PLANNING ADVICE NOTE

RE-DEVELOPMENT OF POTENTIALLY CONTAMINATED LAND

The Dorset and New Forest Contaminated Land Consortium of Local Authorities

Bournemouth Borough Council

Christchurch Borough Council

East Dorset District Council

New Forest District Council

North Dorset District Council

Purbeck District Council

West Dorset District Council

Weymouth and Portland Borough Council

Investigating Contamination

Determining the planning conditions

Consulting on the proposals

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The following information is intended for guidance purposes. All of the decisions pertaining to planning issues will be made by the Local Planning Authority and specific advice should be sought from the designated planning officer and statutory consultees.

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PLANNING ADVICE NOTE

Investigating Potentially Contaminated Land – determining the planning conditions – consulting on the proposals

Introduction

The planning process has to ensure that any issues related to potential site contamination are addressed prior to the redevelopment of a site. Planning Policy Statement Note 23: 'Planning and Pollution Control' sets out national level guidance on the handling of pollution issues in the planning system. Annexe 2 provides advice on the handling of contaminated land in the planning system including the submission of planning applications.
This Government guidance recognises that potential contamination is a material planning consideration and that the development phase is the most cost-effective time to deal with problems associated with prior use. This policy advocates the 'suitable for use' approach for the proposed development in that the works undertaken on a contaminated site, if deemed necessary, should deal with any unacceptable risks to health or the environment, taking into account its actual or intended use. The onus is quite clearly placed on the developer to disclose all relevant information and provide all necessary supporting information for a planning application.

Previously developed land (brownfield sites) may have been contaminated by a variety of land uses, such as fuel filling stations, gas works, industrial sites etc. Such contamination may pose risks to current or future site occupiers, buildings on the site and to the environment.

The risks must be identified early in the development process to ensure that appropriate mitigation measures are taken. This should take the form of a "source -pathway – receptor" assessment, whereby the sources of the hazard (e.g. heavy metal contamination), the receptor (e.g. public water supply borehole) and the pathway connecting the two (e.g. contaminated groundwater plume) are considered.

In this way the risks posed can be assessed and suitable mitigation put in place to reduce the risks to an acceptable level. This investigation should be carried out by the developer either before planning permission has been granted or by direction in a planning condition.

To see the interaction between the processes involved please refer to the flowchart (diagram 1) and the headings in the text.

In carrying out its duty the local planning authority has to consider whether there is, or might be, a potential contamination hazard on a site, and if so:

- whether a proposed use or development of the site could give rise to unacceptable risks to health or the environment,
- what steps by way of restrictions on the proposed use or other development of the land should be taken to reduce those risks.
- what further information it needs to clarify the issues of potential contamination,

Applicants will need to research the background of the site back to the period when the site was 'greenfield'. Amongst other sources of information this research may include the study of current and historical maps, trade directories, environmental information from sources such as the Environment Agency, local authorities and the British Geological Survey. Applicants may choose to do this research themselves or alternatively they could employ an environmental information service or solicitor to do so on their behalf.

Where it is anticipated that contamination may be present on or near a proposed development area, a desk study report will be required to characterise the contamination and establish the likely risks posed**.**

This report will be required either prior to the grant of planning permission or by condition, depending on the severity of the contamination and magnitude of risks posed, on a site-specific basis. This report must be carried out by an appropriately qualified consultant

Principles of Risk Assessment and Management

The definition of contaminated land is based upon the principles of risk assessment. In contaminated land terms risk is defined as the combination of:

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

Overall the risk management process is essentially achieved by the following three activities, which are phased and can be reiterative:

- investigation; this is essentially a site investigation activity and aims to identify hazard sources, pathways and receptors and development of a conceptual model
- assessment: this is essentially a risk assessment procedure and aims to qualify/quantify the risk of any particular receptor being impacted by any particular hazard.
- remediation; this is essentially a risk reduction exercise and aims to reduce any risk to an acceptable level.

Objectives and Scope of Risk Assessment

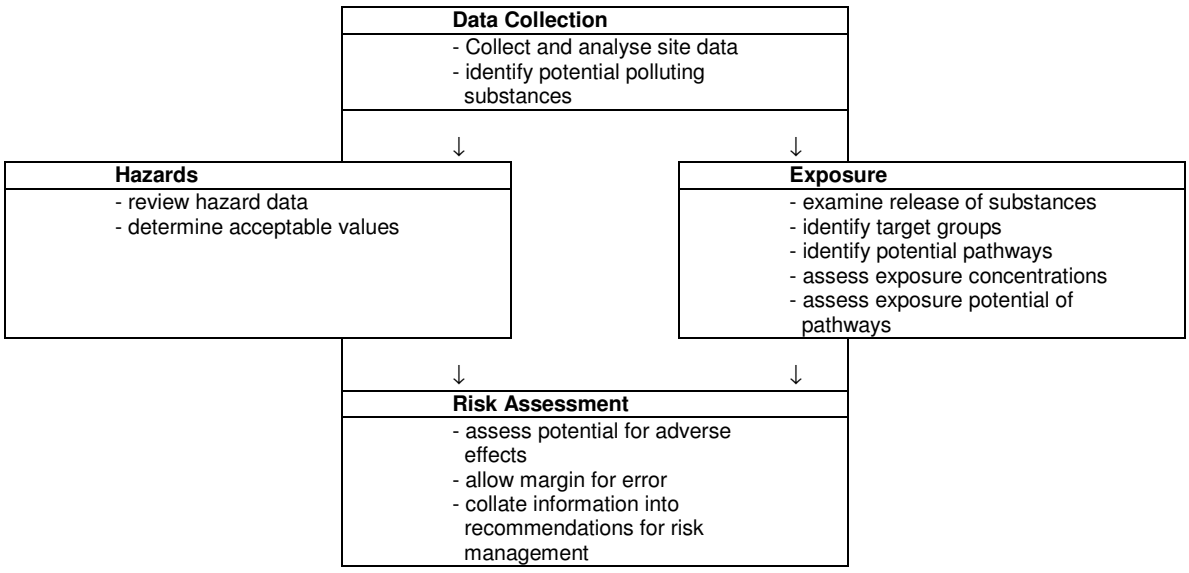
The main objectives in a contaminated land application are to:

- systematically determine if there are currently any risks to human life or other targets such as flora, fauna, the water environment and the built environment, and whether, if such risks exist, they are acceptable
- determine the consequences (e.g. potential impacts on the environment, groundwater resources, public health) of a change of use, development, redevelopment or other works on the site
- identify the critical contaminants and associated factors (e.g. pathways) relevant to the site so that any steps necessary to reduce risks to acceptable levels, both currently and in the foreseeable future, can be determined
- make judgments on the significance and acceptability of identified risks
- help to set objectives and priorities for reducing risks
- provide a rational and defensible basis for discussing a proposed course of action with third parties.

Risk assessment has four main components:

- hazard identification - identifying the hazards that may be associated with a particular site
- hazard assessment - assessing the degree of hazard associated with a site (e.g. what type, and how much of a hazardous substance could be available to reach a target) through consideration of plausible hazard/pathway/target scenarios
- risk estimation - estimating the likelihood that an adverse effect will result from exposure to any hazard and the nature of this effect. Risk estimation may focus on human health effects, effects on flora and fauna, the water environment or other targets such as building materials
- risk evaluation - evaluating the significance of estimated risks, taking into account available guidelines and standards, the uncertainties associated with the assessment and the costs and benefits of taking action to mitigate the risks.

A generalised framework for risk assessment can be represented as follows:



Assessing the Risks

The risks on each site are to be assessed, and controls are triggered only where there is significant harm, or a significant possibility of harm, or actual or likely pollution of controlled waters. The extent of the risk on any particular land depends upon a number of factors including the following:

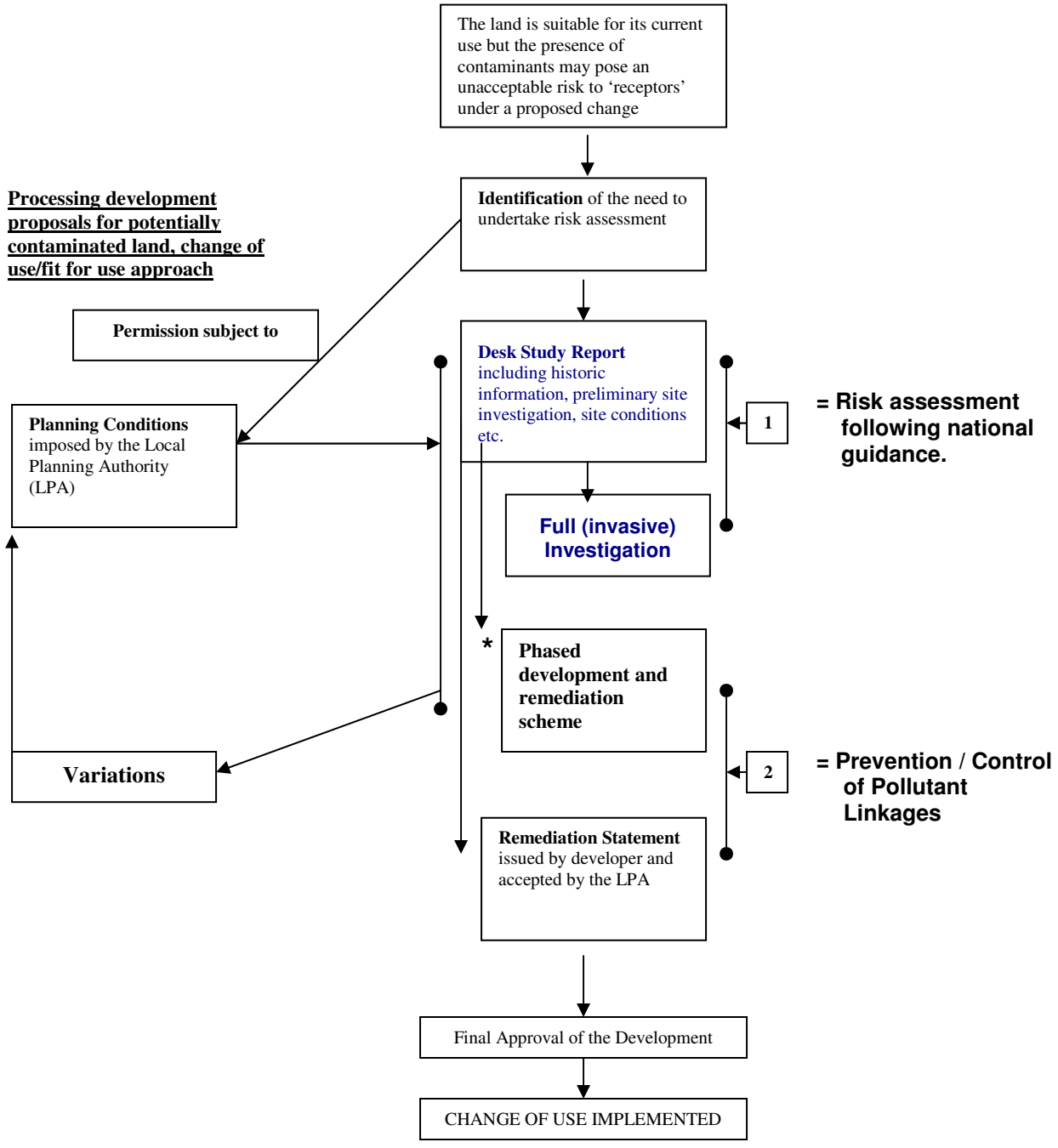
- the characteristics of the substances in the land;
- the local geology and hydrogeology;
- the nature and presence of receptors;
- the use of the land, or of adjacent land;
- the nature of the land, in terms of whether pathways may exist or could be created;
- what measures exist, if any, to reduce or limit the risk.

There are a range of approaches used for risk assessment ranging from a simple comparison of contamination values with published reference standards or guidelines to a comprehensive site specific quantitative assessment involving the use of extensive data, including leaching and toxicity information, and various modeling procedures.

The following methods are examples of risk assessment methodologies currently in use.

- generic guidelines for hazard assessment (UK Soil Guideline Values)
- site specific qualitative risk estimation
- site specific risk evaluation matrix
- human exposure assessment models
  e.g. Contaminated Land Exposure Assessment Model (CLEA UK)
- environmental risk assessment (Groundwater and Ecological issues)
- derivation of site specific acceptance criteria

Diagram 1 Flowchart



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If the desk study report shows no evidence of actual or potential pollutant linkages, following the submission of the appropriate documentation and with the agreement of the Local Planning Authority, further consideration (other than attention to matters arising during construction) may not be required.

Desk Study Report

The applicant will need to demonstrate in a desk study report a comprehensive search which may include references to: -

- historic maps
- trade directories
- deeds
- yellow pages
- planning histories
- environmental data from the authorities and data providers
- other relevant sources (note this is not an exhaustive list)

All relevant maps and drawings should be enclosed along with the full site history including; past land uses, materials used on site, pollution events, impacts from other sites in the vicinity, the location of existing/former pits, tanks, fuel/ chemical storage and waste disposal facilities.

The desk study report must include an assessment of identifiable risks by an appropriately qualified consultant and must include the initial layout of a conceptual model.

This will enable the *Local Planning Authority (LPA)* to determine the need, if any, for a full site investigation. In all submissions on planning applications regard to the requirements of other regimes and regulatory control should be had from an early stage including:

- Contaminated Land Regime
- Building Regulations
- Health & Safety
- Statutory Nuisance Legislation
- Waste regulations

In certain circumstances where a desk study is not provided, and where this is agreeable to the Local Planning Authority, planning consent will be granted subject to a condition requiring the subsequent provision of such a report.

Full Investigation Report

In circumstances where there is known, or sufficient evidence exists to suspect, significant risk of severe contamination, a full site investigation report with the results from invasive action on site should be submitted with any planning application for full permission. On an outline application a condition could be imposed requiring its submission as a reserved matter dependant upon the circumstances involved.

It is suggested that consultants intending to carry out any intrusive site investigation work submit their sampling strategy for approval prior to commencing work. This is in order to avoid disagreements over methodology at a later stage.

If it is known or strongly suspected that the site is contaminated to an extent which would adversely affect the proposed development, or infringe statutory requirements, an investigation of the hazards by the developer, and proposals for any necessary remedial measures required to deal with the hazards will normally be required before the application can be determined by the local planning authority. Certain aspects of such investigations, such as drilling boreholes, may require separate planning permission or approval by other statutory authorities. Planning permission may need to include conditions requiring certain remedial measures to be carried out.

The full study should include a summary of the desk study report, the strategy and methodology used for invasive investigation with, a 'conceptual model of pollutant linkages', details on the basis for choosing investigation methods, sampling and analytical testing procedures, appropriate background information on geology and hydrology relating to the site, a detailed risk assessment of potential harm to receptors requiring the implementation of a stated remediation scheme. The study should also detail aspects of the construction process that may have a potential to cause harm to receptors, and measures needed to protect them.

Where contaminated land issues arise on major developments, or developments with significant environmental effects it may be necessary for an Environmental Statement under the Environmental Impact Assessment Regulations 1999 or an Appropriate Assessment undertaken under Article 6 of the Habitats Directive. In these respects it will be appropriate to include issues arising from contaminated land within these documents to enable all issues to be dealt with consistently and appropriately. This route will include all information that would otherwise have been required.

Remediation Scheme (cleaning up, isolating or otherwise managing contamination)

Where the Local Planning Authority considers a site to be contaminated, development will not be permitted until the Developer's appointed Environmental Consultants have produced a remediation package acceptable to the Local Planning Authority. As indicated above the phasing of site work may also require certain measures are undertaken before construction commences.

The remediation package needs to detail sufficient practicable and effective measures to ensure the remediation of the site so as not to lead to, or allow the continuance of:

- the exposure of the occupiers / users of the development and neighbouring land to unacceptable risks from land contamination,
- the pollution of any water course, water body, or groundwater,
- the contamination of adjoining land,
- the release of pollution to air,
- or
- damage to the structural integrity of any building on or adjoining the site

On completion of all the works detailed in the agreed remediation package, a REMEDIATON STATEMENT must then be completed by the Environmental Consultants responsible for the works confirming that they have supervised all the agreed remediation actions. This document is to be submitted to the Local Planning

Authority confirming that all works as specified by the consultants and agreed to by the Local Planning Authority have been completed.

Until the Local Planning Authority is in receipt of a REMEDIATION STATEMENT and is satisfied with the it's contents, and the standard of work completed, the remediation of the site will be considered by the Local Planning Authority to be incomplete.

If the Local Planning Authority accepts the remediation statement, it will on request issue confirmation that those actions agreed in the remediation package have been completed to the Local Planning Authority's satisfaction.

Under no circumstances will the LPA issue a statement that the site is no longer contaminated. The landowner, developers and future occupiers, therefore, will not be released from any liabilities in respect to contaminated land.

Consultations

Even before an application is made, informal discussions between a potential developer and the local planning authority can be very helpful. If the local planning authority has reason to believe that there is a possibility that the land might be contaminated, it can be brought to the attention of the developer at this stage, and the implications explained. Other statutory bodies should also be consulted to establish their requirements. The applicant can then design his scheme including proposals for site investigation so as to take full account of the likely requirements of the planning authority or other statutory body.

On a planning application, which involves contaminated land issues, in addition to internal consultations with the District Environmental Services Officer, the LPA will:

- Consult with appropriate consultees including:
- Dorset County Council
- Environment Agency
- English Nature
- Seek to ensure appropriate remediation
- Apply appropriate conditions on any planning permission
- Advise the applicant that the decision is based upon the information submitted and available to them

A planning decision without conditions for remediation does not mean that the land is free from contamination. The responsibility for safe development and secure occupancy of the site rests with the developer.

Planning Conditions (Summary and Example)

In summary it can be seen from diagram 1 that planning conditions associated with land contamination follow a path: from desk study assessment of past activities to onsite invasive investigation if required, and through to remediation steps if found to be necessary.

Planning policy guidance in the form of PPS23 Annexe 2 provides guidance to Local Planning Authorities regarding the imposition of conditions and contaminated land assessment. Where there is a suspicion of contamination permission may be granted subject to condition. Where it is strongly suspected that contamination exists which could affect the development, risk assessment and a strategy for remediation may be required before the application can be determined.

In effect this means that where the site history indicates that there is potential for the site to have been contaminated planning permission will only be granted subject to conditions.

There follows an example of such a situation:

" Prior to the commencement of any works pursuant to this permission the developer shall submit for the written approval of the Local Planning Authority:

1. *a 'desk study' report documenting the site history and character with an initial conceptual model of potential pollutant linkages.*
2. *a site investigation report documenting the proven ground conditions of the site, and incorporating a 'developed conceptual model' of the potential pollutant linkages with an assessment of the risks from contamination.*
3. *a detailed scheme for remedial works and measures to be taken to manage risk from contaminants (including groundgases) when the site is developed.*
4. *a detailed phased scheme for the development and remedial works.*

The Remediation Scheme, as agreed in writing by the LPA, shall be fully implemented before the development hereby permitted is first occupied. Any variation to the scheme shall be agreed in writing with the LPA in advance of works being undertaken.
On completion of the works the developer shall provide written confirmation that all works were completed in accordance with the agreed details".

The developer must draw to the attention of the District Environmental Health Officer the presence of significant previously unreported contamination found during redevelopment.

Carrying out a site investigation (Timing and special considerations)

As the outcome and processes involved with an investigation can have significant material cost and time implications, it is important that applicants realise that investigation works must be undertaken at the earliest opportunity.

It is beneficial to all parties for the applicant (or their agents) to consult on a regular basis with the Local Planning Authority, also the provision of a schedule and programme of works can be of benefit. This is especially important where the generation or migration of ground gases is identified.

It is advisable that the developer has a contingency plan in the event that the construction phase reveals any unexpected contamination. Any suspected contamination must be immediately reported to the Local Planning Authority.

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Further guidance on site investigation can be obtained from the documents listed in appendix 1. Also provided in the appendices is a list of industries and activities appearing in a series of booklets published by the DOE in 1995 illustrating expected contamination profiles.

Appendix 1

Contaminated Land Investigation — Examples of Best Practice Guidance Documents

A) Environment Agency (EA) Guidance:

The EA are continuing to produce a wide range of technical guidance covering all aspects of contaminated land investigation, assessment, remediation and development. Such guidance includes:

1. CLEA documentation (CLR7-10, TOX and SGV reports).
    - Contaminated Land Research Document 7 – Assessment of Risks to Human Health from Land
    - Contamination: An overview of the development of the soil guideline values and related research.
    - Contaminated Land Research Document 8 – Potential Contaminants for the Assessment of Contaminated Land
    - Contaminated Land Research Document 9 – Contaminants in Soil: Collation of toxicological data and intake values for humans.
    - Contaminated Land Research Document 10 – The Contaminated Land Exposure Assessment (CLEA) Model: Technical basis and algorithms.
    - DEFRA and the EA Toxicological Reports 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 20 (check website)
    - DEFRA and the EA Soil Guideline Values 1, 3, 4, 5, 7, 9, 10 (check website)
2. Contaminated Land Research Report CLR 11, Environment Agency (2004). Model Procedures for the Management of Contaminated Land: Risk Assessment Procedure,
3. Research and Development Technical Reports P5-066/TR and P5/065/TR relating to Technical Aspects of site investigation and Procedures for soil sampling strategies.
4. Research and Development Publication 20 – Method for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources.
5. Environment Agency technical advice to third parties on pollution of controlled waters for Part IIA of the EPA1990 (also relevant to planning).
6. R&D Publication 66 – Guidance for the Safe Development of Housing on Land Affected by Contamination.
7. Review of Waste Management Papers (such as 27, etc.).
8. Groundwater Vulnerability Maps, etc.
9. Other guidance on development of conceptual models, use of risk assessment models, reinstatement of boreholes, etc.
10. The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in soils, 2005 Science Report P5-080/TR3
11. Laboratory Analysis Test methods in accordance to MCERTS (accredited and reported results must indicate the methods used with an estimate of bias and precision).
12. Communicating Understanding of ‘Contaminated Land Risks’ – P5-17

The EA also provide site specific guidance on groundwater, surface waters, extractions, discharges, industrial authorisations, waste management licensing sites, etc.

B) Department for Environment, Food and Rural Affairs (DEFRA):

Guidance production has been devolved to the EA, that produced by DEFRA includes:

1. CLR Publications 1-6 covering issues such as the assessment of the impact of contaminated land on groundwater, preliminary site inspections, research on industrial sites, sampling strategies, information systems and prioritisation. Of particular note:
    - No.2 Guidance on preliminary site inspection of Contaminated Land
    - No.3 Documentary Research on Industrial Sites
    - No.4 Sampling Strategies for Contaminated Land
2. Various Waste Management Papers
    - Department of the Environment (1993). Waste Management Paper No 26A, Landfill Completion, *A technical memorandum providing guidance on assessing the completion of licensed landfill sites.* HMSO, 47pp, ISBN 0-11-752807-2
    - Department of the Environment (1991). Waste Management Paper No 27, Landfill Gas, *A technical memorandum providing guidance on the monitoring and control of landfill gas.* HMSO, 82pp, ISBN 0-11-752488-3
3. Interdepartmental Committee on the Redevelopment of Contaminated Land documentation (while most values once commonly used from ICRCL documentation are now withdrawn, this documentation contains useful information on various landuses).
4. Legislation (i.e. Town & Country Planning Act's and Part IIA of the Environmental Protection Act 1990, The Environment Act 1995, The Contaminated Land (England) Regulations (2000), Water Resources Act 1991, etc.
5. Statutory Guidance including Planning Policy Guidance Notes and DETR Circular 02/2000 for Part IIA.
6. Industry profiles, from original DOE publications

C) British Standards:

Various British Standards have been produced for investigation, analysis and reporting including:

1. BS 10175:2001 Investigation of potentially contaminated sites – Code of practice.
2. BS 5930 Code of practice for site investigation
3. ISO standards for analysis and sampling(such as 13530, 10381 series 1-4, 14507, 1689, etc

D) Construction Industry Research and Information Association:

Various industry best practice guidance including:

1. Volumes I-XII relating to site investigation and remediation.
2. Reports 130-131 and 149-152 relating to landfill gas issues.
3. SP124 Barriers Liners and Cover Systems

E) Building Research Establishment:

1. BRE Report BRE291 – Bibliography of Case Studies on Contaminated land: investigation, remediation and redevelopment
2. BRE Report BRE255 – Performance of Building Materials on in Contaminated Land
3. BRE Information Paper – IP2/87
4. BRE Report BRE212 – Construction of New Buildings on Gas Contaminated Land
5. BRE Report BRE 414 – Protection measures for Housing on Gas Contaminated Land
6. BRE Report BRE 465 – Cover Systems for Land Regeneration (not endorsed)

F) Health and Safety Executive:

Various publications relating to health and safety and contaminated land.

G) British Geological Survey:

Various publication, in particular geological mapping and associated regional memoirs and other information.

H) Private/Foreign Guidance:

There is a great deal of privately written and produced literature, both UK and foreign based, as well as much foreign public guidance/legislation that may be relevant to the UK situation.

Note of Caution : -

UK best practice and guidance is continually under development. The authors will not be held responsible for the current appropriateness of guidance or the degree to which this list may be considered exhaustive.

If you have any questions or concerns regarding how you provide information on the site history, or investigation and remediation works please contact the department and address given in **appendix 3** for the district or borough concerned:

Appendix 2 Useful profiles on contaminative uses of land.

DOE Industry Profiles (Copies available from: Publications Sales Unit, Block 3, Spur 7, Government Buildings, Lime Grove, Ruislip, HA4 8SF)

1. Airports
2. Animal and animal products processing works
3. Asbestos manufacturing works
4. Ceramics, cement and asphalt works
5. Chemical works: coatings (paints and printing inks)
6. Chemical works: cosmetics and toiletries
7. Chemical works: disinfectants
8. Chemical works: explosives, propellants and pyrotechnics
9. Chemical works: fertiliser
10. Chemical works: fine chemicals
11. Chemical works: inorganic chemicals
12. Chemical works: linoleum, vinyl and bitumen-based floor covering
13. Chemical works: mastics, sealants, adhesives and roofing felt
14. Chemical works: organic chemicals
15. Chemical works: pesticides
16. Chemical works: pharmaceuticals
17. Chemical works: rubber processing works
18. Chemical works: soap and detergent
19. Dockyards and dockland
20. Engineering works: aircraft
21. Engineering works electrical and electronic (incl equpt with PCBs)
22. Engineering works mechanical engineering and ordnance
23. Engineering works: railway engineering
24. Engineering works: shipbuilding, repair and breaking
25. Engineering works: vehicle manufacturing
26. Gas works, coke works and other coal carbonisation plants
27. Metal works: electroplating and other metal finishing
28. Metal works: iron and steelworks
29. Metal works: lead works
30. Metal works: non-ferrous metal works (excl lead)
31. Metal works: precious metal recovery
32. Oil refineries and bulk storage of crude oil and petroleum products
33. Power stations (excl nuclear power stations)
34. Pulp and paper manufacturing works
35. Railway land
36. Road vehicle: garages and filling stations
37. Road vehicle: transport and haulage centres
38. Sewage works and sewage farms
39. Textile works and dye works
40. Timber products manufacturing works
41. Timber treatment works
42. Waste: drum and tank cleaning, recycling
43. Waste: hazardous waste treatment
44. Waste: landfills and other waste treatment or waste disposal sites
45. Waste: metal recycling sites
46. Waste: solvent recovery works

47A. Charcoal works
47B. Dry-cleaners works
47C. Fibreglass and fibreglass resin works
47D. Glass manufacturing works
47E. Photographic processing industry
47F. Printing and bookbinding works

Appendix 3

Local Authority Contact Details

Organisation:	Bournemouth Borough Council
Address:	Bournemouth Borough Council
Town:	Town Hall, Bournemouth
County:	Dorset
Telephone Number:	(01202) 451451

Organisation:	Christchurch Borough Council
Address:	Council Offices
Town:	Christchurch
County:	Dorset
Telephone Number:	(01202) 495045

Organisation:	East Dorset District Council
Address:	Council Offices
Town:	Furzehill, Wimborne
County:	Dorset
Telephone Number:	(01202) 886201 ext. 2321

Organisation:	New Forest District Council
Address:	Appletree Court
Town:	Lyndhurst
County:	Hants
Telephone Number:	(023) 80285000

Organisation:	North Dorset District Council
Address:	Nordon Salisbury Road
Town:	Blandford Forum
County:	Dorset
Telephone Number:	(01258) 484311
Fax Number	(01258) 484298

Organisation:	Purbeck District Council
Town:	Wareham
County:	Dorset
Telephone Number:	(01929) 557267
Fax Number	(01929) 552688

Organisation:	West Dorset District Council
Town:	Dorchester
County:	Dorset
Telephone Number:	(01305) 251010
Fax Number	(01305) 252485

Organisation:	Weymouth and Portland BoroughCouncil
Town:	Weymouth
County:	Dorset
Telephone Number:	(01305) 760044