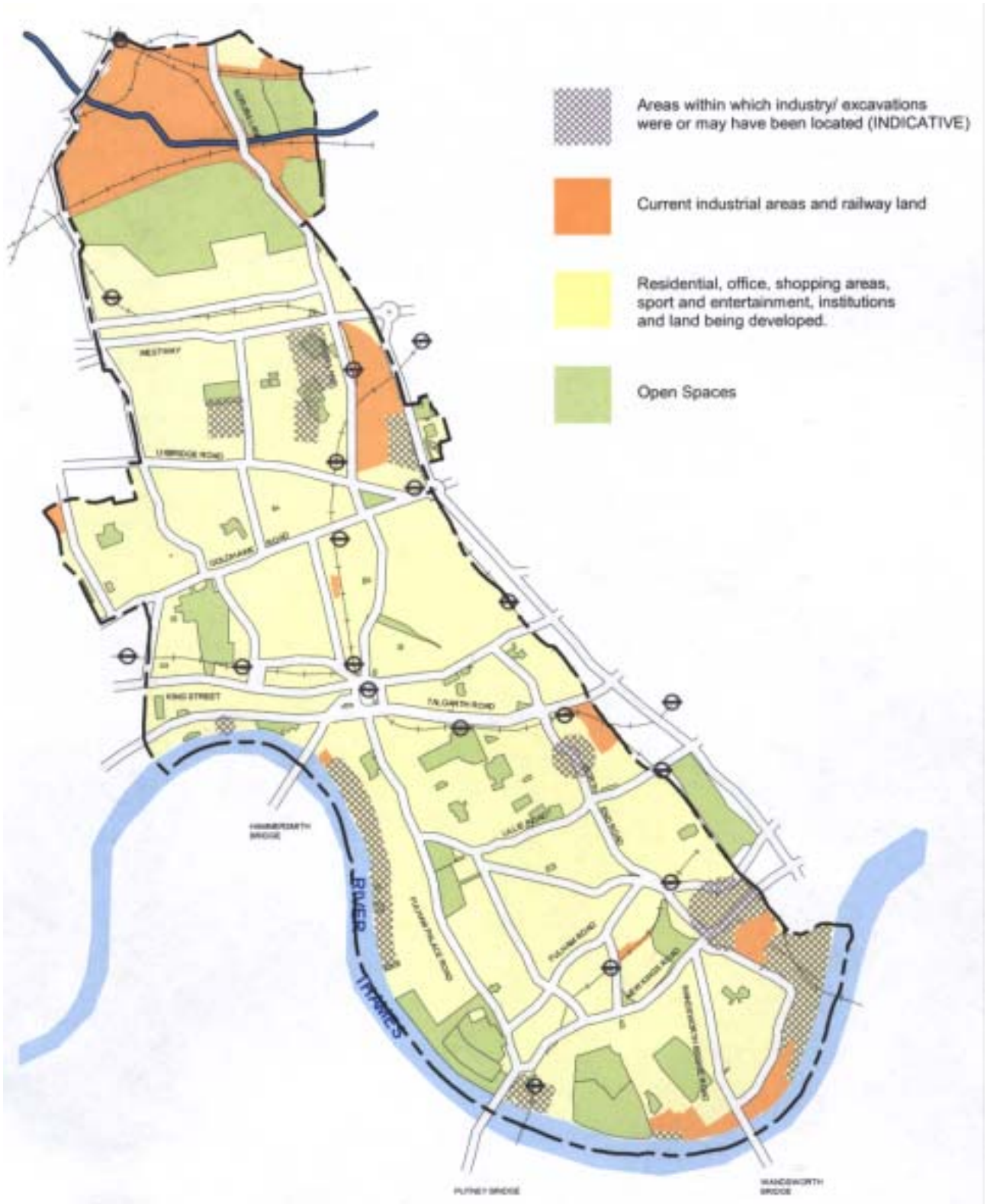
Figure 2.1 Hammersmith and Fulham in its London setting



Not to scale

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Figure 2.2 Borough Characteristics



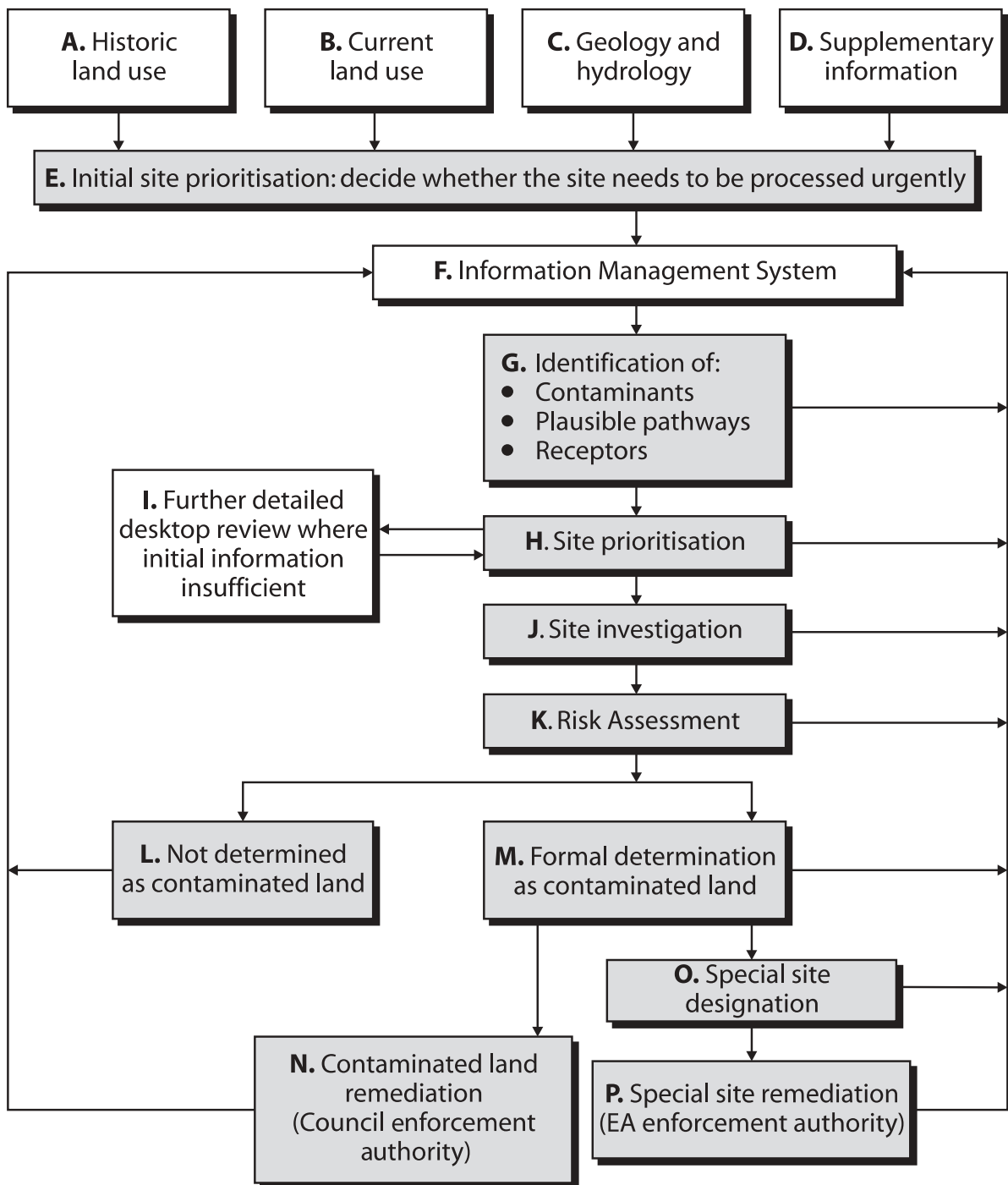
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3 Procedure for inspection and assessment of potentially contaminated land

Introduction

3.1 This chapter describes the inspection and risk assessment procedure for deciding whether to determine a site as contaminated land. Chapter 4 describes the process for determining contaminated land and for securing its remediation. Figure 3.1 summarises the procedure and is referred to in the text. The diagram shows a dynamic process in which information from different stages feeds back into the information management system.

Figure 3.1 Procedure for inspection, assessment, determination and remediation of contaminated land



Information collection (Boxes A-D)

3.2 Boxes A-D in Figure 3.1 represent the collection of information in order to identify potential contaminant sources, receptors and pathways. The list of potentially contaminative land uses is shown in Appendix 2 and is derived from the Department of the Environment Industry Profile List; the list of potential receptors is shown in Appendix 3 and is taken from the Part IIA list. Sources of information for boxes A-D are shown in Table 3.1.

Table 3.1 Information collection

Information type	Material	Source
Historic land use data (BOX A)	Historic digital maps ~1860-1989	To purchase from supplier
	Historic potentially contaminative uses	To be identified from historic maps, trade directories, planning records
	Non-licensed (Pre-1974/CoPA) landfills	LBHF
	Aerial photos	Hammersmith and Fulham Archives, LBHF
	Licensed waste management sites Prescribed processes Pollution incidents	EA, LBHF
	Anecdotal and complaints	LBHF, residents, interest groups, borough histories
Current land use data (BOX B)	Current digital maps	OS Landline
	Aerial photos	LBHF
	Location of protected organisms/ ecosystems	English Nature Biodiversity Unit (GLA) London Wildlife Trust
	Location of historic/protected buildings	LBHF, English Heritage
	Licensed waste management sites Prescribed processes (IPC)	EA, LBHF
	Evidence of actual harm to receptors or pollution of controlled waters	EA, LBHF, site investigation reports, public anecdotes or complaints
	Agricultural Land Classification	DEFRA
Geology and hydrology (BOX C)	Geology	BGS map series
	Surface waters	OS Landline, EA, LBHF
	Groundwaters	BGS, EA
	Groundwater vulnerability zones	HMSO
	Abstractions, source protection zones, water quality objectives	EA
Supplementary information (BOX D)	Site investigation and remediation reports	Submitted to LBHF as part of planning process
	Complaints	Submitted to LBHF

LBHF: London Borough of Hammersmith & Fulham
 EA: Environment Agency
 OS: Ordnance Survey
 HMSO: Her Majesty's Stationery Office

GLA: Greater London Authority
 BGS: British Geological Survey
 DEFRA: Department of Environment, Food and Rural Affairs

3.3 Neighbouring boroughs will also be consulted at the initial information collection stage in order to identify any cross-boundary contamination issues at an early stage.

'Urgent' sites (Box E)

3.4 Each site will be assessed at this stage to determine whether it should be streamlined through the inspection procedure as an 'urgent site'. For example, if the Council receives information to suggest that residents on a site might be at risk from a contaminant at that site, then the site would need to be investigated urgently and would be prioritised.

Information management system (Box F)

3.5 An information management system is an essential and efficient tool for the collation, storage, analysis and management of contaminated land data. The Council's Environment Department already uses an Arcview Geographical Information System (GIS) to store and manage spatial data. It is intended that a specific contaminated land GIS database package will be purchased in early 2002 and this will be compatible with current systems.

Identification of sources pathways and receptors (Box G)

3.6 The lists of potential sources of contaminants and receptors are shown in Appendices 2 and 3. Where the GIS indicates that sources and receptors coincide or are in close proximity, plausible pathways will be considered on a site-specific and contaminant-specific basis.

Site prioritisation (Boxes H & I)

3.7 In order to maximise use of resources efficiently and to deal with greatest potential risk first, Part IIA requires site investigations of potentially contaminated sites to be prioritised. A prioritisation model (Box H), based on the principles of CLR6², will be applied to the collected data. The model will attach different 'scores' to the categories of sources, pathways and receptors, which will generate a site ranking. As stated in section 1.21 the Council considers that receptors in this borough should be ranked in the following order of priority for protection from harm:



3.8 From the initial assessment of current and past land uses in the borough, it is expected that the model will prioritise those sites where use has passed from source of contaminant to receptor of contamination, for example, industrial use to residential with gardens.

² CLR6: Prioritisation and Categorisation procedure for Sites that may be contaminated (DoE, 1995)

3.9 A further consideration for site prioritisation will be a more detailed desktop review of information (Box I). Sources of such information are shown in Table 3.2. This detailed review may indicate sites that have already been remediated or have further land uses not picked up in the first information review. Although this review will identify land ownership, Council-owned land will be dealt with in the same manner as for non-Council land.

Table 3.2 Further information collection

Information type	Material	Source
Detailed desktop review (BOX I)	Trade directories	Hammersmith and Fulham Archives
	Council owned/occupied/leased land	Council Valuation and Property desk survey
	Site investigation reports	Submitted to LBHF as part of planning process
	Anecdotal	LBHF, local interest groups, archives

3.10 If, at this stage, the data indicate that a site might meet the criteria for ‘special site’ designation, then the Environment Agency will be contacted. If the Environment Agency agrees that the site is likely to be designated a special site then it may conduct the site investigation.

3.11 Where a potential pollutant linkage includes a public water supply source as a receptor the responsible water company will be notified immediately.

Site investigation (Box J)

3.12 Site investigation comprises two phases: site reconnaissance and intrusive investigation. At all stages of investigation, health & safety procedures should be detailed and adhered to.

3.13 If entry onto a piece of land is required for a site investigation and the owner does not give consent, the Council has statutory powers of entry under S.108 of the Environment Act 1995 to carry out the investigation, subject to the information already gathered indicating that:

- there is a reasonable possibility that a pollutant linkage exists on the land
- it is likely that a contaminant is present
- given the current use of the land a receptor is actually present or is likely to be present.

Site reconnaissance

3.14 The site reconnaissance will consist of a site visit to provide information and give consideration to the following (based on CLR2³):

- site use - including land surface medium, type of industry, housing type
- land use (including surface waters) in the area up to 1km from site boundary

³ CLR2: Guidance on Preliminary Site Inspection of Contaminated Land (DoE, 1994)

- degree of public accessibility, e.g. provision of fences, warning notices
- vegetation type and signs of distress
- derelict buildings, evidence of demolition, foundations, tanks, drums, pits, pipes, evidence of underground services or covered shafts
- evidence of ground disturbance, e.g. discoloured soil or coloured/ bubbling water, subsidence, fill material or fly tipping
- significant odours
- direction of surface water runoff and presence of ponding on-site; discharges off site; direction and rate of flow of water courses
- drainage systems and soakaways
- likely groundwater flow direction

3.15 The site reconnaissance will be conducted either by Environmental Protection, or an environmental consultant commissioned by the Council (depending on the size of the site). This information will be used to assess whether an intrusive investigation is necessary and if so what will be required. The selection of an Environmental Consultancy will have regard to Best Value.

Intrusive site investigation

3.16 An environmental consultant will normally be commissioned to undertake an intrusive investigation of the site to confirm the presence and nature of any pollutant linkage (with regard to CLR4⁴ and CLR1⁵). This will usually include:

- Soil sampling and analysis
- Soil leachate testing
- Groundwater sampling and analysis
- Groundwater flow direction and hydraulic characteristics
- Gas monitoring

The data will then be evaluated for significance using a risk assessment.

Risk assessment (Box K)

3.17 The definition of contaminated land is based on the principles of a 'suitable for use' risk assessment. Risk assessment will be guided by current generic guidance approved by the former DETR and EA, listed in Table 3.3. The guidelines reflect the fact that different receptors have different sensitivities to different pollutants.

3.18 The risk assessment will be site-specific and will consider individual pollutant linkages, and whether any remediation action has already taken place on the site. It is envisaged that the environmental consultants commissioned to conduct the site investigation will also conduct the risk assessment.

3.19 Where necessary, advice will be sought from relevant organisations, in order to evaluate risk, e.g. assessment of risk to controlled waters may require advice from the Environment Agency.

3.20 Following the risk assessment, the Council may decide to determine the site as 'contaminated land' (Box M). If so, the procedures set out in Chapter 4 will be followed. If not (Box L), then the data will be inputted into the GIS-Access database and no further action will be taken until the site is reviewed.

⁴ CLR4: Sampling Strategies for Contaminated Land (DoE, 1994)

⁵ CLR1: A framework for assessing the Impact of Contaminated Land on groundwater and surface water (DoE, 1994)

Table 3.3 Risk assessment guidelines

Soil	Water	Gas
<ul style="list-style-type: none"> ICRCL 59/83 (proposes threshold and action levels for contamination) Dutch Guidelines (for contaminants not covered by ICRCL list) CLEA (guidelines due 2002, and will become the main standards used in risk assessment work in respect of human health. Standards reflect site-specific risks) EA Methodology for the derivation of remedial targets for soil and groundwater to protect water resources 	<ul style="list-style-type: none"> UK Drinking Water Guidelines Dutch Guidelines EA R&D Report 20: Methodology for the derivation of remedial targets for soil and groundwater to protect water resources Surface water Environmental Quality Standards (EQSs) EA River Quality Objectives (RQOs) 	<ul style="list-style-type: none"> Building Regulations (England) 1991 - for methane and carbon dioxide Waste Management Paper 27 (EA) CIRIA Guidance 149 and 152

Priorities and timescale for implementation of the inspection strategy

3.21 The timescale for implementation of the Strategy will depend on resource availability and amount of contaminated land in the borough. The site inspections are expected to be funded by Government Supplementary Credit Approvals. The Council’s provisional timetable is set out in Table 3.4.

Table 3.4 Provisional timetable for implementation of Strategy

Stage	Provisional date
Establish GIS-information database and purchase digital information	By November 01
Collect and input other data	By April 02
Site prioritisation	By July 02
Site inspection - reconnaissance	July 02 + (rolling programme)
Site inspection - intrusive	July 02 + (rolling programme)
Site data review	Ongoing

4 Determination and Remediation of Contaminated Land

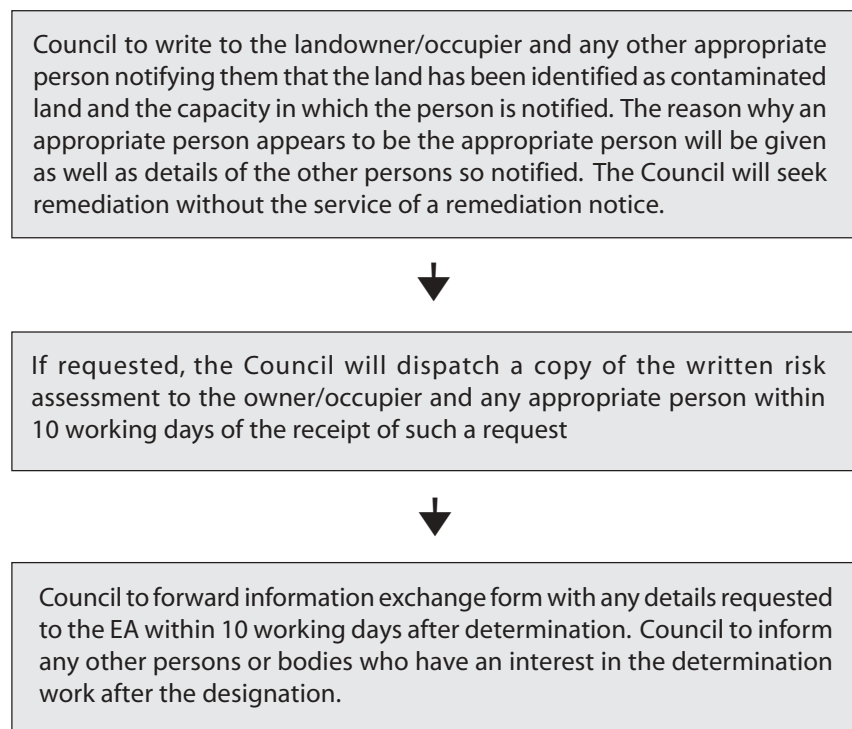
Introduction

4.1 If, following site investigation and risk assessment, the Council decides to determine a site as ‘contaminated land’, the Council will need to consider whether to pursue remediation under Part IIA or one of the other regulatory regimes. This chapter deals with procedures under Part IIA and is intended to provide a brief summary of actions; the legislation and guidance should be consulted for further detail. This chapter will continue to refer to Figure 3.1 in the previous chapter.

Determination of contaminated land (Box M)

4.2 In order for the Council to determine land as contaminated land under Part IIA, a written account of the determination must be made; the steps to do this are outlined in Figure 4.1. Determination will be the responsibility of the Director of Environment Department acting under delegated powers.

Figure 4.1: Procedure for determining sites as contaminated land
(note definition of appropriate person is given in Figure 4.2)



Designation of Special Sites (Box O)

4.3 The definition of ‘special sites’ is outlined in Box 1.2. If, following the risk assessment, the Council and the EA decide that a site should be designated as a ‘special site’, the Council will then designate the site. In the event of a dispute between the Council and the EA over the designation of a special site, the Secretary of State for the Department for the Environment, Food and Rural Affairs has powers to make this designation.

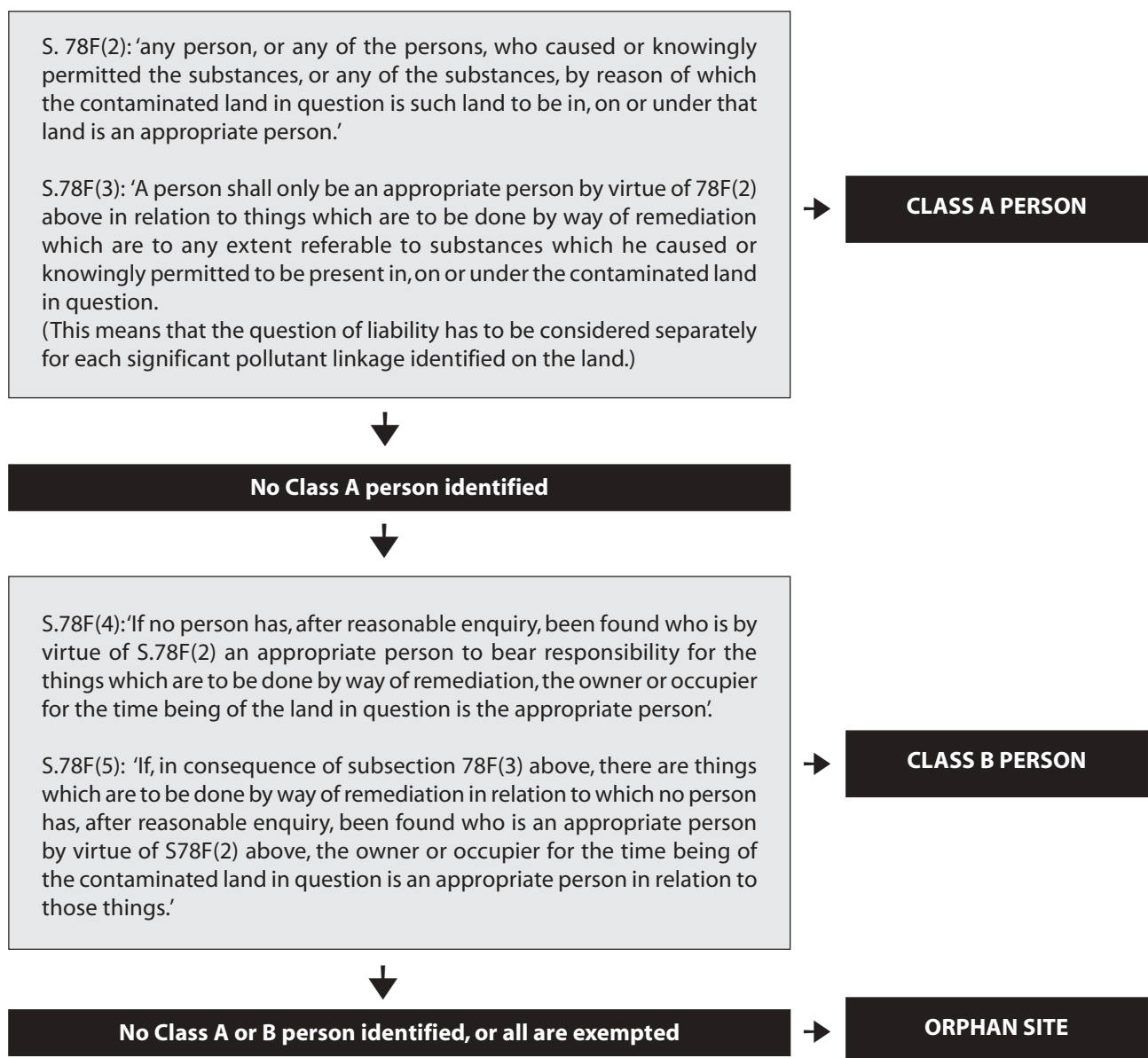
Identification of ‘Appropriate Person(s)’

4.4 Responsibility for remediation of contaminated land rests with the appropriate person[s] for that site. Part IIA defines two categories of appropriate person; in summary these are:

- **Class A:** person[s] who caused or knowingly permitted contamination of the site
- **Class B:** if no Class A person is identified, then this is the owner or occupier for the time being of the site

The full definitions are given in Figure 4.2 below.

Figure 4.2 Identification of appropriate person[s]



Securing Remediation of Contaminated Land in the Borough

Remediation as part of the redevelopment process

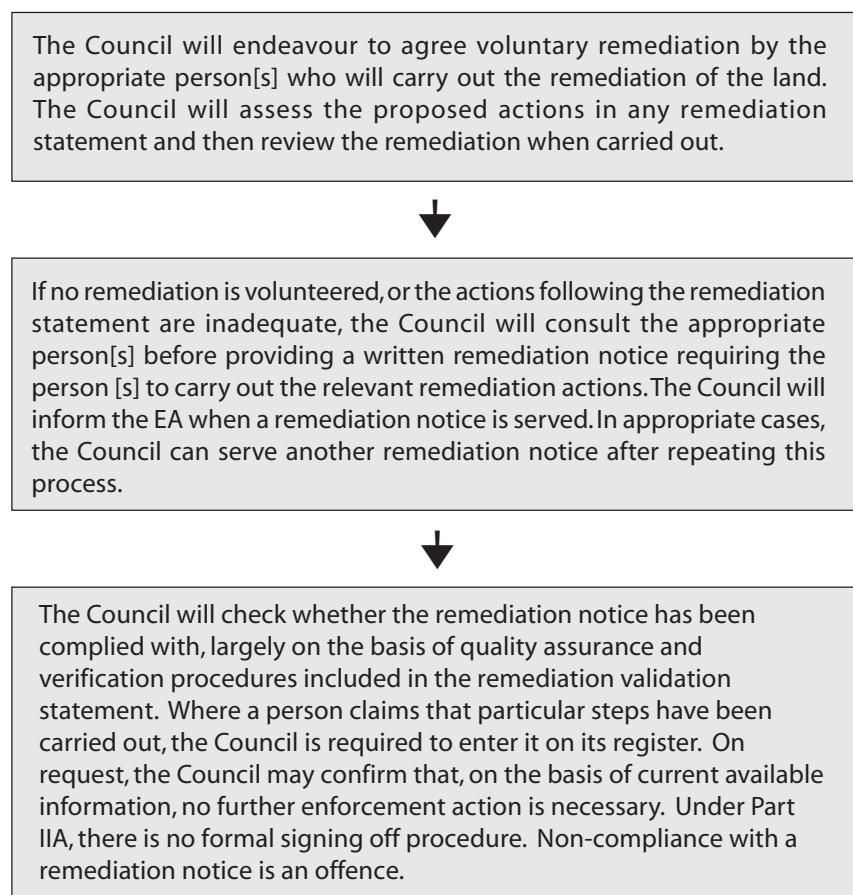
4.5 The Council supports the regeneration of brownfield sites, and will seek to ensure that contaminated sites are remediated to an appropriate level as part of the development control process. Where a site is identified as contaminated land, the Council will consider whether it is appropriate to deal with remediation through the planning process, or other regime (refer to Table 1.1), having regard to factors including the degree of risk associated the site, the urgency of treatment and the likely timescale for redevelopment.

Remediation under Part IIA

4.6 The Council will primarily seek voluntary remediation of contaminated land, for example, through the redevelopment process, liaison with the appropriate person[s]. The regulations provide an incentive to undertake voluntary action in that any materials that require disposal as a result of voluntary remediation will be exempt from landfill taxes. This exemption does not apply to materials generated as a result of a remediation notice having been served.

4.7 Where the remediation of contaminated land cannot be dealt with voluntarily, under the redevelopment process, or other regulatory action, the Council will meet its duties under the Part IIA enforcement procedure. This requires the Council to serve a remediation notice to the appropriate person requiring remediation of the land. This process is outlined in Figure 4.3.

Figure 4.3 Enforcing remediation under Part IIA



Council remediation of contaminated land where it is the 'appropriate person'

4.8 It is possible that in some cases the Council will be both the enforcing authority and the appropriate person. In this event, the appropriate person and the enforcer will be clearly distinguished within the Council. The Council will apply for Government Supplementary Credit Approval funds to pay for such remediation.

Council remediation of contaminated land where it is not the 'appropriate person'

4.9 The Council may need to carry out the remediation of an area of contaminated land where it is not the appropriate person, in order to meet its statutory duties in the following circumstances:

- The site is an 'orphan site', i.e. no appropriate person can be identified
- There are hardship considerations
- Urgent remediation is required - where it appears to the Council that there is an imminent danger of serious harm or pollution of controlled waters being caused as a result of a significant pollutant linkage

4.10 In some cases, costs can be recovered by a charging notice on the land or by applying for Supplementary Credit Approval.

Preventing Council acquisition of further liabilities

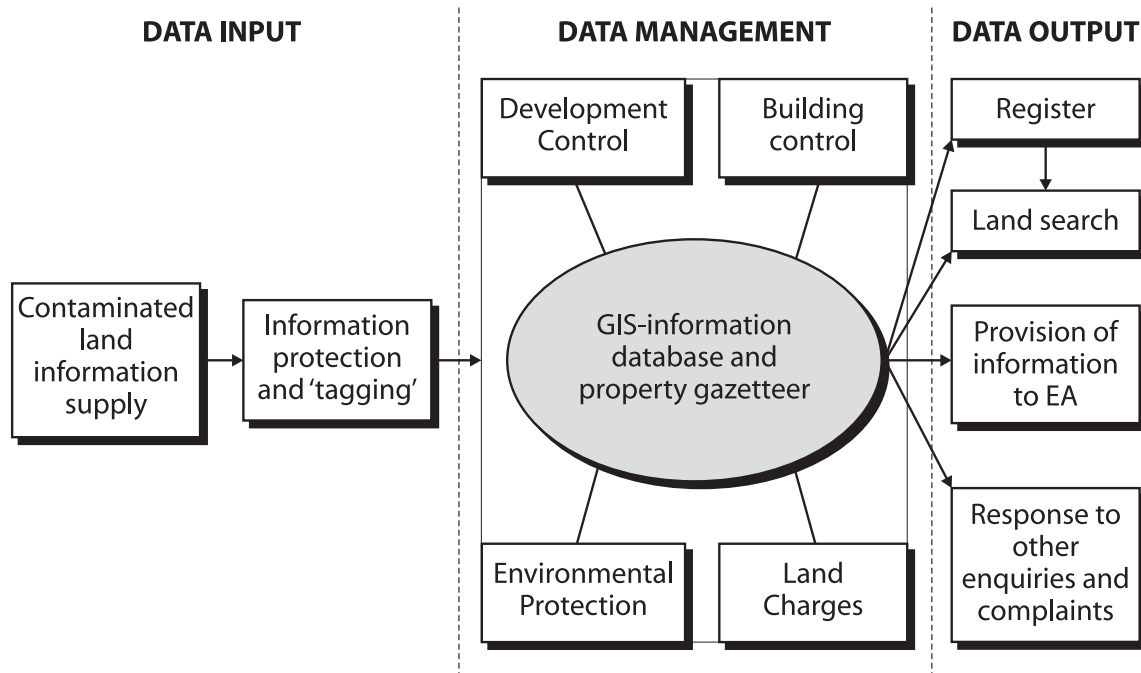
4.11 It is envisaged that the Council will develop a strategy to limit the Council's liabilities with respect to any contaminated land, including prevention of acquisition of further liabilities. This will be based on a survey of information relating to past and present Council owned/occupied/leased land.

5 Information Management, Communication and Review

Information Management

5.1 Figure 5.1 illustrates how contaminated land information will be managed by the Council. The GIS-information database will be managed by Environment Policy, and any enquiries should be directed to the Contaminated Land Officer (contact details in Appendix 1).

Figure 5.1 Information management system



Data Input

Contaminated land information supply

5.2 All information about contaminated land (refer to Table 3.1) will be inputted to the database and linked to the GIS images.

Information protection and 'tagging'

5.3 Under the Environmental Information Regulations 1992, a public body is required to allow access to environmental information held, except in certain circumstances listed in the regulations; these include documents that are commercially confidential, uncompleted, subject to legal proceedings, internal confidential communications, matters of public defence or national security etc. If the information supplier requests that the information be kept confidential then an application would need to be submitted to the Council, clearly stating the case and justification for exclusion, as outlined in the Regulations. The Council would then assess the case, the applicant would be informed of the decision and the information treated accordingly.

5.4 The status of all information supplied to the Council will be confirmed at the time of its provision and tagged appropriately throughout the information management system. This will allow the appropriate level of information provision to be made available to the appropriate persons.

5.5 For information that is voluntarily supplied, the name and address of the provider will be recorded, but the details restricted to Council officers. In the unlikely event that evidence is required for a court hearing, prior

written agreement would first be sought from the information provider.

Data management

5.6 The GIS-information database will allow a large amount of information to be recorded and linked to sites shown on the GIS map images.

5.7 Each property in the borough will soon be given a unique referencing number (from the Property Gazetteer). This number system will also be used in the new Environment Department information management system linking Environment Protection, Building Control, Development Control and Land Charges. It is envisaged that, on the basis of the unique referencing system, the two databases will be able to interact, so that certain contaminated land information will be available to the other Council functions.

Data Output

Public Register

5.8 Section 78R of Part IIA requires enforcing authorities to maintain a register of identified contaminated land in its area and record details of regulatory actions taken by the enforcing authority in respect of the remediation of that land. The Contaminated Land (England) Regulations 2000 state that the register shall contain full particulars of the following matters:

- Remediation notices
- Appeals against remediation notices
- Remediation declarations
- Remediation statements
- Appeals against charging notices
- Designation of special sites
- Notification of claimed remediation
- Convictions of offences under S.78M (failure to comply with remediation notice)
- Guidance issued under S.78V (site-specific guidance issued by the appropriate agency to the enforcing authority)
- Other environmental controls (see regulations)

5.9 The register will be kept on the GIS information database and may be viewable over the Council's website. Regularly updated paper copies will also be available at the Environment Department Reception at Hammersmith Town Hall Extension.

Land Search

5.10 The Council frequently receives requests for land search information, which are handled by Land Charges. As detailed above, certain contaminated land information will be available for use by Land Charges. This will include the information held on the register and limited information subject to the Environmental Information Regulations 1992.

Provision of information to Environment Agency

5.11 The Environment Agency is required to prepare and publish an annual national report into the state of contaminated land in England. Local Authorities have a statutory duty to provide the following information to the Environment Agency:

- Nature, extent and distribution of contaminated land

- Level of remediation undertaken
- Regulatory activity under Part IIA, including a summary of the Local Authority inspection strategy.

5.12 The Council will supply this information to the Environment Agency using the standard reporting forms issued to all Local Authorities.

5.13 The Council and EA will disclose information to each other regarding potential special sites.

Other requests for information

5.14 The Council frequently receives requests for information about site-specific contamination from developers, solicitors, environmental consultants and interested members of the public. The GIS-information database will be tailored to output site-specific information, subject to the Environmental Information Regulations 1992. It is envisaged that the Council will make a charge for this information.

Complaints

5.15 If a complaint is received in relation to contaminated land, it will be logged into the Environment Department information database by Environmental Protection and the Contaminated Land Officer contacted. The GIS-information database will be consulted for information relating to any contamination associated with the site. Where deemed appropriate, the Council may decide to act on the information supplied by the complainant to proceed with a site investigation under Part IIA. If the complaint warrants urgent action, it will be prioritised and investigated accordingly. The Council will contact the complainant within 5 working days of receiving the complaint to advise on the Council's progress and likely action.

Communication and Liaison

5.16 Communication is an essential element for the successful implementation of this contaminated land strategy.

5.17 The appropriate contacts within the relevant Government Agencies have been identified and are shown in Appendix 1. Information requests/queries between the Council and agencies will be addressed promptly. The Council and EA will disclose information to each other regarding potential special sites. Where the information is not considered public register information it will be clearly marked 'commercial in confidence'. Landowners, consultants or other relevant persons will be made aware of this.

5.18 Where land is found to be contaminated and requiring remediation, contact will be established with the 'appropriate person' in the first instance and voluntary remediation encouraged.

5.19 It is possible that issues of land contamination and liability will cross borough boundaries. Where such issues arise, the Council contaminated land officer will make contact with the contaminated land officer at the neighbouring borough promptly. This will enable the issues to be discussed and the appropriate action to be taken.

Council Contaminated Land Risk Communication Strategy

5.20 The Council recognises that land, its use and its condition affects the wider community. Contaminated land can be a sensitive issue for many

stakeholders and there are likely to be conflicting interests at stake. Contaminated land and its management is a complex issue that requires clear explanation if all those involved are to make an informed decision on the risks involved and how these can be managed. Therefore the Council will develop a comprehensive Contaminated Land Risk Communication Strategy (with regard to Scotland and Northern Ireland Forum for Environmental Research [SNIFFER] Guidance).

Throughout the strategy, the Council will:

- endeavour to involve all stakeholders concerned about an individual contaminated site at the earliest opportunity and maintain a transparent and accessible approach. However, prior to designation, this information will be restricted to key stakeholders, landowners and occupiers, in case it is not designated as contaminated.
- treat concerns raised by members of the public in a sensitive manner, listening to concerns and attempting to address concerns, conveying relevant information in a clear and non-technical manner.
- seek the assistance of the local health authority if necessary in producing information or advising on a contaminant and the risks it poses under different circumstances to ensure that an accurate understandable message is conveyed to all stakeholders.
- produce factsheets covering frequently asked questions, and for specific sites may also hold local meetings and offer a helpline number.

APPENDICES

APPENDIX 1: Contact Details

Organisation	Name	Contact details	Email address
London Borough of Hammersmith and Fulham Council	Kirsty Johnson Contaminated Land Officer	Environment Policy 3rd Floor, Town Hall Extension King Street London, W6 9JU 020 8753 3394	Kirsty.johnson@lbhf.gov.uk
Environment Agency	Alistair Norton Dawn Halliday Thames Contaminated Land Officers	North West Region Apollo Court 2 Bishops Square Business Park St Albans Road West Hatfield Herts AL10 9EX Tel: 01707 632 300 Fax: 01707 632 533	Alistair.norton@ Environment-agency.gov.uk Dawn.halliday@ Environment-agency.gov.uk
Department for Environment, Food and Rural Affairs (former MAFF)	For consultation on strategies: Ms F Reynolds Mr G Beckwith Technical enquiries on operation of regime: Adrian Rochford	Sustainable Agriculture Branch RMED, DEFRA 16 Palace Street London SW1E 5FF Rural Development Service National Land Management Team Southgate Street Bury St Edmunds Suffolk IP33 2BD	Adrian.rochford@ Defra.gsi.gov.uk
Department for Environment, Food and Rural Affairs (former DETR)	Trevor Jones	Land & Liability Branch DEFRA Zone 3/B3 Ashdown House 123 Victoria Street London SW1E 6DE	Trevor.jones@ Defra.gsi.gov.uk
English Nature	Alexandra Machin Conservation Officer	Ormond House 26/27 Boswell Street London WC1N 3JZ 020 7831 6922	

English Heritage	Roger Mascal Historic Buildings & Area Inspector	23 Saville Row London W1X 1AB
Food Standards Agency Contaminants Division	Nigel Harrison	Food Standards Agency 7th Floor Aviation House 125 Kingsway London WC2B 6NH
English Partnerships	John Navaratnam Project Manager	C/o Arpley House 110 Birchwood Boulevard Birchwood Warrington WA3 7QH C/o 020 7881 1600
London Development Agency	Richard Scar	Devon House 58-60 St Katharine's Way London E1W 1JX United Kingdom Tel: +44 (0) 20 7680 2000

APPENDIX 2: List of potentially contaminative land uses

This list is derived from Department of Environment Industry Profile publications and former Section 143 register list. It is intended to provide a broad indication of land uses that could cause contamination. The list is not exhaustive and inclusion in the list does not necessarily infer the existence of a pollutant linkage.

- Airports
- Animal and animal products processing works
- Asbestos manufacturing works
- Ceramics, cement and asphalt manufacturing works
- Chemical works
- Dockyards and dockland
- Dry cleaning
- Engineering works
- Extraction industry
- Fibreglass and fibreglass resins manufacturing works
- Gas works, coal works, other coal carbonisation plants
- Glass manufacturing works
- Metal manufacturing, refining and finishing works
- Oil refineries and bulk storage of crude oil and petroleum products
- Photographic processing industry
- Printing and bookbinding works
- Power stations
- Pulp and paper manufacturing works
- Railway land
- Road vehicle fuelling, service and repair
- Sewage works and sewage farms
- Textile works, including tanneries and dye works
- Timber products manufacturing works
- Timber treatment works
- Waste recycling, treatment and disposal sites

APPENDIX 3 Classification of “Harm” and “Significant Harm”

Table A: Categories of Significant Harm

Type of Receptor	Description of harm to that type of receptor that is to be regarded as significant harm
<p>1 Human beings</p>	<p>Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions.</p> <p>For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.</p> <p>This description of significant harm is referred to as a “human health effect”.</p>
<p>2 Any ecological system, or living organism forming part of such a system, within a location which is:</p> <ul style="list-style-type: none"> • an area notified as an area of special scientific interest under section 28 of the Wildlife and Countryside Act 1981; • any land declared a national nature reserve under section 35 of that Act; • any area designated as a marine nature reserve under section 36 of that Act; • an area of special protection for birds, established under section 3 of that Act; • any European Site within the meaning of regulation 10 of the Conservation (Natural Habitats etc) Regulations 1994 (ie Special Areas of Conservation and Special Protection Areas); • any candidate Special Areas of Conservation or potential Special Protection Areas given equivalent protection; • any habitat or site afforded policy protection under paragraph 13 of Planning Policy Guidance Note 9 (PPG9) on nature conservation (ie candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); or • any nature reserve established under section 21 of the National Parks and Access to the Countryside Act 1949. 	<p>For any protected location:</p> <p>Harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location.</p> <p>In addition, in the case of a protected location which is a European Site (or a candidate Special Area of Conservation or a potential Special Protection Area), harm which is incompatible with the favourable conservation status of natural habitats at that location or species typically found there.</p> <p>In determining what constitutes such harm, the local authority should have regard to the advice of English Nature and to the requirements of the Conservation (Natural Habitats etc) Regulations 1994.</p> <p>This description of significant harm is referred to as an “ecological system effect”.</p>
<p>3 Property in the form of:</p> <ul style="list-style-type: none"> • crops, including timber; • produce grown domestically, or on allotments, for consumption; • livestock; • other owned or domesticated animals; • wild animals which are the subject of shooting or fishing rights. 	<p>For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.</p> <p>The local authority should regard a substantial loss in</p>

value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the Food Safety Act 1990. Where a diminution in yield or loss in value is caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss.

This description of significant harm is referred to as an “animal or crop effect”.

4 Property in the form of buildings.

For this purpose, “building” means any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building.

Structural failure, substantial damage or substantial interference with any right of occupation.

For this purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended.

Additionally, in the case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.

This description of significant harm is referred to as a “building effect”.

Table B: Categories of Significant Possibility of Significant Harm

Descriptions Of Significant Harm (As Defined In Table A)	Conditions For There Being A Significant Possibility Of Significant Harm
<p>1 Human health effects arising from</p> <ul style="list-style-type: none"> • the intake of a contaminant, or • other direct bodily contact with a contaminant. 	<p>If the amount of the pollutant in the pollutant linkage in question:</p> <ul style="list-style-type: none"> • which a human receptor in that linkage might take in, <p><i>or</i></p> <ul style="list-style-type: none"> • to which such a human might otherwise be exposed, as a result of the pathway in that linkage, would represent an unacceptable intake or direct bodily contact, assessed on the basis of relevant information on the toxicological properties of that pollutant. <p>Such an assessment should take into account:</p> <ul style="list-style-type: none"> • the likely total intake of, or exposure to, the substance or substances which form the pollutant, from all sources including that from the pollutant linkage in question; • the relative contribution of the pollutant linkage in question to the likely aggregate intake of, or exposure to, the relevant substance or substances; and • the duration of intake or exposure resulting from the pollutant linkage in question. <p>The question of whether an intake or exposure is unacceptable is independent of the number of people who might experience or be affected by that intake or exposure.</p> <p>Toxicological properties should be taken to include carcinogenic, mutagenic, teratogenic, pathogenic, endocrine-disrupting and other similar properties.</p>
<p>2 All other human health effects (particularly by way of explosion or fire).</p>	<p>If the probability, or frequency, of occurrence of significant harm of that description is unacceptable, assessed on the basis of relevant information concerning:</p> <ul style="list-style-type: none"> • that type of pollutant linkage, or • that type of significant harm arising from other causes. <p>In making such an assessment, the local authority should take into account the levels of risk which have been judged unacceptable in other similar contexts and should give particular weight to cases where the pollutant linkage might cause significant harm which:</p> <ul style="list-style-type: none"> • would be irreversible or incapable of being treated; • would affect a substantial number of people; • would result from a single incident such as a fire or an explosion; or

- would be likely to result from a short-term (that is, less than 24-hour) exposure to the pollutant.

3 All ecological system effects.

If either:

- significant harm of that description is more likely than not to result from the pollutant linkage in question;

or

- there is a reasonable possibility of significant harm of that description being caused, and if that harm were to occur, it would result in such a degree of damage to features of special interest at the location in question that they would be beyond any practicable possibility of restoration.

Any assessment made for these purposes should take into account relevant information for that type of pollutant linkage, particularly in relation to the ecotoxicological effects of the pollutant.

4 All animal and crop effects.

If significant harm of that description is more likely than not to result from the pollutant linkage in question, taking into account relevant information for that type of pollutant linkage, particularly in relation to the ecotoxicological effects of the pollutant.

5 All building effects

If significant harm of that description is more likely than not to result from the pollutant linkage in question during the expected economic life of the building (or, in the case of a scheduled Ancient Monument, the foreseeable future), taking into account relevant information for that type of pollutant linkage.

APPENDIX 4: Unitary Development Plan Policy on Contaminated Land

UDP POLICY EN21A (UDP Alterations 2000)

When development is proposed on or near a site that is known to be, or there is good reason to believe may be, contaminated, an applicant should carry out a site assessment and submit a report of the findings in order to establish the nature and extent of contamination. Development will not be permitted unless practicable and effective measures are to be taken to treat, contain or control any contamination so as not to:

- 1 expose the occupiers of the development and neighbouring land uses including, in the case of housing, the users of gardens to unacceptable risk
- 2 threaten the structural integrity of any building built, or to be built, on or adjoining the site
- 3 lead to the contamination of any watercourse, water body or aquifer
- 4 cause the contamination of adjoining land or allow such contamination to continue

Any application will be assessed in relation to the suitability of the proposed use for the conditions on that site. Any permission for development will require that the remedial measures agreed with the authority must be completed as the first step in the carrying out of the development.

It is important that any land that is known, or suspected of being contaminated is dealt with before change of use occurs. Some sites may be contaminated as a result of being in the vicinity of a contaminated site. The risk of this contamination depends on ground conditions and the type of contamination. In order to determine the nature and extent of contamination, the applicant will be required to carry out a site assessment. Any treatment of the contamination must be agreed with the Council before remedial measures are begun. The remedial measures must be appropriate for the actual or proposed uses.

APPENDIX 5: Definition of Special Sites**The Contaminated Land (England Regulations) 2000****Regulation 2: Land required to be designated as a special site**

(1) Contaminated land of the following descriptions is prescribed for the purposes of section 78C(8) as land required to be designated as a special site-

(a) land to which regulation 3 applies: (i.e. relating to the pollution of controlled waters)

(b) land which is contaminated land by reason of waste acid tars in, on or under the land;

(c) land on which any of the following activities have been carried on at any time-

(i) the purification (including refining) of crude petroleum or of oil extracted from petroleum, shale or any other bituminous substance except coal; or

(ii) the manufacture or processing of explosives;

(d) land on which a prescribed process designated for central control has been or is being carried on under an authorisation where the process does not comprise solely things being done which are required by way of remediation;

(e) land within a nuclear site;

(f) land owned or occupied by or on behalf of-

(i) the Secretary of State for Defence;

(ii) the Defence Council;

(iii) an international headquarters or defence organisation; or

(iv) the service authority of a visiting force, being land used for naval, military or air force purposes;

(g) land on which the manufacture, production or disposal of-

(i) chemical weapons;

(ii) any biological agent or toxin which falls within section 1(1)(a) of the Biological Weapons Act 1974 (restriction on development of biological agents and toxins); or

(iii) any weapon, equipment or means of delivery which falls within section 1(1)(b) of that Act

(restriction on development of biological weapons), has been carried on at any time;

(h) land comprising premises which are or were designated by the Secretary of State by an order made under section 1(1) of the Atomic Weapons Establishment Act 1991 (arrangements for development etc of nuclear devices);

(i) land to which section 30 of the Armed Forces Act 1996 (land held for the benefit of Greenwich Hospital) applies; and

(j) land which:

(i) is adjoining or adjacent to a land of description specified in sub paragraphs (b) to (i) above; and

(ii) is contaminated land by virtue of substances which appear to have escaped from land of such a description

Regulation 3: Pollution of Controlled Waters

For the purposes of regulation 2(1)(a), this regulation applies to land where-

(a) controlled waters which are, or are intended to be, used for the supply of drinking water for human consumption are being affected by the land and, as a result, require a treatment process or a change in such a process to be applied to those waters before use, so as to be regarded as wholesome within the meaning of Part III of the Water Industry Act 1991 (water supply);

(b) controlled waters are being affected by the land and, as a result, those waters do not meet or are not likely to meet the criterion for classification applying to the relevant description of waters specified in regulations made under section 82 of the Water Resources Act 1991 (classification of quality of waters); or

(c) controlled waters are being affected by the land and-

(i) any of the substances by reason of which the pollution of the waters is being or is likely to be caused falls within any of the families or groups of substances listed in paragraph 1 of Schedule 1 to these Regulations; and

(ii) the waters, or any part of the waters, are contained within underground strata which comprise wholly or partly any of the formations of rocks listed in paragraph 2 of Schedule 1 to these Regulations.

Schedule 1 (relating to Regulation 3c(i))

The following families and groups of substances are listed for the purposes of regulation 3(c)(i)-

- organohalogen compounds and substances which may form such compounds in the aquatic environment;
- organophosphorus compounds;
- organotin compounds;
- substances which possess carcinogenic, mutagenic or teratogenic properties in or via the aquatic environment;
- mercury and its compounds;
- cadmium and its compounds;
- mineral oil and other hydrocarbons;
- cyanides.

2. The following formations of rocks are listed for the purposes of regulation 3(c)(ii)-

- Pleistocene Norwich Crag;
- Upper Cretaceous Chalk;
- Lower Cretaceous Sandstones;
- Upper Jurassic Corallian;
- Middle Jurassic Limestones;
- Lower Jurassic Cotteswold Sands;
- Permo-Triassic Sherwood Sandstone Group;
- Upper Permian Magnesian Limestone;
- Lower Permian Penrith Sandstone;
- Lower Permian Collyhurst Sandstone;
- Lower Permian Basal Breccias, Conglomerates and Sandstones;
- Lower Carboniferous Limestones.

APPENDIX 6: Glossary of Terms

Note: * indicates statutory definition

Abstraction Points - points where water is removed from surface water or groundwater, usually by pumping

Ancient Monuments - sites of national importance where the provisions of the Ancient Monuments and Archaeological Areas Act apply (as amended by The National Heritage Act 1983)

Appropriate Person* - any person who is an appropriate person, determined in accordance with Section 78F of Part IIA to bear responsibility for any thing which is to be done by way of remediation in any particular case

Aquifer - underground water source in a water-bearing rock. Can be major, minor or non-aquifer

BRE - Building Regulations (England) 1991

Brownfield site - includes vacant land or premises, underused or underdeveloped land, outdated or derelict premises, land that is likely to be redeveloped in next 5-10 years and previously developed sites in the Green Belt.

Catchment area - total area from which a river collects surface water

Charging notice* - a notice placing a legal charge on land served under section 78P(3)(b) by an enforcing authority to enable the authority to recover from the appropriate person any reasonable cost incurred by the authority in carrying out remediation.

Class A person* - a person who is an appropriate person by virtue of section 78F(2) (that is, because he has caused or knowingly permitted a pollutant to be in, on or under the land).

Class B person* - a person who is an appropriate person by virtue of section 78F(4) or (5) (that is, because he is the owner or occupier of the land in circumstances where no Class A person can be found with respect to a particular remediation action).

CLEA - Contaminated Land Exposure and Assessment model

Contaminant* - a substance which is in, on, or under the land and which has the potential to cause harm or cause pollution to controlled waters

Contaminated land* - defined in section 78A(2) as "any land which appears to the local authority in whose area it 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) pollution of controlled waters is being, or is likely to be, caused."

Contaminated Land (England) Regulations 2000* - regulations (SI 2000/227) made under Part IIA

Controlled waters* - defined in section 78A(9) by reference to Part III (section 104) of the Water Resources Act 1991; this embraces territorial and coastal waters, inland fresh waters, and ground waters.
Current use* - any use which is currently being made, or is likely to be made, of the land and which is consistent with any existing planning permission (or is otherwise lawful under town and country planning legislation). This definition is subject to the following qualifications:
 (a) the current use should be taken to include any temporary use, permitted under town and country planning legislation, to which the land is, or is likely to be, put from time to time;
 (b) the current use includes future uses or developments which do not require a new, or amended, grant of planning permission;
 (c) the current use should, nevertheless, be taken to include any likely informal recreational use of the land, whether authorised by the owners or occupiers or not, (for example, children playing on the land); however, in assessing the likelihood of any such informal use, the local authority should give due attention to measures taken to prevent or restrict access to the land; and
 (d) in the case of agricultural land, however, the current agricultural use should not be taken to extend beyond the growing or rearing of the crops or animals which are habitually grown or reared on the land.

DEFRA - Department for Environment, Food and Rural Affairs

DETR - The former Department of the Environment, Transport & the Regions

DoE - Department of the Environment (now part of DEFRA)

Drift geology - term used to include all unconsolidated superficial deposits overlying solid rock.

EA - Environment Agency

Ecosystem - all living and non-living matter within a defined space, such as a lake or a wood, and their interactions.

EPA 1990 - Environmental Protection Act 1990

Enforcing authority*: defined in section 78A(9) as:
 (a) in relation to a special site, the Environment Agency;
 (b) in relation to contaminated land other than a special site, the local authority in whose area the land is situated.

EPD - Environmental Protection Division of the Council

GIS-information database - Geographical Information System is a software package capable of showing both graphical information as digital maps and associated attribute information (Access database). The Council corporate GIS system is 'ARCVIEW'.

Groundwater - water in beneath the ground surface

Hardship* - a factor underlying any cost recovery decision made by the enforcing authority under S.78P(2)

Harm* - defined in S.78A(4) as: 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

HSE - Health and Safety Executive

ICRCL - Interdepartmental Committee on Contaminated Land

Intrusive investigation*: an investigation of land (for example by exploratory excavations) which involves actions going beyond simple visual inspection of the land, limited sampling or assessment of documentary information

Landfill - where ground has been excavated and subsequently infilled, often by waste

LBHF - London Borough of Hammersmith & Fulham

Leachate - the liquid formed as a result of 'leaching', i.e. the removal of soluble substances by the action of water percolating through waste, soil or rock

Listed building - a building of special architectural or historic interest included on a statutory list compiled by the Secretary of State for the Environment. The Council also maintains a list of 'Locally Listed Buildings' which includes other buildings of historical or architectural interest which make a valuable contribution to the character of the area

Local Nature Reserves (LNRs) - designated under the National Parks and Access to the Countryside Act 1949, as amended by the Local Government Act 1972.

MAFF - Ministry of Agriculture, Fisheries and Food

Major Aquifer - highly permeable strata which generally has a known or probable presence of significant fracturing. Usually able to support large abstractions for public water supply and other purposes.

Minor Aquifer - fractured or potentially fractured rock which do not have high primary permeability, or formations of variable permeability including unconsolidated deposits. Although these aquifers will seldom produce large quantities of water for abstraction, they may be important for local supplies and for supplying the base flow in rivers. Major aquifers may occur below minor aquifers.

National Nature Reserves - nature reserves designated by English Nature

Non-Aquifer - Formations, which are generally regarded as containing insignificant quantities of groundwater. However, groundwater flow through such rocks, although imperceptible, does take place and needs to be considered in assessing the risks associated with persistent pollutants. Major and minor aquifers may occur beneath non-aquifers.

Orphan site - a site which has a significant pollutant linkage, but for which no appropriate person can be identified, or where those who would otherwise be liable are exempt by one of the relevant statutory provisions

OS - Ordnance Survey

Owner* - defined under S.78A(9) as 'a person (other than a mortgagee not in possession) who, whether in his own right or as a trustee for any other person, is entitled to receive the rack rent of the land, or where the land is not let at a rack rent, would be so entitled if it were to be let'

Part IIA - Part IIA of the Environmental Protection Act 1990

Pathway* - is one or more routes or means by, or through, which a receptor:
 (a) is being exposed to, or affected by, a contaminant, or
 (b) could be so exposed or affected

Pollutant* - a contaminant which forms part of a pollutant linkage

Pollutant linkage* - the relationship between a contaminant, a pathway and a receptor
Pollution of controlled waters* - defined in section 78A(9) as:

“the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter.”

Possibility of significant harm* - a measure of the probability, or frequency, of the occurrence of circumstances which would lead to significant harm being caused

Receptor* - either:

- (a) a living organism, a group of living organisms, an ecological system or a piece of property which:
 - (i) is in a category listed in Table A in Chapter A as a type of receptor, and
 - (ii) is being, or could be, harmed, by a contaminant; or
- (b) controlled waters which are being, or could be, polluted by a contaminant.

Register* - the public register maintained by the enforcing authority under section 78R of particulars relating to contaminated land.

Remediation - defined in section 78A(7) as

“(a) the doing of anything for the purpose of assessing the condition of -

- “(i) the contaminated land in question;
- “(ii) any controlled waters affected by that land; or
- “(iii) any land adjoining or adjacent to that land;

“(b) the doing of any works, the carrying out of any operations or the taking of any steps in relation to any such land or waters for the purpose -

- “(i) of preventing or minimising, or remedying or mitigating the effects of any significant harm, or any pollution of controlled waters, by reason of which the contaminated land is such land; or
- “(ii) of restoring the land or waters to their former state;

or

“(c) the making of subsequent inspections from time to time for the purpose of keeping under review the condition of the land or waters.”

Remediation notice - defined in section 78E(1) as a notice specifying what an appropriate person is to do by way of remediation and the periods within which he is required to do each of the things so specified.

Remediation scheme - the complete set or sequence of remediation actions (referable to one or more significant pollutant linkages) to be carried out with respect to the relevant land or waters.

Remediation statement - defined in section 78H(7). It is a statement prepared and published by the responsible person detailing the remediation actions which are being, have been, or are expected to be, done as well as the periods within which these things are being done.

Risk* - the combination of:

- (a) the probability, or frequency, of occurrence of a defined hazard (for example, exposure to a property of a substance with the potential to cause harm); and
- (b) the magnitude (including the seriousness) of the consequences.

Risk assessment - a statistical assessment method that considers the probability, or frequency of a defined hazard occurring and the extent of its consequences

SCA - Supplementary Credit Approval Government grant scheme, for which Local Authorities can apply to fund contaminated land inspection and remediation

River terrace deposits - materials eroded, transported and deposited by the action of the river flow

Significant harm - defined in section 78A(5). It means any harm which is determined to be significant in accordance with the statutory guidance in Chapter A (that is, it meets one of the descriptions of types of harm in the second column of Table A of that Chapter).

Significant pollutant linkage - a pollutant linkage which forms the basis for a determination that a piece of land is contaminated land

Significant possibility of significant harm - a possibility of significant harm being caused which, by virtue of section 78A(5), is determined to be significant in accordance with the statutory guidance in Chapter A.

Source protection zone - a defined geographical area in which protection is given to a groundwater abstraction point. All sources, including springs, wells and boreholes that are liable to contamination must be protected.

Special site* - defined by section 78A(3) as:

“any contaminated land -

- “(a) which has been designated as such a site by virtue of section 78C(7) or 78D(6)...;and
- “(b) whose designation as such has not been terminated by the appropriate Agency under section 78Q(4)...”

The effect of the designation of any contaminated land as a special site is that the Environment Agency, rather than the local authority, becomes the enforcing authority for the land.

These include IPC sites, nuclear sites, MOD sites and where munitions manufacture has taken place.

SSSI - Site of Special Scientific Interest, designated by English Nature under the Wildlife & Countryside Act 1981, or for special importance for nature conservation.

Substance - any natural or artificial substance whether in solid or liquid form, or in the form of a gas or vapour.

Suitable for use - this approach focuses on the risks posed by land contamination. It recognises that the risks posed by any given level of contamination will vary accordingly to the use of the land and a wide range of factors, such as the geology of the site. Risk is therefore assessed on a site-specific basis.

UDP - Unitary Development Plan. This is the Council's document for land use policy in the borough. It sets out the main considerations on which planning applications are decided and can guide a range of responsibilities of local government and agencies.

APPENDIX 7: References

Core Documents

1. Contaminated Land Inspection Strategies, Technical Advice for Local Authorities (DETR, 2001)
2. DETR Circular No.2/2000 Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990 (HMSO, 2000)
3. Contaminated Land (England) Regulations 2000 (HMSO, 2000)
4. Environmental Protection Act 1990 (HMSO, 1990)
5. Environment Act 1995 (HMSO, 1995)

Contaminated Land Research Reports

1. CLR1:A Framework for Assessing the Impact of Contaminated Land on Groundwater and Surface Water (DoE, 1994)
2. CLR2: Guidance on Preliminary Site Inspection of Contaminated Land (DoE, 1994)
3. CLR4: Sampling Strategies for Contaminated Land (DoE, 1994)
4. CLR6: Prioritisation and Categorisation Procedure for Sites Which May Be Contaminated (DoE 1995)
5. Environment Agency River Quality Objectives (EA)
6. Guidance on the Assessment and Redevelopment of Contaminated Land (Interdepartmental Committee on the Redevelopment of Contaminated Land 1987)
7. Methodology For The Derivation Of Remedial Targets For Soil And Groundwater To Protect Water Resources (EA R&D Report 20, 1999)
8. New Dutch List, in Intervention values and target values - soil quality standards (Ministry of Housing, Spatial Planning and Environment, The Netherlands)
9. National Surface Environmental Quality Standards (DETR, EA)
10. Protecting Development from Methane (CIRIA Guidance 149, 1996)
11. Risk Assessment for Methane and Other Gases from the Ground (CIRIA Guidance 152, 1995)
12. Waste Management Paper 27 (EA)

Other

1. BGS 1:50,000 Series, England and Wales Sheet 270 South London, Solid & Drift Geology
2. Communicating Understanding of Risk (SNIFFER, 1999)
3. LBH&F Unitary Development Plan Alterations (LBH&F, 1999)
4. Policy & Practice for Protection of Groundwater - Groundwater Vulnerability Map of West London, Sheet 39 (HMSO)

*London Borough of Hammersmith & Fulham
Contaminated Land Strategy 2001*