



Environmental Protection

Contaminated Land

Technical Guidance Document

March 2024
Version 01



WARRINGTON
Borough Council

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This document is also available on our website at: www.warrington.gov.uk/contaminated-land

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1.0 Introduction

Certain types of contamination are known to be hazardous to human health, controlled waters and the wider environment. Typical causes of land contamination include previous industrial or commercial usage, mining, and the land-filling of wastes. Land may also become contaminated due to its close proximity to contaminated areas.

Contaminating substances include metals, organic substances, ground gases, asbestos, radioactive materials and volatile vapours. Contamination may not occur solely as a result of human activities; land can also become contaminated as a result of natural processes. Contamination can affect the soil, groundwater, surface water, buildings, ecology and the wider environment.

Information relating to land contamination submitted in support of planning applications must be of an acceptable minimum standard in order to satisfy the Council in its role as a Local Planning Authority (LPA). The guidance contained within this chapter aims to inform developers of the procedural requirements of a risk-based approach to land contamination, as defined in current national legislation and guidance.

1.1 Contaminated Land in Warrington

Warrington has a legacy of industrial activity, land reclamation works and land-filling activities. These 'Brownfield' land uses can represent a potential source of soil or water contamination and as such, are classified as 'Potentially Contaminated Land' (PCL) by the Council. Equally, land with no known industrial usage, may also be contaminated and classified as PCL.

Due to the limited amount of available land for redevelopment and the impetus from central government towards the re-use of Brownfield sites, the Council in Warrington has been receiving an increasing number of planning applications to redevelop Brownfield land.

As Brownfield land is more likely to have been used for industrial purposes in the past, it is necessary to carry out an assessment and potentially clean-up the land prior to it being redeveloped for an alternative land use, such as residential housing.



1.2 When is a Contaminated Land Assessment Required?

When applying for planning permission for a given development scheme, the Council will consider contaminated land as part of the planning consultation. Contaminated land is likely to be a consideration if any or all of the following criteria are met:



A new development is on or adjacent to 'PCL'

- Proposals located **on land** or **adjacent to land** that is affected by contamination associated with a previous use.
- Industrial uses that may have historically caused land contamination include Cotton Mills, Metal Works, Chemical Works, Breweries, Tanneries and Gas Works.
- Other potentially contaminative land uses include Domestic Garages, Electricity Sub-stations and In-filled Ponds or Quarries.



A new development is within 250m of a Landfill Site

- Proposals for any new developments that are to be built **within 250m** of a Landfill Site or other significant ground gas source.
- Decomposing waste or organic material in Landfill Sites can produce gas, which can travel through the ground and affect development schemes.
- Other types of land use that can produce ground gas include Marshes, Peat Bogs, Coal Mines and in-filled land, such as Ponds, Canals or Quarries.



A new development is classified as a 'Sensitive End-Use'

- Proposals that involve development schemes deemed to be '**Sensitive**' in terms of land contamination.
- High sensitivity schemes include Residential developments, such as houses, flats, apartments or Nursing Homes.
- Other sensitive land uses include Allotments, Schools, Nurseries, Crèches, Children's Play Areas and Playing Fields.





2.0 Regulatory objectives

Contaminated land is regulated under national legislation as well as the planning system.

Regulation seeks to mitigate risk posed by contamination to human health and controlled waters and ensure that land and development schemes are suitable for the proposed end use.

2.1 National Policy

The definition of 'contaminated land' is defined in Section 78A(2) of the Environmental Protection Act (EPA) 1990):

" ...any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

- a) Significant harm is being caused or there is the significant possibility of such harm being caused; or
- b) Pollution of controlled waters is being, or is likely to be, caused..."

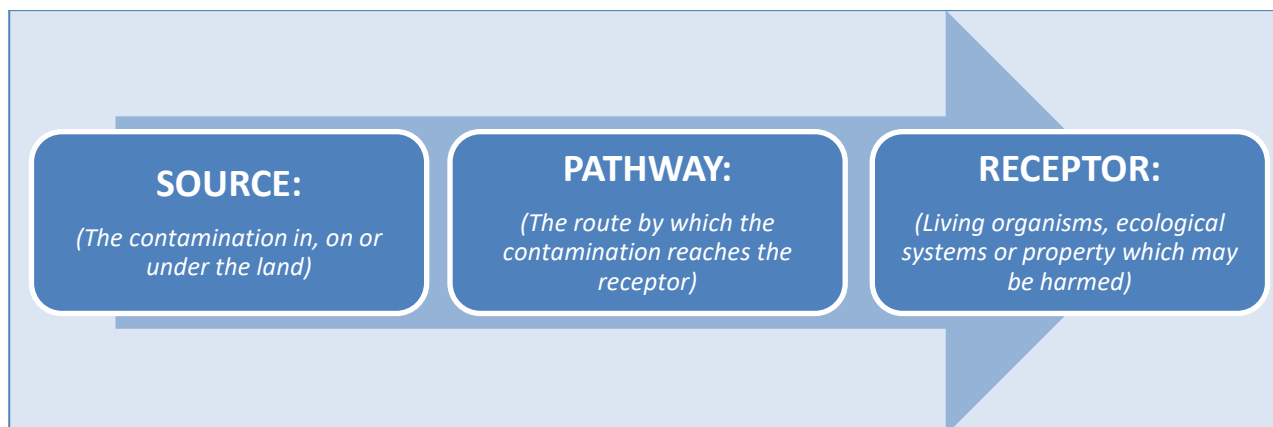
With respect to controlled waters, Chapter 37, Section 86 of the Water Act 2003 amends the second part of the definition so that it applies only where:

"Significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused."

Part 2A of the EPA (1990), as inserted by Section 57 of the Environment Act (1995), was brought into force on 01 April 2000. In most cases, local authorities are the enforcing authorities for the contaminated land regime under Part 2A. Local Authorities have a duty to identify contaminated land within their jurisdiction and (except for certain categories) to derive and implement remediation if required.

A key element of the Part 2A regime is the Source-Pathway-Receptor pollutant linkage concept. Each element is defined as follows:





Without the clear identification of all three elements of the pollutant linkage, land cannot be determined as 'contaminated land' under the regime.

Part 2A was introduced specifically to address the historical legacy of land contamination, whereas the planning system aims to control development and land use in the future. Therefore assessing risks in relation to the future use of any land is primarily a task for the planning system. The Applicant/Developer should always take into account Part 2A, because a change in use may cause the land to fall within the statutory definition of contaminated land by creating a pollutant linkage. The Council has published a Contaminated Land Inspection Strategy in order to comply with the requirements of the Part 2A regime. This document can be found at the following location:

<https://www.warrington.gov.uk/contaminated-land>

The planning system, under the National Planning Policy Framework (NPPF), uses a slightly different definition for contaminated land, which is not based solely on the legal definition set out in Part 2A. A wider range of contamination and receptors is relevant to planning but the degree of harm or pollution and the approach to remediation are

"As a minimum, the land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990".

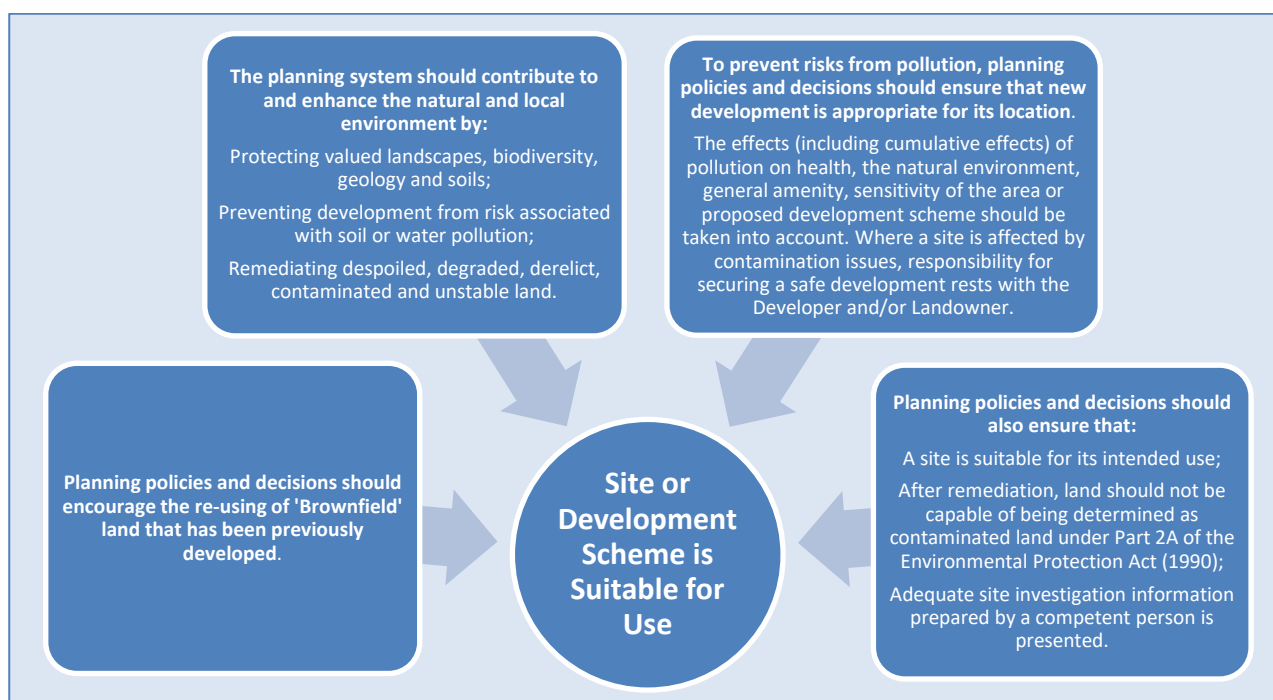
(NPPF, 2023)

essentially the same. The NPPF states that: "As a minimum, the land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990". Part



2A was designed and intended to encourage voluntary remediation and should only be used where no appropriate alternative solution exists.

The NPPF sets out several considerations with respect to land contamination that are integral to the regulation of affected land and development schemes under the planning system:



To avoid confusion with the term 'contaminated land', the planning regime often, but not exclusively, uses the wider term 'land affected by contamination' or 'land contamination'. This is intended to cover all cases where "The actual or suspected presence of substances in, on or under the land may cause risks to people, human activities or the environment, regardless of whether or not the land meets the statutory definition in Part 2A". When compared with Part 2A, the primary difference under the planning system, is that risks have to be assessed based upon the new or intended use of the land, rather than the existing use. However, the principles underlying both

"The actual or suspected presence of substances in, on or under the land may cause risks to people, human activities or the environment, regardless of whether or not the land meets the statutory definition in Part 2A".

(EPA, 1990)



regimes are fundamentally the same, namely, the identification and remediation of land that may pose a risk to human health, property and/or the wider environment. As Part 2A was intended to encourage voluntary remediation and for use where no appropriate alternative solution exists. Consideration of contaminated land under planning permission represents an alternative solution and as such, investigation and remediation of land under planning permission will always be given preference to statutory action under Part 2A.

2.2 Local Policy

At a local level, contaminated land is considered and regulated under the Warrington Local Plan 2021/22-2038/39, adopted in December 2023. Specifically Policy ENV8 'Environmental and Amenity Protection'. Policy ENV8 has a section on land quality, which states that, "The Council will ensure that any development proposals on or adjacent to potentially contaminated land or ground instability or that have a sensitive end use, are suitable for their intended use. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account."

"The Council will ensure that any development proposals on or adjacent to potentially contaminated land or ground instability or that have a sensitive end use, are suitable for their intended use".

(Warrington Local Plan, 2023)

The policy also confirms that, "Development proposals on land that is (or suspected to be) affected by contamination; unstable ground or has a sensitive end use must include an assessment of the extent of the issues and any possible risks. Development will only be permitted where the land is, or can be made suitable for the proposed use." The Local Plan also mentions contaminated land in paragraph 9.8.7, where the industrial heritage of the Borough are acknowledged and that the approach adopted by the Council for the management of contaminated land can be found detailed in the Environmental Protection SPD. Concerning the redevelopment of land under policy MD4, paragraph 37 also requires consideration of contaminated land to form part of the development proposals.

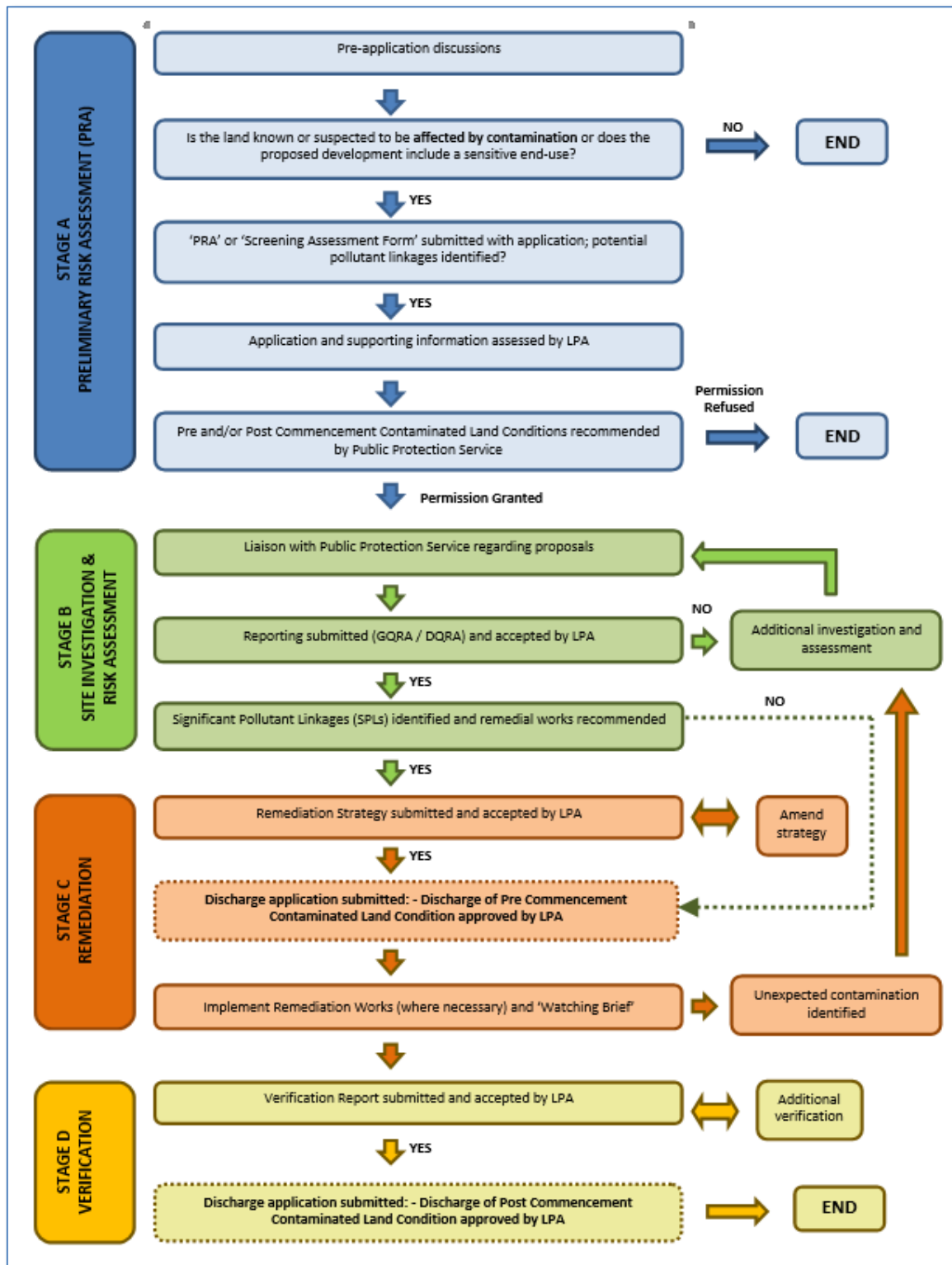




3.0 Planning Applications

3.1 Planning Applications Procedure

The following flowchart below shows the typical procedure for managing contaminated land under the planning system:



3.2 Contaminated Land Consultation

A precautionary approach should be assumed when considering planning applications located on or adjacent to Potentially Contaminated Land (PCL) or for development schemes proposing a 'Sensitive' end use. PCL includes land that has had a previous industrial use or has been reclaimed or in-filled. 'Sensitive' uses for development schemes include the following land uses:



Where development scheme is proposed on land that is or may be affected by contamination, an assessment of risk should be carried out by the Applicant/Developer and submitted with the planning application to enable the Council to make a determination. Any existing or new unacceptable risks should be identified and proposals made to deal with them effectively as part of the development process.

When a planning application is submitted to the Council, the Environmental Protection Team at the Council will be consulted, where relevant. The application, with supporting information, will be assessed to determine whether there is the potential for contamination to influence the land or development scheme, whether suitable measures have been proposed to address any risks and whether the proposed development is acceptable.



If there is the potential for contamination to affect the site, or the end-use is particularly sensitive, recommendations will be made that Contaminated Land Planning Conditions are be imposed upon any planning permission granted. These Planning Conditions are intended to ensure that the site is made suitable for its proposed end use and to ensure the safety of site workers, future site users and the wider environment.

It is essential that the Applicant/Developer provides as much information to the Council at every stage of the planning process. **The onus is on the Applicant/Developer to keep the Council well informed about the development scheme** so that decisions can be made swiftly and the consultation completed as quickly as possible. If a response from the Council is not immediately forthcoming, this should not be taken as confirmation that document submissions have been approved or that work on site can proceed. The Applicant/Developer must obtain written approval from the Council for any documents/information submitted in support of a planning application.

3.3 Contaminated Land Advice

Advice in relation to land contamination can also be obtained via the **Contaminated Land Planning Advice Service** offered by the Environmental Protection Team. The service provides technical advice, meetings and document reviews to assist at pre-application stage with achieving planning permission or to secure discharge of Planning Conditions. The service is subject to a time recovery fee charged nominal officer hourly rate. Further information can be found on the Council website:


<https://www.warrington.gov.uk/contaminated-land>

3.4 Single Dwelling Development Schemes

If the planning application is for the construction of a single residential property (ie: one dwelling with a garden) and it is not located on Potentially Contaminated Land (PCL), a **Contaminated Land Screening Assessment Form**, may be used as a basic contamination assessment to satisfy Contaminated Land Planning Conditions or to avoid Planning Conditions being attached to the



consent. This form guides the Applicant/Developer through the previous uses of the site to aid in the decision as to whether land contamination may impact the scheme. If no potential sources of contamination are identified and this is approved by the Council, then no further works are likely to be required prior to commencement. If potential sources of contamination are identified, then further investigation may be required. Please note that this form is only appropriate for use with schemes comprising a single residential building located on land with no former contaminative use or known contamination.

FOR OFFICE USE ONLY SEUS REFERENCE:				 WARRINGTON Borough Council	
Contaminated Land Screening Assessment Form					
<small>This form is only for use in support of planning applications for single dwelling residential developments that are not located on or directly adjacent to potentially contaminated land (PCL).</small>					
<small>Please complete in BLOCK CAPITAL LETTERS and submit to the Local Planning Authority with your completed Planning Application Form.</small>					
A PLANNING APPLICATION DETAILS:					
		Planning Application:		Discharge Application:	
Reference Number:					
		Applicant:		Agent:	
Full Name:					
Address:					
Telephone:					
Email:					
B DEVELOPMENT DETAILS:					
Site Name:					
Site Address:					
Site Grid Reference:		Easting:		Northing:	
C SITE HISTORY, LAND AND BUILDING USE:					
	Domestic:	Agricultural:	Commercial:	Industrial:	Other: (Provide Details)
Proposed Land Use: (Tick all that apply)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Current Land Use: (Tick all that apply)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Past Land Use (~150yrs): (Tick all that apply)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has the past land use changed? please give date of change(s): (Please use Category Types from the previous table)	From:	To:	Land use:		

If the proposed development scheme meets the above criteria, a copy of the **Contaminated Land Screening Assessment Form** can be requested from the Environmental Protection Team.

3.5 Planning Permission

The Council may grant planning permission where, based the contaminated land information provided, it is satisfied that the proposed development scheme will be appropriate. This permission will be subject to Contaminated Land Planning Conditions where necessary. The Council may refuse permission if, on the basis of the contaminated land information provided by the Applicant/Developer or the responses of those consulted, it is not satisfied that the development would be appropriate. This could include cases where:

Circumstances/information available to the LPA suggest the possibility of contamination or of unacceptable risk and **insufficient information** has been provided or obtained that excludes the reasonable possibility of such contamination or risk

The LPA considers that unacceptable risk exists and **cannot be dealt with** adequately to deliver a development scheme that is suitable for its intended use and which results in the removal of such risks

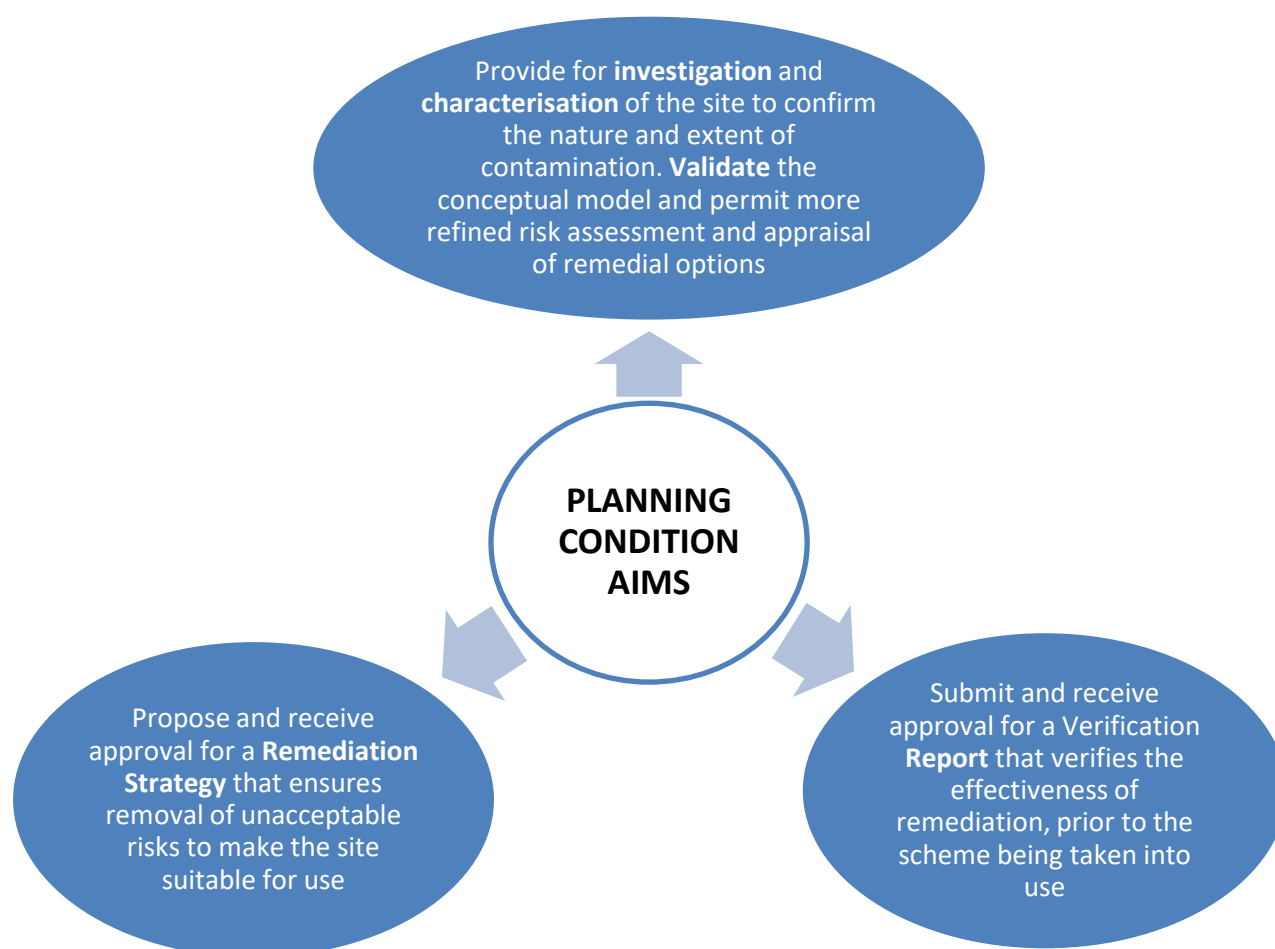
The steps needed to deliver a development scheme suitable for use and deal with unacceptable risk are not already in place and **cannot be secured by suitable Planning Conditions** (eg: matters are beyond the control of the Developer or on neighbouring land



3.6 Contaminated Land Planning Conditions

In some cases, the information available when a planning application is being considered will be sufficient to approve the proposals, but insufficient to render the site suitable for use.

In these circumstances and as mentioned above, planning permission can be granted subject to Planning Conditions relating to land contamination. Guidance on the use of Planning Conditions is provided in Department of Environment Circular 11/1995 “The Use of Conditions in Planning Permissions” and includes the following advice:



In consultation with Development Control and Planning Enforcement, the Environmental Protection Team has prepared a series of Planning Conditions relating to land contamination. These Contaminated Land Planning Conditions are designed to effectively regulate land contamination issues associated with a given development scheme and fall into **two** main classifications:





PRE-COMMENCEMENT PLANNING CONDITIONS:

These are Planning Conditions or parts of Conditions that are required to be satisfied prior to a development scheme commencing.

These Planning Conditions include the requirement to investigate and risk-assess the land as well as (if applicable) the submission of an approved Remediation Strategy. These Planning Conditions permit certain works prior to being discharged, but must be satisfied **prior to excavation and/or construction works** commencing.



COMPLETION PLANNING CONDITIONS:

These are Planning Conditions or parts of Conditions that are required to be (or can only be) satisfied once site works have completed.

Completion Conditions include the requirement to report unexpected contamination; provide verification for remedial action taken; and to account for imported and exported fill materials. These Planning Conditions must be satisfied **prior to occupation of new buildings** and/or the scheme being taken into use.

3.7 Discharge of Planning Conditions

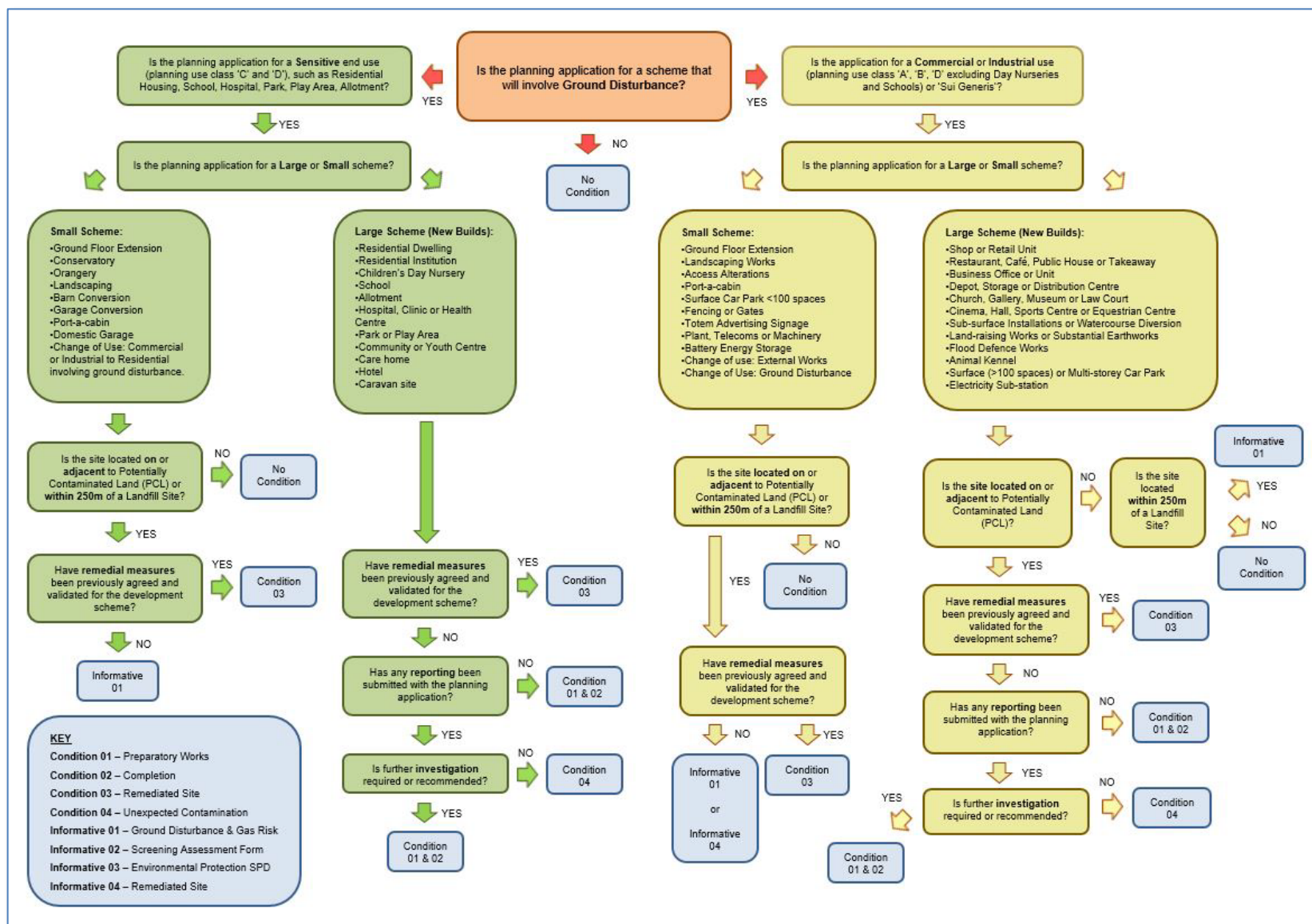
Once the appropriate information has been submitted to the Council, and subsequently approved, the Environmental Protection Team will make recommendation to the Council that Planning Conditions, or parts of Conditions, relevant to the submitted information can be discharged.

The Council will then act upon these recommendations and formalise the discharge of conditions or parts of conditions. Irrespective of the type of Planning Condition to be discharged or the nature of recommendation made by the Environmental Protection Team, any discharge of Planning Condition must be the subject of a formal discharge application, made to Development Control at the following address:

The status of any Contaminated Land Planning Condition on a given planning consent can be provided by commissioning a **Discharge of Contaminated Land Planning Condition Review** from the Environmental Protection Team. The service is subject to a nominal fee set by the Planning Inspectorate.



The methodology by which the Environmental Protection Team apply Contaminated Land Planning Conditions to planning applications is shown below:

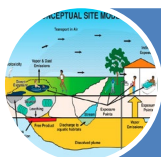


3.8 Best Practice and Professional Advice

All assessments should be carried out by, or under the direction of, a suitably qualified person and in accordance with national guidance and best practice. Considerable effort and expense can be saved if the Applicant/Developer places reliance on the expertise of a single impartial expert with regard to technical matters. All aspects of investigation and risk assessment relating to land contamination should also follow the guidelines laid out within the **Land Contamination Risk Management (LCRM)** website. An assessment of the presence of contamination and of the significance of the risks that may be posed requires careful professional judgement and competent expert advice. The Applicant/Developer is responsible for ensuring the safe development and secure occupancy of a site and that appropriate competent professional advice is available to:



Carry out any necessary **site investigations**



Assess potential **risk** to receptors



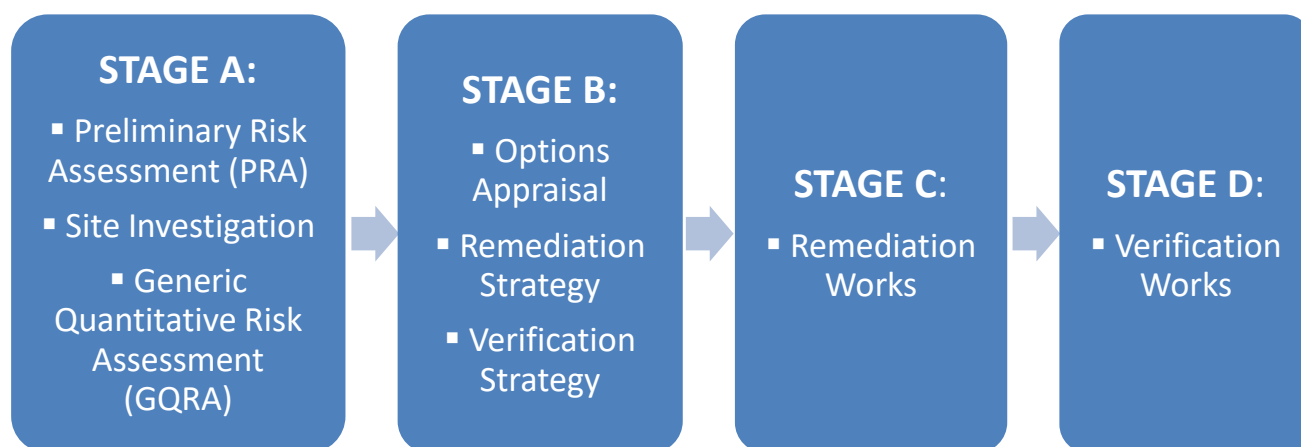
Design and execute any necessary **remediation** works, including **verification** of their effectiveness and where required, appropriate monitoring and maintenance

A detailed technical framework for investigating and dealing with land affected by contamination is contained within the EA Land Contamination Risk Management document on the LCRM website. The LCRM website provides details on the process of identifying, making decisions and taking appropriate action to deal with land contamination in a way that is consistent with government policies and legislation. An overview of the LCRM process and how it works to manage land contamination can be found on the Environment Agency website here:

<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-before-you-start#using-the-lcrm-guides>



Typical components of a contaminated land assessment submitted in support of a Planning Application would generally follow the below Stages (A-D):



The following guide is designed to provide an overview of documents produced to satisfy each of the above stages in the contaminated land risk assessment process. Sources of further information on the LCRM website are also provided:

STAGE A:	
Preliminary Risk Assessment (PRA)	<p>A PRA (sometimes referred to as a ‘Phase 1 Investigation’ or ‘Desk Study’) should provide an initial assessment of risk by interpreting historical information, the likelihood of contamination being present and making an initial risk assessment. A PRA Report typically consists of a desk study, site reconnaissance, industry profiling, development of a preliminary Conceptual Site Model (CSM) and a basic risk assessment.</p> <p>The minimum requirement that should be provided in support of a Planning Application is a PRA Report. This will assist in determining the need for further investigation, the problems that may require remediation and whether remediation can be secured by means of Planning Conditions. If the PRA findings indicate that no contamination concerns exist and the Council review and approve the report, further action may not be necessary.</p>



	<p>Further details can be found on the LCRM website:</p> <ul style="list-style-type: none"> • Preliminary Risk Assessments (PRA) • Industry Profiling
<p>Generic Quantitative Risk Assessment (GQRA)</p>	<p>A GQRA (often referred to ‘Phase 2 Site Investigation’) aims to reduce the uncertainties identified in the preliminary CSM by quantifying contamination at the site. The data obtained will be used to inform a decision as to whether a risk is posed and if remediation is required. A GQRA Report generally consists of an intrusive site investigation conducted in accordance with British Standard BS10175:2011+A2:2017 “Investigation of Potentially Contaminated Sites - Code of Practice” and a risk assessment. The investigation process should seek to clearly identify and characterise source-pathway-receptor linkages at the site and provide information for the refinement of the preliminary CSM.</p> <p>Further details can be found on the LCRM website:</p> <ul style="list-style-type: none"> • Intrusive Site Investigations • Chemical Testing of Soils • Generic quantitative Risk Assessments (GQRA)
<p>Detailed Quantitative Risk Assessment (DQRA)</p>	<p>If the GQRA Report findings indicate that no contamination concerns exist at the site and the Council review and approve the report, further action may not be necessary. However, sometimes a Detailed Quantitative Risk Assessment (DQRA) is required because the GQRA has not adequately characterised potential risk. The DQRA will utilise approved site-specific criteria in order to better refine the CSM.</p>



	<p>Further details can be found on the LCRM website:</p> <ul style="list-style-type: none"> • Detailed Quantitative Risk Assessments (DQRA) • Contaminated Land Exposure Assessment (CLEA) Modelling
STAGE B:	
Remedial Options Appraisal	On the basis of the risk assessment, an Options Appraisal is carried out, where various remedial options are considered and the preferred option is selected.
Remediation Strategy	The Remediation Strategy then presents the preferred remedial option(s) to be adopted and implemented.
Verification Strategy	The Verification Strategy, sometimes known as a “Verification Plan” or “Validation Strategy”, presents protocols to be adopted for verifying any remediation to be carried out at the site or as part of the development scheme as described in the Remediation Strategy. As a minimum the Verification Strategy should include information relating to the handling of imported fill materials; the handling of site-won fill materials proposed for re-use; the management of exported fill materials proposed for re-use/disposal; contingency measures to be adopted for encountering unexpected or previously-unidentified contamination; and an undertaking to provide a Verification Report upon completion of site works.
	<p>Further details can be found on the LCRM website:</p> <ul style="list-style-type: none"> • Remedial Options Appraisal • Remediation Strategy & Verification Strategy



STAGE C:	
Remediation Works	<p>The remediation works detailed in the approved Remediation Strategy are then carried out in accordance with agreed terms. Some of these works may be conducted prior to commencement, while others are conducted closer to completion of the development scheme.</p> <ul style="list-style-type: none"> • Remediation Works
STAGE D:	
Verification Works	<p>Where contamination has been found and/or remediated, the Planning Applicant/Developer will then carry out verification works, as detailed in the Verification Strategy. This will verify remedial works and account for other regulatory considerations, such as fill movements and unexpected contamination.</p> <p>A Verification Report, often known as a 'Validation Report' or 'Completion Report' is then prepared. This document should provide confirmation that all measures outlined in the approved Remediation Strategy and Verification Strategy have been successfully completed.</p> <p>Further details can be found on the LCRM website:</p> <ul style="list-style-type: none"> • Verification Works

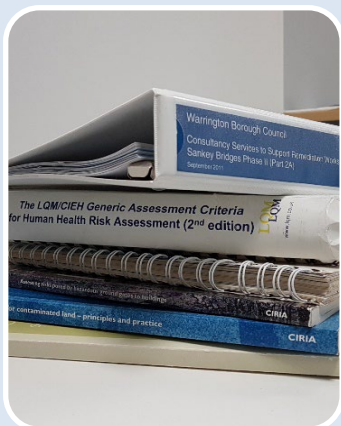
3.9 Access to Environmental Information & Advice

Information and advice relating to contaminated land can be obtained from the Council in addition to third party sources and private companies.

Some services that we offer are subject to a cost recovery charge either in the form of an officer hourly rate or fixed fee. Details of our fees and charges can be found on the Council website or by contacting the Environmental Protection Team.



Contaminated Land Planning Advice Service:



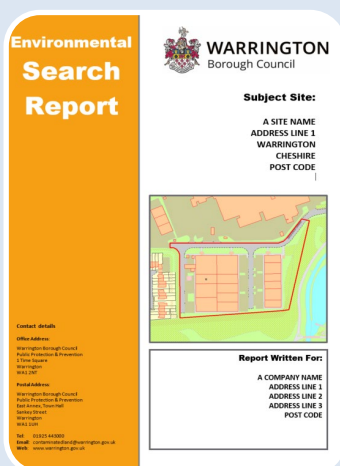
- If you are applying for planning permission and would like to know if contaminated land will affect your planning application, then you can ask the Environmental Protection Team for advice before you submit your planning application. Speaking to us early can ensure that you are aware of any contaminated land requirements and ensure the planning application process is as smooth as possible.
- Services include: Reviews of contaminated land documents; Specialist advice about Planning Conditions; Phone calls and virtual (MS Teams) meetings to help manage your planning application. View a list of our fixed fees for report reviews on the Council [website](#). Alternatively, a bespoke quotation can be obtained by emailing: contaminatedland@warrington.gov.uk

Viewing of Planning Documents:



- The Environmental Protection Team holds historic and current information about contaminated land within the Borough. In addition, the copies of all contaminated land investigation and risk assessment reports submitted under the planning system are also held on record. Companies or individuals can view information or reports at Council Offices by prior appointment.
- Intellectual property rights will need to be respected and duplicate copies of material subject to copyright laws will not be made or allowed.
- For further details contact the Environmental Protection Team on: contaminatedland@warrington.gov.uk

Contaminated Land / Environmental Search Service:



- The Council offers an 'Environmental Search Service', which can provide additional information to companies or individuals wishing to determine if a particular site or parcel of land is affected by contamination. There are several different types of search available.
- Information included relates to historic land uses, potentially contaminated land, status under Part 2A of the Environmental Protection Act (1990), as well as details of any contaminated land reports held on record by the Council.
- Details of search types and associated charges can be obtained by contacting contaminatedland@warrington.gov.uk and requesting information about the Environmental Search Service.





4.0 Technical Standards

There are a wide range of technical guidance notes designed to assist professionals in conducting contaminated land investigation, risk assessment and remediation. While not representing an exhaustive summary, the following section outlines key areas of contaminated land regulation, together with any internal standards adopted by the Council.

4.1 Soil & Water Contamination Screening and Assessment Criteria

Generic Assessment Criteria (GAC) are screening thresholds used to ascertain whether concentrations of contamination are at a level that presents a risk to sensitive receptors, such as human health or controlled waters. GAC's can be applied to contamination found in soil, water or air and are derived through contaminant behaviour modelling and known toxicological impact on receptors or the wider environment. GAC's can be derived for a range of land uses, such as Residential, Commercial and Public Open Space and are used in GQRA after contaminated land investigations.

Where a more detailed assessment is required, Site Specific Assessment Criteria (SSAC) can be derived in order to more accurately characterise contamination and enable a DQRA to be carried out. Where site-specific target levels are used they should be calculated based on suitable and reasonable assumptions as well as current best practice and associated briefing notes and guidance. Reference should also be made to statistical analysis of the resulting data from the intrusive investigation. Further information about GAC's, computer modelling for GQRA and DQRA can be found on the Environment Agency website:

<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-stage-1-risk-assessment#tier-2-generic-quantitative-risk-assessment~:text=Define%20the%20generic%20quantitative%20risk%20assessment%20objectives>

4.2 Hazardous Ground Gases

If the development scheme is situated **within 250m** of a significant gas generation source, such as a landfill site, or is located on land suspected of having the potential to generate ground gas, it will be necessary to assess potential risk. If a risk is identified, then gas protection measures may be



required for the site and/or new buildings. Guidance for monitoring, risk assessment and mitigation of ground gases can be found in various guidance notes, including:

CIRIA C665	Construction Industry Research & Information Association (2007) "Assessing risks posed by hazardous ground gases to buildings"
BS8485:2019	British Standards Institution (2019) "Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings"
BS8576:2013	British Standards Institution (2013) "Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)"
CIRIA C735	Construction Industry Research & Information Association (2014) "Good practice on the testing and verification of protection systems for buildings against hazardous ground gases"
BS10175:2011+A2:2017	British Standards Institution (2017) "Investigation of potentially contaminated sites. Code of practice. Code of practice"
CIRIA C748	Construction Industry Research & Information Association (2014) "Guidance on the use of plastic membranes as VOC vapour barriers"

If the PRA identifies a potential source of ground gas that may affect the subject site or development scheme, then gas-monitoring may be required. The guidance referenced sets out a phased, risk-based approach to ground gas assessment and is recommended for use when deriving the frequency and duration of gas-monitoring for a given site. Once sufficient gas monitoring data has been obtained, a ground gas risk assessment should be carried out to determine if gas protection measures are required.

Spike testing and data obtained from trial pit installations are not acceptable data collection methods for ground gas risk assessment.



Equally, the pre-emptive installation of gas mitigation measures in the absence of gas-monitoring data is also not accepted. Where a potential risk exists, adequate data should be collected to assess and quantify that risk, otherwise the remedial specification to mitigate that risk cannot be relied upon. A ground gas risk assessment or Remediation Strategy cannot be approved until such time as all monitoring has been completed. The Applicant/Developer should ensure that documents comprise all relevant monitoring data before submission to the Council for approval.

Further information about ground gas risk assessment and links to guidance notes can be found on the Environment Agency website:

<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-stage-1-risk-assessment/#ground-gases-and-vapours>

4.3 Japanese Knotweed and Invasive Plant Species



Japanese knotweed is an invasive species of plant not native to the British Isles. Since it was introduced into the UK as an ornamental garden plant in the mid-nineteenth century, it has spread across the UK, particularly along watercourses, transport routes and waste areas. Japanese knotweed is not just a problem for our native wildlife, the vigorous growth can also damage buildings and hard surfaces. Once established underneath or around the built environment, it can be particularly hard to control.

Neither the Environment Agency nor the Council are responsible for controlling Japanese Knotweed, other than that growing on Council-owned land or land that is subject to planning permission. In all other circumstances, managing invasive plant species is the responsibility of the land owner/occupier.



Where invasive species are identified on private land or a dispute between landowners occurs, this is regarded as a civil matter and legal advice should be sought where informal negotiation has failed. Where invasive species are present on land subject to planning permission, the matter will be dealt with by means of Planning Condition.

Further information about Japanese knotweed and invasive plant species management can be found on the Environment Agency website:

[Invasive Plant Species General Information](#)

[Preventing Invasive Plant Species from Spreading](#)

4.4 Asbestos

There are three issues relating to asbestos and asbestos-containing materials (ACM) that may require the Applicant/Developer to consider as part of a planning application:

Dealing with Asbestos as part of a Contaminated Land Planning Condition

Where Asbestos or ACM has been identified in soil on a development scheme, this will be dealt with as part of the risk assessment and Remediation Strategy for the development scheme. Further analysis may be required in order to determine a management strategy and/or disposal method. Contact the Environmental Protection Team for further advice.

Where Asbestos or ACM is encountered in an existing building due for demolition, this will be dealt with as part of the Asbestos Survey and management strategy. Contact the Environmental Protection Team for further advice.

Public concern about Asbestos in dwellings or associated with nearby development schemes

Where Asbestos or ACM has been identified in a dwelling, garage or outbuilding, specialist advice should be sought prior to attempting to repair or remove it. Contact the Health & Safety Executive for further advice.



Where works are being carried out and Asbestos or ACM is suspected to be having an impact on an individual or members of the public, the owner or occupier of the premises or property should be contacted in an effort to resolve matters informally. If you are unable to resolve an issue informally, contact the Environmental Protection Team for further advice.

Public concern about working with and/or being exposed to Asbestos in the workplace	Where Asbestos or ACM has been identified in the workplace, the Health & Safety Executive (HSE) should be contacted. Contact the Health & Safety Executive for further advice.
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Further information about the management of Asbestos and ACM can be found on the Health & Safety Executive and Environment Agency websites:

[Health & Safety Executive Asbestos General Information](#)

[UK Health Security Agency Asbestos General Information](#)

4.5 Unexploded Ordnance (UXO)

Unexploded bombs and munitions dropped on the UK during historic military conflicts such as World War II, are collectively known as Unexploded Ordnance (UXO). Unexploded ordnance can be an issue both at those locations that were targeted, but also at those facilities where munitions were stored or sent for disposal. As such, former Military Installations, Training Camps, Airfields, Factories and Dockyards are all at an elevated risk from UXO. Warrington comprises a vast former Military Airfield (Ex-RAF Burtonwood) and former Military Munitions Factory (Risley Moss Royal Ordnance Factory).

Development schemes on these locations frequently require a UXO assessment as part of the contaminated land consultation under planning. This is usually carried out at the Preliminary Risk Assessment (PRA) stage, as part of a desk-based appraisal of available information. Where further UXO assessment is required, it is recommended that a UXO specialist carries out the work.



Further information about unexploded ordnance can be found on the Environment Agency website:

<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-stage-1-risk-assessment#uxo>

4.6 Radiological Contamination

Whether naturally-occurring or man-made, radiation sources in Warrington which could present a risk to receptors are likely to be limited. However, radiological contamination is still a material consideration in specific circumstances, most notably associated with land involved in the storage, maintenance and/or scrapping of World War II military aircraft.

A luminous coating was often applied to instrument panels and dials installed within these aircraft, a coating which exhibited a low-level radiological signature (Radium²²⁶). When the aircraft were serviced, maintained or scrapped, the luminous coating would become damaged, dislodged or ground to dust. This resulted in concrete floor slabs of buildings and airfield hardstanding at some airbase sites being exposed to radioactive materials. Development schemes on land within the curtilages of former military aviation facilities (Ex-RAF Burtonwood and Ex-RAF Stretton) sometimes require a radiological assessment as part of the contaminated land consultation under planning. This is usually where a development scheme is to be located on former airbase buildings (eg: hangars) or airfield hardstanding (eg: aprons, taxiways, runways). A radiological specialist is often required to assess potential risk at these kind of locations and report findings to the LPA.

4.7 Radon

Radon is a colourless, odourless radioactive gas that is formed by the radioactive decay of small amounts of uranium that occur naturally in all rocks and soils. High radon exposure is associated with an increased risk of lung cancer. While the majority of Warrington is unaffected by radon, an assessment of potential risk from radon would be required as part of any contaminated land assessment. This is usually included in the PRA, as part of a desk-based appraisal of environmental information. Further information about Radon can be found on the UK Health Security Agency website:

<https://www.ukradon.org/>



4.8 National Quality Mark Scheme (NQMS)

The NQMS is a scheme that has been developed to provide visible identification of contaminated land technical documents that have been checked for quality by a “Suitably Qualified and experienced Person (SQP)”. While the Council is content to accept any NQMS-approved documents in support of Planning Applications, documents will be reviewed in accordance with the same guidance and standards as applied to other planning consultations.

4.9 Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

PFAS compounds are a group of synthetic (man-made) chemicals used in products during the mid-20th century to enhance water-resistant properties. PFAS chemicals are commonly described as persistent organic pollutants or "forever chemicals" because they remain in the environment for long periods of time, do not readily degrade and can be both mobile and invasive.

Remediation methodologies, involving the binding of PFAS with stabilisation materials, are being trialed, but research into the behaviour and treatment of PFAS is an evolving scientific field at present. Laboratories capable of testing for PFAS contaminants exist in the UK, although testing can be expensive and time-consuming. Where PFAS have been identified as part of a site investigation, consultation with both the LPA and the Environment Agency is recommended.

Further information about PFAS and how best to manage contamination can be found on the Environment Agency website:

[PFAS Environmental Risk Evaluation Reports](#)

4.10 Laboratory Testing

Where soils are to be chemically-tested as part of a land contamination investigation and risk assessment, the samples must be sent to a laboratory registered with the Monitoring Certification Scheme (MCERTS). The scheme is a quality assurance standard for providers of monitoring services, equipment and systems that is administered by the Environment Agency and accredited by the United Kingdom Accreditation Service (UKAS). This MCERTS performance standard contains requirements that a laboratory must meet if it wishes to be considered as a laboratory registered



under the MCERTS performance standard for the chemical testing of soil.

Further information about chemical testing and how best to manage contamination can be found on the Environment Agency website:

[Using MCERTS for the Chemical Testing of Soil](#)

[MCERTS: Performance Standard for Laboratories](#)





5.0 Remediation & Mitigation

There are a large number of potential remediation techniques and technologies available to land contamination professionals. While not representing an exhaustive summary of available remedial options, the following section summarises some common remediation measures, together with any internal standards adopted by the Council:

5.1 Growth Media for Gardens & Soft-landscaping

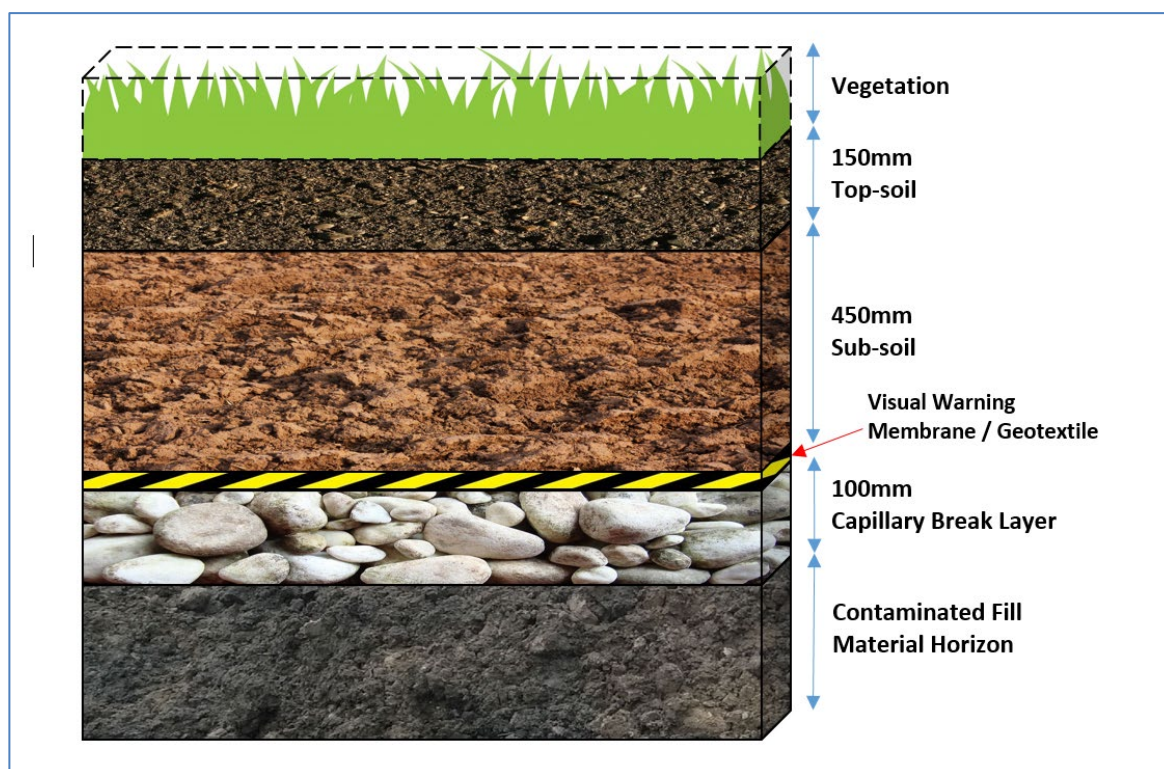
An adequate growth medium for plants and vegetation within garden areas and soft-landscaping is often incorporated into Remediation Strategies; however this is not a remedial technique designed to mitigate risk from contamination. Where a growth medium is proposed alongside remediation proposals, care should be taken not to confuse a growth medium with a 'cover system'. One is a remediation technique, while the other is not. Guidance on the idealised depth and specification of a growth medium is provided in British Standard BS3882:2015 "Specification for Topsoil". Typical minimum depths are: Grass/Plants 450mm; Shrubs 600mm; Trees 900mm. Where a growth medium is proposed to be formed from imported fill materials, the materials should be chemically-tested after import so as to confirm suitability for use. Further information on the verification of imported fill material suitability is provided below.

5.2 Cover Systems for Gardens and Soft-landscaping

Cover systems or 'capping layers' are a common remedial technique used over garden and soft-landscaped areas. The cover system encapsulates any residual non-mobile contamination under a layer of clean fill material. Unless a development scheme is phased, where cover systems are adopted as a remedial measure, **all garden and soft-landscaped areas** should receive a uniform depth of cover in accordance with the minimum standards outlined below.

Fill materials usually comprise top-soils and sub-soils, but sand can be appropriate in some circumstances. A layer of granular fill material or geotextile membrane can also be installed at the base of the cover system to act as a Capillary Break Layer or anti-dig layer. Minimum acceptable depths for cover systems have been adopted by the Council, in accordance with those standards adopted by industry professionals and other regulators. Cover system components are shown in a typical specification below:





The minimum accepted total depth of cover systems for Gardens is 600mm. This includes both front and rear Garden areas. Total depth can include any engineered components (eg: Capillary Break Layer or Geotextile) and depth will need to be verified upon completion. The minimum 600mm depth of cover for Gardens has been adopted for the following reasons:

- Root systems for shrubs are typically up to 600mm;
- Excavations are unlikely to be deeper than 600mm in typical gardening activities;
- Bioturbation (soil-mixing by biological organisms) is typically limited to the top 600mm of the soil profile;
- Excavations by children or pets are unlikely to exceed 600mm.

The minimum accepted total depth of cover systems for Soft-landscaping is 450mm. This includes Commons areas and Public Open Space. Total depth can include any engineered components and depth will need to be verified upon completion. The minimum 450mm depth of cover for soft-landscaping, common areas and Public Open Spaces has been adopted to reflect the reduced risk afforded by diminished exposure of human health receptors to potentially contaminated soils within these public areas via direct contact.



5.3 Gas and Vapour Protection Measures for New Buildings

Gas and vapour protection systems are mitigation measures installed within buildings and/or confined spaces to prevent ingress of ground gases and volatile vapours. Unless a development scheme is phased, where gas protection systems are adopted as a remedial measure, **all buildings** should receive a uniform specification of protection.

The requirements for a gas or vapour protection system and its design/specification are always derived by carrying out a ground gas or vapour risk assessment in accordance with best practice and available guidance. Typical gas protection systems include a combination of building foundations, physical barriers and dispersion layers to ensure gas ingress does not occur or if it does occur, that accumulated gases are allowed to dissipate freely. The presence and specification of a gas protection system must match the design agreed in the Remediation Strategy and will need to be verified upon completion. Further details can be found on the LCRM website:

<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-stage-1-risk-assessment/#ground-gases-and-vapour>

5.4 Source-removal of contamination

Source-removal of contamination describes the removal by means of excavation or pumping of contaminant sources that have been identified as presenting a potential risk to the development scheme and/or sensitive receptors. Typical remediation works might include the excavation and removal of contamination hot-spots or statistical outliers identified in surface soils, or a more widespread removal of Made Ground deposits across the wider site (ie: a site strip). Works may also include the pumping of contaminated groundwater from beneath the site or from perched locations in shallow strata.

5.5 Land-Raising Earthworks and Soil Inversion

Earthworks carried out prior to a development scheme commencing are relatively commonplace and include land raising works for reasons of flood defence and cutting/filling works to create a suitable development platform. Irrespective of the reasons, largescale earthworks are regulated for land contamination to ensure that upon completion, the land is suitable for the intended use.





While earthworks can be regulated under a Materials Management Plan (MMP), a Site Waste Management Plan (SWMP) or the CL:AIRE (2011) “Definition of Waste: Code of Practice”, these documents do not supersede the Remediation Strategy and Verification Strategy agreed with the Council under a given planning permission. Whether earthworks utilise site-won or imported fill materials, these fill materials must be chemically-tested to confirm suitability for use and works should be carried out in accordance with the agreed Remediation Strategy.

The process of ‘soil inversion’, whereby shallow contaminated fill materials are placed at depth and uncontaminated strata are placed at the surface is a methodology not typically sanctioned by the Council. Further details about the CL:AIRE (2011) “Definition of Waste: Code of Practice” can be found on the CL:AIRE website:

<https://www.claire.co.uk/projects-and-initiatives/dow-cop>

5.6 Biological Treatment of Contamination

Biological treatment of soils, also known as ‘bioremediation’, is the biological degrading processes for the treatment of contaminated soils and groundwater.



The process relies on micro-organisms using contaminants as a food source, resulting in the degradation and breakdown of the contaminant in question. Remediation methodologies include 'biostimulation', which encourages the natural attenuation of soil contaminants and 'bioaugmentation', which relies on the introduction of micro-organisms to promote and enhance degradation of contamination.



Remediation works can be carried out in-situ, whereby soils are left undisturbed while treatment is carried out. More commonly, remediation is carried out ex-situ, where soils are removed and placed in bio-piles and bioreactors to expedite treatment in a controlled environment.

5.7 In-situ stabilization of Contamination

Stabilisation of contamination and contaminated soils can be achieved through 'chemical stabilisation', which involves the chemical treatment the soils so as to render contaminants immobile or reduce their toxicity. Alternatively, stabilisation can be achieved through 'solidification', a technique which is encapsulates contaminants within solidified materials.



Stabilisation via solidification often involves mixing of impacted soils with stabilisation binders (eg: cement, lime, fly ash, clays) in proportions that will achieve a desired soil quality or leachability standard.

Carrying out stabilization works and soil mixing in-situ soil mixing often allows for uniform stabilisation of areas impacted by contamination, improving both geotechnical properties of the ground and reducing leachability of contaminants. The final design of the in-situ stabilisation is often contingent on the outcome of a remediation trial/pilot, which seeks to establish the most appropriate binder material, mix and distribution.





6.0 Verification Methodologies

When a development scheme is subject to regulation for land contamination, it is necessary to provide information upon completion, so as to verify that the scheme is suitable for the intended use. This typically involves verifying that the agreed Remediation Strategy and Verification Strategy have been followed. On that basis, a **Verification Report**, sometimes called a “Validation Report”, is required to be submitted upon completion of construction/excavation works and prior to the development scheme being taken into use.

This report needs to verify (or ‘validate’) the following as a minimum:

- Remediation measures or works
- Imported or Site-won fill materials
- Exported materials or waste materials
- Unexpected or previously-unidentified contamination

6.1 Cover Systems & Growth Media

If cover systems are required for gardens or areas of soft-landscaping within the development scheme, details should be provided as to how these remedial measures will be validated so as to ensure their presence, depth, specification and suitability for use. This information should be provided as part of the Verification Strategy. Once remedial works are completed, the depth and specification of a proposed cover system should confirm that works have been carried out in accordance with the Remediation Strategy. This verification should be carried out in **all areas** where cover systems or growth media have been installed.



Where a depth of soil is proposed to be installed as a growth medium, verification should confirm that the works have been completed in accordance with British Standard BS3882, Specification for Topsoil, and the agreed Remediation Strategy. Typically, verification data would be collected by means of trial holes, measuring staff and photographic evidence. Data verifying the depth and specification of a cover system or growth medium should be included within a Verification Report for submission to the Council upon completion of proposed works and prior to the development scheme being taken into use.

6.2 Gas or Vapour Protection Measures

If ground gas or vapour protection measures are required for new buildings or external areas within the development scheme, details should be provided as to how these remedial measures will be validated so as to ensure their presence, specification and installation in accordance with guidance and best practice. This information should be provided as part of the Verification Strategy. Once remedial works are completed, the design of the protection measures should confirm that works have been carried out in accordance with the Remediation Strategy. It is important that **all components** of the agreed protection system are verified within **all buildings** where gas/vapour protection measures have been installed. Depending on the risk classification of the development scheme and the type of protection required, protection measures requiring verification could include:

- Floor slabs and foundations
- Gas or Vapour-resistant membranes
- Ventilated sub-floor void or dispersal layer
- Active ventilation systems or alarms

Protection measures installed within external areas of the site, such as venting trenches or virtual curtains, will also require verification. The nature of the data collected will be dependent on the type of measures installed, but should confirm that the agreed specification has been installed in accordance with the Remediation Strategy. Whether verifying internal or external protection measures, verification data would typically be collected by means of visual inspection, manufacturer documentation, photographic evidence and integrity testing during and after installation.





Concreting at GL A 16-19



Seal pipes at 1J

Some protection measures also require confirmation of practices in accordance with specified guidance, such as Construction Industry Research & Information Association (2014) guidance document C735 “Good Practice on the Testing and Verification of Protection Systems for Buildings Against Hazardous Ground Gases”. Where verification of practises in accordance with specified guidance is required, confirmation should be provided alongside other verification data collected. Data verifying the presence, specification and installation of gas or vapour protection measures should be included within a Verification Report for submission to the Council upon completion of proposed works and prior to the development scheme being taken into use.

6.3 Source-removal of Contamination

If contamination sources are to be removed as part of remediation works, details should be provided as to how these remedial works will be validated so as to ensure the effectiveness of the remediation. This information should be provided as part of the Verification Strategy.

Once remedial works are completed, verification of the source-removal of contamination, whether in the form of hot-spots, statistical outliers or larger-scale stripping of fill materials, should confirm works have been carried out in accordance with the Remediation Strategy. Contamination hot-spots or outliers should be delineated by means of chemical testing and then source-removal works carried out by means of excavation. Excavation arisings should be chemically tested to determine suitability for use and either treated to enable re-use or exported from site for disposal at a suitable facility. Resulting excavations should then be validated to ensure complete removal of contaminated materials.



Typically, this would include the sampling of excavation bases and sides, with further source-removal works implemented as required. Whether imported or site-won, fill materials used as backfill for remedial excavations are also required to be chemically tested to confirm suitability for use. This is achieved through verification sampling at a prescribed frequency, with these sampling frequencies being based on both the intended end use of the material and the nature of its place of origin. Further details of verification sampling frequencies and chemical testing suites are provided in the following sections. Verification data would typically be collected by means of photographic evidence of the works, accompanying commentary, chemical testing data and risk assessment.

Relevant data should be included within a Verification Report for submission to the Authority upon completion of proposed site works. Data verifying works associated with the source-removal of contamination should be included within a Verification Report for submission to the Council upon completion of proposed site works and prior to the development scheme being taken into use.

6.4 Land-raising Earthworks

If earthworks are required as part of the scheme to raise finishing levels or create a suitable development platform, a methodology and details as to how works will be verified upon completion are required to be provided. This information should be provided as part of the Remediation Strategy and Verification Strategy.

It is recognised that details of proposed earthworks may also be provided in a Materials Management Plan (MMP) or Site Waste Management Plan (SWMP) and that works may conform to voluntary management schemes, such as the CL:AIRE, Definition of Waste: Code of Practice. However, details of proposed earthworks and how they will be validated must also form part of the Verification Strategy and conform to internal standards adopted by the Council. MMP's and SWMP's support and inform the Verification Strategy and do not supersede it.

Once earthworks are completed, verification should confirm that works have been carried out in accordance with the Remediation Strategy. While the exact nature of the verification information that could be collected is largely dependent on the nature of the earthworks, information



could include: photographic evidence of excavation works; details of cutting & filling works; copies of permits; pre/post topographic surveys; and details of any sampling, chemical testing and risk assessment. Data verifying works associated with land-raising earthworks should be included within a Verification Report for submission to the Council upon completion of proposed site works and prior to the development scheme being taken into use.



Further details about the CL:AIRE (2011) “Definition of Waste: Code of Practice” can be found on the CL:AIRE website:

<https://www.claire.co.uk/projects-and-initiatives/dow-cop>

6.5 Biological Treatment of Contamination

If biological treatment of contaminated soils and/or groundwater are required as part of remediation works, a methodology and details as to how works will be verified upon completion are required to be provided. This information should be provided as part of the Remediation Strategy and Verification Strategy. Once earthworks are completed, verification should confirm that works have been carried out in accordance with the Remediation Strategy. While the exact nature of the verification information that could be collected is largely dependent on the nature of the bioremediation, information could include:



Details of the treatment technology; details of sampling, chemical testing and risk assessment; and confirmation that remedial targets have been met rendering materials suitable for use. Data verifying works associated with bioremediation should be included within a Verification Report for submission to the Council upon completion of proposed site works and prior to the development scheme being taken into use.

6.6 Imported & Site-won Fill Materials

If imported and/or site-won fill materials are proposed for use in the development scheme (especially where said materials are to be placed in sensitive areas), they are required to be chemically validated to confirm suitability for use. This is achieved through verification sampling of fill materials at prescribed frequencies and apply to both site-won and imported fill materials. Sampling frequencies are based on both the intended end use of the material and the nature of its place of origin. All procedures in relation to the verification of imported and/or site-won fill materials should be provided as part of the Verification Strategy. The Council recommends as a minimum, that the following verification sampling frequencies for imported and/or site-won fill materials are adopted:

Intended end use	Source/origin of fill material			
	Greenfield:	Remediated Site:	Brownfield:	Unknown:
Gardens:	1:250m ³	1:100m ³	1:50m ³	1:50m ³
Soft-landscaping:	1:250m ³	1:150m ³	1:100m ³	1:100m ³
Public Open Space:	1:250m ³	1:150m ³	1:150m ³	1:150m ³
Other:	1:250m ³	1:250m ³	1:250m ³	1:250m ³

Imported fill materials should be chemically-tested at the above frequencies **after materials have been imported to site**. If the Applicant/Developer wishes to obtain testing data prior to import, then that is their prerogative. However, the chemical testing of imported fill materials post-import is considered mandatory. It is recognised that granular fill materials are generally more difficult to validate, owing to size and composition and where fill materials are classified as 'virgin quarried material', verification is unlikely to be required. Site-won fill materials should be chemically-tested at the above frequencies once materials have been excavated and stockpiled.



Chemical testing suites should be scheduled to include a broad range of potential contaminants. Verification testing should include as a minimum:

- Metals & Metalloids
- Speciated Polyaromatic hydrocarbons (PAH's)
- Speciated Petroleum hydrocarbons (TPHCWG)
- Asbestos Screen
- Other specific potential contaminants as defined by prior risk assessment

Confirmation should also be provided if imported or site-won fill materials **were not** used or re-used on site or as part of the development scheme. Data verifying works associated with the verification of imported and site-won fill materials should be included within a Verification Report for submission to the Council upon completion of proposed site works and prior to the development scheme being taken into use.

6.7 Exported Fill Materials and Waste Management

If fill materials or waste materials are to be exported from site for disposal or re-use, details of how said materials will be managed are required to be provided. Information should include as a minimum: stockpile management procedures; retention of duty of care, permit and waste transfer documentation; and an undertaking to provide details of export volumes; export destinations; and relevant paperwork to the Council. All procedures in relation to the verification of exported fill materials and waste materials should be provided as part of the Verification Strategy.

Once the development scheme has completed, fill material and waste material export data and relevant documentation should be collated and a commentary prepared. Confirmation should also be provided if fill materials or waste materials **were not** exported from site as part of the development scheme.

Data verifying works associated with exported materials should be included within a Verification Report for submission to the Council upon completion of proposed site works and prior to the development scheme being taken into use.





6.8 Unexpected Contamination

Even the most rigorous site investigation cannot be guaranteed to identify all contamination associated with a given area of land, particularly if contamination is at depth or associated with an unrecorded subterranean feature. As such, procedures detailing how unexpected contamination encountered during site works will be managed, assessed and if required, remediated and validated are required to be provided.

Contingency procedures should include: cessation of works in the affected area; notification of the Authority; and appropriate risk assessment and remediation/verification procedures. All procedures in relation to the management of unexpected contamination should be provided as part of the Verification Strategy. Once the development scheme has completed, information and documents pertaining to any unexpected or previously-unidentified encountered should be collated and a commentary prepared. Confirmation should also be provided if unexpected contamination was **not** encountered during the course of the development scheme.

Data verifying works associated with unexpected or previously-unidentified contamination should be included within a Verification Report for submission to the Council upon completion of proposed site works and prior to the development scheme being taken into use.



6.9 Verification Reports

If the planning permission comprises a Contaminated Land Planning Condition which includes completion or pre-occupancy requirements, a Verification Report **will be required** in order to secure discharge of that Planning Condition. Even if remediation is not required as part of the development scheme, then as a minimum the Verification Report should include information relating to the handling of imported fill materials; the handling of site-won fill materials proposed for re-use; the management of exported fill materials proposed for re-use/disposal; and details of any unexpected or previously-unidentified contamination encountered.



If the development scheme comprises any of the following items, then the information listed should be collected and presented in a Verification Report upon completion of the development scheme and prior to occupation of new buildings or the development scheme being taken into use.

Presented below is a Verification Check List for verification works. If the development scheme comprises any of the works shown below, then the information listed should be collected and presented **for all applicable locations** in a **Verification Report** upon completion of the development scheme:

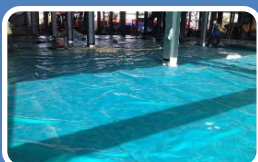


Verification Checklist



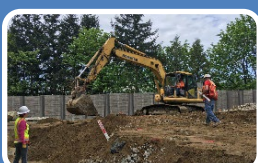
COVER SYSTEMS

- Photographs showing Depth of Cover
- Photographs showing components (eg: Geotextile, Break Layer or Warning Membrane)
- Location of Cover System
- Confirmation that depth, components and installation matches agreed Remediation Strategy



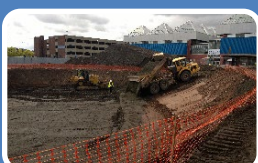
GAS OR VAPOUR PROTECTION MEASURES

- Photographs showing installation
- Photographs showing components (eg: Membrane, Floor slab, Sub-floor void)
- Evidence of independent inspection
- Confirmation that components and installation matches agreed Remediation Strategy



SOURCE-REMOVAL OF CONTAMINATION

- Photographs showing excavation works
- Details of sampling, chemical testing and risk assessment
- Details of the origins and suitability for use of backfill material
- Confirmation that works have been completed in accordance with the Remediation Strategy



LAND-RAISING EARTHWORKS

- Photographs showing excavation works or cutting & filling works
- Confirmation of finishing levels (eg: topographic survey)
- Details of any sampling, chemical testing and risk assessment
- Confirmation that works have been completed in accordance with the Remediation Strategy



BIOLOGICAL TREATMENT OF CONTAMINATION

- Details of the treatment methodology/technology being used
- Details of sampling, chemical testing and risk assessment
- Confirmation that remedial targets have been met and suitability for use
- Confirmation that works have been completed in accordance with the Remediation Strategy



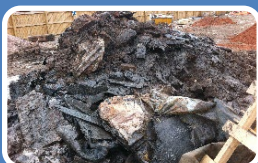
IMPORTED & SITE-WON FILL MATERIALS

- Details of the nature, origin and volume of material
- Details of sampling frequencies, chemical testing and suitability for use
- Details of placement location
- Confirmation that works have been completed in accordance with the Verification Strategy
- Or, confirmation that **no imported/site-won fill materials were used** in the development scheme



EXPORTED FILL MATERIALS & WASTE MANAGEMENT

- Details of the nature of the origin, nature and volume of material
- Details of the fate and destination of the fill material
- Copies of waste transfer documentation
- Confirmation that works have been completed in accordance with the Verification Strategy
- Or, confirmation that **no fill materials or waste materials were exported** for re-use or disposal



UNEXPECTED CONTAMINATION

- Photographs showing the location and nature of impacted material
- Details of sampling, chemical testing and risk assessment
- Details of any remedial works and the eventual fate of impacted material
- Confirmation that works have been completed in accordance with the Verification Strategy
- Or, confirmation that **no unexpected contamination** was encountered during site works



The Verification Report must:

1. Be prepared upon **completion** of the development scheme;
2. Comprise **information agreed** to be provided under the Remediation Strategy and/or Verification Strategy;
3. Verify that the Remediation Strategy and Verification Strategy **have been followed**;
4. Be submitted **prior** to occupation of new buildings and/or the development scheme being taken into use.

7.0 How will the Council Assess Contaminated Land for a Development Scheme?

The Council will consider the relative merit of the planning application in relation to national and local planning policy. Land contamination is a consideration where a Sensitive end use is proposed, particularly where the development scheme is to be located on Potentially Contaminated Land or land with a former industrial land use. By regulating the investigation, risk assessment and if necessary, remediation of contaminated sites, the Council seeks to ensure that a given development scheme and the land upon which is located, is suitable for the intended use.

8.0 Further information

Warrington Borough Council	Contaminated Land Webpage
Contaminated Land: Assessment in Real Environments (CL:AIRE)	Definition of Waste: Code of Practice
UK Health Security Agency (UKHSA)	National Public Health Guidance
	Asbestos General Information
	UK Radon Website
Environment Agency (EA)	Land Contamination Risk Management (LCRM) Webpages
	National Invasive Plant Species Guidance



