

## Land Contamination Investigations - Checklist of Minimum Requirements

### Phase I Desk Study and Phase II

The following checklists highlight the type of information which must be included in any Phase I and Phase II site investigation reports which are submitted in support of Planning Applications, Building Warrants or where voluntary investigation and remediation of land is proposed.

These should be considered to outline the **minimum requirements** which are not exhaustive, but rather an initial range of areas that must be considered during Phase I and II investigations. The content of any site investigation report must be site specific with each site being evaluated on its own merits and reported as such. This checklist is for guidance only and does not seek to replace the wealth of comprehensive guidance already available in relation to site investigation and risk assessment of land contamination. All reports must be produced in line with current, relevant, authoritative best practice.

It should be noted that site search products such as EnviroCheck, Sitescope, Groundsure or similar are not considered to satisfy the requirements of a Phase I preliminary risk assessment/desk study. They would not, in isolation be considered sufficient to provide all of the information required by the Local Planning Authority however it would be acceptable to include such a report as part of a more detailed submission. It is recommended that Phase I reports and investigation strategies are submitted to the local authority for review prior to the commencement of Phase II investigations.

It is the developer's responsibility to undertake an adequate risk assessment of a site and to propose measures to ensure that these risks are properly addressed (Scottish Government, Planning Advice Note 33). Assessment of risks relating to land contamination is a complex process and should be carried out only by appropriately qualified and experienced individuals. Planning Consents and Building Warrants may be refused or conditions may not be purified where the Council is not satisfied that the site has been fully characterised, or that appropriate measures are in place to ensure the safe development of the site.

The checklist was developed by the South and East Pollution Liaison Group – Contaminated Land Sub Group on which The City of Edinburgh, Scottish Borders, West Lothian, Midlothian and East Lothian Councils are represented. It is designed for use by land owners, developers, agents and consultants to help ensure that submissions include adequate information and aims to reduce unnecessary delays due to essential basic information being omitted from report submissions.

Please be aware that submissions which do not meet the minimum requirements outlined in this checklist may be rejected by the local authority and returned for revision, without detailed comments.

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Phase I: Desk Study – Reporting Guidance		Provided		
		Yes	No	N/A
<b>Purpose of and aim of the study</b>	Report objectives – the purpose and aims of the report should be clear			
	Proposed development details. Include planning application reference and/or building warrant number if available			
<b>Site location and layout plans</b>	Scaled and orientated site location plan with National Grid Reference			
	Scaled and orientated site layout plan with clear site boundary which, where submitted in respect of a planning consent/application/building warrant must accurately reflect that of the application			
	Additional scaled and orientated site plans as appropriate e.g. current/historical activities layout			
	Site area			
<b>Appraisal of full site history</b>	<p>Clear discussion on past/current site uses and relevant surrounding area including information obtained from, but not limited to:</p> <ul style="list-style-type: none"> <li>• Past and present site owners</li> <li>• Anecdotal information</li> <li>• Planning history</li> <li>• Historical OS maps</li> <li>• Royal Commission on the Ancient and Historical Monuments of Scotland (RCHAMS)/Historic Environment Scotland</li> <li>• National Library of Scotland</li> <li>• Site Plans</li> <li>• Aerial Photography</li> <li>• Relevant consultations*</li> </ul> <p>Historical assessment should include a clear discussion on the provenance of the information and uncertainty and information gaps which present limitations</p>			
<b>Site setting</b>	Information on site drainage and other anthropogenic potential pollutant pathways			
	Description of site and surroundings including detailed walkover survey. Site walkovers should be undertaken in line with relevant guidance including BS10175 and should include orientated photographic records and plans			

	<p>Environmental setting information including:</p> <ul style="list-style-type: none"> <li>• Geology – superficial and solid including economic viability of groundwater</li> <li>• Hydrology/hydrogeology</li> <li>• Location and status of relevant water environment receptors</li> </ul>			
<b>*Relevant consultations</b>	Consultation with local authority – e.g. site records, private water supplies, petroleum licensing, former waste licensing, development management records, enforcement actions			
	Consultation with SEPA – e.g. water environment classification, waste disposal authorisations, permits, pollution incidents, enforcement action			
	Consultation with other appropriate bodies/individuals			
<b>Review of previous investigations or remediation</b>	Identification of previous site investigations and review of previous work where available. Where previous site investigation data is used, reports must include discussion on QA/QC and consideration of data reliability for subsequent reuse.			
<b>Development of CSM</b>	Identification of potential contaminants of concern (COC) – COC should be discussed in relation to known site uses or uncertainties and informed by relevant guidance e.g. DOE industry profiles.			
	Detailed conceptual site model (CSM) – as a minimum, receptors considered within the CSM should include the water environment and statutory receptors as detailed in EPA 1990: Part IIA Contaminated Land Statutory Guidance: Edition 2, Statutory Guidance on the definition of contaminated land, Table A			
	Description of all potential pollutant linkages for potential COC and appropriate discussion to support linkages which are being discounted.			
<b>Gaps and Uncertainties</b>	Discussion of uncertainties and gaps in information collated			
<b>Conclusions</b>	<p>Recommendations, description and justification of further work, including where necessary:</p> <ul style="list-style-type: none"> <li>• Proposed site investigation including: Site investigation strategy Sampling strategy Detailed rationale</li> </ul>			
	Complete accurate reference list			

Phase II: Site Investigation – Reporting Guidance (assuming satisfactory Phase I submission)		Provided		
		Yes	No	N/A
<b>Introduction and general site information</b>	Report objectives			
	Scaled and orientated site location plan and national grid reference			
	Scaled and orientated site layout plans with clear site boundary. If in support of planning application/building warrant, plans must match those applied for/consented			
	Site area			
	Review of Phase I desk study and/or clear reference to Phase II if appropriate			
	Preliminary Conceptual Site Model (CSM)			
	Gap analysis			
	Review of previous work if available to include QA/QC considerations			
<b>Investigation overview (assuming investigation strategy has been submitted as part of preceding Phase I)</b>	Summary of work undertaken and any amendments from that proposed			
	Investigation strategy and rationale with reference to CSM and preceding investigation design (Phase I)			
	Justified investigation strategy including method of investigation, zoning, targeted locations, non targeted investigation density etc. Rationale for approach should also be given			
	Site observations – on-site conditions, limitations encountered and notable observations including scale plans for reference where appropriate			
	Details of all reinstatement to prevent preferential pathways			
<b>Sampling Objectives/Strategy</b>	Sampling strategy rationale/justification with reference to CSM			
	Details of monitoring programmes where necessary (justified with regard to current guidance)			
	Monitoring and sampling locations, depths in metres below ground level (mbgl) and above ordnance datum (mAOD)			
	Accurate, scale site investigation location plan including additional plans of relevant features (e.g. targeted areas/zones). Locations should be surveyed from reference features if levels not required			
	QA/QC methodology employed			
	Details of additional testing e.g. particle size distribution, permeability testing etc.			

	Methods used for collecting, preserving and transporting samples to the laboratory			
<b>Analytical Strategy</b>	Rationale for analytical parameters selected for all aspects of investigations			
	QA/QC for chemical analysis including discussion on any deviating sample results			
	Details of any in-situ analysis performed and evidence of appropriateness/value of techniques			
<b>Investigation results</b>	Ground conditions (borehole/trial pit/hand pit logs) with reference to the standard followed in the description of the ground conditions. All logs should be appropriately referenced and include an accurate record of samples, water strikes, installations etc. Trial pit and borehole logs to be recorded with elevation surveyed referenced to ordnance datum (mAOD)			
	Site plans/drawings recording the location and depth of any sources of contamination including any historical spills, leaks, discharges, working/storage areas and tanks and pipes			
	Summary table of chemical analysis and monitoring undertaken			
	Groundwater levels for individual boreholes in metres below ground level (mbgl) above ordnance datum (mAOD) with reference location, response zone, date/time			
	Water levels for surface water features included in the site conceptual model (mAOD)			
	Results of any in-situ or laboratory testing such as hydraulic conductivity testing. This should include method statements, raw data and interpreted results. The date, location and depth of any sampling should be provided.			
	Identification of preferential flow pathways; natural geological conditions and man made structures such as drainage, utility ducts and mine workings			
<b>Risk Assessment</b>	Overview of Risk Assessment (RA) approach including models employed. Discussion on; proposed development, receptors, exposure pathways, assessment points considered etc.			
	Justification for the selection of RA criteria in regard to relevant policy, guidance and site specific conditions.			
	If DQRA undertaken (human health and/or water environment risk assessments) – details and justification of: input parameters, safety factors, assumptions and sensitivity analysis undertaken. All calculation sheets and model outputs in electronic format e.g. MS Excel			
<b>Risk Assessment (cont.)</b>	Consideration of data quality, risk assessment limitations, uncertainties and any resultant implications			
	Results of risk assessment			
	Consideration of pollutant linkages and revised CSM. Consideration as to how it reflects site conditions			

	Interpretation and conclusions			
	Recommendations for remediation – guided by proposed end use, risk assessment and final CSM. Or recommendations for further study.			
<b>Appended information</b>	Relevant plans if not included within the body of the report.			
	Ground condition logs			
	Ground condition and/or general site photos where applicable			
	Complete laboratory analysis reports			
	Chain of custody documentation and submitted sample descriptions			
	Monitoring results			
	Complete monitoring records			
	Calibration certificates			
	Relevant summary tables as appropriate e.g. RA screening			
<b>Other</b>	Complete/accurate reference list			
	Report should be signed and authorised			