Contamination Central

CONTAMINATED LAND AND YOU

Inside front cover

What is contaminated land?

Land is considered contaminated when chemicals or substances are present in the soil, water or groundwater at concentration levels above what is known to be the naturally occurring levels in that area or locality and is likely to cause harm to humans or the environment in the locality.

Often the contaminants cannot be seen or smelt but may still cause significant health problems if in high enough concentrations. One example is lead contamination that may come from old leaded petrol, lead paint or lead flashing in roofing etc. Lead in the soil can be absorbed through the skin or eaten by not washing hands or growing vegetables in the contaminated soil. This can contribute to lead poisoning which causes significant brain development issues in humans, particularly young children.

For land to be considered contaminated there needs to be three things happening at once:

1. There is a substance present in a toxic concentration in soil or groundwater; and
2. There are people or an aspect of the environment that could be exposed to the toxic substance; and
3. There needs to be a pathway or connection that allows the toxic substance to come into contact with the people or the environment.

Potentially contaminated land will be identified by its former land use activity. A list of land uses that Council uses to identify potentially contaminated land is contained in Council's Contaminated Land Policy.

Land use activities that may cause land contamination may not have been carried out for many years or decades, however, contamination cannot be confirmed or discounted without the land being suitably investigated.

Pollution versus contamination

In NSW, in a practical and legal sense, contamination is handled differently to pollution and waste issues.

Pollution can arise from accidents such as spills and leaks or from deliberate actions such as dumping waste or releasing a toxic substance into the environment. When the authorities become aware of these incidents, they can be dealt with relatively quickly, usually within a few days. It is often very easy to identify what has been affected by pollution and clean up orders can be actioned immediately.

Contamination, however, may not be noticed for many years after. The cause of the contamination may have been removed long ago when these issues were not considered as seriously as they are today. Contamination may sometimes require complex investigations to uncover how far the contaminants have spread and whether it will have a lasting impact on the community or land owners. The clean-up or remediation process may be difficult because it might affect buildings and other structures on the site.

Sources of land contamination

Contamination issues can arise from either a long period of incremental pollution, such as a small leak or drips that build up over time such as from a petrol bowser, or from incidents and practices from decades past, such as old treated timber works or gas works.

Any location where materials that can cause harm are stored or handled may result in contamination.

In NSW contamination commonly comes from:

- petrol stations or other areas that store large volumes of petrol and diesel, especially in underground tanks
- heavy industry
- factories
- sheep and cattle dips
- chemical storage or ongoing use
- gas works
- waste disposal areas such as on-farm tips
- waste disposal areas for industrial processes
- illegal dumping of material that should have been taken to an approved landfill.

Impact of contaminated land

When land is contaminated, the higher than normal concentrations of chemicals or substances may cause harm to human health and the environment. It is very rare that land contamination will mean that the land can never be put to a useful purpose ever again, but the circumstances need to be carefully evaluated to ensure that the impacts can be mitigated or avoided. Until contamination is verified or cleaned-up it may prevent development or affect the value of the land.

Health risks

The toxic chemicals associated with land contamination can have some very serious health effects. These can include various kinds of cancer, respiratory problems and skin conditions.

The toxic materials that may have contaminated the soil can get into the human body directly by:

- Coming into contact with the skin.
- Breathing in vapours, dust or particles.
- Dust falling on tables, toys or playing areas
- Eating fruits and vegetables that have been grown in contaminated soil.
- Being washed into water sources like reservoirs and rivers.

Growing vegetables, fruit trees and sourcing eggs from backyard chickens are other ways of coming into frequent contact with small amounts of contaminants that could cause longer term health effects.

In most cases it will take a considerable amount of time to develop the medical conditions that contaminants are likely to cause and therefore it makes it difficult to know where the problem may have come from.

Land contamination is most relevant to residential premises as young children can consume a lot of soil through play and hand to mouth behaviours. Young children also need less of the toxin to have a harmful effect. Adults also have contact with soil through gardening and home maintenance as well as growing fruit, vegetables and poultry.

Many contaminants that we are concerned about have long-term impacts such as cancer or health effects in children.

Workplaces are considered less sensitive because the people there are adults, they are usually at the site for less time than they are at their home and will not normally need to have contact with the soil.

However, a workplace may still cause health problems to the workers if there is land contamination. Just because an industrial or commercial worksite will remain a worksite, does not mean that land contamination is not an issue.

Council can only intervene to have contamination issues assessed when someone lodges a rezoning or development application. In all other circumstances the land owner or tenant should make their own assessment of risk to their health. They may consult a health professional if they are worried, or a contaminated land consultant if they want to know more about the risk of contamination on their land.

In general, if you experience unusual health effects by being on the premises, notice strange odours or dead vegetation or bare ground on the property, it would be prudent to investigate further.

Buying & Selling

In NSW there is no restriction on selling land if it is contaminated or suspected it may be contaminated, however the ability to find a buyer or get the best price for that land may be impacted.

Evidence of contamination does not prevent the sale of land.

Council has a responsibility to identify land that it thinks may potentially be contaminated. This is done in accordance with its Contaminated Land Policy on section 149 Planning Certificates. The certificate also has other important information about planning issues for the land and must be included in the contract of sale so that the buyer can be made aware of any restrictions on the land.

The Contaminated Land Management Act 1997 holds the polluter responsible for contamination assessment and remediation, however this is usually only enforced when land is significantly contaminated and being regulated by the Environment Protection Authority. Liability can be passed onto other parties through other civil contracts and agreements. Councils do not usually get involved in determining who should be held responsible see DAs for more info.

For land that may be considered potentially contaminated a seller may:

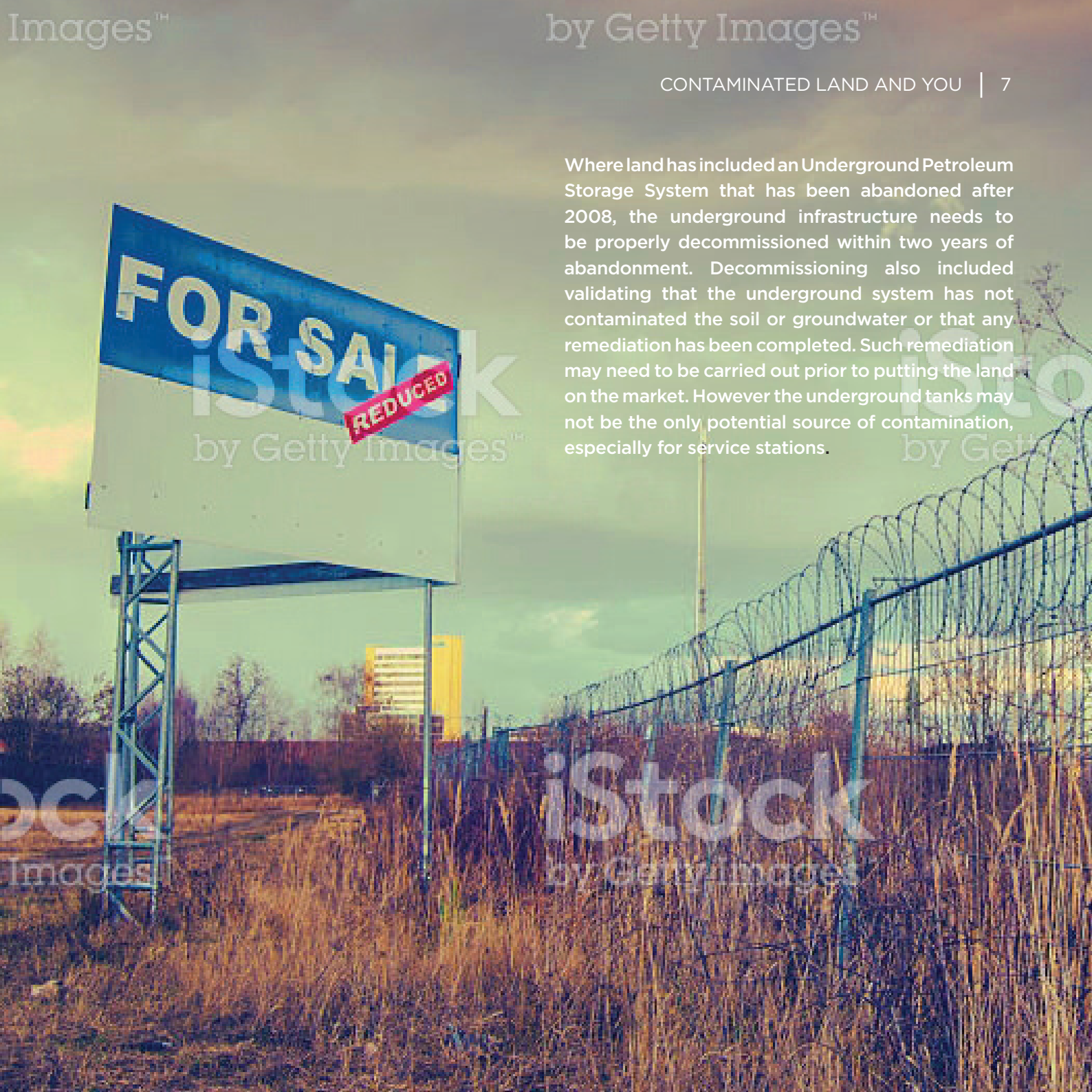
1. Sell the land without any assessment or remediation and let the buyer take all responsibility
2. Undertake some assessment to give the buyer a better idea of what they are buying;
3. Undertake remediation so that the buyer can take over a “clean” site ready for redevelopment.

It is important to note that Council cannot assist in any decisions about how the land is presented to the market and legal and financial advice should be relied on in making these decisions.

If a land owner wishes to undertake land remediation, it is very important that they consider what future use the land may be put to. It is often the case that land remediation will either go too far or not far enough when it is carried out without considering the next use.

Remediation will never remove land from Council’s contaminated land information system, because the system is there to track all relevant information including to confirm that remediation has been carried out.

Where land has included an Underground Petroleum Storage System that has been abandoned after 2008, the underground infrastructure needs to be properly decommissioned within two years of abandonment. Decommissioning also included validating that the underground system has not contaminated the soil or groundwater or that any remediation has been completed. Such remediation may need to be carried out prior to putting the land on the market. However the underground tanks may not be the only potential source of contamination, especially for service stations.



Remediating

If land is found to be contaminated some remediation may be required. The form of remediation will depend on the results of a detailed contamination assessment where the extent of contamination should be clearly defined.

A Remediation Action Plan should be prepared to ensure that the remediation is carried out in accordance with all the relevant legislation, guidelines and safety requirements.

Remediation involves the clean-up of impacted land in order to reduce the human and environmental hazard and make it suitable for a particular use such as a commercial activity or a home.

Council has no powers to cause contaminated land to be cleaned-up unless there is a development application or if it is likely to pollute further.

For more information on remediation Action Plans see section xxx

The method of remediation, degree, time and cost will all depend on the nature of the proposed development and the extent of the contamination and this would need to be discussed with your consultant at the time. It is also useful to discuss the matter with Council to ensure that the remediation will meet the requirements of the proposed land use.

For instance, residual contamination may not need to be remediated if it is buried at depth or can be specifically covered to keep it in place (this is called capping). If however a future proposal results in the excavation of soil to that depth greater than the capped material further assessment or remediation may be required.

Depending on the nature and extent of the contamination, it may be more practical to develop a specific future land use proposal before determining the preferred remediation method.

Remediation can be carried out in two ways. The State Environmental Planning Policy 55 Remediation of Land specifies if remediation will require development consent or if it can be carried out without consent. If consent is not required, Council must be notified and Council's Contaminated Land policy must be followed.

Remediation is categorised into two types:

- **Category 1 - Remediation that needs Council consent.** This generally applies to environmentally sensitive land, heritage conservation and flood affected land. You should check Council's Contaminated Land Policy and State Environmental Planning Policy 55 Remediation of Land for details.
- **Category 2 - Remediation that only needs to be notified to Council.** Council will need 30 days' notice to confirm that the remediation does not require consent.

Following either Category 1 or 2 remediation, a Validation Report must be submitted to Council, generally within 60 days of completion of remediation. The Validation Report confirms that the remediation objectives have been completed.

How to find out if land is contaminated

1. Ask your local Council for information regarding current and historic land use activities in the local government area. Council may identify this land as potentially contaminated.
2. Ask Council if there is any record of a contamination consultant's reports relating to the land. Council keeps a record of contamination consultant's reports if they have been provided to Council. All of this information is identified on a section 149 Planning Certificate that should form part of the Contract of Sale of land.
3. To confirm if the land is actually impacted by contamination it would need to be assessed by a contaminated land consultant.

If you have concerns, you should contact Council to see what information is available or contact a contaminated land consultant to seek advice about carrying out an investigation.

If the contamination is considered significant then the NSW Environment Protection Authority (EPA) must be notified under the Contaminated Land Management Act 1997. The EPA will then determine what action should be taken.

The Duty to Report Guideline has more information about when and why land contamination needs to be notified to the EPA and by whom.

In most instances it will be unlikely that you would come across land of this nature unless you are buying or own an old industrial site.

Investigation, Remediation & Site Management Process

1. Contaminated Site Investigations

A Contaminated Site Investigation or assessment is a formal process carried out by a certified contaminated land consultant to indicate if the land is contaminated or not.

A preliminary contaminated site investigation or assessment includes a thorough review of the land use history using land ownership records, Council approval records and historical photography. Where possible, people who have historic knowledge of the site such as former owners, neighbours and employees should be interviewed. This site history will identify the areas and contaminants of concern. With this information a consultant can develop a preliminary soil sampling plan that will identify areas that are likely to be most affected. Groundwater sampling may also be carried out at this point.

Contaminated Land Assessment is generally a matter of assessing risk and estimating the level of impact. Contamination does not often occur evenly across a site. One principle is to identify "hotspots" that may occur. Consultants will need to ensure they undertake samples in a way that has a high likelihood of hotspots being identified, and understand the implication is a hotspot is missed.

There are several important legal documents and guidelines that tell consultants how to carry out a Contaminated Site Assessment. A good consultant will have a thorough understanding of these guidelines.

A preliminary investigation may be used for due diligence, to secure finance, determine land status for a tenancy or for divestment purposes. The preliminary investigation is generally all that is needed to lodge a development application. However it should be noted that the report will generally provide one of two broad recommendations. It may recommend that no further investigation is required or it may recommend that a detailed investigation is required in order to fully determine the nature and extent of the contamination and rehabilitation requirements.

At each stage of the investigation, the report should include details of what has been done to identify contamination, what has been discovered and a "Conceptual Site Model" that shows in a simple format how any contamination may or may not affect humans or the environment as well as areas where more information is required.

The cost of the investigation is difficult to predict and will be determined by the type of contamination that is possible to occur, the extent of investigation and the amount of land involved. For some activities contamination may only affect the surface of the soil while others may have impacts that run deep underground and into groundwater or can affect large areas of land.

Some consultants use the terms Phase 1 and ESA (Environmental Site Assessment) instead of preliminary investigation. Such terms come from other countries and the consultant should confirm how their service relates to the stages set out in NSW guidelines.

2. Detailed Site Investigation

If the preliminary site investigation indicates the land is contaminated a Detailed Site Investigation is carried out to determine how far the contamination extends and therefore how much land needs to be treated.

After a detailed site assessment is carried out, the Conceptual Site Model (CSM) will be updated. If all the assessments are complete, the CSM should reasonably accurately show how the contamination can affect human health or the environment.

3. Remediation Action Plan

A Remediation Action Plan (RAP) specifies how remediation will be carried out. This will be based upon the risks posed by the contamination found in the detailed site investigation and what future developments may be considered.

The RAP will include clean-up objectives which should align with the sensitivity of a proposed use. Commercial or industrial land will likely have less strict requirements for remediation than residential land. It is important to note that there are many activities that can be carried out on land where a development application is not required, therefore a clean-up criteria should consider if these activities can be safely carried out without further remediation.

The RAP will also determine whether the remediation will include carting away contaminated soil, attempting to remove contaminants from the soil on-site or simply making the contamination inaccessible from users of the land. Any of these options are acceptable if they can be achieved safely.

4. Validation Report

A Validation Report will need to be submitted to Council following the remediation. The validation report should detail what was does on the site and if remediation was successful.

It is important that the Council receives this report and keeps it in its records so that any new development applications can be approved without the need for reassessing the land.

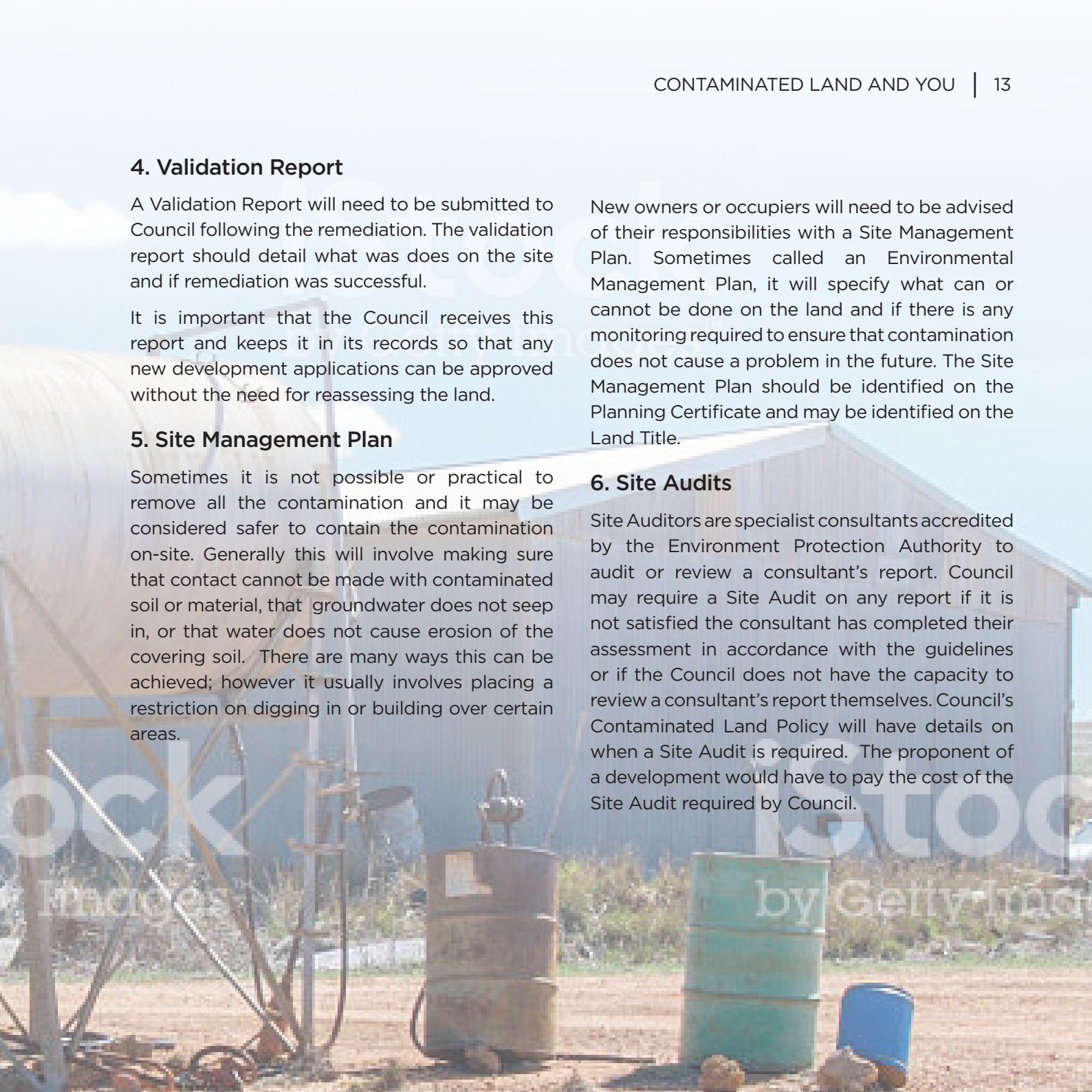
5. Site Management Plan

Sometimes it is not possible or practical to remove all the contamination and it may be considered safer to contain the contamination on-site. Generally this will involve making sure that contact cannot be made with contaminated soil or material, that groundwater does not seep in, or that water does not cause erosion of the covering soil. There are many ways this can be achieved; however it usually involves placing a restriction on digging in or building over certain areas.

New owners or occupiers will need to be advised of their responsibilities with a Site Management Plan. Sometimes called an Environmental Management Plan, it will specify what can or cannot be done on the land and if there is any monitoring required to ensure that contamination does not cause a problem in the future. The Site Management Plan should be identified on the Planning Certificate and may be identified on the Land Title.

6. Site Audits

Site Auditors are specialist consultants accredited by the Environment Protection Authority to audit or review a consultant's report. Council may require a Site Audit on any report if it is not satisfied the consultant has completed their assessment in accordance with the guidelines or if the Council does not have the capacity to review a consultant's report themselves. Council's Contaminated Land Policy will have details on when a Site Audit is required. The proponent of a development would have to pay the cost of the Site Audit required by Council.



Development Applications

For every development application and planning proposal Councils must consider the potential for land contamination and all previous remediation and validation efforts undertaken on the site.

A Planning Proposal is required to rezone land. In particular if land is being rezoned from an industrial zoning to residential or commercial, it will need to be assessed for contamination. In other circumstances it will depend on what activities have occurred on the land.

Development applications are required when work or development is proposed that requires consent. This is defined in the Local Environment Plan and other State Environmental Planning Policies.

All development applications submitted to Council will need to consider if it is possible that the land could have been contaminated. This does not always need to require a formal contamination assessment if the former land uses are well known and have little risk of land contamination, or the potential for land contamination is not going to impact the new development.

In other cases a Preliminary Contamination Assessment may be required. The Council's Contaminated Land policy has more details on how this decision is made.

In all cases it is a good idea to thoroughly investigate the former land uses to assist Council in determining if an assessment is required, otherwise gaps in the land use history may lead to delays in processing your application.

If contamination is found during the Development Application process, the land may need to be remediated before the development can go ahead. In this case the development will be approved, however before works on the development itself can proceed, the remediation will need to be shown to have been successfully completed. This is usually through a condition of consent that a Validation report is provided to Council.

Remediation that is required to be completed before another development may proceed is considered a separate work and may or may not need development consent of its own.

Land contamination consultants will often make a statement in their reports that they cannot guarantee that all soil or groundwater contamination has been identified and remediated. Therefore, as any development proceeds, there will always be the potential to uncover unexpected contamination and this should be accounted for in the development's Safe Work Method statement or risk management plan.

Contaminated Land Consultants

A contaminated land consultant is a person that has either science or engineering training in land contamination issues. It is expected that the consultant will have a university degree as well as other qualifications specific to land contamination. The key factors are a thorough understanding of how contamination can arise, how the chemicals and substances react in the soil and how surface water and groundwater can impact contamination or become contaminated.

They should also have a thorough understanding of the regulations and guidelines as well as Council's policy and the responsibilities around property transactions and financing. They need to have skills in managing projects and in sampling and measurement procedures to collect samples for analysis. The consultant will need a sound understanding of environmental chemistry, statistics and surveying. In addition to all this they should be able to clearly write the necessary reports to help you achieve your goals, because in most cases you are commissioning a contamination assessment to help someone make a decision about your land.

Due to the extent of knowledge required Council recommends that you contract a consultant certified under a contaminated land consultants certification scheme. Your local Council or the NSW EPA will have details of these schemes and how they are used to ensure all consultants are suitably qualified.

The NSW EPA website includes information on how to select a consultant including where to find them and what to ask for. Council's Contaminated Land Policy also requires consultants to be certified from 1 April 2017, carry appropriate insurance and be able to meet the Council's policy criteria.

Contamination assessments can get expensive quickly and minimising costs is an important consideration. Care should be taken to ensure that the scope of the investigation meets your requirements and that of the Council if the report will ultimately be used to inform a development application.

In order to provide reasonable level of assurance without sampling every ounce of soil, a consultant will place limitations on their report. In doing so it is common that a consultant will effectively state that their advice is only valid for the person commissioning the report. You should take care to understand what limitations the consultant has and if that will actually allow what you need the report to achieve. You should discuss with your consultant what you intend to use the information in the report for and this should be clearly stated in the report.

More information:

Refer to your Council's website for more details on their Contaminated Land Policy and information on lodging a Development Application.

NSW EPA

Contaminated Land
www.epa.nsw.gov.au/clm/index.htm

Site Auditors
www.epa.nsw.gov.au/clm/auditorscheme.htm

Guidelines
www.epa.nsw.gov.au/clm/guidelines.htm

Selecting a Consultant
www.epa.nsw.gov.au/clm/selectaclmcons.htm

Duty to Report
www.epa.nsw.gov.au/resources/clm/150164-report-land-contamination-guidelines.pdf

Other links

Managing Land Contamination Planning Guideline
www.epa.nsw.gov.au/resources/clm/gu_contam.pdf

National Environmental Protection (Assessment of Site Contamination) Measure 1999
www.scew.gov.au/nepms/assessment-site-contamination

Contamination Central
www.cwcewa.com.au/contamination-central-project

NSW EPA Environment Protection Authority

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