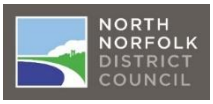
Development on Land Affected by Contamination

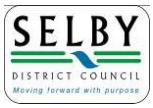
Technical Guidance for Developers, Landowners and Consultants

Yorkshire and Lincolnshire Pollution Advisory Group

Version 10.3 – April 2019

The purpose of this guidance is to promote consistency and good practice for development on land affected by contamination. The local authorities in YALPAG who have adopted the guidance are shown below along with some authorities from the **North East of England** and those of the **Norfolk Environmental Pollution Group**





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Disclaimer

This guidance is intended to serve as an informative and helpful source of advice. It is intended to review this guidance annually, but readers must note that legislation, guidance and practical methods are inevitably subject to change and therefore should be aware of current UK policy and best practice. This note should be read in conjunction with prevailing legislation and guidance, as amended, whether mentioned here or not. Where legislation and documents are summarised this is for general advice and convenience, and must not be relied upon as a comprehensive or authoritative interpretation. Ultimately it is the responsibility of the person/company involved in the development or assessment of land to apply up-to-date working practices to determine the contamination status of a site and the remediation and verification requirements.

Acknowledgments

YALPAG would like to thank City of York Council, City of Lincoln Council, Harrogate Borough Council, Hull City Council, Leeds City Council, Durham County Council and Kings Lynn & West Norfolk Borough Council for producing this guidance.

Consultation

39 Local Authorities and 15 Environmental Consultants were consulted over a four week period in 2011 during the production of this guidance. At that time, consultation comments were considered by the review panel and a number of revisions were made to the guidance to reflect these comments. This guidance has been reviewed annually, given that no major changes have subsequently taken place, only Local Authorities were consulted during the production of Version 10.2 of the guidance.

Introduction

Land may be affected by contamination if substances present in, on or under the land are actually or potentially hazardous to people or the environment. Much of today's land contamination originates from polluting industrial processes from the 19th and 20th centuries. Contamination can also sometimes be caused by agricultural activities or by naturally occurring sources (e.g. radon gas/coal gas from underlying rock or ground gases from peat deposits).

The purpose of this guidance is to assist developers, landowners and consultants who intend to introduce a vulnerable end use (e.g. a residential development) to land, or wish to redevelop or significantly change the use of land/buildings which could potentially be contaminated.

The guidance specifies what information should be submitted to the Local Planning Authority. All aspects of investigations into possible land contamination should follow the guidelines within CLR11 Model Procedures for the Management of Land Contamination (Environment Agency, 2004), in line with current best practice.

Failure to comply with this guidance is likely to result in delays in your planning application being processed or in your planning application being refused.

Why is Land Contamination a Concern?

As stated in the National Planning Practice Guidance, 'Land affected by contamination' category (Department for Communities & Local Government, 2014), '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 presence of contamination does not necessarily present an unacceptable risk. Risk exists when a source (a contaminant) and a receptor (e.g. people, groundwater, rivers or the wider environment) both exist at a site with a pathway linking the two. This is known as a pollutant linkage (also referred to as a contaminant linkage). For example, people can be affected by contaminants in soil by eating vegetables grown in that soil. Contamination may be present in various forms, including chemical, biological or radioactive. Development can create risk by introducing new pathways and also by introducing new receptors e.g. by introducing residents to a site affected by contamination.

Where a proposed development introduces a vulnerable end use (see Appendix 1A) and/or the development site could be affected by a former potentially contaminative land use (see Appendix 1B), the possibility of land contamination should always be considered.

Planning

The role of the planning process is to ensure that land is made suitable for its proposed future use. The National Planning Policy Framework (NPPF) aims to encourage sustainable development and the reuse of brownfield land.

All planning applications (including prior approval applications) have to be considered for potential contamination issues to ensure compliance with the Town and Country Planning Act 1990, the NPPF and the Council's Local Plan. The NPPF states that 'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.' (Department for Communities & Local Government, 2018).

On any site where there is the potential for contamination to influence the site, or where the proposed development is vulnerable, the Planning Officer will consult with the Council's Contaminated Land Officer. The Contaminated Land Officer will then assess the application and may recommend that further information be submitted or planning conditions be imposed upon the development, to ensure that the site will be suitable and safe for the end users, the environment and the public. The Planning Officer will consult with the applicant/agent regarding any possible pre-commencement conditions (planning conditions which prevent development from commencing until further details have been approved) Such conditions are usually required where contamination is a possible issue unless sufficient investigation works have been carried out in advance. Conditions requiring remediation works however will usually still form a pre-commencement condition. Advice should be sought from the Council's Planning department and Contaminated Land Officer.

The Developer's Responsibility

Where a development is proposed, it is the responsibility of the developer to ensure that issues of land contamination are appropriately considered, that remediation takes place (where necessary) and that the land is safe and 'suitable for use' i.e. the site is cleaned up to a level which is appropriate for the proposed end use.

As per the NPPF, it is the developer's responsibility to ensure that the investigation and remediation of land contamination (Phases 1 to 4) is carried out by a competent person with a recognised relevant qualification and sufficient experience in contaminated land i.e. an environmental consultant. **Carrying out unacceptable or insufficient work, or submitting unsuitable or incomplete reports to the Local Planning Authority, may lead to delays and additional costs. Please note that anonymous reports will not be accepted.**

Please note that each phase, including the Local Planning Authority's review of each report and subsequent approval, may take considerable time to complete. These timescales should be factored into the developer's overall project plan.

This guidance addresses land contamination only, but please be aware that investigation and remediation work can sometimes require permits or consents. For example, from the Environment Agency, Coal Authority or the Local Planning Authority.

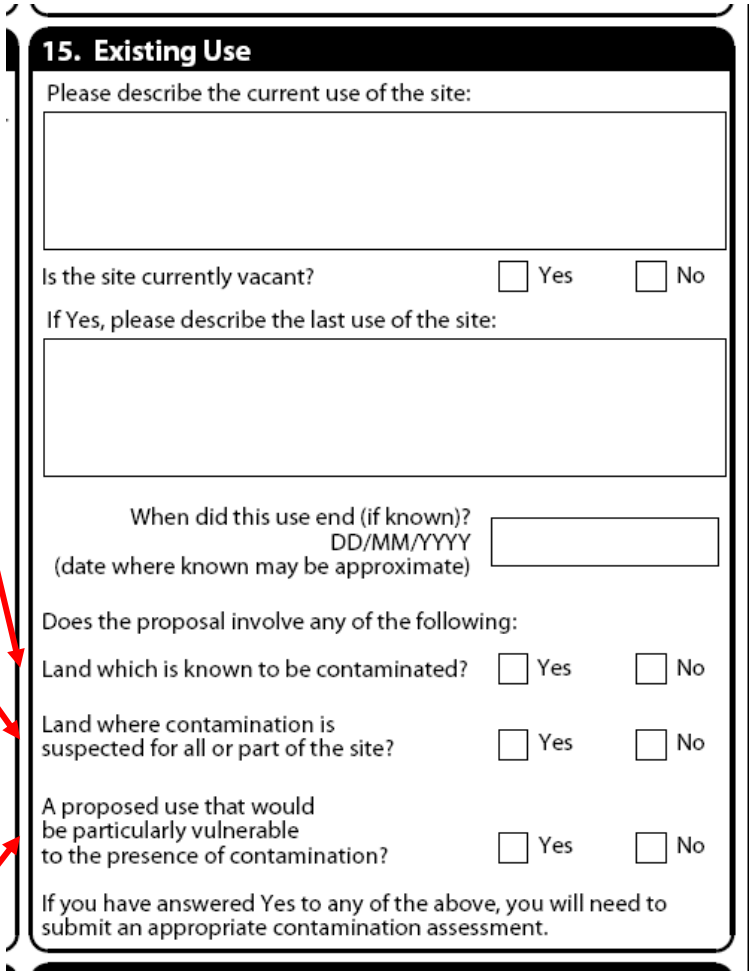
Completing the 'Existing Use' Section of the Planning Application Form

Some of the national planning application forms (1APP) include a section on land contamination. The 'Existing Use' section is usually Question 14 or 15, but can vary depending on the type of application form used. This section requires the applicant to identify if there is a potential for land contamination at the site or if a vulnerable use is being introduced. Applicants must address the questions in the 'Existing Use' section (shown overleaf) when preparing a planning application.

Land which is known to be contaminated
This includes a development on land which has known contamination, or on land which is known to be affected by contamination.

Land where contamination is suspected for all or part of the site
This includes a development on or near land, which has had a potentially contaminative use. Further information on potential contaminative activities can be found in Appendix 1B. It should be noted that contamination is not restricted to land with previous industrial use; it can occur on greenfield sites as well as on previously developed land.

A proposed use that would be vulnerable (see Appendix 1A) to the presence of contamination
For residential buildings, this includes any development of one or more dwellings.



15. Existing Use

Please describe the current use of the site:

Is the site currently vacant? ☐ Yes ☐ No

If Yes, please describe the last use of the site:

When did this use end (if known)? DD/MM/YYYY (date where known may be approximate)

Does the proposal involve any of the following:

Land which is known to be contaminated? ☐ Yes ☐ No

Land where contamination is suspected for all or part of the site? ☐ Yes ☐ No

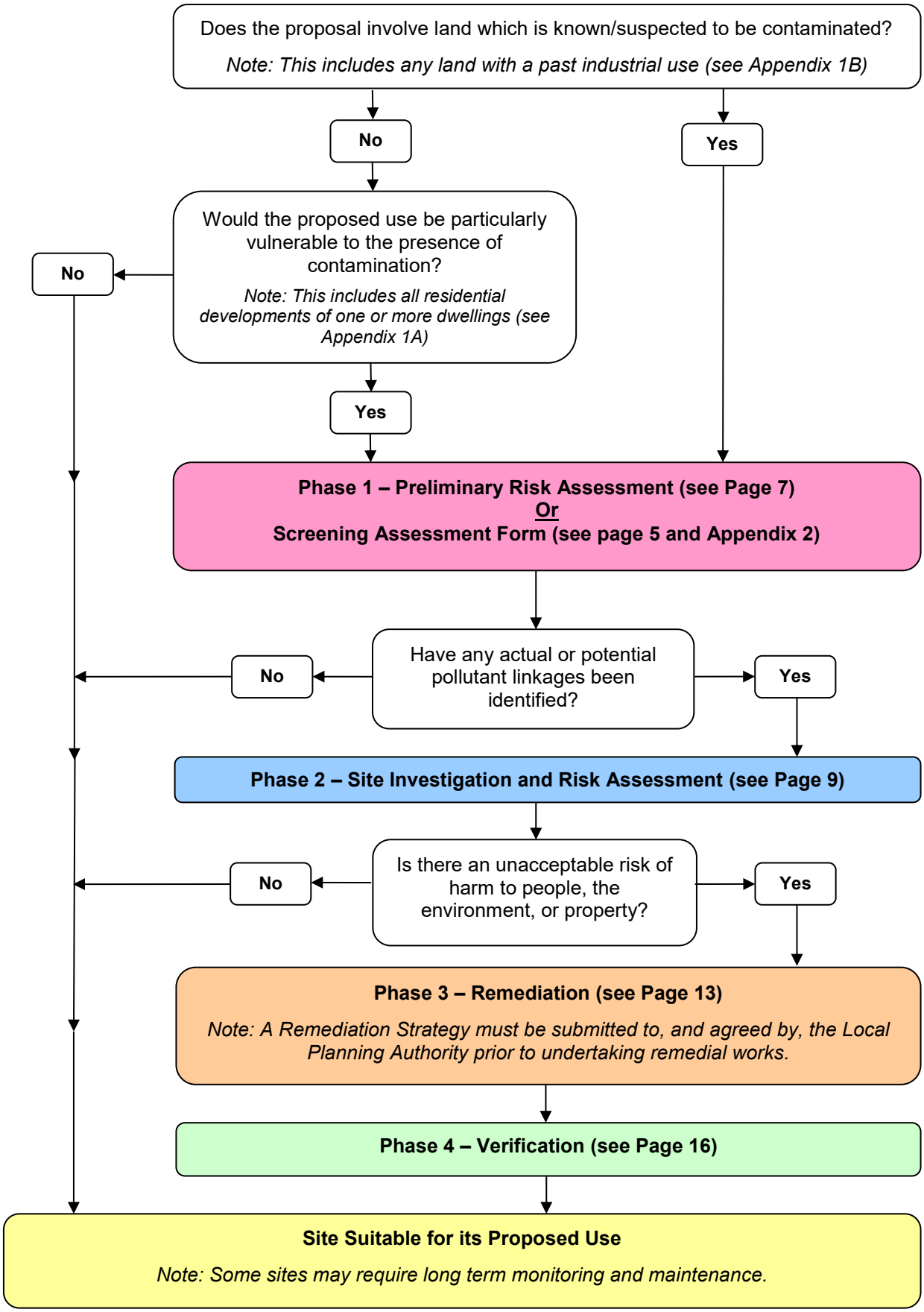
A proposed use that would be particularly vulnerable to the presence of contamination? ☐ Yes ☐ No

If you have answered Yes to any of the above, you will need to submit an appropriate contamination assessment.

If the answer to any of the questions in the 'Existing Use' section is 'Yes', then an appropriate contamination assessment must be submitted with the planning application. As a minimum a contamination assessment must include a Phase 1 investigation, which consists of a desk study, a site walkover and a conceptual site model – see page 7 for further details. If contamination is known or suspected to an extent which may adversely affect the development, a Phase 2 investigation (and possibly a Phase 3 report) may be required to support the application. You may wish to contact the Council's Contaminated Land Officer for advice.

If you are undertaking a small development, e.g. one house in a garden, the Screening Assessment Form in Appendix 2 can be used as a basic contamination assessment. Speak to the Contaminated Land Officer in the relevant Planning Authority with regard to any other situations where the use of this form may be acceptable. The form guides you through the development proposal and previous uses of the site to aid in the decision as to whether land contamination is an issue. If no potential sources of contamination are identified, then no further work will be required (subject to review and agreement by the Council's Contaminated Land Officer). If potential sources of contamination are identified, then further investigation will be required and you should contact the Council's Contaminated Land Officer for advice. Please ensure that the Screening Assessment Form is submitted with your planning application.

Flow Chart for the Phased Investigation of Land Affected by Contamination



Phase 1 – Preliminary Risk Assessment

The purpose of a Phase 1 assessment is to obtain a good understanding of a site's history, its setting and its potential to be affected by contamination. Failure to demonstrate this may result in the Local Planning Authority refusing a planning application, as important information could be missed.

Phase 1 (referred to as a contamination assessment on the planning application form) comprises a desk study, a site walkover and a conceptual site model, with the findings compiled in a Phase 1 report. The results of a Phase 1 assessment will determine if further investigation is required.

Please note that the submission of a commercial environmental search (produced by Sitecheck, Envirocheck, Homecheck or Groundsure etc) on its own is not sufficient to meet the requirements of a Phase 1 report. These reports may contribute useful factual information about the site but do not contain the level of interpretation required for a full phase 1 assessment.

Desk Study

A desk study is a detailed search of available historical and current records and maps to identify potential on-site and off-site sources of contamination. It should include information on:

- Site location and setting (including a site plan).
- Current land uses on and in the vicinity of the site.
- Past land uses on and in the vicinity of the site obtained from various sources including historical maps and directories.
- Mining or quarrying activities.
- Licensed, unlicensed and exempt waste sites (landfill sites).
- Details of spillages or pollution incidents.
- Environmental Permits.
- Types of contamination that may be present (e.g. heavy metals, petroleum hydrocarbons, polycyclic aromatic hydrocarbons and asbestos).
- Ground gases (including radon).
- Soils and underlying geology.
- Groundwater and surface water, including abstraction and discharge licences.
- Ecology.
- Other relevant documentation, e.g. coal mining reports, site investigation reports, verification reports

We recommend that you contact the Council's Contaminated Land Officer, as they may hold useful information about your site which is not available from external sources.

Site Walkover

A site walkover survey should be undertaken to confirm and build upon the information gathered by the desk study. Observations should be made relating to:

- The site's layout, nature and setting (including information on the presence and condition of above-ground fuel tanks and manholes, deposits of waste material and asbestos, and the storage of hazardous chemicals).
- The condition of the site and structures (including the condition of suspected asbestos containing material).

- Visual or odorous evidence of contamination.
- Signs of vegetation distress.

Conceptual Site Model

After carrying out a detailed desk study and site walkover survey, a preliminary conceptual site model should be developed. A conceptual site model is usually a diagram or table that illustrates the potential pollutant linkages at a site. It should include the following, together with details of limitations and assumptions/uncertainties:

- **Sources** of any potentially significant contamination e.g. historical industrial activity (see Appendix 1B), tanks or nearby landfill sites.
- **Pathways** through which contaminants can travel e.g. direct contact, vapour migration
- **Receptors** that ultimately can be affected by the contamination e.g. future residents or groundwater.

Please note that not every source will be linked to every receptor through every pathway.

The conceptual site model will enable a preliminary risk assessment to be made, which will indicate whether a Phase 2 investigation is required. The conceptual site model should be reviewed and revised through the subsequent phases as more information is gathered.

A Phase 1 report containing the information listed in the checklist below must be submitted to, and approved by, the Local Planning Authority BEFORE proceeding to the next phase. If you have any queries please contact the Council's Contaminated Land Officer.

Checklist for a Phase 1 Report

	Preliminary Risk Assessment	**Included?**
1	Purpose and aims of study.	
2	Site location and layout plans.	
3	Appraisal of site history and previous surrounding land uses, since the 1840s where possible (to include copies of historical plans where possible).	
4	Assessment of the environmental setting, including: - Geology, hydrogeology, hydrology. - Information on coal workings and other mining or quarrying activities. - Information from the Environment Agency on water abstractions, pollution incidents and landfill sites etc. - Information from the Council on former landfill sites, private water supplies and land contamination etc.	
5	Findings of site walkover survey – including photographs and an assessment of the current site uses and surrounding land uses.	
6	Assessment of any previous land contamination reports (desk-based or intrusive) or remedial works.	
7	Conceptual site model (illustrative/tabular/written).	
8	Preliminary risk assessment based on proposed development, including an appraisal of actual and/or potential contaminant sources, pathways and receptors.	
9	Recommendations for intrusive investigation works if necessary, detailing rationale behind the proposed design of the investigation.	

Phase 2 – Site Investigation and Risk Assessment

If Phase 1 indicates that there is a potential for contamination, a Phase 2 investigation will be required. Phase 2 comprises site investigation and risk assessment, to determine whether there are any unacceptable risks to people, property or the environment.

Site Investigation

A site investigation should be designed to determine the nature and extent of contamination where it is present/suspected and also areas where it is absent. It is important to refer to the conceptual site model completed in Phase 1, as this will ensure that all possible pollutant linkages are investigated. Investigations should be carried out in accordance with relevant British Standards and current UK guidance e.g. BS 10175:2011 + A2:2017, BS 5930:2015, BS8576:2013 and CLR11 (Environment Agency, 2004).

The proposed site investigation works should be recorded in a sampling strategy and submitted to the Local Planning Authority for approval. The sampling strategy should include the following information:

- The purpose and objectives of the investigation formulated on the basis of the conceptual site model and the information gaps highlighted during Phase 1.
- Overview of the intended sampling – including information and justification of sample locations, depths, patterns and numbers and the frequency and duration of sampling or monitoring to be undertaken.
- Identify access constraints (i.e. the presence of buildings onsite) and provide details of additional sampling which will be carried out when access is available (i.e. post demolition).
- If demolition is required prior to redevelopment, consider the presence of asbestos containing material and summarise the steps that will be taken to prevent contamination of the soil.
- Sampling and/or monitoring methods to be used.
- The contaminants and parameters that will be assessed.
- The likely number of samples (soil, water, leachate and/or ground gas) that will be taken for subsequent laboratory analysis.
- The analytical methods that will be used. Please note that independently accredited laboratories and analytical methods should be used (e.g. UKAS, MCERTS). The use of in-situ testing and rapid measurement techniques is accepted as per the requirements stated in the EA's position statement 'Chemical Test Data on Contaminated Soils – Qualification Requirements, Position 307_03, 2016.

A written sampling strategy (scope of works) should be submitted to, and agreed by, the Local Planning Authority before the commencement of site investigation works. Early consultation with your Local Planning Authority is particularly encouraged for large or complex sites with significant contamination issues.

Analysis of samples of soil, water and/or ground gases may be required to assess the contamination at a site. Please note that there are numerous sources of ground gases derived from both natural and human activities. Buried organic matter is of particular concern, as it has the potential to generate methane and carbon dioxide, so sites located

in the vicinity of refuse tips may be at risk from ground gases. Coal workings and peat deposits are other potential sources of ground gases. Further information is available in British Standard BS 8485:2015+A1:2019, CIRIA C665 and NHBC Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present (NHBC, 2007).

Free fibres of asbestos cannot be seen, so the absence of visible asbestos containing material (ACM) does not necessarily mean that asbestos is not present in the soil. Sampling for asbestos is required, on all sites where a potential pollutant linkage has been identified, to ensure that it has not dispersed in the soil pre or post demolition. If asbestos is identified it must be quantified.

The Joint Industry Working Group (JIWG) has produced guidance, CAR-SOIL, (CL:AIRE, 2016), to assist in the compliance of the Control of Asbestos Regulations 2012 (CAR 2012) when working with asbestos contaminated soils and construction and demolitions materials. Guidance is also available in CIRIA document C733 (2014) 'Asbestos in soil and made ground: a guide to understanding and managing risks'.

Risk Assessment

After approval of the sampling strategy and completion of all the site investigation works, including all required rounds of gas monitoring, the preliminary conceptual site model developed in Phase 1 should be reviewed and updated. It is important to consider each potential pollutant linkage during the risk assessment and decide whether it is active at the site and whether it has the potential to harm the receptor before and after mitigation measures.

Assessing Risk to People (Human Health)

A tiered approach to estimating risk should be followed involving the direct comparison between observed levels of contamination and firstly Generic Assessment Criteria (GAC), followed by Site Specific Assessment Criteria (SSAC) if deemed necessary.

GAC must be derived from current and authoritative published sources. If other values are used, they must be adapted to ensure that they are relevant to UK policy and the environment. Justification of their use must also be provided and agreed by the Local Planning Authority.

If the observed levels of contamination exceed the GAC, then a more detailed site-specific risk assessment may be required. This involves the formulation of SSAC using risk-modelling. The Contaminated Land Exposure Assessment (CLEA) model is a government supported method that can be used to estimate the risks to people from contaminants in soil. Please ensure that the current version of the CLEA software is used at the time of submission (check the Environment section on the GOV.UK website for details). A number of alternative risk assessment models are available. Please ensure that all models are in line with UK policy and include all relevant site specific pollutant linkages. All risk-modelling assumptions and uncertainties must also be presented and referenced.

Where ground gas is identified as a potential risk, a suitable period of monitoring should be undertaken to characterise any gas regime. Current industry guidance should be followed to undertake a risk assessment and calculate the Gas Screening Value (GSV), a guideline value. For low-rise residential housing the NHBC has produced a traffic light

risk-based classification system (NHBC, 2007). For all other types of development, including residential that does not meet the specification used in the NHBC guidance, a characteristic situation can be calculated from the GSV as described in CIRIA C665. This can then be used to identify what, if any, protection measures are required. Where monitoring has not been carried out at times to assess the reasonable worst case scenario for gas migration (e.g. falling barometric pressures etc.) further monitoring will be required.

Assessing Risk to Controlled Waters

Controlled waters include, but are not limited to, groundwater, rivers, streams and estuaries. In relation to land contamination and the planning regime, the Local Planning Authority may ask the Environment Agency to act as a consultee and provide advice on risks to controlled waters. One of the Environment Agency's main aims is to protect and improve controlled waters.

The developer/applicant should provide sufficient information to assess the risks to controlled waters. This may include groundwater, surface water and soil leachate sampling and analysis. As part of the site investigation the observed levels of contaminants should be compared to the most relevant water quality standards, for example environmental quality standards (EQS) or drinking water standards (DWS), and further risk assessment using the Environment Agency's Remedial Targets Methodology and/or remediation may be required.

Assessing Risk to Other Receptors

These may include risks to buildings, structures, crops, livestock or ecological systems. In situations where such receptors have been identified in pollutant linkages, early consultation with the appropriate authoritative body (e.g. Natural England, Historic England) is advised.

The Environment Agency has published an Ecological Risk Assessment Framework, which provides a tiered approach to assessing the risks from land contamination to organisms, animals or whole ecosystems.

Further advice and documents are available on the GOV.UK website (https://www.gov.uk/government/collections/land-contamination-technical-guidance).

On completion of the risk assessment process, a recommendation should be made as to whether Phase 3 works (remediation) will be required to remove unacceptable risks and to make the site 'suitable for use'.

If topsoil or other material is to be imported as part of the development, regardless of whether remediation is required, then it is imperative to ensure that the material is 'suitable for use' and does not contain unacceptable levels of contamination. For further information please refer to the YALPAG guidance on 'Verification Requirements for Cover Systems, Version 3.4' (YALPAG, 2017).

A Phase 2 report containing the information listed in the checklist below must be submitted to, and approved by, the Local Planning Authority BEFORE proceeding to the next phase. If you have any queries please contact the Council's Contaminated Land Officer.

Checklist for a Phase 2 Report

	Site Investigation and Risk Assessment	Included?
1	Review of any previous land contamination reports or remedial works.	
2	Site investigation methodology, including: - Methods of investigation and justification. - Plan showing sampling locations and justification of locations laterally and vertically. - Sampling and analytical strategies.	
3	Results and findings of the investigation, including: - Ground conditions (soil, gas and water regimes and made ground). - Exploratory hole logs. - Certificate(s) of laboratory analysis. - Discussion of soil/gas/water contamination (including visual, olfactory, analytical and monitoring data).	
4	Risk assessment based on contaminant-pathway-receptor model. Should take account of severity of consequences and likelihood of occurrence. Justification of any risk assessment models used. A detailed quantitative risk assessment may be required.	
5	Updated conceptual site model, including comments on the revisions from Phase 1.	
6	Recommendations and rationale for further investigation if necessary.	
7	Recommendation for remediation if necessary.	

Discharge of Planning Conditions

To discharge land contamination conditions the Local Planning Authority must be satisfied, at all the relevant stages, that satisfactory reports have been submitted to demonstrate that the development is suitable for use. Failure to appropriately resolve planning conditions can lead to delays in the construction and sale of developments.

Phase 3 – Remediation

If Phase 2 identifies any unacceptable risks, then Phase 3 (known as remediation) will be required. Remediation involves the 'clean up' of a site to ensure that the finished development is 'suitable for use'. Remediation can take many forms (e.g. removal of the source of contamination or breaking a pathway by inserting a barrier) and is entirely site specific and is ultimately the mitigation of unacceptable risks.

A remediation strategy should be produced and submitted to the Local Planning Authority for approval prior to commencement of remedial work or any construction work. A remediation strategy should comprise an options appraisal, remediation objectives, details of the proposed remediation and verification works, mitigation measures, licences/consents and contingency measures. It should inform, and be informed by, the site development proposals including any proposed changes to existing ground levels and the layout of buildings, roads and garden areas.

Options Appraisal

An options appraisal considers the advantages and disadvantages of different remediation techniques, in order to establish the best overall approach to remediate a site. It is important to ensure that the chosen remediation option is sustainable and that it breaks all of the pollutant linkages that have been shown through the risk assessment to present unacceptable risks. A variety of remediation techniques may be required to address all of the pollutant linkages on a site. Please be aware that some remediation options can take months/years to complete. Please see CLR11 (Environment Agency, 2004) for details on how to undertake an options appraisal.

A brief justification as to why a particular remediation technique has been chosen should be included in the remediation strategy.

Objectives

A summary of the site investigation(s) should be included, detailing the nature and extent of the contamination found which is to be addressed through the remedial works. Clearly state the objectives of the remediation works to be carried out.

Proposed Remediation Works

A detailed explanation of the exact works to be undertaken must be given along with the full method of the processes to be used. This should include site plans and drawings to indicate the areas to be remediated. Details of the depths and volumes of the material involved, source of any imported material, volume of remediated material to be re-used on site and waste disposal locations must also be given.

Mitigation measures may have to be incorporated within the development itself to protect future users from any potential contamination, e.g. gas protection systems, cover systems and specific types of drinking water pipes. All such requirements should be clearly detailed in the remediation strategy. If all of the details are not known at this stage, then an undertaking must be provided within the remediation strategy to submit these details to the Local Authority for approval in sufficient time prior to installation.

Remediation proposals must take account of any Local Authority policies relating to remediation and/or verification. The details of the responsible persons who will be

undertaking and supervising the work must be provided. Due regard must also be paid to health and safety requirements.

Proposed Verification Works

Details must be included on how remediation works will be verified to demonstrate that the remediation has been successful. Remedial target criteria are required to state what levels of individual contaminants can remain on site without posing an unacceptable risk to any receptors. The risk assessment package used to derive these criteria must be detailed, including the input and output data sheets. There are a variety of risk assessment tools available, however please ensure that all models are aligned to UK policy and are appropriate for the site. The conceptual site model should be revised to demonstrate how all the relevant pollutant linkages will be addressed.

If soil verification samples are required, details of these samples should be identified and included within the remediation strategy. Please note that independently accredited laboratories and analytical methods should be used (e.g. UKAS, MCERTS). Further guidance specifically relating to cover systems can be found in the YALPAG guidance entitled 'Verification Requirements for Cover Systems, Version 3.4' (YALPAG, 2017).

If a gas protection system is required, details of how it will be installed and verified must be included within the remediation strategy. Further guidance on all the specific details required to be submitted at this stage can be found in the YALPAG guidance entitled 'Verification Requirements for Gas Protection Systems, Version 1.1' (YALPAG, 2016).

Where ground or surface waters are to be monitored, the locations of sampling points must be clearly stated. The Environment Agency may be involved when agreeing compliance and assessment points.

Some sites may require long term verification monitoring and management. The exact timescales for achieving the remediation criteria must be clearly stated in the remediation strategy. It would be unreasonable to allow verification to continue for a lengthy period of time without an assessment of the progress. If long term groundwater, surface water or gas monitoring is required, details and timescales of interim reports will also be required including interim verification criteria.

Permits

Details of the permits and consents/licences required for the remediation should be included in the remediation strategy e.g. waste management, mobile treatment, abstraction/discharge. Consideration should also be given to dust, noise and odour controls and the control of any surface run-off from wheel washes, stockpiles etc.

Contingency Measures and Unexpected Contamination

Contingency measures may be required if remediation is unsuccessful or if unexpected contamination is found during the works. The remediation strategy should include an undertaking detailing that if such circumstances arise, details of the further works required will be submitted to the Local Planning Authority for approval. A timescale should also be included to state when the contingency details will be submitted. Please note that any unexpected contamination should be reported immediately to the Local Planning Authority.

Remediation works can only commence once the remediation strategy has been submitted to and agreed by the Local Planning Authority. The remediation strategy should include the information listed in the checklist below. If any information cannot be included, please provide details of when the outstanding information will be submitted. If you have any queries please contact the Council's Contaminated Land Officer.

Checklist for a Phase 3 Report

	Remediation Strategy	**Included?**
1	Summary of the options appraisal.	
2	Objectives of the remediation works and any site constraints.	
3	Detailed outline of remediation works to be carried out, including: - Description of ground conditions (soil, gas, water). - Type, form and scale of contamination to be remediated. - Remediation method. - Proposed gas protection systems, if required. - Site plans/drawings. - Programme of works including any phasing and approximate timescales (as required to fulfill the planning conditions). - Materials management plan if required - Asbestos management plan, if required	
4	Consents, agreements, permits and licences (discharge consents, waste management licences etc).	
5	Site management procedures to protect site neighbours, environment and amenity during works. Where appropriate include health and safety, dust/noise/odour controls and the control of surface run-off.	
6	Details of proposed verification works, including: - Sampling strategy. - Use of onsite observations, visual/olfactory evidence. - Chemical analysis/monitoring data. - Proposed remediation target criteria. - Verification of cover systems, if required. - Verification of gas protection systems, if required. - Any phased timescales for verification, if appropriate.	
7	Contingency measures and procedure for dealing with unexpected contamination.	

Discharge of Planning Conditions

To discharge land contamination conditions the Local Planning Authority must be satisfied, at all the relevant stages, that satisfactory reports have been submitted to demonstrate that the development is suitable for use. Failure to appropriately resolve planning conditions can lead to delays in the construction and sale of developments.

Phase 4 – Verification

Phase 4 works, also known as verification or validation, are undertaken following remediation. The purpose is to identify the success or otherwise of remediation works and to identify whether any further remediation or risk management measures are necessary to ensure the site is suitable for its intended use.

On completion of the remediation works a verification report is required to be submitted to the Local Planning Authority. This will detail the remediation and verification carried out as agreed with the Local Planning Authority, including evidence that demonstrates whether the remediation objectives have been achieved. Where longer term monitoring is required, e.g. groundwater or gas monitoring, an interim report should be submitted detailing all the verification work undertaken to date. Where the site's remediation criteria have not been met details of the contingency work must be included, these could comprise further detailed quantitative risk assessment, physical remediation works or mitigation measures etc.

Objectives

The verification report should include the details and objectives of the remediation works undertaken on site.

Works

A detailed description of all remediation works carried out on site must be included along with any plans, drawings etc. to show the areas remediated.

The total volume of material affected by contamination should be included, along with the volume of imported material and the volume of any materials which have been sorted or treated on site for re-use. Full details should be provided of the locations where verification samples were taken, including depths and volumes etc. Further guidance specifically relating to imported material and cover systems can be found in the YALPAG guidance entitled 'Verification Requirements for Cover Systems, Version 3.4' (YALPAG, 2017).

Evidence showing the appropriate installation of gas protection systems, as detailed in the remediation strategy, should be included where necessary. Further guidance, and a useful proforma for validating membranes, can be found in the YALPAG guidance entitled 'Verification Requirements for Gas Protection Systems, Version 1.1' (YALPAG, 2016).

Verification Results

Analytical results for all verification samples should be included within the report with a detailed comparison and interpretation against the remediation criteria, which were agreed in the remediation strategy.

If the remediation criteria have not been met, further work will be required to ensure that the site is suitable for its intended use. This may involve undertaking further detailed risk assessment, returning to undertake further remediation at the site or installing some form of mitigation method, e.g. a barrier to prevent users being impacted by the contamination. Discussions should be held with the Council as soon as possible once it

is known that the remediation works have not met the targets, to agree the extent of work required to make the site suitable for its intended use.

Interim Verification

In some cases longer term monitoring will be required to provide verification of remediation works. Where this is required, timescales should have been set when agreeing the remediation strategy as to when interim reports would be submitted to the Local Planning Authority, including any interim remediation criteria. The details similar to those given above should be included in interim verification reports.

Conclusions

The report should detail whether all pollutant linkages have been broken or effectively controlled and whether the site is suitable for its intended use. An updated conceptual site model should also be included.

On completion of remediation and verification works, a verification report should be submitted to the Local Planning Authority for approval. The verification report should include the information listed in the checklist below. If you have any queries please contact the Council's Contaminated Land Officer.

Checklist for a Phase 4 Report

	Verification Report	**Included?**
1	Objectives for verification.	
2	Detailed outline of remediation works, including: - Method & extent of remediation. - Site plans/drawings. - Phasing of works, where appropriate.	
3	Details of who carried out the work.	
4	Details and justifications of any changes to the agreed remediation strategy.	
5	Verification data, including where appropriate: - Laboratory and *in situ* test results including original lab data sheets and chain of custody documents. - Monitoring results for groundwater and gases. - Comparison and interpretation with remediation criteria. - Plans showing treatment areas, locations of any verification samples, and details of any differences from agreed remediation strategy. - Photographs showing the remedial work undertaken.	
6	Details and verification of mitigation measures, including where appropriate: - Details of capping/site won material/imported topsoil and test results. - Details of gas protection systems. - Specification of drinking water pipes.	
7	Consents, agreements and licences.	
8	Details on any ongoing verification or long term management.	
9	Confirmation that remediation objectives have been met and the site is suitable for use.	

Discharge of Planning Conditions

To discharge land contamination conditions the Local Planning Authority must be satisfied, at all the relevant stages, that satisfactory reports have been submitted to demonstrate that the development is suitable for use. Failure to appropriately resolve planning conditions can lead to delays in the construction and sale of developments.

Useful References

Please note that this list is not exclusive or exhaustive:

- British Standards Institution (2015). **BS 8485:2015+A1:2019: Code of Practice for the Characterisation and Remediation from Ground Gas in Affected Developments.** BSI, London.
- British Standards Institution (2015). **BS 5930:2015: Code of Practice for Site Investigations.** BSI, London.
- British Standards Institution (2013). **BS 8576:2013 Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs).** BSI, London
- British Standards Institution (2011). **BS 10175:2011+A2:2017: Investigation of Potentially Contaminated Sites - Code of Practice.** BSI, London.
- CL:AIRE (2016). **Control of Asbestos Regulations 2012 – Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials: Industry guidance.** CL:AIRE, London. (available at www.claire.co.uk/asbestos)
- Construction Industry Research and Information Association (2007). **CIRIA C665: Assessing Risks Posed by Hazardous Ground Gases to Buildings.** CIRIA, London.
- Construction Industry Research and Information Association (2014). **CIRIA C733: Asbestos in Soil and Made Ground: A Guide to Understanding and Managing Risks.** CIRIA, London.
- Department of the Environment (1995). **Industry Profiles (Various Titles).** DoE, London (available from: https://www.claire.co.uk/useful-government-legislation-and-guidance-by-country/198-doe-industry-profiles).
- Environment Agency (2015). **Contaminated Land Exposure Assessment (CLEA): Software and Relevant Publications.** Environment Agency, Bristol.
- Environment Agency (2004). **CLR11: Model Procedures for the Management of Land Contamination**. Environment Agency, Bristol.
- National House Building Council, Environment Agency & CIEH (2008). **R & D Publication 66: Guidance for the Safe Development of Housing on Land Affected by Contamination.** NHBC & Environment Agency, London.
- National House Building Council (2007). **Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present**. NHBC, London.
- Ministry of Housing, Communities & Local Government. **National Planning Policy Framework (2018)** and associated **National Planning Practice Guidance on Land Affected By Contamination (2014).** Ministry of Housing, Communities & Local Government, London (available from: http://planningguidance.planningportal.gov.uk/).
- Yorkshire and Lincolnshire Pollution Advisory Group (2017). **Verification Requirements for Cover Systems: Technical Guidance for Developers, Landowners and Consultants**. Version 3.4. YALPAG, UK (available to download from most council websites in the region).
- Yorkshire and Lincolnshire Pollution Advisory Group (2016). **Verification Requirements for Gas Protection Systems: Technical Guidance for Developers, Landowners and Consultants**. Version 1.1. YALPAG, UK (available to download from most council websites in the region).

Appendix 1 – Examples of Vulnerable End Uses and Potentially Contaminating Land Uses

A. These are examples of **vulnerable end uses**. If you are in doubt about the vulnerability of an end use please contact the Council's Contaminated Land Officer:

- All residential developments (houses, flats, nursing homes etc).
- Allotments.
- Schools.
- Nurseries and crèches.
- Children's play areas.
- Playing fields.
- Mixed use developments including vulnerable end uses.

B. These are examples of **potentially contaminating land uses**. Further details are available in the Department of the Environment Industry Profiles (DoE, 1995), which are available to download free of charge from the GOV.UK website.

- Smelters, foundries, steel works, metal processing & finishing works.
- Coal & mineral mining & processing, both deep mines and opencast.
- Heavy engineering & engineering works, e.g. car manufacture, shipbuilding.
- Military/defence related activities.
- Electrical & electronic equipment manufacture & repair.
- Gasworks, coal carbonisation plants, power stations.
- Oil refineries, petroleum storage & distribution sites.
- Manufacture & use of asbestos, cement, lime & gypsum.
- Manufacture of organic & inorganic chemicals, including pesticides, acids/alkalis, pharmaceuticals, solvents, paints, detergents and cosmetics.
- Rubber industry, including tyre manufacture.
- Munitions & explosives production, testing & storage sites.
- Glass making & ceramics manufacture.
- Textile industry, including tanning & dyestuffs.
- Paper & pulp manufacture, printing works & photographic processing.
- Timber treatment.
- Food processing industry & catering establishments.
- Railway depots, dockyards (including filled dock basins), garages, road haulage depots, airports.
- Landfill, storage & incineration of waste.
- Sewage works, farms, stables & kennels.
- Abattoirs, animal waste processing & burial of diseased livestock.
- Scrap yards.
- Dry cleaning premises.
- All types of laboratories.

Other uses and types of land that might be contaminated include:

- Radioactive substances used in industrial activities not mentioned above e.g. gas mantle production, luminising works.
- Burial sites & graveyards.
- Agriculture – including the excessive use or spills of pesticides/herbicides/fungicides, spreading of sewage sludge and onsite disposal of farm waste/asbestos.
- Naturally-occurring radioactivity, including radon.
- Naturally-occurring elevated concentrations of metals and other substances.
- Methane & carbon dioxide production and emissions in coal mining areas, wetlands, peat moors or former wetlands.

Appendix 2 – Screening Assessment Form (Version 10.3)

If you are undertaking a small development (i.e. one house in a garden) this Screening Assessment Form can be used as a basic contamination assessment, which fulfils the requirements of the 'Existing Use' section of the planning application form. This form may be used in other circumstances at the discretion of the Local Planning Authority, but please check with them first.

This Screening Assessment Form is not suitable for larger housing developments, allotments, schools, nurseries, children's play areas, playing fields, or if there has been a past industrial use on or adjacent to the land. In these instances you will need to submit a Phase 1 Report (Preliminary Risk Assessment) and if appropriate, subsequent Phase 2 (Site Investigation and Risk Assessment), Phase 3 (Remediation Strategy) and Phase 4 (Verification) Reports.

NOTE: Failure to provide the required information at this stage may result in a delay in the application process and the imposition of planning conditions relating to land contamination.

If at any point when completing the form you suspect there is a likelihood that contamination may exist on the site (or on an adjacent site) which could affect the proposed use, it is strongly advised that you contact the Council's Contaminated Land Officer before proceeding, as your findings may necessitate the submission of a more detailed Phase 1 Report.

Please complete this form in BLOCK LETTERS and submit with photographs to the Local Planning Authority with your completed Planning Application Form.

APPLICANT / AGENT DETAILS

	Applicant	Agent
Full Name		
Address		
Telephone		
Email		

DEVELOPMENT DETAILS

Site Name				
Site Address				
Site Grid Reference	Easting		Northing	

SITE DESCRIPTION

Please provide a detailed description and photographs of the land being developed. Include details of the layout and ground covering, any evidence of former buildings or site activities, any evidence of made/filled ground, and any signs of subsidence or contamination (e.g. ground staining/discolouration, odours, vegetation distress/dieback).

SITE HISTORY, LAND AND BUILDING USE

Please undertake a complete historical map review dating back to the mid/late 1800's, to provide a description of the previous uses(s) of the site and immediate surrounding area. *Historical maps are available to view online and possibly at local libraries.*

	Domestic	Agricultural	Commercial	Industrial	Other (give details)
Proposed land use (tick all that apply)					
Current land use (tick all that apply)					
Past land use – last 150 years (tick all that apply)					

NOTE: If the site has a past or current industrial use, this Screening Assessment Form should not be used and you will need to submit a Phase 1 Report (Preliminary Risk Assessment) instead.

If the past land use has changed, please give date of change(s) (please use category types from the previous table).	From	To	Land Use

What have the existing buildings onsite been used for? (please state if applicable)		
Are any of these buildings constructed from suspected asbestos containing material? (including cement sheets, gutters, drainpipes, lagging and insulation)	Yes ☐	No ☐
If any buildings are constructed from suspected asbestos containing material, please state whether an asbestos survey has been carried out and whether the material will be removed as part of the development.		

Have any fuels/chemicals been stored onsite?	Yes ☐	No ☐
Have there been any fuel/chemical spills or leaks?	Yes ☐	No ☐
If 'Yes' to either of the above, please state fuel/chemical, storage method and location, and details of any spillages.		

	Reported		Unreported	
Have there been any pollution incidents, either reported or unreported? For information please refer to Environmental Pollution Incidents on data.gov.uk	Yes ☐	No ☐	Yes ☐	No ☐

Provide details of any surface water present onsite (including drains, ponds, streams and rivers).	
Provide details of any groundwater or surface water abstractions (including wells and boreholes).	

WASTE DISPOSAL ACTIVITIES

Landfill sites can sometimes contaminate surrounding land. For more information and to check if any current or historical landfill sites are located near your site, please refer to the Environment Agency's section on data.gov.uk or contact the Council's Contaminated Land Officer.

Have any waste disposal activities (including the burning of waste) been carried out onsite?	Yes ☐	No ☐
Have any waste disposal activities been carried out on surrounding land within 250 metres of the site?	Yes ☐	No ☐
Is there any evidence of demolition activities (e.g. rubble) onsite?	Yes ☐	No ☐
If 'Yes' to any of the above, please provide details.		

ADJACENT LAND USE

	Domestic	Agricultural	Commercial	Industrial	Other (give details)
Current land use (tick all that apply)	☐	☐	☐	☐	
Past land use – last 150 years (tick all that apply)	☐	☐	☐	☐	

Provide details of any surface water present on adjacent land (including drains, ponds, streams and rivers).	
Provide details of any groundwater or surface water abstractions on adjacent land (including wells and boreholes).	

PREVIOUS LAND CONTAMINATION REPORTS

Have any land contamination reports previously been completed for the site?	Yes ☐	No ☐

If 'Yes', please provide a copy of the land contamination report(s) to support your planning application.

IMPORTED SOIL

Do you intend to import any soil or soil forming materials onto the site for use in garden areas, soft landscaped areas or to raise ground levels?	Yes ☐	No ☐

If 'Yes', please refer to the YALPAG guidance on Verification Requirements for Cover Systems (available to download from most council websites in the region).

SUSPECTED CONTAMINATION

Based on the information you have provided in this form, do you think that contamination could be present at the site?	Yes ☐	No ☐
If yes, please provide details:		

INFORMATION SOURCES

Please provide details of the sources of information you have used to complete this form.

Please sign below to confirm that all the information given on this form is correct to the best of your knowledge and belief.

Signed …….. Date ……

Please submit this completed form and photographs to the Local Planning Authority with your completed Planning Application Form.

OFFICE USE: Please ensure that this form is forwarded to the Council's Contaminated Land Officer for consideration.