



A guide for the redevelopment of land affected by
contamination within Cannock Chase District

Contamination in or on land can present risks to human health and the wider environment. This can adversely affect or restrict the beneficial use of land, but often development presents the best opportunity to successfully deal with these risks. The planning system therefore has a key role to play in facilitating the development of land affected by contamination.

This guide has been prepared for those looking to develop land in Staffordshire where possible land contamination is known or suspected.

It aims to provide a step by step guide to what the Council will typically require to ensure that any land contamination issues are addressed and that the development will be safe for future occupiers.

This Guidance Note is intended as an informative and helpful source of advice. Readers must note that legislation; guidance and practical methods may be subject to change. Whilst all reasonable precautions have been taken to ensure that the information above is correct, the Council, its officers, servants or agents, will not accept any liability for loss or damage caused by any person relying on this information, or for any errors or omissions in the information provided.

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INTRODUCTION

Most land affected by contamination is dealt with through the planning system. The actual or possible presence of contamination is a **material planning** consideration. Failing to deal adequately with contamination could cause harm to human health, property and the wider environment. It could also limit or preclude new development; and undermine compliance with European Directives such as the [Water Framework Directive](#)

The role of the planning system is to control future development and land use. The assessment of risk arising from contamination and remediation requirements should be considered on the basis of both the current and proposed use. The underlying approach to identifying and dealing with risk and the broad policy objective of safeguarding human health and the environment are similar for both regimes.

As a minimum under planning legislation, land should not be capable of being determined as Contaminated land under [Part 2A of the Environmental Protection Act 1990](#) (National Planning Policy Framework [[NPPF](#)] Para 178) after remediation has taken place.

WHEN IS CONTAMINATION LIKELY TO BE PRESENT?

Land contamination is usually linked to brownfield sites, where past industrial activities might have negatively impacted land quality, but it cannot be ruled out in other locations including in the countryside (e.g. by inappropriate spreading of materials such as sludge, or as a result of contamination being moved from its original source). In addition, some areas may be affected by the natural or background occurrence of potentially hazardous substances, such as radon, methane or elevated concentrations of metallic elements.

As precaution, the possibility of contamination should always be assumed when considering developing sites on or near former industrial land or where the proposed end use are particularly sensitive to contamination such as, housing, schools or children's play areas.

Planning approvals on brownfield sites will usually have conditions attached requiring an investigation of land contamination.

PLANNING AND LAND CONTAMINATION

ROLE OF THE DEVELOPER

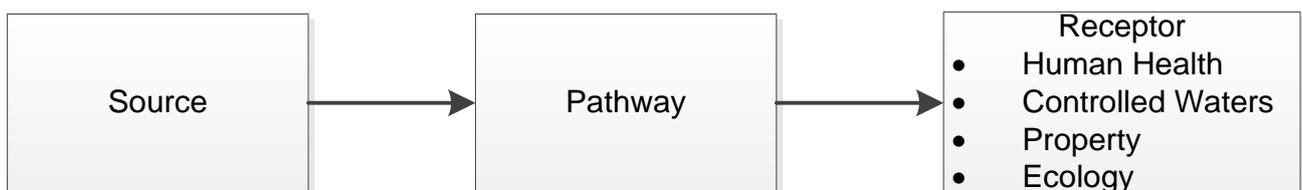
If there is a reason to believe contamination could be present on site, the developer should ensure that they carry out adequate investigations and risk assessments to ensure that any associated risks are fully understood and can be satisfactorily remediated to an acceptable level.

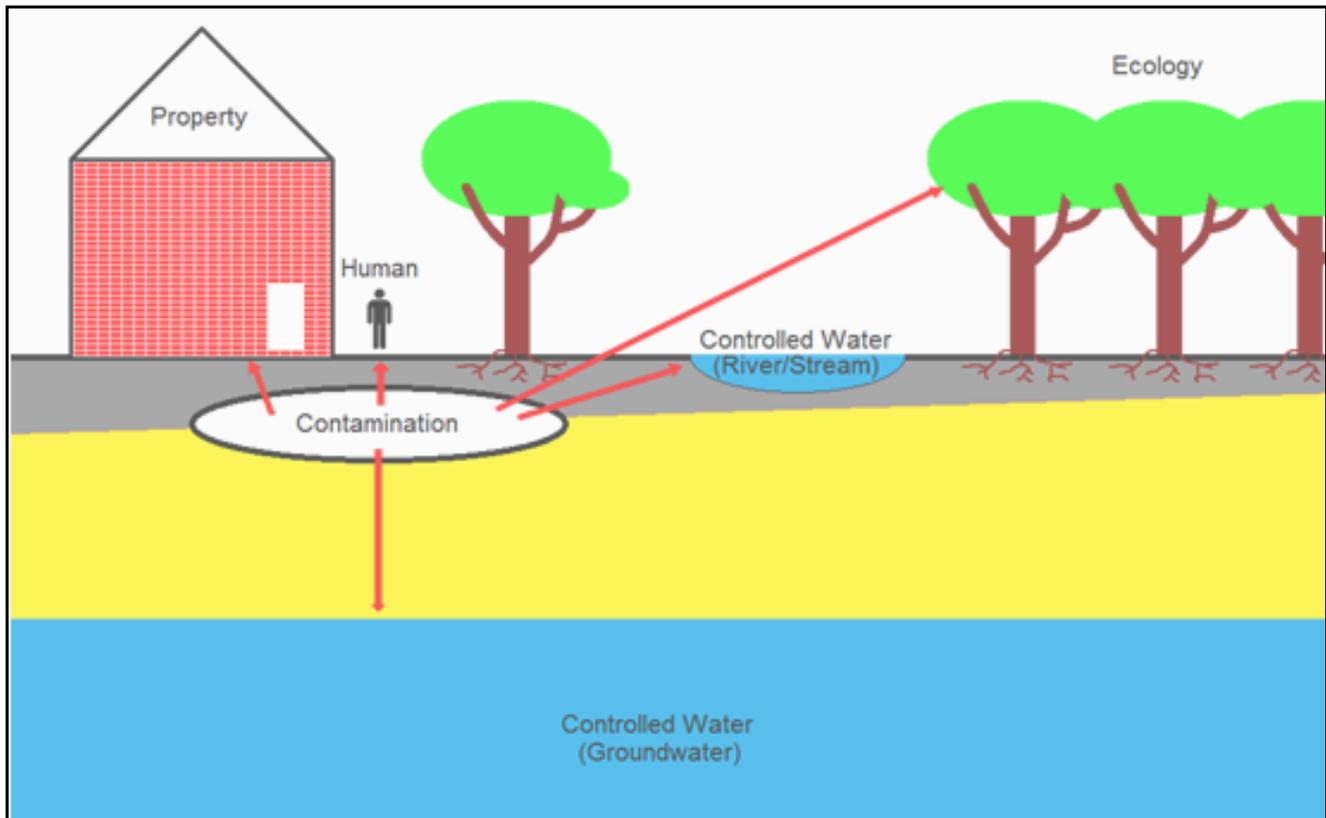
The risk assessment should all be prepared by competent persons as defined in Annex 2 of the [NPPF](#) .

Whilst the full risk assessment process can be detailed (Appendix 1) the aim of assessment is essentially to identify if there are the following three criteria present at the proposed site (known as a pollution linkage):

- A source of the contamination in, on or under the land.
- A route or pathway or by which the contamination may reach the receptors (for example, by a child putting contaminated soil in their mouth).
- Any existing or proposed receptors (defined as living organisms, ecological systems or property) present which may be harmed by the contamination

e.g. Pollution linkage





Further guidance on good practice in the management of land contamination can be found [here](#) at the UK government services website.

WHAT ARE MY LIABILITIES?

Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

Failure to appropriately address risks from land affected by contamination at the time of development could lead to planning enforcement action or possible action being taken under [Part 2A of the Environmental Protection Act 1990](#) (EPA, 1990).

All Local Authorities have a duty under this legislation to identify contaminated sites that pose a risk to health or the environment. Where such risks are identified the Local Authority has a duty to either bring about voluntary clean-up of the site or enforce the clean-up through service of notices, and possibly prosecution

In addition to the above if the developer does not address land contamination issues adequately; they are likely to face difficulty in selling those properties and may also have difficulty in obtaining building control approval (as land contamination is also a building control matter).

ROLE OF THE LOCAL PLANNING AUTHORITY

When a planning application is made, it is the Local Planning Authority's (LPA) duty to ensure that the developer undertakes this assessment and implements any remedial requirements in a responsible and effective manner.

If land contamination is a potential issue, a developer is likely to encounter the following people:

The **Planning Department** co-ordinates the planning process. When a planning application is made, the planning officer will seek the opinion of various professionals on a wide range of issues which are relevant to the application.

For land contamination, this will usually be the Council's Environmental Health Department and the Environment Agency.

All formal requests for the approval of land contamination conditions should be made through the planning officer.

The **Environmental Health Department** primarily deals with land contamination issues that affect human health, and will consider the potential implications of any land contamination on the health of those who will occupy or use the land after it has been developed.

For a housing development, this will be the future residents.

On rare occasions, impacts on ecology (for instance, a local nature reserve or site of special scientific interest), or ancient monuments may also be considered by the contaminated land officer.

The **Environment Agency** (EA) will consider the potential implications of any land contamination on controlled waters (groundwater or surface water bodies). The EA would also be responsible for issuing any [environmental permits](#) which may be needed to undertake certain remediation requirements.

Other statutory bodies and relevant local authority departments may also be consulted as necessary, including English Nature, English Heritage and the departments for building control, conservation and archaeology, and engineering.

PLANNING APPLICATION

If the presence of land contamination is suspected, then the submission of a preliminary risk assessment will be required as part of the application.

PRELIMINARY RISK ASSESSMENT

This should all be prepared by competent persons as defined in Annex 2 of the [NPPF](#) and must be of an acceptable minimum standard inline with [national guidance](#) to satisfy the contaminated land officer and EA.

This stage is often referred to as the 'phase 1' or 'desk study', but may also include a site walkover, to verify data and obtain additional information such as anecdotal evidence from employees. The aim of the desk study is to review the available information on a site and would typically include:

- Historic Ordnance Survey mapping.
- An environmental database report.
- Geological mapping.
- A Coal Authority Report
- A reconnaissance of the site (which provides information on the current status of the site, including any obvious signs of contamination).

The information is then used to assess whether land contamination is likely to be present and the possible risks that this poses to the proposed development (through the development of a preliminary conceptual site model). A subsequent 'intrusive' or '**QUANTITATIVE**' assessment will be required if such risks are identified.

An overview of the requirements of the preliminary and quantitative risk assessment are presented in [Appendix 1](#).

The Contaminated Land Officer and, where applicable, the Environment Agency will review the report and make comments and recommendations to the Planning Officer. The comments will be forwarded to the developer.

If a desk study and site reconnaissance is not submitted, or is not up to the required standard, the Contaminated Land Officer/Environment Agency may object to, or recommend refusal of, the planning application.

PLANNING CONSENT AND CONTAMINATION CONDITIONS

If land contamination issues are considered to be a potential issue, the Contaminated Land Officer will recommend that conditions are attached to the planning consent.

The developer will need to satisfy these planning conditions before any properties can be occupied. All risk assessments should all be prepared by competent persons as defined in Annex 2 of the [NPPF](#) and must be of an acceptable minimum standard inline with [national guidance](#) to satisfy the contaminated land officer and EA.

The model conditions that are usually attached to planning consents are reproduced below and include a brief overview of their requirements.

1. Site Characterisation

An investigation and risk assessment, in addition to any assessment provided with the planning application, must be completed in accordance with a scheme to assess the nature and extent of any contamination on the site, whether or not it originates on the site. The contents of the scheme are subject to the approval in writing of the Local Planning Authority. The investigation and risk assessment must be undertaken by competent persons and a written report of the findings must be produced. The written report is subject to the approval in writing of the Local Planning Authority. The report of the findings must include:

- (i). a survey of the extent, scale and nature of contamination;
- (ii). an assessment of the potential risks to:
 - human health,
 - property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes,
 - adjoining land,
 - groundwaters and surface waters,
 - ecological systems,
 - archeological sites and ancient monuments;
- (iii). an appraisal of remedial options, and proposal of the preferred option(s).

This must be conducted in accordance with DEFRA and the Environment Agency's 'Model Procedures for the Management of Land Contamination, CLR 11'.

This condition requires the developer to undertake a full contamination risk assessment. In addition to the requirements of the preliminary investigation, the developer will typically be required to undertake a full intrusive site investigation to obtaining soil/water samples from the site and having them analysed at a laboratory for contamination. This intrusive risk assessment is often referred to as Phase 2 assessment.

The aim of the investigation is to obtain enough information that all the associated contamination risks from the site are fully understood and an appropriate remediation approach can be developed.

The Contaminated Land Officer will be happy to review the scope of any proposed site investigation, as well as any draft reports, free of charge. The Environment Agency also provides this service, although a fee is payable.

The site investigation and revised risk assessment must be approved by the Contaminated Land Officer and (if applicable) the Environment Agency, before the condition can be recommended for discharged

2. Site Characterisation

A detailed remediation scheme to bring the site to a condition suitable for the intended use by removing unacceptable risks to human health, buildings and other property and the natural and historical environment must be prepared, and is subject to the approval in writing of the Local Planning Authority. The scheme must include all works to be undertaken, proposed remediation objectives and remediation criteria, timetable of works and site management procedures. The scheme must ensure that the site will not qualify as contaminated land under Part 2A of the Environmental Protection Act 1990 in relation to the intended use of the land after remediation.

This condition requires the developer to provide details of how they will remediate the site so that contamination present does not pose an unacceptable risk after the site has been developed.

The developer will also need to provide details of how they are going to demonstrate that the treatment has been successful.

The remediation scheme must be approved by the Contaminated Land Officer and (if applicable) the Environment Agency, before the condition can be recommended for discharging.

3. Implementation of Approved Remediation Scheme

The approved remediation scheme must be carried out in accordance with its terms prior to the commencement of development other than that required to carry out remediation, unless otherwise agreed in writing by the Local Planning Authority. The Local Planning Authority must be given two weeks written notification of commencement of the remediation scheme works.

Following completion of measures identified in the approved remediation scheme, a verification report that demonstrates the effectiveness of the remediation carried out must be produced, and is subject to the approval in writing of the Local Planning Authority.

The developer will need to provide a report to demonstrate that they have successfully remediated the site, to the standard that was previously agreed with the Council and (if applicable) the Environment Agency.

The verification report must be approved by the Contaminated Land Officer and (if applicable) the Environment Agency, before the condition can be recommended for discharged

4. Reporting of Unexpected Contamination

In the event that contamination is found at any time when carrying out the approved development that was not previously identified it must be reported in writing immediately to the Local Planning Authority. An investigation and risk assessment must be undertaken in accordance with the requirements of condition 1, and where remediation is necessary a remediation scheme must be prepared in accordance with the requirements of condition 2, which is subject to the approval in writing of the Local Planning Authority.

Following completion of measures identified in the approved remediation scheme a verification report must be prepared, which is subject to the approval in writing of the Local Planning Authority in accordance with condition 3.

On many sites, there will be areas that are potentially contaminated, but not identified by the original risk assessment investigations. An example might be an underground storage tank that is not shown on any site plans.

The developer is required to inform the Council if they encounter any suspicious features on the site in the course of development.

5. Importation of Soils

No soils are to be imported to the site until information on their source, the results of any soil analysis, and an assessment of their suitability for use has been submitted to and agreed in writing by the Local Planning Authority.

Prior to their import onto site, a suitable methodology for testing soils following their import and placement on the site should be submitted to and agreed in writing by the Local Planning Authority. The methodology should include:

- (i). The sampling frequency
- (ii). Testing schedules
- (iii). Criteria against which the analytical results will be assessed (as determined by the risk assessment)

The agreed methodology shall then be carried out and validity evidence submitted to and approved in writing to by the Local Planning Authority.

If soils are needed for garden areas, the developer will need to demonstrate that those soils are appropriate and not contaminated.

The only way to effectively demonstrate this is to carry out analysis of the soil following placement on the site, as this will account for any cross contamination that might have been introduced through poor handling.

There have been examples where a developer has remediated a site, only to import contaminated soil.

WHO SHOULD CARRY OUT THIS WORK?

As noted previously, all risk assessments should all be prepared by competent persons as defined in Annex 2 of the [NPPF](#) and must be of an acceptable minimum standard inline with [national guidance](#) to satisfy the contaminated land officer and EA.

Land contamination can be a highly technical area and therefore the developer should engage the services of an appropriate professional to undertake this work on their behalf.

The Council may reject a report from someone if they cannot demonstrate an adequate standard of professional competence.

The Council is unable to recommend any specific consultants.

An internet search for 'Environmental Consultant' or 'Contaminated Land Consultant' should highlight some consultancies. It is advisable to discuss the specific requirements with that consultant, and to obtain a number of quotes, before proceeding.

The consultant may also be able to offer advice on other development issues, such as coal mining and ground conditions, at the same time as land contamination.

There are currently no formal registration schemes for contaminated land professionals, although some indications of professional competence include:

- An appropriate chartership, such as:
 - Chartered geologist.
 - Chartered environmentalist.
 - Chartered engineer.
 - Chartered scientist.
 - Chartered member of the Chartered Institute of Water and Environmental Management (CIWEM).
- A registered Specialist in Land Condition (SiLC).
- Someone registered on the National Quality Mark Scheme for Land Affected by Contamination.
- Someone registered on the Society of Brownfield Risk Assessment (SoBRA) register of contaminated land risk assessors.

<p>The engagement of a chartered professional, or someone registered on a professional scheme, offers no guarantee of the acceptance of their report by the Council.</p>
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Email: developmentcontrol@cannockchasedc.gov.uk

Web: <http://www.cannockchasedc.gov.uk/residents/development-control>

Environmental Protection Section (Environmental Health Department)

Email: environmentalhealth@cannockchasedc.gov.uk

Web: <http://www.cannockchasedc.gov.uk/residents/environmental-protection>

Environment Agency

Tel: 03708 506 506

Email: enquiries@environment-agency.gov.uk

Web: <https://www.gov.uk/government/organisations/environment-agency>

OVERVIEW OF A CONTAMINATED LAND RISK ASSESSMENT

REPORT REQUIREMENTS

Information submitted in support of planning applications must be of an acceptable minimum standard in order to satisfy the EHD and LPA. The following guidance aims to inform developers of the procedural requirements of a risk-based approach to land contamination, as defined in current UK legislation and guidance.

Further guidance on good practice in the management of land contamination, and detailed technical framework for investigating and dealing with land affected by contamination is contained within the document 'Model Procedures for the Management of Land Contamination, CLR 11' can be found [here](#) at the UK government services website.

Failure to provide adequate reports may result in significant delays in the planning process or planning permission being refused by the LPA. Any site that is not remediated to an appropriate standard may be inspected and subsequently determined by the local authority as contaminated land under Part IIA of the EPA 1990.

STAGE 1- RISK ASSESSMENT

The procedure for investigating a potentially contaminated site should meet the criteria outlined in British Standard (BS) 10175 "Investigation of Potentially Contaminated Sites – Code of Practice". Typically, a report submitted in support of a planning application would generally include the following four components:

- Phase 1/ preliminary investigation
- Phase 2/ intrusive investigation
- Remediation strategy
- Verification report

Risk assessment should be considered an iterative process and it may become necessary to revise assumptions made in the early stages of the assessment, as more information becomes available about the site. It is generally split into 2 phases a phase 1, **preliminary investigation/assessment**, and if required a phase 2 **detailed investigation and quantitative risk assessment**. A phased investigation allows the results of each stage to be scrutinised and used to devise the next phase of work. The developer is encouraged to submit each phase to

the council at the earliest opportunity for approval. This may prevent avoidable delays and may indicate that full intrusive investigation and quantitative risk assessment is not required, thus avoiding unnecessary works and costs.

Where significant contamination issues are anticipated on a development, developers are encouraged to undertake pre-application consultation with the Environmental Health Department, Local Planning Authority and/or the Environment Agency

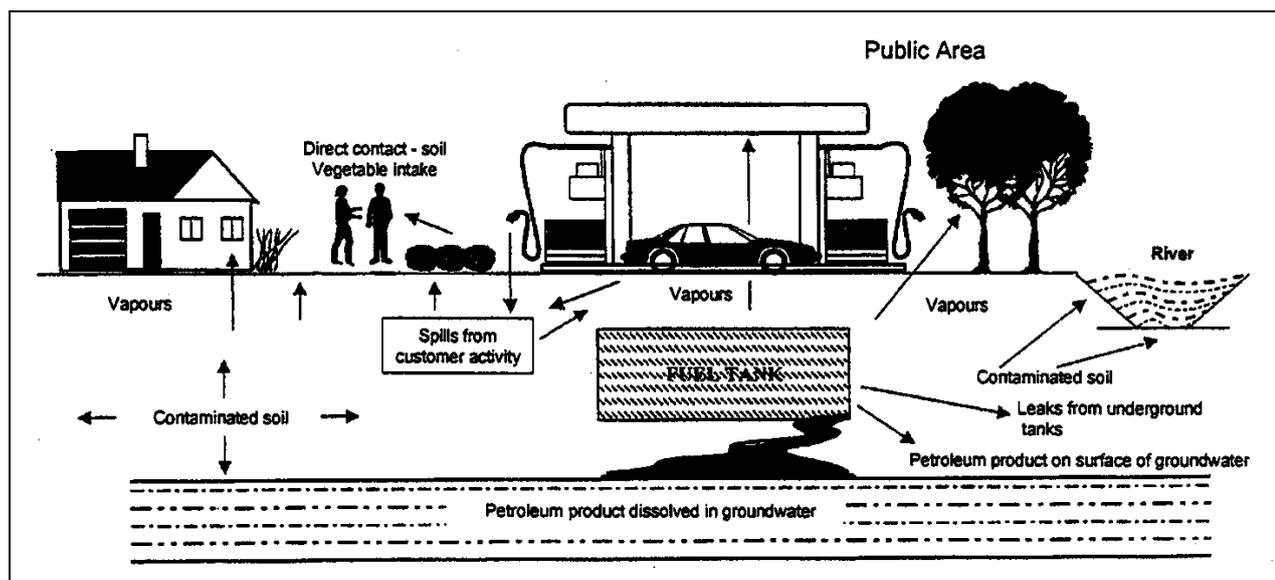
All investigations must be undertaken by a suitable person who can demonstrate that they possess the knowledge, skills and experience necessary to satisfy all parties.

PRELIMINARY RISK (OR 'PHASE I') ASSESSMENT

This stage is often referred to as the 'desk study', but may also include a site walkover, to verify data and obtain additional information such as anecdotal evidence from employees. The purpose of the preliminary risk assessment is to develop an outline conceptual model and establish whether or not there are any potentially unacceptable risks arising from contamination at the site.

The conceptual model

The conceptual model should provide a clear interpretation of all plausible pollutant linkages (source-pathway-receptor relationships) by identifying all possible sources of contamination at the site, all possible receptors (e.g. humans, controlled waters, wildlife and buildings) that each contaminate might affect and the pathway or route by which each contaminate might reach a receptor (e.g. direct contact, inhalation, off-site migration into watercourses). The conceptual model should consider both current and future site uses when determining all plausible pollutant linkages.



Required information

In order to establish the information required for the preliminary risk assessment a Phase 1 investigation typically consists of a desk study and site walkover. All collected information should be supported by documentary evidence (such as historical maps, photographs and former site layouts etc) and should be appended to any report to demonstrate how the conceptual model has been produced.

Desk study

The desk study comprises a search of available information about the site and its immediate environment. This should clearly identify any previous contaminative uses of the site or nearby land, and the relevant physical, chemical and biological characteristics. This should include:

- A map of the site showing its location (grid reference and address), as well as details of the current and planned layouts of the site.
- Details of site history:

Experience and consideration of site histories should be used to predict the principal contaminants likely to occur on particular types of sites. Such understanding is crucial in defining the need for and scope of any subsequent review, investigation and remediation. The former Department of the Environment produced a series of industry profiles that provide details of principal contaminants likely to be associated with each particular industry.

- Information from the Environmental Agency on controlled waters, abstractions, pollution incidents, water quality classification, landfill sites within 250m.
- Information on ecosystems, heritage and other interests.
- A review of any previous studies, ongoing monitoring, remediation work etc should be provided for both the site and any adjacent sites.
- Details of services on site.
- Any existing documented records relating to the site's condition.

Site walkover

A site walkover should be undertaken to confirm the information in the desktop study, locate and record condition of features and plan further site investigation works (if appropriate). Anecdotal evidence from local interviews may provide additional useful information.

Required Output

The phase 1 report should conclude with an evaluation of the conceptual model to identify if any plausible pollutant linkages exist and then be submitted to the council prior to any further site works proceeding, to ensure they are satisfied with the content, conclusions and recommendations made. If this preliminary assessment clearly demonstrates that no plausible pollutant linkages exist, then further assessments may not be required. If the conceptual model indicates that possible pollution linkages exist on the site, further Phase 2 risk assessment will be required. The developer/site owner should engage an appropriately experienced environmental consultant to undertake site assessment. We will require that the objectives, scope and execution of such assessments be agreed in advance and the resulting report/s provided in full.

QUANTITATIVE RISK (OR 'PHASE II') ASSESSMENT (QRA)

The aim of the Phase 2 investigation is to reduce the uncertainties identified in the initial conceptual model by quantifying the risk associated with the identified pollution linkages. The Phase 2 report generally consists of an intrusive site investigation and a QRA. The purpose of the investigation is to:

- Refine and update the conceptual model.
- Confirm pollutant linkages.
- Evaluate if the significant possibility of significant harm (SPOSH) exists for the identified pollution linkages.
- Provide the basis for identifying suitable remediation options when unacceptable risks are identified at the site.

Intrusive site Investigation

Further information on the presence and extent of contaminants, pathways and receptors and other site characteristics required for the QRA are gathered through intrusive site investigations. The Phase 2 assessment will confirm site specific conditions, such as geology and hydrogeology that were identified during the Phase 1 assessment and seek to clearly identify and characterise plausible source-pathway-receptor linkages at the site and provide information for the refinement of the initial conceptual model. To ensure confidence in the decisions made, it is essential that the soil sampling strategy is appropriate and that the data is adequately evaluated.

Site Sampling

The sampling strategy employed should be designed to provide data that is representative of the site conditions as a whole. The sampling strategy should be developed with reference to information collected in Phase 1 (e.g. site history) and such, that appropriate statistical analysis

can be used to examine and interpret the data. Sampling should be undertaken in accordance with recognised sample collection methodology and guidance. Every precaution must be taken to ensure that site investigations do not introduce or mobilise contaminants or create new pathways. Any visibly contaminated or odorous material encountered during site investigations should be investigated and the EHD informed immediately

The report should include full justification for the chosen sampling regime, including limitations and include a detailed plan showing the location of sampling points, and methods employed to collect the samples.

Sample Analysis

Collected samples should be sent for appropriate analytical analysis at a laboratory that holds a relevant accreditation for each contaminant. Reference to the historical site information and initial conceptual model should be used to ensure that analysis for appropriate contaminants is conducted.

The Environment Agency has established the Monitoring Certification Scheme (MCERTS) to improve the quality of monitoring data. The Environment Agency strongly encourages the use of the MCERTS standard where reports are submitted for planning purposes. Further details on MCERTS are available on the Environment Agency's website.

The report should include full justification for the chosen analysis together with summary tables of results. A full set of results including, where appropriate, borehole logs, and accreditation details of the analytical technique used, including limits of detection, should be appended to the report.

Data Analysis

To obtain an accurate assessment of the sources, distribution and concentration of contaminants across the site it is essential that data from the intrusive investigation are examined correctly. Assuming that an appropriate sampling strategy has been developed and implemented, statistical analysis can help by providing a systematic and objective way of examining, presenting and interpreting data.

Reports should include information to show:

- That data is sufficient, relevant and reliable.
- Sample data is unbiased.
- Assumptions regarding the normality of the data must be tested and statistical outliers identified.

Once checked, the summary data in reports should include:

- the arithmetic sample mean,

- the standard deviation,
- the maximum value

As it is likely that contaminant concentrations vary across a site, and the measured mean concentration, derived from a limited number of samples, may not equal the “true” mean, it is recommended that, if results are to be used in further risk evaluation, the 95% confidence limits of the measured mean of a contaminant be derived.

RISK EVALUATION

As a result of the site investigations, the conceptual model should be refined and pollutant linkages confirmed. The risks associated with those linkages should then be evaluated by comparing a representative contaminant concentration against either relevant generic or site-specific assessment criteria or a combination of both.

Generic Assessment Criteria (GAC) needs updating

If generic assessment criteria values are used to determine if pollution linkages constitute SPOSH, it should be demonstrated within the report that they conform to current UK Government policy objectives, guidance and legislation.

The Contaminated Land Exposure Assessment (CLEA) Model has have been specifically designed to meet this criteria for human health. CLEA has been used to generate Soil Guideline Values (SGV's) for three typical land uses; residential, allotments and commercial/industrial. However, at present only a limited number of SGV's have been determined for a few key contaminants.

Reference may be made to other GAC or reports produced by authoritative organisations if their use can be justified in the UK context [e.g. American USEPA Soil Screening Levels (SSL) and the Dutch Serious Risk Concentrations (SRC)]. The report should include justification of their use by demonstrating that they are relevant to the pollution link in question, and the assumptions underlying the derivation of any numerical values in the guideline values (e.g. assumptions regarding the behaviour of potential pollutants, toxicological data and the availability of receptors) are relevant to the circumstances of the pollution linkage in question or appropriate adjustments have been made to allow for these differences.

Following the initial risk assessment against the appropriate guideline values, a decision must be taken about the next course of action. This may be to either design a remediation strategy on the basis of the available data or to carry out a more comprehensive site-specific risk assessment using an industry standard model.

Detailed Quantitative Risk Assessment (DQRA)

If suitable GAC are not available or have identified a potential risk from pollution linkage, it may be necessary to generate site-specific criteria. Values derived from DQRA must be able to

demonstrate transparency in the procedures used, evidence of sound science and clarity in the assumptions made.

This assessment is usually undertaken using one of a number of commercially available risk assessment tools. The CLEA model assesses the risks to human health and has been developed specifically for to take into account UK conditions. There are a number of other risk assessment tools that have been developed for assessing risk to different receptor groups (e.g. SNIFFER, RBCA, RischHuman, Landsim).

Whatever model is used, it is again important to justify their use within the report by demonstrating that they are relevant to the pollution link in question and the assumptions underlying the derivation of any numerical values (e.g. assumptions regarding the behaviour of potential pollutants, toxicological data and the availability of receptors) are relevant to the circumstances of the pollution linkage in question or appropriate adjustments have been made to allow for these differences.

In addition, the report should clearly detail and justify each of the user dependant input parameters, particularly highlighting sensitive parameters that may greatly affect model output.

We will require further information where we are not confident about the conclusions reached (for example where an investigation has not been carried out in accordance with current good practice).

STAGE 2 - OPTIONS APPRAISAL

The Phase 2 report should conclude with the refinement of the initial conceptual model, highlighting all relevant pollutant linkages that have been identified during the risk assessment stage that may constitute SPOSH and so represent an unacceptable risk to human health or the environment. If appropriate, the report should then seek to establish which remediation option, or combination of options, provides the best approach to remediation all relevant pollutant linkages.

The selection of the appropriate remediation strategy should be discussed with the advantages and disadvantages of each option considered and reasons should be given for the chosen option, or combination of options.

This must ensure that:

- All relevant pollutant linkages are considered and addressed.
- Site-specific remediation objectives are identified and remediation criteria for measuring compliance against these objectives, derived.
- The requirement for waste management licences, environmental permits, discharge consents etc are taken into account.
- The health impacts to site workers and the public are considered.

The Phase 2 report should then be submitted to the EHD prior to any further site works proceeding to ensure they are satisfied with the content, conclusions and recommendations made.

STAGE 3 - REMEDIATION STRATEGY

Once the Phase 2 report has been agreed, the developer should produce a remediation strategy. This should clearly set out how the remediation options selected for each relevant pollutant linkage, or combination of options, will be put into place at the site. It should provide a clear picture of how relevant pollutant linkages will be remediated and should include all aspects of the design, preparation, implementation, verification and long-term monitoring and maintenance of the remediation. Practical issues such as zoning and phasing of remediation and proposals for obtaining the appropriate environmental licences, permits etc. should be addressed within the Remediation Strategy.

The key requirements of a remediation strategy are:

- The conceptual model, highlighting all relevant pollutant linkages that have been identified
- Site remediation criteria derived for relevant pollutant linkages
- Summary of the options appraisal of the proposed remediation scheme and how the chosen scheme will achieve site remediation criteria.
- Method statements and specifications for the proposed works
- A verification plan detailing the data gathering requirements necessary to demonstrate the means for demonstrating compliance with site remediation criteria.
- Details of any proposed monitoring and maintenance programmes

We will require that an appropriately qualified project manager supervise any agreed required remediation, including the documented identification, handling and fate of contaminating or contaminated material. The appointed persons or organisations will be responsible for the certification of the site remediation work and for its compliance with the agreement remediation strategy, the recommendations of the consultant, and the requirements of other regulatory agencies for example the EA.

The remediation strategy should then be submitted to the EHD prior to any further site works proceeding, to ensure we are satisfied with the content, conclusions and recommendations made.

During remediation works if any unsuspected contamination is identified then the EHD should be contacted immediately, in order to discuss a strategy for the treatment or removal of the contaminated material.

VERIFICATION REPORT

It is important that remediation is undertaken in accordance with the proposed remediation strategy, and that accurate documentary evidence is maintained so that it can be summarised as part of a Verification Report. Once the site remediation is complete, the Verification Report should demonstrate that the agreed site remediation criteria have been achieved.

This report should provide a full record of all remediation activities carried out at the site and data collected in accordance with the requirements of the Verification Plan.

The documentary evidence may include copies of waste transfer notes, ground level surveys to demonstrate the depth of caps installed, photographic evidence of installed features and results of chemical analysis of soils/groundwater undertaken during remediation (including testing of soils and materials transported onto the site, from offsite sources).

The Verification Report should be submitted to the EHD at the end of the remediation work. The EHD may require reports on the verification works to be phased in order to monitor progress. This would be an additional reporting requirement and would not replace the need for a final completed version of the report.

Recommendations to the LPA to discharge contaminated land conditions will only be made once the EHD has received and approved a satisfactory verification report.

PART IIA, ENVIRONMENTAL PROTECTION ACT 1990

Part IIA of the Environmental Protection Act 1990 was brought into force on 1st April 2000. It requires local authorities to identify contaminated land in its area and secure its remediation. Part IIA provides a narrow definition of contaminated land. To fall within this definition the land, when assessed in the context of its current use must be capable of causing either significant harm or the significant possibility of significant harm to human health and/or to other specified receptors, or pollution of controlled waters or the significant possibility of pollution of controlled waters. Where contaminated land is identified, details of the contamination and any remediation undertaken will be placed on a Public Register. The narrow definition of contaminated land means that the number of sites that will be determined as contaminated land by the Council is likely to be small.

A site that contains contaminants, which in its current use does not have the potential to cause significant harm will fall outside Part IIA. It is government policy that these sites will be dealt with through the planning and development control system as and when they are brought forward for development. In such circumstances the developer must provide the Council with enough information to enable it to decide that the site will be suitable for use. For some sites that are identified as contaminated land under Part IIA, redevelopment of the land may be a cost-effective solution for securing remediation. In such circumstances action taken under the planning regime to ensure that land is suitable for use would also satisfy the Part IIA regime and turn a liability into an asset.

ADDITIONAL REFERENCE MATERIAL

Guidance

- British Standards Institution. 2001. BS 10175: Investigation of potentially contaminated sites. Code of practice
- BURA, 2001. Breaking Old Ground: BURA Guide to Contaminated Land Assessment and Development.
- CIRIA, 2018. A Guide to Small Brownfield Sites and Land Contamination¹.
- CIRIA. 3. Comprehensive guidance on all aspects of developing contaminated land, SP101-SP112, SP119, R131, R149-R152. CIRIA, London
- DEFRA/EA, 2002. CLR7: Assessment of Risks to Human Health from Land Contamination: An Overview of the Development of Soil Guideline Values and Related Research
- DEFRA/EA, 2002. CLR8: Priority Contaminants for the Assessment of Land
- DEFRA/EA, 2002. CLR9: Contaminants in soils: Collation of Toxicological Data and Intake Values for Humans
- DEFRA/EA, 2002. CLR10: Contaminated Land Exposure Assessment Model (CLEA): Technical Basis and Algorithms
- DEFRA/EA, 2002. CLR11 Model Procedures for the Management of Land Contamination
- DEFRA/EA "Tox" series: Contaminants in Soil: Collation of Toxicological Data and Intake Values for Humans [name of contaminant]. TOX1 Arsenic; TOX3 Cadmium; TOX4 Chromium; TOX5 Inorganic cyanide; TOX6 Lead; TOX7 Mercury; TOX8 Nickel; TOX10 Selenium

¹ <https://www.nhbcfoundation.org/publication/small-brownfield-sites-land-contamination/> and https://www.ciria.org/News/CIRIA_news2/Small_brownfield_sites_and_contaminated_land_guidance.aspx

- DEFRA/EA "SGV" series: Soil Guideline values for [name of contaminant] contamination in soils. SGV1 Arsenic;SGV3 Cadmium; SGV4 Chromium; SGV5 Inorganic Mercury; SGV7 Nickel; SGV9 Selenium; SGV10 Lead
- Department of the Environment, 1992. Waste Management Paper No. 27. Landfill Gas: A Technical Memorandum Providing Guidance on the Monitoring and Control of Landfill Gas
- Department of the Environment, 1995/96. DOE Industry Profile Series
- DETR, 2000. Circular 02/2000 Contaminated Land
- DETR, 2000. The Contaminated Land (England) Regulations 2000
- DETR, 1999. PPG10 Planning and Waste Management
- Environment Agency, 2005 Guidance on Requirements for Land Contamination Reports Version 1.
- Environment Agency, 2001. Secondary Model Procedures for the Development of Appropriate Soil Sampling Strategies for Land Contamination. Environment Agency R&D Technical Report P5-066/TR
- Environment Agency, 2001. Technical aspects of site investigation. Environment Agency R&D Technical Report P5-065/TR
- Environment Agency & NHBC, 2000. R&D Publication 66. Guidance for the Safe Development of Housing on Land Affected by Contamination
- Health & Safety Executive, 1991. Protection of Workers & the General Public during the Development of Contaminated Land
- Office of the Deputy Prime Minister, 2004: Planning Policy Statement 23: Planning and Pollution Control: Annex 2, Development on Land Affected by Contamination.
- Office of the Deputy Prime Minister. The Building Regulations 2000, Site Preparation and Resistance to Contaminants and Moisture, Approved Document C
- Wilson S. A. and Card G. B. 1999. Reliability and Risk in Protection Design, Ground Engineering