

Development of Potentially Contaminated Land

October 2005



About Supplementary Planning Guidance

Supplementary planning guidance builds upon the policies in the Island Plan 2002 and provides more detailed advice on the way in which those policies are likely to be interpreted and applied. The guidance falls into two basic types, area or site based guidance and topic or issue based guidance.

Guidance documents are prepared in consultation with interested parties and/or those who might use them and, in appropriate circumstances, will only be adopted following public consultation.

This guidance does not have the same status as the policies in the Island Plan, which remain the first consideration when making decisions on development proposals. It will, however, be a material consideration in the determination of planning applications, and can be given substantial weight.

The current supplementary planning guidance is listed and can be viewed on the States of Jersey website www.gov.je/PlanningEnvironment/Planning. Documents which pre-date electronic production will be added to the website for viewing or downloading following review, as appropriate. Hard copies of all supplementary planning guidance can be obtained from Planning and Building Services, Planning and Environment Department, South Hill, St. Helier, JE2 4US. Telephone: 01534 445508, email: planning@gov.je.

Introduction

Past developments and processes can result in the contamination of land in both urban and rural areas. Examples of potentially contaminated land include industrial sites, where hazardous materials have been used, and former gas works, where toxic substances may have built up in the land. But other more benign land uses, such as vehicle workshops and commercial greenhouses, can result in the contamination of a site.

Contamination can pose a threat to the health of future users of the site and to the surrounding environment. Few sites are so badly contaminated that they cannot be re-used at all, but contamination may limit the range of potential uses.

The re-use of contaminated land is in line with the principle of sustainable development because it effectively recycles the land and reduces pressure for development of greenfield sites. However, a balance needs to be struck between the need to bring the land back into beneficial use and the risks and liabilities posed by the contamination. The States of Jersey will encourage the redevelopment of contaminated sites provided that this does not pose an unacceptable risk to human health or the wider environment.

Development of contaminated land

Land contamination, or the possibility of it, is an important consideration when decisions are made about proposals to develop land. Jersey's Island Plan 2002 Policy G17 – Contaminated Land sets out the approach to development on potentially contaminated sites. The Minister for Planning and Environment, in consultation with other States departments, will use planning conditions to require the investigation and, where required, the remediation (treating of contamination) of land to an acceptable condition as part of the process of dealing with planning applications.

Where development is proposed, the developer is responsible for ensuring that development is safe and suitable for use for the intended purpose: they are responsible for determining whether land is suitable for a particular development or can be made so by remedial action.

A potential developer will need to satisfy the Minister for Planning and Environment that a rigorous process has been followed in the assessment of the risk of contamination. They will also need to demonstrate that unacceptable risk from contamination will be successfully addressed through remediation, without undue environmental impact, during and following the development. It is also in the developer's best interests to ensure that potential risk and liability is managed appropriately.

Purpose

The purpose of this advice note is to provide information on what is likely to constitute contaminated land. It is also designed to outline those steps that might need to be taken, and the information that might need to be provided, in the process of applying for permission to develop land that is or might be contaminated.

The aim is to encourage a consistent approach to the process and information required in the development of potentially contaminated land.

The advice note may also be of interest to prospective purchasers and existing property owners of such sites.

Contamination in Jersey

It is not known in detail how much of Jersey's land may be affected by contamination.

Jersey does not have a history of heavy industrial uses to leave a legacy of sites which may have been affected by contamination to the same extent as many other countries. A number of key sites are affected by contamination and certain historic and current practices have caused and have the potential to cause contamination of land.

Contamination can also occur naturally. However, international experience suggests that only a small proportion of potentially affected sites are likely to pose an immediate threat to human health and the environment.

Some land uses which may have caused land to be contaminated include*:

- | | |
|---------------------------------|---------------------------------------|
| ■ Animal products works | ■ Gas works |
| ■ Asbestos products manufacture | ■ Petrol stations |
| ■ Burial grounds | ■ Printworks |
| ■ Cement and lime production | ■ Railway land |
| ■ Ceramics and colour works | ■ Steelworks |
| ■ Chemical works | ■ Sewage works |
| ■ Commercial greenhouses | ■ Textile and dye works |
| ■ Dry cleaners | ■ Timber products manufacture |
| ■ Engineering works | ■ Waste disposal and land reclamation |
| ■ Garages / vehicle repair | *(not an exhaustive list) |
| ■ Glass manufacture | |

Public register and environmental information

The development of a public register of contaminated land, to establish a database of sites where contamination is known to exist, is being investigated.

The States of Jersey already holds some information about the environmental conditions of some sites, including matters such as landfill, made ground, radiation, water resources and pollution incidents. Where information is available, reports on these sites can be made available for a small charge (see contact details at the end of the note).

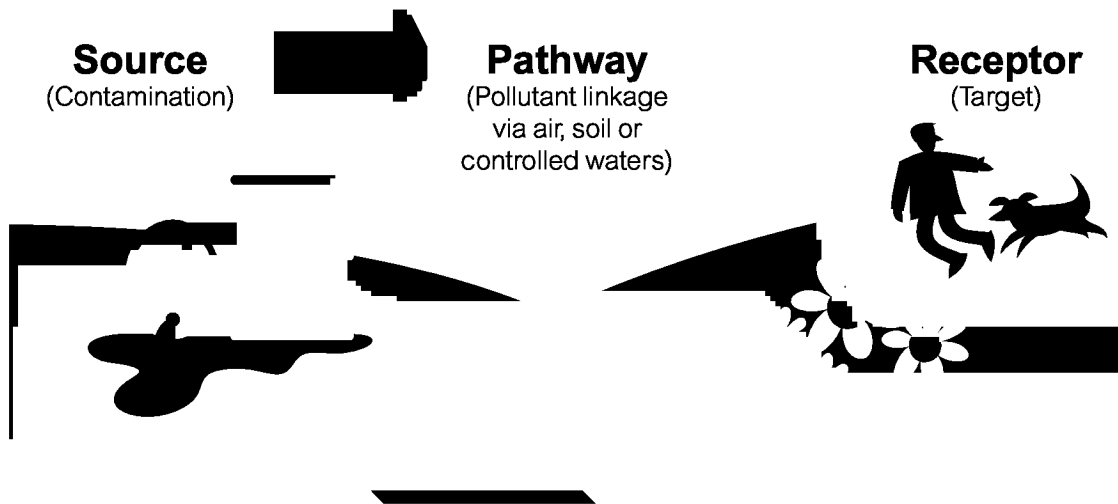
The definition of contaminated land

For a site to meet the definition of contaminated land, a pollutant linkage must be established. A pollutant linkage consists of three parts:

- i A **source** of contamination in, on or under the ground
- ii A **pathway** by which the contaminant is causing significant harm (or which presents a significant possibility of such harm being caused)
- iii A **receptor** of a type specified the table below.

Receptor types

Human beings	<ul style="list-style-type: none">■ Site investigation and construction workers or trespassers, for example, children getting on to the site during construction work.■ Various occupants and users of land after its development e.g. occupiers and maintenance personnel.■ Various occupants and users of adjacent sites, whether used for residential or other purposes.
Eco-systems	<ul style="list-style-type: none">■ Local nature reserves■ Sites of Special Interest■ Any other ecosystem identified in a biodiversity action plan
Property	<ul style="list-style-type: none">■ Buildings■ Conservation Areas■ Ancient/scheduled Monuments■ All crops■ Produce grown domestically or on allotments■ Livestock■ Park or garden of special historic interest■ Owned or domesticated animals
Water	<ul style="list-style-type: none">■ Ground waters – major aquifers■ Inland waters (lakes, rivers, streams – including the bed if dry)■ Drinking water abstractions – public and private■ Non drinking water abstractions – industrial and agricultural



It is important to understand that even if a site has pollutants on it, it is not automatically contaminated. However, if the three components of the pollutant linkage exist, or are likely to be created as a result of a development proposal, a risk assessment must be undertaken. This should determine the likelihood of harm being caused, and the likely nature and extent of the harm caused if the predicted event actually occurred.

Development of potentially contaminated land

There are a number of steps that you may need to take and there might be specific information that you have to provide if you want to get permission to develop land that is or might be contaminated. The flow chart and the notes that follow outline the potential stages involved in dealing with a potentially contaminated site.

The Environment Division of the Planning and Environment Department should be contacted as soon as possible about the development of contaminated or potentially contaminated land to obtain advice on how to proceed.

Ensuring that the right information is available and submitted at the right time will assist the process and help avoid delay. It is also helpful if information can be provided in an electronic format, to assist distribution: the alternative is to provide six hard copies.

Each phase of the work detailed may not need to be carried out for each site, but this can only be determined on a site by site basis. You may combine some of the phases into one report or issue them as separate reports. Each element should be carried out in accordance with published guidance and best practice documents. A list of useful information is available at the end of this guidance.

Where contamination of a site exists or where there is the potential of contamination on a site, developers are strongly advised to engage someone with the appropriate professional skills. This is important both in terms of identifying the nature, extent and possible treatment of any contamination, and to ensure that the health and safety aspects of investigating and dealing with contamination are properly handled.

The States of Jersey cannot recommend a consultant to you but the Ends Consultants Directory is a good place to start (www.ends.co.uk). Lists of consultants who have previously worked in Jersey can also be found on the websites of the Environment Division of Planning and Environment (www.gov.je/PlanningEnvironment/Environment) and the Health Protection Division of the Health and Social Services Department (www.gov.je/Health)

Investigation and remediation of potentially contaminated land

There are three phases to contaminated land investigation and management, each requiring a risk assessment to be undertaken based upon the information gathered:

- **Phase I: Desk study, site walkover and risk assessment.**
- **Phase II: Intrusive investigation and risk assessment.**
- **Phase III: Remediation and/or risk management**

In the tables that follow, guidance is given for each phase, to indicate the component and objective. The information listed in each table is intended to give a guide as to that necessary for the risk assessment exercise and is not comprehensive or exhaustive in content. In each phase, the early provision of more thorough and detailed information will help determine and better inform the likely scope, form and cost of any subsequent Phase II or Phase III exercise that may be required.

Where contamination is present, it is advisable to submit and discuss information about each phase of investigation with the relevant States departments. An example of a typical procedure for dealing with contaminated land is shown in the flowchart on page 11.


Where land is contaminated and remediation is required, a completion report and certificate should be provided by the developer upon completion stating that the work has been undertaken and achieved to the specification approved by the relevant States departments. An example of a completion certificate can be found at the end of this document.

Phase I Desk study, site walkover and risk assessment

Component and Objectives


Desk Study

Objective - From historical and present day data establish past use of site, potential contaminative use and types of contaminant that may be present. Identify the potential impact upon all potential receptors including human health, controlled water, vegetation and buildings. Obtain a good understanding of the site and its general surroundings.



Walkover

Objective - Visually assess the site for signs of contamination and activities/structures that may lead to contamination. Record any information and question current occupier to gain anecdotal evidence.



Environmental Risk Assessment

Objective - to identify any source-pathway-receptor contaminant linkage and to establish if Phase II required. Produce simple conceptual model if links exist.

Relevant Information

- Site location map with grid reference.
- Site plan (layout) - current and proposed.
- Past uses of the site (historic mapping) and local history collection.
- Soils and geology.
- Controlled waters - location, quality.
- Ground water vulnerability
- Underground services, on and near site.
- Pollution incidents, location of former landfills.
- Review previous site reports.
- Identify need for contact with regulatory bodies.

- Observations of site topography.
- Condition of soils, vegetation, water courses, drains and other site features.
- Physical condition of structures, signs of chemical attack on concrete.
- Do structures comply with regulations, e.g. are fuel tanks correctly installed and maintained?
- Are waste materials present on site? What are they? How are they stored?
- Photographs.
- Question current occupiers of the site.
- Possible surface sampling and consideration of intrusive investigation design.

- Identify possible contamination sources.
- Identify receptors (human, controlled water, vegetation, buildings)
- Identify pathways (e.g. soils, water, air).
- Identify links and consider "suitable for use" approach to the proposed development on site.
- Details of any specific methodology, any assumptions, references.

Phase II Intrusive investigation and risk assessment

Component and Objectives

Relevant Information

Design of investigation

Objective - to ensure that sufficient information is gathered from the site or site areas identified in Phase I in order to carry out the risk assessment.

- Details of sampling and testing programme based on findings Phase I data (See references for technical guidance).
- Details of contamination migration or potential risks of performing the intrusive investigation.
- Indication of Health and Safety implications of proposed works¹.

Intrusive investigation

Objective - to provide high quality information for the Phase II environmental risk assessment.

- Appropriate supervision by a suitably qualified engineer/consultant/scientist.
- Measures to stop cross-contamination
- Chain of custody for samples, appropriate sampling containers and storage/dispatch times.
- Laboratory involved and whether accredited, methods used.
- Trial pit and site photographs, borehole logs, ground water levels, location plans and ground levels.
- Site has been left in a safe and secure state.

Reporting

Objective - to present full and accurate information for risk assessment.

- Details of all sampling points, depths, methodology and procedures.
- Monitoring and all results (see references for technical guidance).
- Reference to any earlier site investigation reports.
- Long term monitoring for gases and groundwater - that may also be on-going.

Environmental Risk Assessment

Objective - to identify if any source-pathway-receptor Significant Pollutant Linkages (SPL) are present on site and establish if Phase III remediation/risk management is required.

- Perform site specific risk assessment (refine the Conceptual Model).
- Detail all methods used, the assumptions made and references.
- Provide full discussion of conclusions reached, referenced to the "suitable for use" approach to development and site utilisation².

¹ See ref. CIRIA (Construction Industry Research and Information Association) report 132 A Guide for Safe Working on Contaminated Sites

² In line with current Defra and EA guidance, the CLEA package and Soil Guideline Values should be used to assess human health risks. See references for technical guidance.


Phase III Remediation and/or risk management

Component and Objectives

Relevant Information

Design

Objective - to define the aims and methodology of the remediation exercise relative to the findings of Phase I & II risk assessments.



- Provide Remediation Statement to Environment Division of Planning and Environment Department and Health Protection Division of Health and Social Services Department prior to commencement of any Phase III site work.
- To include explanation of method and basis of selection.
- Define the end-point of remediation (targets for relative contaminants and actions).


Remediation

Objective - to reduce risks to potential receptors to acceptable level relative to best practice and current technical guidance.

- Management records and monitoring.
- Supervision and reporting by suitably qualified scientist/engineers and employment of experienced contractors.
- Unexpected situations/changes to method fully documented - seek approval from regulator prior to action.
- Waste management documentation and detailed records of materials remediated/removed.

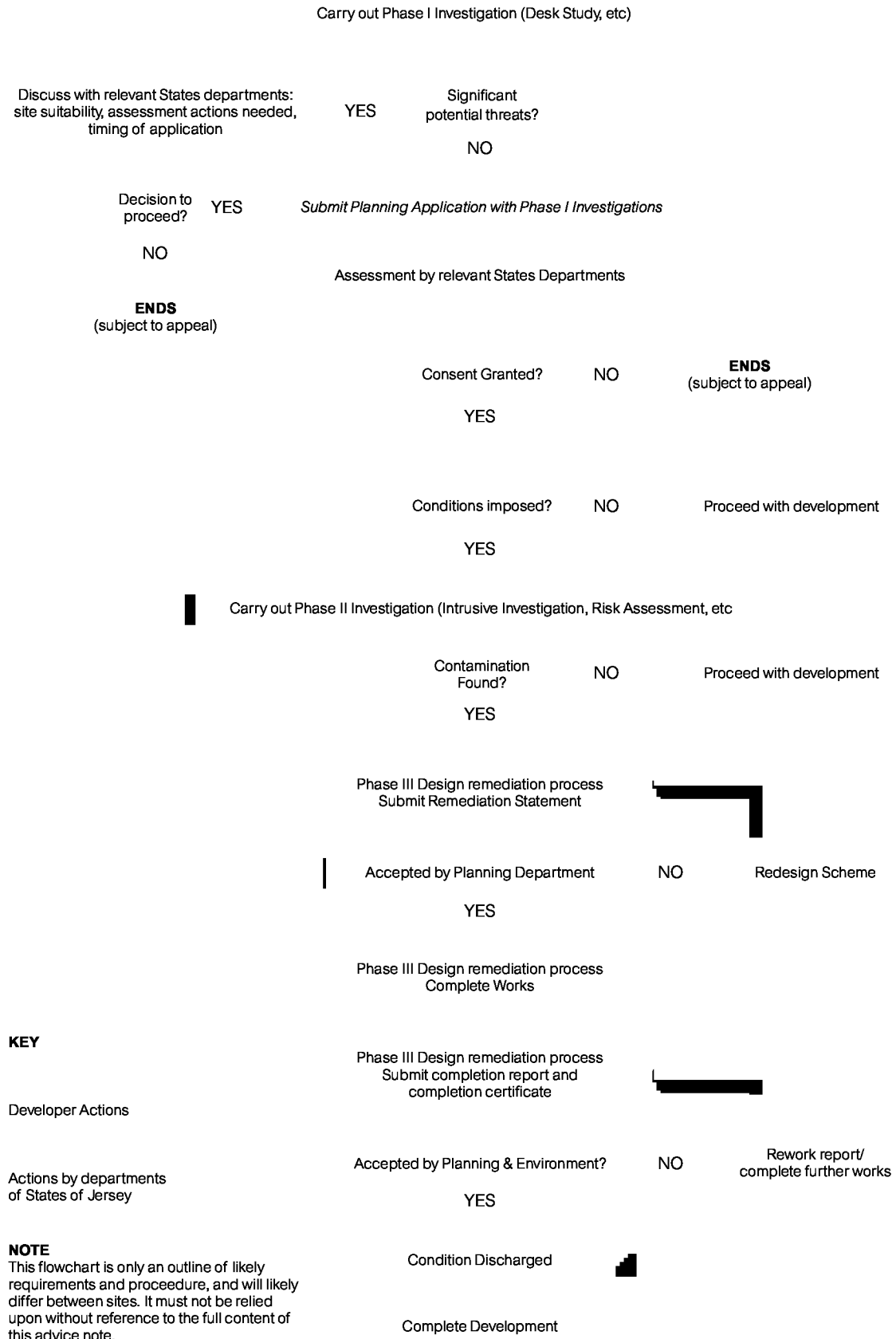
Completion Report

Objective - to provide evidence of completion of works and reduction of risk to acceptable level.



- Written statement upon completion
- Confirmation targets have been met, laboratory testing, field testing, related back to the design stage of remediation.
- Limitations of process, site areas that may require long term monitoring.
- Preparation of completion certificate.

Flowchart: Typical Land Contamination Requirements and Procedure



Frequently asked questions

How much clean subsoil and topsoil should I expect to put in place?

This depends on the type of development, the contamination on site, what other remediation work is carried out and is judged on a site by site basis. As a general rule, for housing developments where soil concentrations (of non mobile contaminants) exceed Soil Guideline Values we require a minimum of 800 – 1000mm of clean cover to be put into place unless further risk assessment and site characterisation takes place.

We welcome discussions with developers on remediation plans for a site. However all sub/top soil imported to a site is required to be tested to ensure it is suitable for use and should form an integral and explicit part of any development application and approval.

Will the States of Jersey sign off my site as clean?

No, we can only discharge the planning conditions relating to contamination. Site developers are strongly advised to gain professional advice and ensure that all site investigations and remediation strategies are conducted by consultants with experience and appropriate qualifications.

The site developer and their consultants hold the responsibility for whether the site investigation, risk assessment and proposed remediation is adequate to protect future users / occupiers of the site. The Planning and Environment Department is entitled to require the developer to provide certified advice to enable the application and conditions to be determined but those providing the advice should be aware of the future reliance that may be placed upon it.

Can I submit a combined geotechnical and environmental site report?

Yes, providing the information relating to contamination as detailed in the previous section is included. A geotechnical report alone will not address these issues. Where contamination and geotechnical reports are combined, the developer should ensure that the consultant engaged is skilled in both these areas.

How should I find a suitable environmental consultant?

The States of Jersey cannot recommend a consultant to you. The Ends Consultants Directory is a good place to start (www.ends.co.uk) or try to get advice / recommendations from others in a similar position or with relevant experience.

What chemical tests should I carry out?

Chemicals tested should be undertaken for all contaminants of concern. Contaminants suspected to be present on the site which are not part of a generic test suite (such as the ICRCCL suite) should not be missed out of the analysis for this reason. You should also carry out leachability tests to assess how mobile a contaminant is and whether it may pose a risk to water resources. Laboratories used must be UKAS (United Kingdom Accreditation Service) accredited for all tests on contaminants of concern which they carry out.

Will the States Departments make a site visit?

We may make a prearranged visit or come to the site unannounced to observe any investigation or remediation works to ensure that an adequate standard of work is being carried out.

Why must I supply a post completion validation report?

You should supply a validation report to demonstrate that the remediation has been successful in achieving its aims. This should be carried out before the development is brought into use: the planning conditions relating to contamination cannot be discharged until this is received.

We get enquiries from prospective buyers of new developments regarding remediation work carried out on sites. Without the validation report to demonstrate that the site has been adequately dealt with we are unable to give any reassurance that remediation has been carried out.

Example of a completion Certificate

Contaminated Land Completion Certificate

This is to Certify that the scheme of decontamination and reclamation at the site known as _____ (grid reference _____) (in relation to planning application _____) was carried out between the dates of _____ and _____ and was completed in accordance with best practice and to the specification detailed in the document reference _____ entitled _____ and plan numbers _____ which were designed to afford protection from contamination* on the site to all known receptors* at that time.

If contamination remains in the ground excavations following completion of the development should be approved by the Health Protection Division of the Health and Social Services Department and the Environment Division of the Planning and Environment Department prior to work commencement.

Signed _____ this _____ day of _____ 200
The Developer of the Site

(Typed name, company, address and position)

* 'Contamination' and 'receptor' to have the same meaning as in Part IIA of the UK Environmental Protection Act 1990

Where can I find more information on contaminated land?

- Environment Agency website at <http://www.environment-agency.gov.uk/>
- DEFRA website: <http://www.defra.gov.uk/environment/land/contaminated/index.htm>
- Both the DEFRA and Environment Agency sites have lists of further publications and guidance related to contaminated land.
- British Standards Institution. 1999. BS5930, Code of Practice for Site Investigation
- British Standards Institution. 2001. BS 10175, Investigation of potentially contaminated sites'. Code of practice
- CIRIA. Remediation Treatment of Contaminated Land, 12 Volumes, SP101-112. (Note this pre-dates introduction of Part IIA, Environmental Protection Act 1990). Comprehensive guidance on all aspect of managing contaminated land.
- DEFRA/EA, 2002. CLR7: Assessment of Risks to Human Health from Land Contamination: An Overview of the Development of Soil Guideline Values and Related Research.
- DEFRA/EA, 2002. CLR8: Priority Contaminants for the Assessment of Land
- DEFRA/EA, 2002. CLR9: Contaminants in soils: Collation of Toxicological Data and Intake Values for Humans
- DEFRA/EA, 2002. CLR10: Contaminated Land Exposure Assessment Model (CLEA): Technical Basis and Algorithms.
- "Tox" series: Contaminants in Soil: Collation of Toxicological Data and Intake Values for Humans [name of contaminant]. TOX1 Arsenic; TOX3 Cadmium; TOX4 Chromium; TOX5 Inorganic cyanide; TOX6 Lead; TOX7 Mercury; TOX8 Nickel; TOX10 Selenium.
- "SGV"series: Soil Guideline values for [name of contaminant] contamination in soils. SGV1 Arsenic;SGV3 Cadmium; SGV4 Chromium; SGV5 Inorganic Mercury; SGV7 Nickel; SGV9 Selenium; SGV10 Lead
- Department of the Environment, 1992. Waste Management Paper No. 27. Landfill Gas: A Technical Memorandum Providing Guidance on the Monitoring and Control of Landfill Gas.
- ODPM, 2004: Planning Policy Statement 23: Planning and Pollution Control
- Development of Land Affected by Contamination' has been released and the final version will replace the parts of PPG23 relating to land contamination)
- Department of the Environment, 1995/96. DOE Industry Profile Series.
- DETR, 2000. Circular 02/2000 Contaminated Land.
- DETR, 2000. The Contaminated Land (England) Regulations 2000
- Environment Agency, 2001. Secondary Model Procedures for the Development of Appropriate Soil Sampling Strategies for Land Contamination. Environment Agency R&D Technical Report P5-066/TR
- Environment Agency, 2001. Technical aspects of site investigation. Environment Agency R&D Technical Report P5-065/TR
- Environment Agency & NHBC, 2000. R&D Publication 66. Guidance for the Safe Development of Housing on Land Affected by Contamination.
- Health & Safety Executive, 1991. Protection of Workers & the General Public during the Development of Contaminated Land

Useful contact details

Planning and Building Services

Planning and Environment Department

South Hill, St Helier, Jersey JE2 4US

Tel: 01534 445508 Fax: 01534 445528

www.gov.je/PlanningEnvironment/Planning

Environment Division

Planning and Environment Department

Howard Davis Farm, Trinity, Jersey JE3 5SF

Tel: 01534 866200 Fax: 01534 866201

Tel: 01534 445508 Fax: 01534 445528

www.gov.je/PlanningEnvironment/Environment

Health Protection Division

Planning and Environment Department

Public Health Services, Le Bas Centre, St Saviour's Rd, St Helier JE1 4HR

Tel: 01534 623712 Fax: 01534 623720

Tel: 01534 445506 Fax: 01534 445526

www.gov.je/Health

Health & Safety Inspectorate

PO Box 55, Philip Le Feuvre House, La Motte Street, St Helier

Tel: 01534 445505 Fax: 01534 445525

www.gov.je/SocialSecurity/Employment

Transport and Technical Services Department

PO Box 412, South Hill, St Helier, Jersey JE4 8UY

Tel: 01534 445509 Fax: 01534 445529

www.gov.je/TransportTechnicalServices

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