Winchester City Council

Contaminated Land Inspection Strategy 2014-2019

As required under the provisions of the
Environmental Protection Act 1990

Issue Date:
January 2014

Prepared by:
Environmental Health Team
Winchester City Council

Executive Summary

This updated Contaminated Land Inspection Strategy 2014-2019 sets out how Winchester City Council will implement the contaminated land regime as required by Part 2A of the Environmental Protection Act 1990 over the next 5 years. This strategy replaces the Council's previous strategy (January 2002, version 2) and incorporates the changes required by the revised statutory guidance in 2012.

A generic explanation of the primary legislation and associated statutory guidance has been provided together with an explanation of other regimes that deal with the legacy of contamination from previous industrial land uses in the UK. Where other regulatory functions provide a means of minimising harm from land contamination, these will be used in preference to implementing the regulatory process set out in Part 2A.

A risk based approach is required to assess whether or not a piece of land is contaminated land. Land cannot be determined as such until a significant pollutant linkage has been confirmed. This will be undertaken through detailed inspection to obtain sufficient evidence, either through desk based assessments and where necessary intrusive investigations to verify the presence and significance of contaminants, receptors and pathways linking the two. Without this information a determination cannot be made.

Sites will be prioritised for detailed inspection in accordance with the methodology set out in this report. Using a GIS based prioritisation model Winchester City Council is able to carry out an initial assessment of the entire district and process the large array of available information to identify sites that have the greatest potential for a significant pollutant linkage to be present.

Winchester City Council will encourage voluntary co-operation when undertaking inspections and remediation whenever possible. Where this proves ineffective, or if found necessary, formal action will be taken to ensure the sites no longer present an unacceptable risk of significant harm.

Winchester City Council is the lead regulator for implementing the contaminated land regime within its district. However, whenever possible, it will work in partnership with other organisations, developers and the public to deal with any problems identified and may rely on information or advice provided by another authoritative body such as the Environment Agency appointed for that purpose.

Following determination of contaminated land, Winchester City Council will identify and notify the persons who are liable for the remediation of this land and the associated costs in accordance with statutory guidance. Furthermore, Winchester City Council has a duty to secure the remediation of this land to a level where it no longer presents an unacceptable risk of significant harm. This may result in the council undertaking works in default and placing charges on the land.

Winchester City Council has a duty to maintain a register of remediated sites. This is a public document and can be accessed free of charge either electronically at www.winchester.gov.uk/environment/contaminated-land or in paper format from the Environmental Health Department during normal opening hours. Please note: At the date of publication there are NO entries on the public register.

Contents

1 Introduction

In the United Kingdom there is a substantial legacy of land that is affected by contamination arising from a diverse industrial history as well as mining and waste disposal activities. A number of government regimes now exist to prevent any ongoing contamination from such activities and to deal with the legacy of historical contamination through redevelopment opportunities. However, there remains a need for intervention where historical land contamination poses unacceptable risks to human health and the environment where no alternative solution to address the risk exists.

Legislation relating to contamination has existed in England since April 2000, when Part 2A of the Environmental Protection Act 1990 came into force. This required local authorities to publish a strategy that sets out how it will deal with contaminated land and keep this under periodic review. Following an amendment to the statutory guidance in 2012, local authorities are required to revise the content of their strategies to take account of the changes.

This strategy replaces the Council's previous strategy (January 2002, version 2) and explains how Winchester City Council will implement the contaminated land regime over the period 2013-2018 as required by Part 2A of the Environmental Protection Act 1990 (hereafter referred to as Part 2A) and in accordance with the revised statutory guidance.

Government's revised policy objectives for contaminated land and the Part 2A regime are:

a) to identify and remove unacceptable risks to human health and the environment;

b) to seek to ensure that contaminated land is made suitable for its current use;

c) to ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of sustainable development.

(Defra, 2012, para 1.4)

Part 2A should only be used where no appropriate alternative to address land contamination is available. This includes dealing with land contamination as part of the development process (planning and building control), voluntary action, or other proactive regimes such as environmental permitting.

Any strategy on contaminated land can only be as good as the information upon which it is based. Considerable progress has been made since publication of the previous strategy in 2002 to gather the information required to assess contamination potential of sites within Winchester district. A geographical information system (GIS) has been used by Winchester City Council to create a spatial database to manage the large amounts of environmental data gathered. This enables the interrogation of multiple data sets and helps to ensure those sites where the greatest risk to human health or the environment exists are given priority.

The strategy contains details of the available datasets and methodology that will be used to prioritise sites for detailed inspection. It will discuss the liability issues surrounding investigation and remediation and the associated financial implications and issues surrounding information management and disclosure.

There is no formal approval process for local authority inspection strategies. However in preparing this strategy the following consultation process will be adopted:

i. Preparation of a draft strategy with inputs from the Council's Environmental Health Team.
ii. Draft strategy subject to scrutiny and consideration by the Portfolio Holder and agreed through a PHDN.
iii. Draft Strategy released for to external consultation, including the Environment Agency, Natural England, Hampshire County Council, English Heritage and Food Standards Agency.
iv. Final version of strategy to be approved by the Council's Cabinet before issue to DEFRA and the Environment Agency and wider distribution.

2 Aims and Objectives

Winchester City Council has a statutory obligation to inspect its area for the purpose of identifying contaminated land. Council resources must be used appropriately to prioritise sites for detailed inspection where there is likely to be an unacceptable risk to human health or the wider environment.

The aims and objectives of the contaminated land strategy must fall within the principles set out in Government policy and within the context of the Winchester District Community Strategy 2010 - 2020

2.1 Aim

To fulfil Winchester City Council's statutory responsibility to identify and remove unacceptable risks associated with contaminated land as required by Part 2A of the Environmental Protection Act 1990.

2.2 Objectives

i. Characterise the district and identify local priorities

ii. Document the methodology for strategic inspection and risk based prioritisation.

iii. Identify the process for detailed inspection of areas that pose the greatest risk to human health or the environment

iv. Document the criteria for remediation to secure health and/or environmental benefits whilst ensuring the social and economic burdens on the taxpayer, individuals or businesses are minimised.

3 The Regulatory Context

The United Kingdom has a diverse and varied industrial past that is responsible for a legacy of historical land contamination from a wide range of substances.

A number of government regimes now exist to prevent any ongoing contamination from industrial activities and to deal with the legacy of historical contamination through redevelopment opportunities. However, there remains a need for intervention where historical land contamination poses unacceptable risks to human health and the environment where no alternative solution to address the risk exists. The contaminated land regime provides local authorities with the power to secure remediation of land, either voluntarily or via enforcement, where significant harm to health and/or the environment has been identified.

3.1 Primary Legislation

The legal framework for dealing with contaminated land in England is contained within Part 2A of the Environmental Protection Act 1990, which came into force on 1 April 2000.

This legislation has undergone several amendments since its introduction as set out below:

- **The Radioactive Contaminated Land (modification of Enactments) (England) Regulations 2006 (S.I. 2006/1379)**
  Make provision for Part 2A to be extended for the purpose of identification and remediation of radioactively contaminated land where this is causing harm to human health only.

- **The Contaminated Land (England) Regulations 2006 (S.I. 2006/1380)**
  Elaborates on details including the definition of special sites, the contents of remedial notices, appeals and public registers.

- **The Contaminated Land (England) (Amendment) Regulations 2012 (S.I. 2012/263)**
  Amends details in relation to pollution of controlled waters

- **The Water Act 2003 (Commencement No. 11) Order 2012 (S.I. 2012/254)**
  Amends details in relation to significant pollution of controlled waters

The inspection requirements for local authorities are written under section 78B (1) as follows:

Every local authority shall cause its area to be inspected from time to time for the purpose—

(a) of identifying contaminated land; and

(b) of enabling the authority to decide whether any such land is land which is required to be designated as a special site.

3.2 Statutory Guidance

Section 78B (2) of the EPA1990 states that

'In performing its functions under subsection (1) above a local authority shall act in accordance with any guidance issued for the purpose by the Secretary of State'

Statutory guidance to accompany the contaminated land regime has recently been revised and currently resides in the Department of Food and Rural Affairs (DEFRA) publication *Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, April 2012.*

This guidance includes some notable changes to the previous versions including:

- a requirement for local authorities to place sites within one of four defined categories that aim to assist decisions regarding whether or not land meets the legal definition of contaminated land;
- the use and acceptability of technical screening levels;
- clarification regarding acceptability of elevated background levels of contamination;
- introducing the need to produce a risk summary document prior to determination of any site.

The statutory guidance for radioactively contaminated land resides in the Department of Energy and Climate Change (DECC) publication Environmental Protection Act 1990: Part 2A Contaminated Land Radioactive Contaminated Land Statutory Guidance, April 2012.

Winchester City Council shall act in accordance with statutory guidance when implementing this regime.

3.3 Non Statutory Technical Guidance

Technical guidance relating to contaminated land is produced by numerous organisations, including public bodies, private industry and relevant committees. Local authorities must carry out an appropriate, scientific and technical assessment of all the relevant and available evidence.

The Environment Agency has a key role in supporting local authorities fulfil their requirements under Part 2A. They are responsible for undertaking inspections of land that is capable of being classified as a special site as set out in the Contaminated Land (England) Regulations 2006. Furthermore the Environment Agency has a responsibility to produce technical guidance to support the local authorities in carrying out their contaminated land duties.

Other organisations that may hold appropriate scientific and technical information include, but are not restricted to; Department of Food and Rural Affairs (DEFRA), The Health and Safety Executive (HSE), Public Health England (PHE), Food Standards Agency (FSA). In addition, European and International Government bodies such as the Dutch National Institute for Public Health and the Environment (RIVM), the United States Environmental Protection Agency (US EPA) and The

World Health Organisation (WHO). University and peer reviewed literature may also be of assistance.

Winchester City Council will carry out appropriate, proportionate, scientific and technical assessment of sites when assessing site under Part 2A.

3.4 Overlapping Regulatory Functions

Part 2A should only be used to secure remediation of contaminated land where no appropriate alternative solution exists. There are a number of other regulatory functions that provide the local authority with legislative powers to deal with land contamination including planning and development control, building control and the Environmental Damage Regulations. Action under Part 2A may be precluded where action under these regimes results in a desirable outcome, however, these should be assessed on a case by case basis.

3.4.1 Planning Regime

The inspection process required by Part 2A will identify areas of potentially contaminated land that may have or may be subject to historic, current or future development. Government policy recognises that the burden of dealing with land contamination is often reduced if remediation is undertaken alongside redevelopment.

Statutory planning guidance in the form of the National Planning Policy Framework requires that to conserve and enhance the natural environment policies and decisions must ensure that:

- *the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;*
- *after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*
- *adequate site investigation information, prepared by a competent person, is presented.*

(DCLG, March 2012)

The responsibility for securing a safe development rests with the developer and/or landowner, who should be made aware that actions or omissions on their part could lead to liability being incurred under Part 2A.

Failure to control contamination through the planning process can lead to property blight, risks to health and the environment and financial hardships for the public and the local authority. Under current funding rules, if planning permission has been granted since 1994 and the opportunity to address land contamination issues

through the planning process has been missed, that site will not be eligible for central government funding to assist with investigation costs.

The Local Planning Authority has a key role to:

- maintain historical planning records relating to development on potentially contaminated land;
- ensure correct procedures are followed to identify and address contamination potential as part of the development process, and;
- consider the impact of contamination when developing strategic plans regarding future land uses.

3.4.2 Building Control

The Building Regulations 2010 (Part C1 of Schedule 1) introduced the requirement for reasonable precautions to be taken to avoid danger to health and safety caused by contaminants on or in the ground covered, or to be covered by the building and any land associated with the building.

Technical guidance issued by the Department for Communities and Local Government (DCLG) in the form of Approved Document C – Site preparation and resistance to contaminates and moisture (DCLG, 2010), provides advice on site preparation and resistance to contaminants in order to mitigate the effects of contaminants, whilst recognising the connection between building control, planning and environmental protection.

The responsibility for securing a safe development rests with the developer and/or landowner, who should be made aware that actions or omissions on their part could lead to liability being incurred under Part 2A.

The building control function has an increasingly important role in securing a safe development with the rising number of developments being constructed using permitted development rights that do not require planning permission. Where contamination potential exists, restrictions on building approvals should be used to ensure developers undertake appropriate site assessments and address any unacceptable risk to health and safety as part of the development.

3.4.3 Environmental Damage Regulations

The Environmental Damage (Prevention and Remediation) Regulations 2009 (S.I. 2009/153) as amended by S.I. 2010/587 provide a mechanism to deal with environmental damage to land, water or ecosystems where this occurs to businesses after 1 March 2009. They rely on the polluter pays principle requiring operators of commercial activity to have in place measures to prevent environmental damage and take remedial action if it does occur.

The term ‘environmental damage’ has a specific meaning in the regulations and covers severe damage to land, surface water or groundwater, protected species or natural habitats or a site of special scientific interest. The local authority has

enforcement responsibilities in relation to damage to land where this results in a significant risk of adverse effects on human health. Enforcement responsibility for damage to water is held by the Environment Agency, whilst damage to natural habitats or protected species or sites of special scientific interest is enforced by Natural England.

3.4.4 Environmental Permitting

The Environmental Permitting Regulations (England and Wales) 2010 were introduced on 6 April 2010 replacing the 2007 regulations. The regulations cover industrial processes, waste operations, water discharges, groundwater activities and radioactive substances and give the enforcing authority the ability to apply conditions to permits to control activities and discharges to land, air and water.

Operators holding an environmental permit are liable for the prevention and remediation of environmental damage under the Environmental Damage Regulations 2009.

3.4.5 Other regulatory functions

The examples of overlapping regulatory functions provided above may not be exhaustive. Furthermore, environmental legislation and regulatory responsibilities do not remain static. WCC will ensure the impact of any new legislation implemented following publication of this strategy is taken into consideration when implementing the contaminated land regime. Where alternative powers exist or are created to deal with land contamination issues, these will be used where possible in preference to implementing the regulatory process set out in Part 2A.

4 Characteristics of the District

Winchester City Council occupies are large area within central Hampshire. It is bordered by Test Valley, Fareham, Eastleigh, Havant, Basingstoke and East Hampshire District Councils and the City of Portsmouth Unitary Authority. Figure 1 contains a plan of the district showing the main towns and adjacent authorities.

At its heart lies the ancient cathedral town of Winchester, the former capital of England. Winchester has played an important part in the country's history since Roman times and is still an important regional centre. The remainder of the district is mainly rural with several small towns and many villages set in designated areas of countryside.

Winchester City Council was established in 1974 under the provisions of the Local Government Act when three local authorities were amalgamated, namely Droxford Rural District Council, City of Winchester and the northern part of Winchester Rural District Council.

Winchester City Council covers an area of 240 square miles (65,934 hectares). Its inhabitants have historically exploited the rich natural resources of the area, particularly for agriculture (52%), water resources and tourism with just 11% of the District being classified as urban.

The total population count for Winchester District was estimated at 117,700 on 30 June 2012 (ONS, 2012). This population is distributed across several larger towns and numerous small rural villages, with significant population groups located in Winchester City, and the townships of Bishops Waltham, New Alresford, Denmead and Whiteley

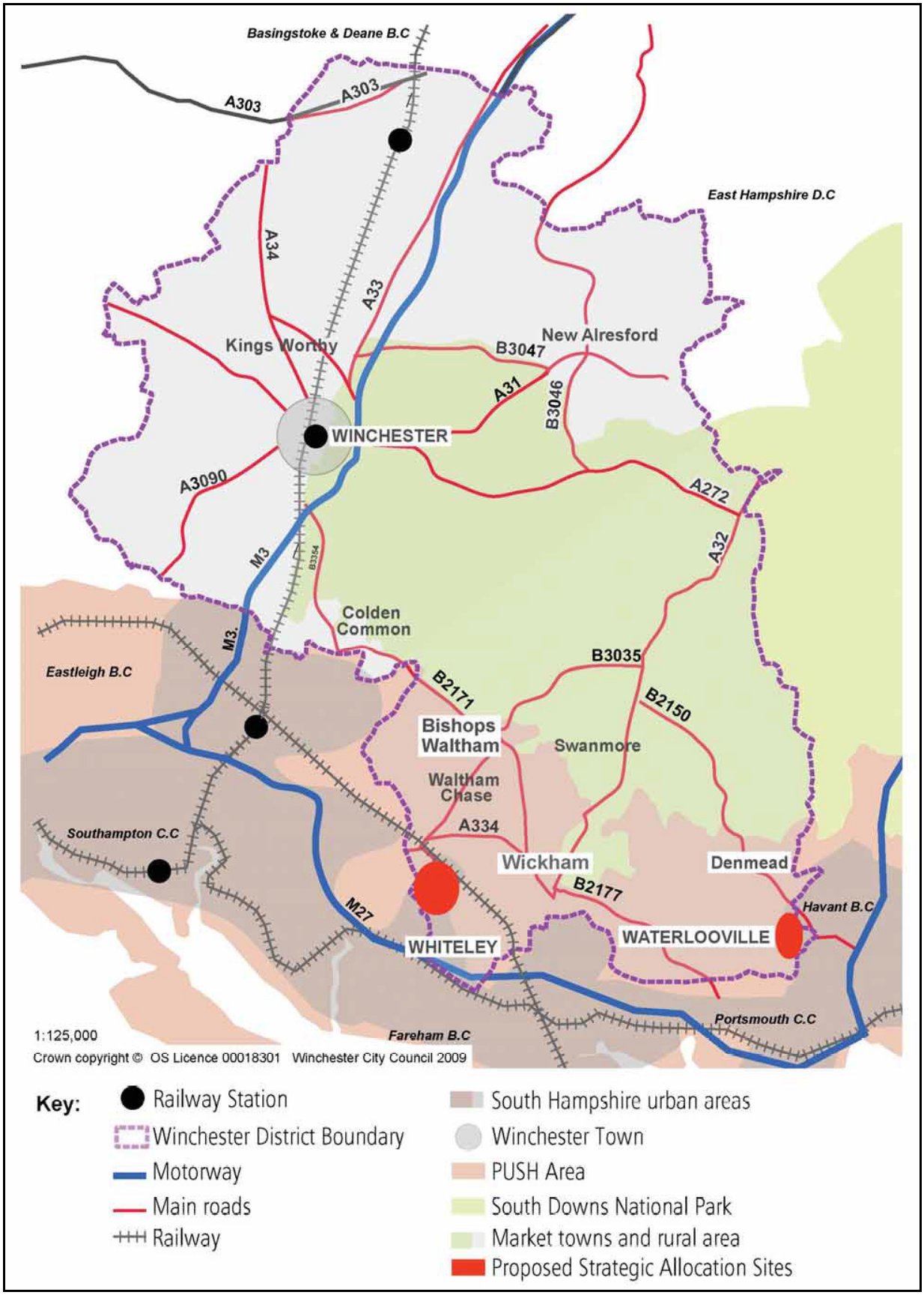

Figure 1: Outline of Winchester District Council administrative area.

Winchester City Council aims to prioritise risk to human health and controlled waters above risk to property or ecological receptors. However, it is important to recognise the significant number of listed buildings in the District that reflect the historic importance of the District on both a local and national level. The main property types within the district are listed in table 2 with the number falling into each category listed (WCC CL Inspection Strategy 2002 figures):

Property Type	Number
Residential - properties subject to Council tax	44,028
Commercial – properties subject to non-domestic rates	3,362
Listed Buildings – Buildings with special historic or architectural interest	2,780

Table 2: Property types

In addition to the above property types there are 37 conservations areas within the District. These areas are designated at a local level as having special historic or architectural interest in recognition of the importance to protect buildings

WCC is a significant landowner with a considerable private housing stock alongside operation properties and land owned by the estates and leisure departments. Table 3 provides a summary of WCC's assets.

Property Type	Number
Residential dwellings (including flats sold on long leases)	5,383
Garages	1,940
Sewage Treatment Works	37
Sewage pumping stations	10
Operational property including guildhall, council offices, leisure centres, museums and public conveniences	116
Non-operational property including shops, offices, industrial units and community facilities	61
Public open space, amenity sites and recreational land	190

Table 3: Summary of WCC owned land (WCC CL Inspection Strategy 2002 figures).

WCC have a duty to ensure people occupying or using WCC owned land are not exposed to harmful concentrations of contaminants. In addition, there is the potential that some of the activities that have taken place on WCC owned land may have the potential to give rise to pollution. This may result in WCC being liable for the cost of remediation of that land in the event a significant pollutant linkage is present.

WCC will ensure land in its ownership is inspected to verify the potential for a contaminant linkage and instigate detailed inspections to verify the significance of this where such a linkage is identified.

4.1 Broad Geological Characteristics

Winchester City Council district contains a diverse landscape ranging from chalk downlands, uplands and river valleys to intimate settled lowlands. The landscape character arises predominantly from the underlying geology, reflected in the extensive chalklands in the north, and the more intricate patchwork to the south, where geology and geography are more complex.

The geological range of WCC district can be ascertained from six 1:50,000 geological map sheets (Sheets 283, 284, 299, 300, 315 and 316).

The northern part of the District is dominated by the Chalk Series of this period, forming part of the Hampshire Downlands. The most common outcrop is Upper Chalk. Folding in the Tertiary period resulted in the formation of a series of anticline and synclinal structures, the most significant being the Winchester anticline. Through erosion of this “dome”, the underlying Middle and Lower Chalk have been exposed, producing “inverted relief”, and the bowl within which Winchester is set. To the east of Winchester, Middle and Lower Chalk are exposed at Chilcomb, Meonstoke, Warnford and Old Winchester Hill.

In some areas this solid geology has been overlain by later superficial deposits e.g. alluvium in the Itchen Valley and clay with flints (localised drift deposits post glaciation) running in a belt from West Stratton, through the Upper Itchen Valley, Tichborne, Cheriton and West Meon.

Sandy clays deposited later, in the Tertiary period, mask the chalk to the south of the District in the lower Hampshire Basin. These clays also form the Reading Beds, London Clay, Bagshot Sands and Bracklesham Beds.

Portsdown Hill is a further outcrop of Upper Chalk, bordering a sandy clay trench beyond the District in the far south.

Figure 2 provides a general summary of the bedrock geology across the district where the dominance of chalk across the district can clearly be seen. Figure 3 provides a summary of the superficial geology across the district where it can be clearly seen that the alluvial deposits follow the stream beds.

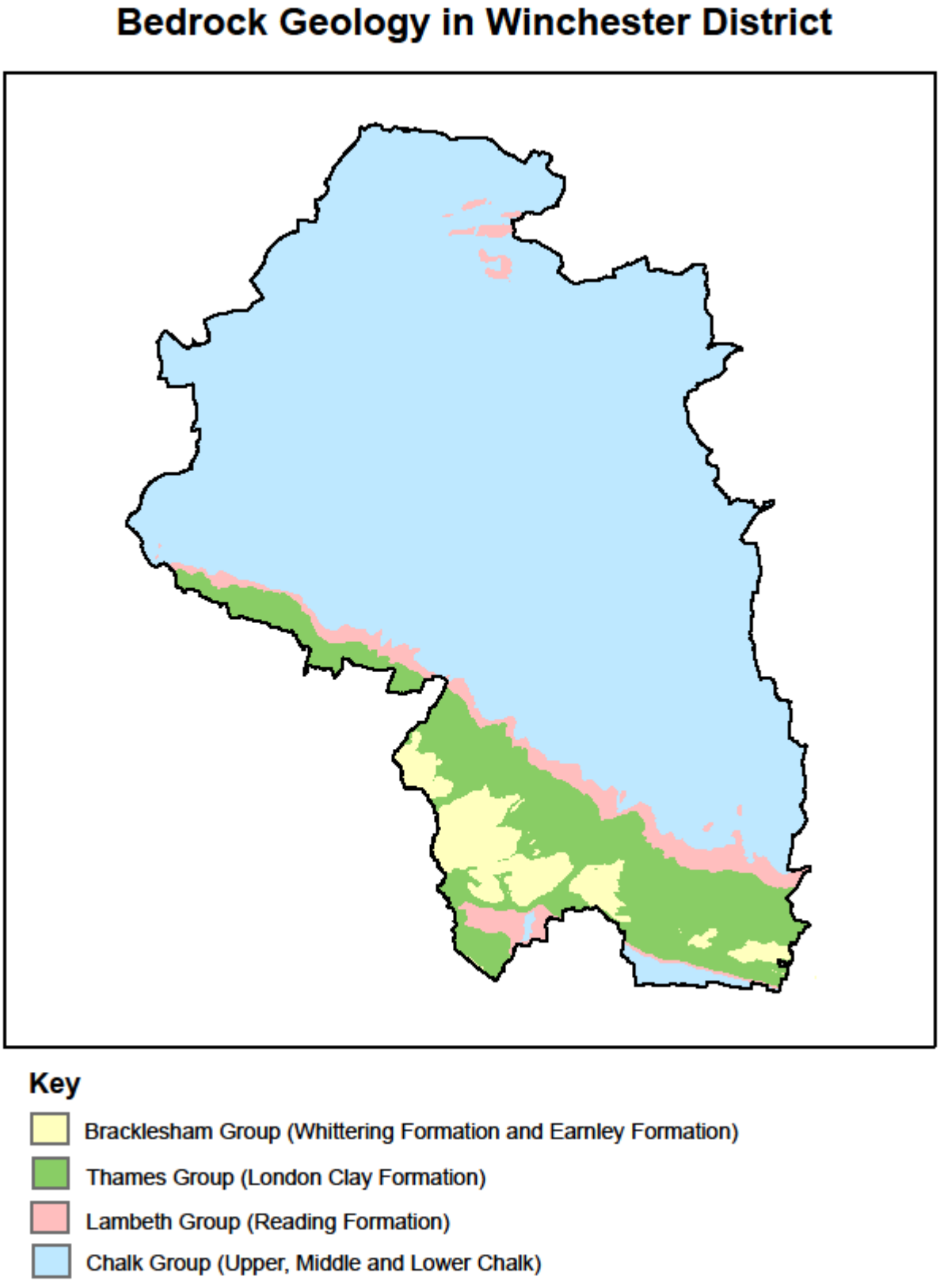

Figure 2: Bedrock Geology in Winchester District

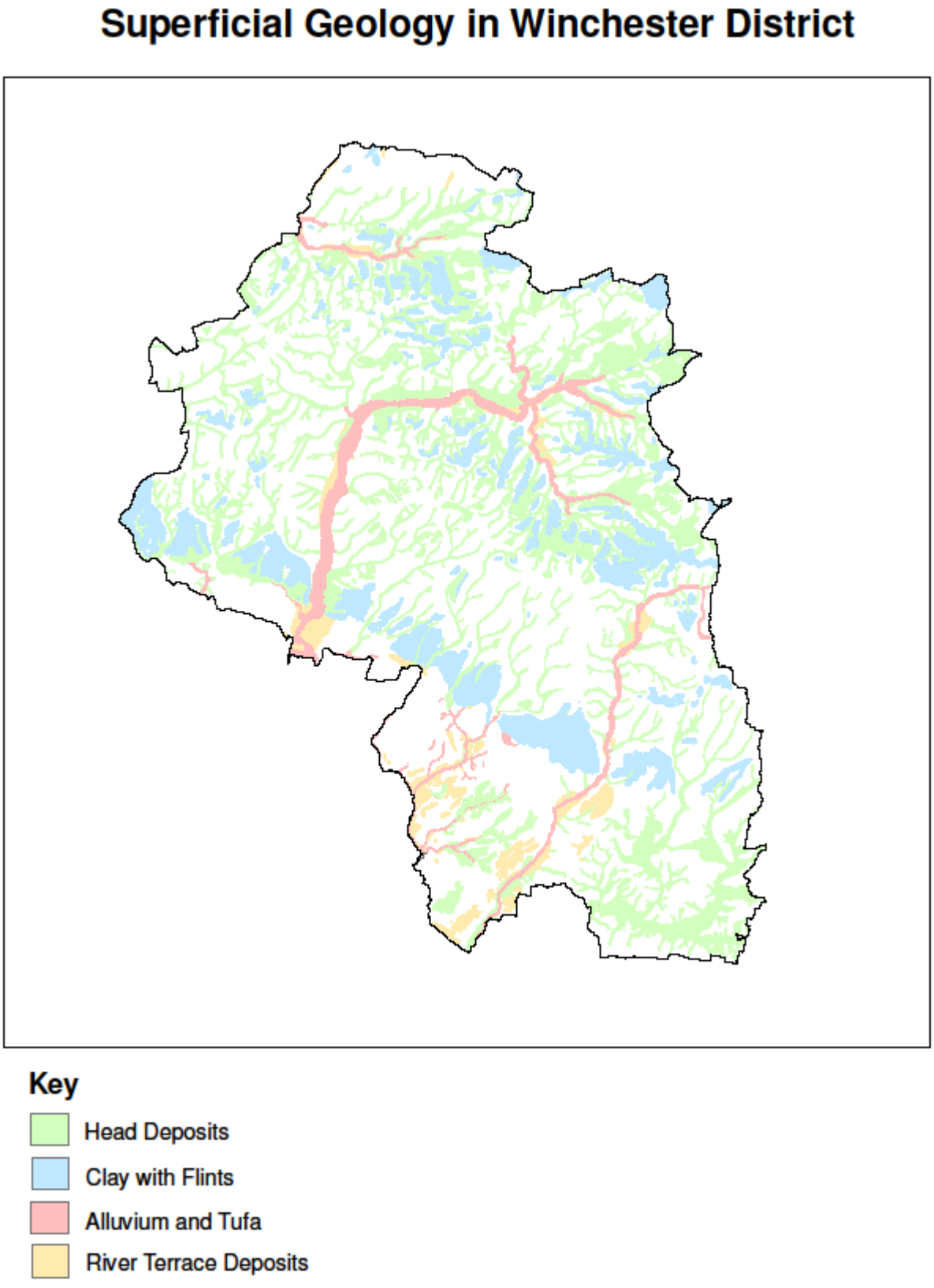

Figure 3: Superficial geology in Winchester District

4.2 Broad Hydrological Characteristics

There are four main rivers within the district namely; the Itchen, Meon, Dever and Hamble. All but one of these rivers (the Hamble) rise in the chalk uplands, and flow south dissecting the chalk plateau. Subsequently all enter the clay lowland area, finally reaching the Solent.

Chalk, by nature, being soluble, has been eroded by inter and periglacial action in the late Pleistocene periods when the water table was higher. This produced secondary and minor valleys, which, owing to the chalk's porosity, are now dry. In fact, a characteristic feature of a chalk landscape is the lack of surface water, and the collection of water in the underground storage aquifers within the strata. Where chalk meets an impervious layer e.g. clay, springs emerge which then feed lowland rivers e.g. the River Hamble.

As a result of the chalk's dissolution, the streams and rivers are characteristically hard, alkaline and clear. They provide drinking water as well as being used for fishing and to support agriculture e.g. watercress beds, especially in the upper reaches.

The Environment Agency monitors water quality as well as collecting data about groundwater, rainfall and river flows. In the river Itchen catchment there are 58 sampling wells and boreholes and peak groundwater levels are in March, with the lowest usually around October. From sampling carried out by the Environment Agency, the quality of the rivers is predominantly categorised as "very good".

The main river, the Itchen, whose source is to be found in Kilmeston Parish, bisects the District. As a result of the unique combination of climate, geology and human activity a very diverse flora and fauna has become associated with the River Itchen. It is a designated Site of Special Scientific Interest (SSSI), a Special Area of Conservation (SAC) and a Site of Importance for Nature Conservation (SINC) – recognised as one of the very best examples of a chalk stream in the world.

4.3 Sites of ecological and archaeological significance

Winchester District is predominantly rural with a rich biodiversity. Part 2A recognises the significance of certain designated ecological receptors as set out in Table 1 of the statutory guidance. WCC contains a number of examples of the designated ecological receptors as set out in table 4.

Winchester and the surrounding areas are home to some of the most important historic sites and buildings in Britain. Any building, regardless of age, can be considered a receptor if damage to that property results in any part of the building ceasing to be capable of being used for the purpose for which it was intended. Scheduled Ancient Monuments are offered a greater level of protection that includes significant impairment of the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.

Ecological Receptor	Number of sites
Site of Special Scientific Interest (s28 of the Wildlife and Countryside Act 1981)	17
National nature reserve (s35 of the Wildlife and Countryside Act 1981)	2
Marine nature reserve (s36 of the Wildlife and Countryside Act 1981)	0
European site (reg 8 of the Conservation of Habitats and Species Regulations 2010)	SPA – 1 SAC – 2
Habitats or sites afforded policy protection (para 6 Planning Policy Statement 9 on nature conservation) (e.g. Special Areas of Conservation, Special Protection Areas, Ramsar, Sites of Importance for Nature Conservation)	666 SINC's
Nature Reserve (s21 of the National Parks and Access to the Countryside Act 1949)	32

Table 4 – Ecologically significant sites within Winchester District

Currently there are 37 Scheduled Ancient Monument sites listed within the district. It is important that the national significance of these is reflected in the strategy.

4.4 Historical Land Uses Characterisation

Winchester City and its surrounds have a well documented and explored history dating back to the Roman times when the walled town was built in AD43 along with five main roads joining it to Old Sarum, Cirencester, Silchester, Porchester, and Southampton. The Romans abandoned the City in AD 410. During Saxon times Winchester became the capital of the Saxon Kingdom of Wessex and thrived as an ecclesiastical and educational centre following. This success continued following the Norman Conquest and Winchester continued to prosper.

Whilst not known for heavy industrial activities or engineering, Winchester district has hosted a wide range of activities that have the potential to give rise to contamination including:

Chalk, gravel, sand and clay extraction
There is evidence of numerous small pits throughout the district. Historically chalk was quarried and burnt in kilns to make quicklime which increased its economic value. Quicklime could be used as an agricultural fertiliser where if applied directly to the ground it countered acidity in the soil and helped improve heavy soils. Alternatively, clay could be added to the quicklime to produce cement or the water added to create slacked lime to which sand and gravel could be added to create mortar or plaster. The London Clay found predominantly to the south of the district was also used for brick production. Evidence of this in the form of kilns and drying fields is typically associated with the larger clay pits.

Military Use
Historically the City of Winchester supported substantial military activity. Locally this resulted in the presence of trades including hatters and tanners that were

required to produce military uniforms that are now known to be associated with potentially harmful contaminants. More recently, the first and second world wars saw military establishments being formed within the district. These may include areas used for major engineering works and armament activities that have resulted in the presence of a wide range of contaminants.

Agricultural Use
Much of rural Winchester has had some agricultural use. However, little is known about agricultural practices including the storage of potentially contaminating materials including, pesticides, fertilisers, farm machinery and associated fuel; or the disposal of agricultural wastes such as animal carcasses, manure, slurry, contaminated feed, spent pesticides or fertilisers, and redundant machinery. Unrecorded and unlicensed pits and burning sites used for waste disposal purposes will exist throughout the district that will require careful consideration.

Railways
There is a vast network of current and disused railway running through the district, with associated contamination potential, including a number of disused railway cuttings that have been subject to landfill and redevelopment.

Power Generation
A relatively small number of sites have historically been used for the generation, storage or distribution of gas and electricity within the district. Whilst small in number, these sites have the potential to cause significant contamination and warrant particular attention.

Sewage Works
There are numerous small sewage treatment works throughout the District serving a few to several hundred properties. Disused sewage works are a potential source of contamination including heavy metals.

Industrial Processes
A variety of industrial land uses exist within the district including chemical works, timber treatment and manufacturing, engineering works and vehicle maintenance and repair. Some of these are registered as authorised processes and subject to control under Part 1 of the Environmental Protection Act 1990.

5 Inspection Process

Winchester City Council must ensure local circumstances are considered and priorities are reflected in the strategic inspection process.

Factors affecting human health will be given the highest priority. This includes the protection of both public and private water supplies and aquifers bearing drinking water. Thereafter, other controlled waters, ecological systems and property will be considered.

Alongside these generic priorities for the District priority will be given in the following circumstances:

- Immediate attention will be given to sites where confirmation of a significant contaminant linkage is identified as present or where the likelihood for such has been identified.
- WCC owned land will be inspected to verify the potential for a significant contaminant linkage being present. Where this is identified, a detailed inspection will be undertaken to verify this and address any liability issues associated with the Council's own land holdings or activities.

The inspection process must reflect the requirements of primary legislation and relevant statutory guidance and be capable of identifying contaminated land. To achieve this, it is important to understand the legal definition of contaminated land to enable a distinction to be made between this and other land affected by contamination.

The legal definition of 'Contaminated Land' is given in Section 78A(2) of Part 2A of the Environmental Protection Act 1990, as:

'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 a significant possibility of such harm being caused; or
(b) pollution of controlled waters is being, or is likely to be, caused;

and, in determining whether any land appears to be such land, a local authority shall act in accordance with guidance issued by the Secretary of State…'

The statutory guidance introduces the term 'contaminant linkage' as being the relationship between contaminants, pathways and receptors. It requires all three elements of a contaminant linkage to be present before the land can be considered to be potentially contaminated land. This relationship has been represented diagrammatically in Figure 4.

For land to be determined as 'contaminated land', the contaminant linkage must give rise to a level of risk sufficient to meet the definition of significant harm. Where this is achieved the contaminant linkage becomes a significant contaminant linkage.

Figure 4
Diagrammatic representation of a contaminant linkage

RECEPTOR

Something that could be adversely affected by a contaminant

PATHWAY

The route by which a receptor is or might be affected by a contaminant

CONTAMINANT

A substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor

CONTAMINANT LINKAGE

The relationship between a contaminant, pathway and receptor.

SIGNIFICANT CONTAMINANT LINKAGE

Where the level of risk is deemed to be sufficient to justify the land being determined as contaminated land.

5.1 Inspection Stages

Winchester City Council has adopted a strategic approach to inspection as required by Government. This is broken down into five process steps:

Stage 1 – Strategic Inspection

The strategic inspection has two distinct stages. Firstly, a survey of the district during which information on contaminants, receptors and pathways is gathered. This is followed by prioritisation to identify firstly sites where a complete contaminant linkage exists and secondly to rank these sites to identify sites with the most pressing and serious risk so that these can be investigated first.

1a - District Survey
The purpose of this stage of the strategy is to gather information on potentially contaminative land uses, receptors, and pathways from a variety of sources. This includes historical maps and records; data sets published from authoritative sources including the Environment Agency, British Geological Society, and; information held on public record.

Whilst there remains an ongoing need to maintain and update information relating to the district, this stage of the inspection process is effectively complete, allowing progression to stage 1b.

1b - Prioritisation of sites for detailed inspection
There is a statutory requirement for a risk based approach in prioritising sites with the greatest potential to cause significant harm, although a methodology to achieve this has not been defined by Government. WCC have produced a bespoke prioritisation methodology in line with systems used by other authorities, but that makes use of existing corporate systems and data and is customisable to reflect local circumstances.

Stage 2 – Detailed inspection
Before proceeding to detailed inspection a validation process must be completed to ensure the factors influencing the prioritisation of a site are accurate. Once this has been established and a potentially significant contaminant linkage has been identified a detailed inspection is required to quantify the level of risk. A desk based study may be sufficient for this purpose or it may be necessary to undertake an intrusive investigation to quantify ground conditions and associated contaminant concentrations. The output from this inspection stage should provide sufficient information to categorise the site as required by statutory guidance.

Stage 3 – Determination
The local authority is responsible for determining whether land is contaminated land and has a duty to do so where;

- significant harm is being caused to a human or relevant non-human receptor;
- there is a significant possibility of significant harm being caused to a human or relevant non-human receptor;
- significant pollution of controlled waters is being caused; or
- there is a significant possibility of significant pollution of controlled waters being caused.

In fulfilling this role, WCC will act in accordance with relevant statutory guidance, seeking expert advice if required.

Stage 4 – Remediation
When land is determined as contaminated land, the local authority must secure the remediation of that land. Statutory guidance will be followed to ensure the significant pollutant linkages identified by the inspection process are removed or disrupted to such a level that they are no longer present a significant risk.

Further information including a detailed outline of the processes to be completed in each stage has been provided in the following sections.

5.2 Inspection Programme

The legislation and statutory guidance is not prescriptive in terms of how quickly the work on contaminated land needs to be completed. It does, however, require each local authority to set out within its strategy, what it considers to be appropriate timescales for the inspection of different parts of its area.

Table 5 below sets out the anticipated timetable for completion of each stage of the inspection programme.

Stage	Task Summary	Target Completion Date
1	District Survey	COMPLETED
	Prioritisation	MARCH 2015
2	Detailed Inspection	MARCH 2016
3	Determination	As required following detailed inspection
4	Remediation	Within 12 months of determination

Table 5: WCC Part 2A inspection programme

A review of the strategy will be undertaken once the first phase of detailed inspection has been completed. Any ongoing works programme will largely be dependent on the severity of sites identified through the strategic inspection and prioritisation process. Options at this stage could include assessing the prioritisation model for its effectiveness at identifying sites with significant risk potential and/or influence the number of sites taken forward for detailed inspection in subsequent years.

6 Stage 1 - Strategic Inspection

A statutory requirement of Part 2A is that local authorities take 'a strategic approach to carrying out its inspection duty'. Strategic inspection approaches will vary between local authorities as they must reflect local circumstances.

The strategic inspection for WCC has two distinct stages. Firstly, a survey of the district during which information on contaminants, receptors and pathways is gathered. This is followed by a prioritisation stage to identify firstly sites where a complete contaminant linkage exists and secondly to rank sites with a complete contaminant linkage to identify sites with the most pressing and serious risk so that these can be investigated first.

6.1 District Survey

The success of WCC's contaminated land strategy relies on the availability and assessment of good quality data relating to the location of potential contaminants, receptors and pathways across the district. Considerable progress has been made since publication of the original strategy in 2002 to obtain information on the location of contaminants, receptors and pathways linking these within the District. This not only enables meaningful prioritisation of sites, but provides a valuable decision making tool when considering the potential impact of previous land uses on current activities or proposed land uses.

WCC encompasses a large area with a diverse mix of rural and urban influences. A Geographic Information System has been used to manage the large amounts of environmental data gathered, creating a spatial database of contaminants, receptors and pathways as detailed in the following sections.

6.1.1 Contaminant Datasets and Risk Ranking

A 'contaminant' is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of controlled waters. The contaminant dataset includes information from the following sources:

<u>OS Historic Maps</u>
Historic maps are a primary source of historical land use data. The Ordnance Survey have produced detailed maps of the UK for over 150 years. These provide an archive collection that is available for a variety of scales in digital form. Historical map data is classified in time periods, referred to as epochs, which relate to the original publication date and subsequent revisions. Table 6 provides a summary of the historic maps held by WCC.

Landmark undertook a national programme of data capture from the 1:10,000 / 1:10,560 scale maps, where the spatial location of potentially contaminative land uses identified on the maps were recorded. The data set for Winchester District was purchased in 2002. This identified 1641 sites with the potential for contamination to be present across the district.

Epoch	Date Range	Scales	Details
1	1843 to 1893	1:2,500 & 1:10,560	Obtained in 2002
2	1891 to 1912	1:2,500 & 1:10,560	Obtained in 2002
3	1904 to 1939	1:2,500 & 1:10,560	Obtained in 2002
4	1919 to 1943	1:2,500 & 1:10,560	Obtained in 2002
5	1945 to 1970	1:1,250, 1:2,500 & 1:10,560	Obtained in 2008
6	1970 to 1996	1:1,250, 1:2,500, 1:10,000 & 1:10,560	Obtained in 2008

Table 6: Winchester City Council Historic Map Collection

The greater detailed provided on the 1:2,500 and 1:1,250 scale maps revealed the presence of additional potentially contaminative features that were not apparent on the smaller scale maps. Given the value of data obtained from this information source, Winchester City Council undertook a programme of data capture from the 1:2,500 and 1:1,250 scale maps. Whilst map coverage at these scales is not complete, c1300 sites with a potentially contaminative land uses and c2000 areas of unknown filled ground were identified on the 1:2,500 scale maps and c300 sites with a potentially contaminative land use were identified on the 1:1,250 scale maps.

Trade Directories

Annual trade directories listing the trade name, type and address of current trades exist. Hampshire records office hold copies of these directories from the mid nineteenth century. In c2004, Winchester City Council procured the services of Lovell Johns to capture information on potentially contaminating trades from local trade directories. The directories selected approximately corresponded with each map epoch as detailed in table 7.

Epoch	Date Range	Trade Directory
1	1843 to 1893	1847 Winchester Directory 1848 Hampshire Directory
2	1891 to 1912	1914 Winchester Directory 1915 Hampshire Directory
3	1904 to 1939	1930 Kelly's Winchester 1930 Kelly's Villages
4	1919 to 1943	
5	1945 to 1970	1960 Winchester Directory 1965-66 Hampshire Directory
6	1970 to 1996	1972-73 Winchester Directory

Table 7: Summary of trade directories reviewed

This exercise produced a database of 2213 potentially contaminating trades. However, its value was limited without any spatial recognition of the sites location. To remedy this, Lovell Johns were procured to spatially record the location of sites using the historic map collection to determine site boundaries. Of the 2213 trades listed, the exact boundary of the site was captured for 583 sites, with point data attached to the street / village name provided for the remaining sites.

It would be advisable to try and establish the location of any trades with a high contamination potential that have not already been spatially geo-referenced. This could be achieved through additional research and review of the street sections of directories that better describe the location of sites. Failure to undertake this before running the prioritisation model may result in some sites with a high contamination risk not being identified for detailed inspection in place of others with a lower contamination risk.

Environment Agency Data

The Environment Agency (EA) hold information on a range of potentially contaminating sites as a result of their regulatory responsibilities. EA datasets include authorised landfill sites, waste management licence sites, integrated pollution control sites and pollution incidents.

Winchester City Council have held spatial data from the Environment Agency detailing the geographical location of EA controlled sites since 2008. This was updated in 2011. A further update will be requested before running the prioritisation model.

Hampshire County Council Data

Hampshire County Council Trading Standards service are responsible for licensing the storage of petroleum and hold current and historical records relating to the location of petrol tanks and historical petrol storage in Hampshire.

WCC undertook a programme of data capture in 2011 to spatially record the location of petroleum storage within the Winchester District onto GIS. The database created consists of c250 sites. It was not always possible to identify the exact tank location from the site plan. In these situations a precautionary approach has been adopted and the full extent of the site has been captured. Furthermore, it is important to note that whilst there is no requirement to licence the storage of other fuels (such as kerosene or diesel) the location of such tanks may have been included on petroleum licences although there are likely to be many sites (both commercial/industrial and residential) where storage of these materials has been carried out for which we have no knowledge.

Winchester City Council Data

Additional to the statutory responsibilities relating to contaminated land local authorities hold information on the location of potentially contaminating activities as a result of other regulatory responsibilities. This includes information on Environmental Permits, Radioactive Substances, Scrap Metal Licences, Historic Wells that may have been infilled and other potentially contaminating activities that come to light through administration and review of plans submitted under the planning process.

Table 8 provides a summary of the available contaminant datasets. The number of boundaries captured within each dataset has been provided. Whilst this provides an indication of the number of potentially contaminative sites within the district it must be recognised that there will be an element of duplication of data and therefore the total number of sites will be less than the number of boundaries captured.

Information Source	Data Available to WCC	Number of sites
OS Historic Maps	1:1250 Scale maps	296
	1:2500 Scale maps	3251
	1:10,00 / 1:10,560 scale maps	1641
Trade Directories	Trade Directories dated 1847, 1848, 1914, 1915, 1930, 1960, 1965/66, 1972/73	2213 (583 on GIS)
Environment Agency	IPPC Sites	5
	IPC Sites	2
	Waste Management Licences	32
	Authorised Landfill sites	9
	Former Landfill sites	
	Pollution Incidents	
Hampshire County Council	Licenced Petroleum Sites	249
Winchester City Council	Environmental Permits	26
	Radioactive Substances	24
	Scrap Metal Licences	5
	Historic Wells	1717
	Miscellaneous Potentially Contaminating Land Uses	9

Table 8: Summary of Contaminant Datasets

The potential for contamination is influenced by the solubility, mobility and severity of contaminants associated with a process. Related information is provided in the DoE Industry Profiles. This, alongside professional judgement, forms the basis for risk ranking for the majority of published ranking schemes. WCC propose to follow this approach and have ranked each activity type into one of three risk categories (high, medium and low). Appendix 1 provides a list of the potentially contaminating activities included in the contaminant dataset for Winchester based on risk allocation.

6.1.2 Pathway Datasets and Risk Ranking

The pathway in the contaminant linkage provides the mechanism for contamination to reach a receptor. There are no instructions within statutory guidance regarding the selection and use of relevant pathways, although there is a requirement to confirm that one or more pathway exists by which a contaminant can reach a receptor.

Table 9 provides a summary of the datasets, available to Winchester City Council, that can be used to provide information on the location of valid pathways or the mechanism and ease through which contaminants can reach receptors. Each of these datasets have been considered in more detail below.

Information Source	**Data Available to WCC**
British Geological Survey	Solid Geology
	Drift Geology
	Artificially Made Ground
Environment Agency	Source Protection Zones
	Flood potential
Winchester City Council	Historic Wells and boreholes
	Land Use Data for Ground Cover
Southern Water	Sewer network

Table 9: Summary of Pathway Datasets

British Geological Survey

The permeability of the geology beneath a site will significantly influence the passage of contaminants to controlled water receptors and affect the migration potential of contaminants from the source to other receptors.

The geology within WCC can be ascertained from six 1:50,000 geological map sheets. This district is dominated by chalk in the north, which is overlain, in places, by alluvial deposits and sandy clays in the south. These geological strata can be classified into types based on their permeability and contamination migration potential (Cairney, 1995). Details of the types are set out in table 9 below:

Type	Description	Example
A	Very permeable and able to yield enough water for large-scale public and industrial supplies. Typically higher water velocities occur, and so any pollution could spread widely from a source.	Chalk
B	Less permeable and productive aquifers, important mainly for local supplies and as the source of base flows to rivers in periods of reduced rainfall.	Sand and gravel
C	Non-aquifers with very low permeability and containing only small water volumes.	Clay and shale

Table 9: Geological strata characterisation (Cairney, 1995)

The risk ranking attributed to the solid geology, drift geology and artificially made ground encountered in Winchester District using this characterisation have been provided in Appendix 2.

Environmental Agency Datasets

Datasets held by the EA can be used to inform both receptor and pathway datasets. The following datasets can be used to inform the potential significance of the pathway element of the pollutant linkage :

a) Source Protection Zones
   Under their remit to protect groundwater resources, the Environment Agency have defined source protection zones for groundwater sources such as wells, boreholes and springs that are used for public drinking water. These denote the areas where there is a risk of groundwater pollution from potentially contaminating activities as a result of the migration potential of pollution from potentially contaminating activities to reach groundwater receptors. It is therefore highly appropriate that the risk classification used in the prioritisation reflects this as detailed in Appendix 2.

b) Flood potential
   Flood maps provide information on the flooding risk from rivers and the sea. Floods provide a mechanism for distributing mobile contamination over a wider area than could be observed in normal conditions and as such need to be considered as a relevant pathway. The risk ranking assigned to flood potential have been provided in Appendix 2, noting that a greater risk ranking has been given to areas of known flood ng and flood storage areas on the basis that flooding has already occurred in these areas.

Winchester City Council Datasets

Since publication of the original contaminated land strategy in 2002, Winchester City Council has collated a number of datasets that provide information on pathways via which contaminants may reach a given receptor. These are summarised as follows:

a) Current Land Use
   It is possible to estimate the nature and extent of ground surface cover likely to be associated with each land-use category. The risk classification assigned to each category reflects the potential for contamination to migrate through the surface cover. The risk ranking to be used in the prioritisation model has been provided in Appendix 2.

b) Historic Wells and Boreholes
   The significance of groundwater resources within Winchester has been recognised. It is important to recognise that in addition to the numerous active public and private groundwater abstraction boreholes, there are a significant number of historical wells and abstraction points that are likely to present a vertical migration route for any surface contamination to enter underlying groundwater resources. The risk ranking to be used for the prioritisation process has been provided in Appendix 2. This reflects the Environment Agency principle to protect a radius of 50m around any private water supply borehole.

Southern Water
Services provide a significant route along which mobile contamination can migrate. The significance of these is likely to be assessed on a site specific basis once the nature and extent of contamination on a site is known. However, Winchester City Council holds information on the main sewer distribution and should be mindful of this alongside site specific data relating to other subterranean services on a site when completing a detailed site inspection.

6.1.3 Receptor Datasets and Risk Ranking

The strategy for Winchester City Council places higher inspection priority on risk to human health. Given the significance of drinking water supplies in the district the protection of controlled waters is also afforded a high priority status.

Table 10 provides a summary of the datasets, available to Winchester City Council, that can be used to provide information on the location of valid pathways or the mechanism and ease through which contaminants can reach receptors. Each of these datasets have been considered in more detail below.

Information Source	Data Available to WCC
Winchester City Council	Land Use Database
	Private Water Supplies
Environment Agency	Groundwater Vulnerability Classification
	Biological and Chemical River Water Classification Scheme
Natural England	Designated Ecological Sites

Table 10: Summary of Receptor Datasets

Human Health

The Winchester District Community Strategy 2010-2020 distinguishes three different parts to the district; Winchester Town, the market towns and rural area, and the south Hampshire urban areas and aims to ensure everyone in the district has the opportunity to enjoy a good quality of life now and in the future. The need for a high quality environment that protects and enhances the unique characteristics of the district is recognised. Controlling harmful exposure to ground contamination present as a legacy from an industrial past or as a result of brownfield re-development is an important part of this.

Winchester City Council holds a spatial database of land uses in the district in 2008. This was created using classifications set out by the National Land Use Database. These land uses can be assessed for exposure potential based on the potential for ingestion, inhalation and direct contact with potentially contaminated soils and the likely duration of that exposure using the assumptions made in the Contaminated

Land Exposure Assessment model (CLEA) (EA, 2009) as detailed in table 11 below, with details of the sub-categories associated with each land use and associated risk ranking provided in Appendix 3.

Current Land Use	Ingestion		Direct Contact		Inhalation	
	Soil / Dust	Fruit / Veg	Indoor	Outdoor	Indoor	Outdoor
Agricultural	Y	Y		Y		Y
Woodland	Y			Y		Y
Unimproved Grass and Health land	Y			Y		Y
Water and Wetland	Y			Y		Y
Rock and Coastal Land	Y			Y		Y
Minerals and Landfill	Y			Y		Y
Recreation	Y	Y	Y	Y	Y	Y
Transport						Y
Residential	Y	Y	Y	Y	Y	Y
Community Buildings	Y	Y	Y	Y	Y	Y
Industrial and Commercial	Y		Y	Y	Y	Y
Vacant Land and Buildings	Y		Y	Y	Y	Y
Defence Land and Buildings	Y		Y	Y	Y	Y
Unknown						

Table 11: Land-use exposure potential

A more accurate reflection of risk is achieved if you consider the exposure duration for each land use. The risk rankings provided for both land use and exposure duration have been provided in Appendix 3.

Controlled Waters

The characteristics of the chalk bedrock beneath much of the district lends itself to the collection and storage of water in both minor and major aquifers. These form a significant drinking water resource with abstractions for the main supply network in addition to numerous private supply points. Given this, the protection of these supplies is a high priority, taking into consideration the groundwater vulnerability classification for public supplies and supply size for private water supplies.

Controlled waters include territorial and coastal waters, inland fresh waters and ground waters. Definitions for these are provided in the Water Resources Act 1991 that have been replicated in table 12 below:

Controlled Water Class	Description
Territorial Waters	Waters that extend seaward for three miles from baseline
Coastal Waters	Waters that are within the area that extends landward from the limit of the highest tide or the freshwater limit of the river or watercourse, including any enclosed dock adjoining such waters
Inland Freshwaters	Waters of any relevant lake, pond, river or water courses above the freshwater limit
Ground Waters	Waters contained in underground strata

Table 12: Controlled Waters Descriptions (Water Resources Act 1991)

Each of these classes can be assessed independently using the datasets provided by the EA.

a) Groundwater
Groundwater Vulnerability is classified by permeability into aquifer type and then soil class. For the purpose of Part 2A, groundwater does not include water above the saturated zone. Detailed descriptions of the groundwater vulnerability classification systems are provided in Appendix 3.

b) Surface Water
There are four main watercourses within WCC, the rivers Itchen, Meon, Dever and Hamble. Of these the river Itchen has been designated a SSSI, a SAC and a SINC and is recognised as one of the best examples of a chalk stream in the world.

The EA assesses the quality of rivers and canals by reviewing the biology, chemistry and nutrient content of the water. Details of the biological and chemical characteristics that are associated with the range of classification used by the EA have been provided in Appendix 3.

c) Private Water Supplies
The rural nature of WCC means that a large number of properties are served by private water supplies. There are currently 165 registered supplies, although it is anticipated there are more that are unknown to Winchester City Council.

Private Water Supplies are currently regulated under The Private Water Supplies Regulations 2009, which categorise supplies according to the number of residential users or volume extracted for commercial supplies (SI No. 3101, 2009). Appendix 3 contains a table that shows the classes for both residential and commercial water supply that are reflected in the prioritisation model. Higher priority will be provided to residential water supplies to reflect the increased exposure and sensitivity of these receptors.

Ecosystems

The wide variety of ecological receptors present within Winchester's District are all afforded an equal status regarding their vulnerability to contamination, and are classed a lower priority status to protection of human health and controlled waters for the purpose of prioritisation. Appendix 3 contains a list of designated sites that may be considered under Part 2A. Ecological receptors that do not feature on this list may not be considered a receptor under this regime.

Specific ecological effects will be assessed in greater detail at the detailed inspection stage of the process, following advice and support from the Environment Agency and Natural England.

Property

For the purposes of part 2A, property includes commercially produced and home grown crops and produce, livestock, domesticated and wild animals, and buildings.

These uses are in part reflected in the land use database and ancient monument information. The risk of significant harm is likely to correspond with the risk to human health in these locations and as such is unlikely to be prioritised for detailed inspection in isolation unless evidence of damage presents itself.

To ensure the validity of the strategic inspection process, there is an ongoing requirement to maintain and update the historic land use, receptor and pathway database. As a minimum, this should be completed prior to undertaking each phase of prioritisation to ensure the results reflect the current situation and are as accurate as possible.

6.2 Prioritisation

The prioritisation model that has been developed for Winchester City Council is a semi-numerical risk assessment. This has the capability of determining inspection priorities for a large number of sites simultaneously based on their contamination potential, sensitivity of receptor and ease by which any contamination can migrate from source to receptor.

The datasets that contribute to each element of the contaminant linkage are assigned scores. These are then combined using a combination of addition and multiplication to produce the prioritisation hierarchy. This method will result in a large range of possible scores (between 4 and 202,500), limiting the chance for duplication, thus avoiding a further stage in the prioritisation, whilst highlighting the sites where the combined effect from each element of the linkage is most likely to result in a significant risk.

A separate report outlining the prioritisation methodology to be used by WCC has been produced. This is largely based on an independent study completed by Alison Harker in 2009 as part of a Masters in Science degree in Environmental Health. This has been updated to reflect the revised statutory guidance and includes

additional datasets not available at that time. The following sections provide an outline of the methodology and factors that influenced the scoring.

Before prioritisation can take place, it is necessary to assess the available datasets and assign scores to risk rank contaminant, pathway and receptor datasets. These can then be combined to produce the prioritisation hierarchy.

Scores are assigned according to the risk factor relevant to the dataset. Details of the scores used in the prioritisation model are held in the prioritisation methodology document to enable the addition or removal of datasets contains details of the scores to be applied to datasets currently available to WCC that will then be used in the prioritisation calculation without requiring a formal update to this Strategy.

6.2.1 Site Specific Information

Winchester City Council receives and reviews numerous reports containing site specific information that has typically been submitted in compliance with conditions imposed on planning permissions. This often provides invaluable information of the actual contaminations status of a site.

It is considered appropriate to recognise the existence of this data in the prioritisation methodology and as such the prioritisation scores will be adjusted to reflect the level of available data and the confidence this provides regarding the contamination status of the site. The information categories to be reflected in the prioritisation calculation reflect key changes in UK policy relating to contaminated land, including the introduction of Part 2A in 2000 and the implementation of the revised CLEA method for assessing risk to human health in 2008 as shown in table 13 below:

Information Source
Remediation Completed post 2008
Remediation Completed between 2000 to 2008
Remediation Completed pre 2000
Site Investigation Completed
Desk Study Completed
No site specific information

Table 13: Pre-existing information adjustment scores

6.2.2 Prioritisation calculation

The second stage in the prioritisation process is to perform a calculation, the output from which will determine whether or not a site has the capability of being determined as contaminated land (i.e. whether all three aspects to the pollutant

linkage are present) and will determine the sites position on the prioritisation hierarchy.

The output from the calculation is critical to the prioritisation process. There are four identifiable stages to the calculation:

a) Each contaminant scores is multiplied by the corresponding duration score and the products are summed to form a total contaminant score.
b) The scores for the receptor and pathway datasets are summed to produce a total score for each.
c) The contaminant, pathway and receptor are multiplied to produce a total site score.
d) The total site score is multiplied by the mitigation score.

This process will ensure compliance with Part 2A as the site will score zero and fail to be prioritised if one aspect of the pollutant linkage is missing. Additionally, sites with several potential contamination sources and a wide range of receptors will be prioritised above those with just one source or potential pollutant linkage combination, and human health and controlled water receptors are given a higher priority than other receptors. The prioritisation calculation worksheet is provided in Table 14.

The maximum and minimum potential scores for a site are 202,500 and 4 respectively. The scores attributed to sites are largely irrelevant as they only provide a mechanism for ranking. The benefit of a large range of potential scores is that there are unlikely to be large numbers of sites with identical scores and no further prioritisation will be required before progressing to the detailed inspection phase.

Following prioritisation, the scores will be verified and either the Part 2A detailed inspection process will progress or sufficient information will be obtained to refine the score and declassify.

6.2.3 Verification

Following prioritisation, the highest ranked site will be assessed to verify the information used to inform the scores and if warranted will be formally identified as requiring detailed inspection.

It is anticipated some manual adjustment to the initial automated scores will be necessary. For example, there may be a number of sites where duplicate information has been captured, for example where the same trade has featured on more than one map scale. In this scenario, the scores will need to be adjusted to ensure the maximum duration of that trade type is recorded using information within the different sources, and not multiple entries of the same trade type.

It is important to recognise that the focus of the prioritisation methodology is to fulfil the statutory requirements provided within Part 2A of the EPA 1990. Whilst it is recognised that the datasets interrogated as part of the prioritisation process provide valuable information to inform planning and other LA functions, the output should not be used for any other purpose. For example, it should not be used to

inform decisions regarding the need for remedial measures as part of the development of a site, because the pollutant linkage may be altered by the development and not reflected in the relevant datasets. Furthermore, the output from the prioritisation calculation cannot be used to ascertain when sites will be subject to detailed inspection as the model output is not acted upon until the contributory datasets have been verified.

Contaminant

Potentially Contaminative Land Use(s)	Score		Duration		Total	
		x		=	0	C1
		x		=	0	C2
		x		=	0	C3
		x		=	0	C4
		x		=	0	C5
		x		=	0	C6

CONTAMINANT TOTAL 0 CT
(C1+C2+C3+C4+C5+C6)

Pathway

Geology	Score	
	0	P1
Source Protection Zones		
	0	P2
Ground Cover		
	0	P3
Wells and Boreholes		
	0	P4
Flood Potential		
	0	P5

PATHWAY TOTAL 0 PT
(P1+P2+P3+P4+P5)

Receptor

Current Land Use		
	0	R1
Groundwater Vulnerability		
	0	R2
Private Water Supply		
	0	R3
Surface Water Classification		
	0	R4
Designated Sites		
	0	R5

RECEPTOR TOTAL 0 RT
(R1+R2+R3+R4+R5)

Calculation

SUBTOTAL 0 ST
(CT*PT*RT)

Mitigation Score 0 MS

SITE SCORE 0
(ST*MS)

Table 14: Prioritisation Calculation Worksheet

7 Stage 2 – Detailed Inspection

The prioritisation process will identify land where there is a reasonable possibility that a significant pollutant linkage exists. This land must be subject to a detailed inspection to obtain sufficient information to determine whether or not the land is contaminated land.

Winchester City Council will seek to identify and consult the landowner prior to commencing a detailed inspection. Refusal by the landowner to co-operate at this stage may result in WCC using its statutory powers to gain entry to the land for the purpose of carrying out the necessary site assessment.

A risk based approach to the detailed inspection is required. For the purposes of assessing contaminated land, risk is defined as the combination of:

a) *The likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land, and;*
b) *The scale and seriousness of such harm or pollution if it did occur.*

(Defra, 2012, para 3.1)

In undertaking a risk assessment WCC will have regard to good practice guidance on risk assessment and base the assessment on information that is:

a) *Scientifically based;*
b) *Authoritative;*
c) *Relevant to the assessment of risks arising from the presence of contaminants in soil, and;*
d) *Appropriate to inform regulatory decisions in accordance with Part 2A and the statutory guidance.*

(Defra, 2012, para 3.4)

The risk assessment must only consider the current land use, although this may include unauthorised use of that land, for example children playing on a piece of land without the owner's permission.

The risk assessment will be completed in a phased basis to ensure efficient use of resources. The results of each phase will be assessed and the inspection will only proceed to the subsequent phase if a potentially significant pollutant linkage is present. The inspection phases are detailed below:

- Phase 1 will comprise a predominately desk based exercise to validate the prioritisation model output and undertake additional research to verify the presence of a potentially significant pollutant linkage. A site walkover will be required as part of the Phase 1 assessment to verify the current land use and develop a thorough understanding of the site and its environs and enable the development of a conceptual site model.
- Phase 2 will involve collection of samples for chemical analysis to facilitate completion of a generic quantitative risk assessment.
- Phase 3 is likely to involve further targeted sampling and verification of the actual exposure characteristics to facilitate completion of a detailed

quantitative risk assessment that confirms the presence or absence of a significant pollutant linkage.

The detailed inspection and risk assessment process should stop if there is insufficient evidence of a significant pollutant linkage or there is sufficient information to enable the land to be determined as contaminated land.

7.1 Background Contamination

Part 2A of the Environmental Protection Act 1990 was designed to deal with contaminants which pose and unacceptable level of risk, rather than dealing with chemicals in soil which can be shown to be commonplace and widespread throughout the land.

Where contaminants present in soil are considered to be 'normal' or 'background' concentrations from either nature or diffuse anthropogenic uses such as historic use of leaded petrol, or spreading of domestic ash in gardens, they should not be pursued further under Part 2A.

7.2 Generic Assessment Criteria

The statutory guidance allows for the use of generic assessment criteria (GAC) to aid decision making in Part 2A investigation providing they have been produced in an objective, scientifically robust and expert manner by a reputable organisation(s); and, it is understood how the GAC were derived and how they should be appropriately used. It is anticipated that GAC will be used in Phase 2 of the assessment process.

7.3 Uncertainty

All risk assessments of potentially contaminated land involve a degree of uncertainty given the variety of influencing parameters, assumptions made and scientific uncertainty over the effects of contaminants.

Winchester City Council will seek to minimise uncertainty as far as it considers relevant, reasonable and practical however there is a need to recognise any remaining uncertainty and be aware of the effects that the many assumptions and estimates that underlie the risk assessment process will have on its conclusions.

In fulfilling their duties under Part 2A, Local Authorities are required to use judgement to form a reasonable view of the risks on the basis of robust assessment. Whilst it is recognised that different suitably qualified people may reach different conclusions, it remains the responsibility of the local authority to determine land as contaminated land.

7.4 Risk Summaries

Where land has been investigated and unacceptable risks remaining require the land to be determined as contaminated land, the local authority is required to produce a risk summary for the site in question. The local authority should not proceed to determination until a risk summary has been produced.

The statutory guidance sets out requirements for all risk summaries as follows:

- A summary of the authority's understanding of the risks, including a description of:
    - the contaminants involved
    - the identified contaminant linkage(s)
    - the potential impact(S)
    - the estimated possibility that the impact(s) may occur
    - the timescale over which the risk may manifest itself.
- A description of the authority's understanding of the uncertainties behind its assessment.
- A description of the risks in context, for example setting the risk in a local or national context, or describing the risk from land contamination relative to other risks that receptors might be expected to be exposed to. This must be communicated in a manner that is understandable to the layperson.
- A description in of the authority's initial views on possible remediation. This need not be a detailed appraisal, but it should include a description of broadly what remediation might entail, how long it might take, the likely effects of remediation on local people and businesses, how much difference it might be expected to make to the risks posed by the land, and whether, in the local authority's opinion, the remediation would produce a net benefit.

Risk summaries are not required for any land which is not to be determined as contaminated land.

8 Stage 3 – Determination

The local authority has the sole responsibility for determining whether land within its jurisdiction is contaminated land. The starting assumption for any site is that land is not contaminated land unless there is a reason to consider otherwise. The prioritisation process aims to highlight those sites where there is the greatest potential for the land to be contaminated and the detailed inspection process should verify the existence of a complete pollutant linkage and assess the likely significance of this.

8.1 Determining that land is not contaminated land

In carrying out detailed inspections the local authority is likely to come across sites where there is little or no evidence to suggest that land meets the statutory definition of contaminated land.

When a piece of land has been prioritised for detailed inspection and subsequently deemed not to be contaminated land, WCC will, in accordance with statutory guidance, produce a written statement to that effect to minimise the potential for blight. This statement will contain an explanation of the rationale behind this decision and make clear the circumstances that would invalidate that statement (such as a chance of use of the land to a more sensitive end use). The statement will be issued to the land owners and other interested parties such as neighbouring land owners and users of the land.

8.2 Determining that land is contaminated land

Before making any formal determination WCC must be satisfied that there is at least one significant contaminant linkage on a site. This will be achieved through completion of a robust, appropriate, scientific and technical assessment of all available and relevant evidence, following any advice provided by the EA or suitability qualified practitioner appointed by WCC for that purpose.

8.2.1 Definition of Contaminated Land

Contaminated Land is defined in Section 78A(2) of Part 2A of Environmental Protection Act 1990 as:

> *"Contaminated Land" is 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 a significant possibility of such harm being caused; or*
> *(b) pollution of controlled waters is being, or is likely to be, caused;*

Whilst the definition of contaminated land contained within the act refers to pollution of controlled waters, the statutory guidance provides clarity that this relates to significant pollution of controlled waters rather than lesser levels of pollution.

For radioactive contaminated land the definition relates to human health only and refers only to *'harm being caused'* or the *'significant possibility of such harm being caused'.*

Statutory Guidance further explains the terms 'significant harm' and 'significant possibility of significant harm' in the following contexts:

Human Health
Four categorisations for human health have been provided:

Category 1 - Significant possibility of significant harm exists e.g.
- evidence from similar land or situations;
- similar levels of exposure to the contaminants of concern has resulted in significant harm;
- evidence of significant harm having already occurred.

Category 2 - Land is capable of being determined as contaminated land e.g.
- strong case that contaminant is capable of posing significant risk of significant harm;
- no direct evidence to support this;
- action required as a precautionary measure

Category 3 - Land not capable of being determined as contaminated land e.g.
- not a strong case that contaminant capable of causing significant risk of significant harm;
- risk on site may not be low;
- regulatory intervention under Part 2A not warranted

Category 4 - No or low risk to human health identified e.g.
- no complete contaminant linkage;
- normal levels of contamination in soil identified;
- relevant generic assessment criteria not exceeded;
- where exposure from a contaminant forms a small proportion of overall exposure to that contaminant from other environmental sources.

Note: Radioactive Contaminated Land is dealt with separately and specific exposure conditions are set out that could result in harm.

Controlled Waters
When considering the possibility of significant pollution of controlled waters, the local authority must have due regard to any technical guidance issued by the Environment Agency. Where the local authority considers that determination is likely regarding controlled waters it must also consult the Environment Agency and have regard for its advice prior to any determination made.

Ecological Receptors
There are a number of specified ecological receptors that can be considered under Part 2A:
- A site of special scientific interest (SSSI)
- A national nature reserve

- A marine nature reserve
- An area of special protection for birds
- A European site within the meaning of regulation 8 of the Conservation Habitats and Species Regulations 2010
- Any habitat or site afforded policy protection under paragraph 6 of PPS9 (i.e. candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites)
- Any nature reserve established under section 21 of the National Parks and Access to Countryside Act 1949.

Significant harm to ecological receptors is considered when there are irreversible or substantial adverse changes or the long term population of a species is endangered.

Significant possibility of significant harm to ecological receptors should be considered where there is a reasonable possibility that significant harm will be caused and that if harm were to occur it would result in such a degree of damage to features of special interest at the location in question that they would be beyond any practicable possibility of restoration.

Property
The types of property receptors that can be consider under Part 2A include:

- Crops, including timber
- Produce grown domestically, or on allotments, for consumption
- Livestock
- Other owned or domesticated animals
- Wild animals which are subject to shooting or fishing rights
- Buildings

Significant harm of property receptors is considered when there is a substantial diminution of yield or substantial loss of crops or crop value; if pets die, develop a serious disease or serious physical damage, if a building suffers structural failure, substantial damage or interference with occupation, or if a scheduled ancient monument is damaged to a point that it impairs the reason for which it was scheduled.

8.3 Area to be determined

The physical extent of land to be determined requires careful consideration. Only land that can reasonably be considered to be contaminated land must be included. It may be necessary to use judgement to define the extent of land to be determined and this should be reviewed as more detailed information becomes available.

Land can be subdivided for the purposes of determination. The decision for doing so should take into consideration:

- The nature of contamination;
- Whether the degree of risk posed varies across the land;
- The nature of the remediation which might be required;
- The ownership of the land, and;
- The likely identify of persons responsible for the remediation.

8.4 Formal notification of determination

When land is determined as contaminated land the Council will provide notification in writing to the Environment Agency, the landowners or occupiers of any part of the land, and any other person who appears to be liable to pay for remediation. If the site is within 250 metres of the district boundary, the neighbouring authority will also be notified.

The notification will include:

- The reason why they are being sent the notification
- A copy of the written record of determination
- A copy of the risk summary
- Information on the availability of site investigation data or copies of this information
- For those people who are liable the reasons whey they are considered to be an appropriate person
- Details of tests for exclusion form, and apportionment of liabilities.

A local authority can postpone determination if a land owner or other person undertakes to deal with the problem without determination, and the local authority is satisfied that remediation will be to an appropriate standard and timescale.

In the event that determination is postponed, the local authority must keep the status of the land under review and take reasonable measures to ensure that the postponement does not create conditions under which significant risks could go unaddressed in the future.

8.5 Written record of determination

Local authorities are required to prepare a written record of determination that land is contaminated land. This record must be publically available and understandable to non-specialists. The record should include:

- Clear and accurate identification of the location, boundaries and area of the land in question with appropriate reference to OS grid references.
- Explanation of why the determination has been made
- The risk summary
- The relevant conceptual model
- A summary of the relevant assessment of the evidence
- A summary of why the requirements of the statutory guidance have been satisfied.

9 Stage 4 - Remediation

The broad aim of remediation should be to remove or take measures to remedy the identified significant contaminant linkages, or permanently to disrupt them to ensure they are no longer significant and that risks are reduced below an unacceptable level, where the land would no longer qualify as contaminated land. Where this is not achievable, consideration should be given to remediation to a lesser standard to minimise risks as far as possible.

9.1 Definition of Remediation

Remediation is defined in s78A of the Environmental Protection Act 1990 as:

(a) the doing of anything for the purpose of assessing the condition of –
(i) the contaminated land in question;
(ii) any controlled waters affected by that land; or
(iii) any land adjoining or adjacent to that land;
(b) the doing of any works, the carrying out of any operations or the taking of any steps in relation to any such land or waters for the purpose –
(i) of preventing, or minimising, or remedying or mitigating the effects of, any significant harm, or any pollution of controlled waters, by reason of which the contaminated land is such land; or
(ii) of restoring the land or waters to their former state; or
(c) the making of subsequent inspections from time to time for the purpose of keeping under review the condition of the land or waters.

9.2 Remediation Notices

Following determination of contaminated land in its area, Winchester City Council have a duty to serve a remediation notice on the appropriate person(s) following a three month consultation period unless there are no viable remediation options, voluntary remediation is being or will be undertaken without the need for a notice, or there is a need for urgent action where there is imminent risk of serious harm.

In considering whether the requirement to undertake remediation is reasonable Winchester City Council will consider:

(i) The practicability, effectiveness and durability of remediation including whether it is feasible for the appropriate person to complete the remediation specified within the timescale given, and whether this will remain a robust and effective solution for a sufficient length of time.
(ii) The health and environmental impacts of the chosen remedial options including whether there are any direct or indirect health effects to workers or people affected by the works, or potential for damage to the countryside, protected building and other sites of importance caused by the work.

(iii) The financial cost which is likely to be involved at all stages of the process including preparation, remediation, monitoring, maintenance and value of the land; and
(iv) The benefits of remediation with regard to the seriousness of the harm or pollution of controlled waters in question including increased land value following remediation and the likelihood of an occurrence or recurrence of pollution.

A remediation notice must specify what remediation is required and the timescales in which this must be done. When considering what remedial action is required, Winchester City Council will consult other regulatory bodies and have due regard for relevant technical documents produced by regulatory, professional or technical organisations or act on the advice of a suitably qualified experienced practitioner employed for that purpose.

A remediation declaration must be prepared in situations where Winchester City Council itself has caused or knowingly permitted the land to become contaminated and is responsible for its remediation.

In accordance with the requirements of section 78R of the Environmental Protection Act 1990, a copy of any remediation notices or remediation declarations prepared will be placed on a public register.

In the event that new information comes to light that alters the extent of remediation required or an alternative remediation scheme is proposed by the responsible person, it is possible to revise or revoke all or part of the notice.

9.3 Voluntary Remediation

Winchester City Council actively encourages voluntary remediation and will work with the appropriate person(s) during the consultation period to secure the informal remediation of contaminated land without the need for a formal notice.

Where voluntary remediation is considered appropriate, a remediation statement will be used in place of a notice to record the nature and extent of remediation required the person responsible for the remediation and the delivery timescales. In accordance with the requirements of section 78R of the Environmental Protection Act 1990, a copy of remediation statement will be placed on a public register.

9.4 Financial considerations

The cost of remediation of contaminated land can be considerable. The cost of remediation must be reasonable and proportionate to the seriousness of the harm or pollution of controlled waters. When considering the reasonableness of costs Winchester City Council will take into consideration:

(i) Preparation costs including feasibility studies, remedial design and management
(ii) Remediation costs including making good following remediation

(iii) Ongoing management, maintenance or monitoring costs
(iv) Value of land before and after remediation and who this affects

The liability for the cost of remediation rests with the appropriate person(s). The financial standing of the person(s) responsible for the remediation will not influence the decision as to whether the costs of remediation are reasonable, however this is relevant in deciding whether the cost of remediation can be imposed on this person.

There are a range of circumstances in which Winchester City Council are required to fund the required remedial actions including where;

- urgent action is required to prevent serious harm or pollution of controlled waters;
- a remediation notice has not been complied with;
- no appropriate person can be found;
- an appropriate person has been excluded on the grounds of hardship.

In these situations Winchester City Council may be able to recover reasonable costs.

Where Winchester City Council is responsible for causing or knowingly permitting the presence of contamination, owns land that is contaminated or becomes contaminated as a result of tenant activities, or fails to secure remediation through the development process, the cost of remediation will need to be secured internally.

9.5 Appeals Process

Remediation notices served by Winchester City Council will contain information on the right to appeal. The appeal period is twenty-one days from service of the notice and any appeals must be made to the Secretary of State who could quash the notice or confirm it with or without modification.

9.6 Offences

Any person failing to comply with the requirements of a remediation notice is guilty of an offence and may result in a fine following successful prosecution.

10 Information Management and Communication Policy

WCC aim to store and distribute information electronically where possible to reduce paper. Information relating to contaminated land will be stored in such a manner so that:

- Information about a site can be linked to a geographical area or property address;
- Site information is easily accessible, and;
- Site information is reference to enable retrieval of desperate information relating to one particular site.

A geographical information system will be used to manage spatial data.

All information available to Winchester City Council will be stored, managed, shared and released in accordance with Council policies relating to the Data Protection Act 1998 and the Freedom of Information Act 2000.

The Environmental Information Regulations 2004 (SI 2004/3391) set out specific provisions with regards to public access to environmental information, refusals to disclose, charging, disclosing and timescales.

10.1 The Part 2A Public Register

In accordance with Part 2A and the Contaminated Land (England) Regulations 2006, the Council is required to maintain a Public Register, which it must make available for public inspection at all reasonable times. This serves as a permanent record of all regulatory action undertaken to ensure the remediation of any site which has been determined as Contaminated Land. Sites which have been determined as Contaminated Land but where no consequent action has yet been taken will not appear on the register.

The information required to be provided within the public register is provided in Schedule 3 of the Contaminated Land (England) Regulations 2006. In summary, this includes:

- A copy of the remediation notice;
- Details of any appeals against the remediation notice;
- The remediation declaration(s);
- The remediation statement(s);
- Appeals against charging notices;
- Designation of special sites;
- Notification of claimed remediation;
- Convictions for offences of not complying with a remediation notice under Section 78M of EPA 1990;
- Details of any guidance issued by the EA under Section 78V(1)
- Details of other environmental controls in place that preclude service of a remediation notice.

A copy of the Part 2A public register will be held by the Environmental Health Team and will be accessible on request during office hours, Monday to Friday at:

Winchester City Council,
City Offices
Colebrook Street
Winchester
Hampshire
SO23 9LJ

WCC reserves the right to make a reasonable charge for provision of a copy of the register.

At the time of publication of this Strategy, Winchester City Council has not determined any land as contaminated land and as such there is no information held on a the public register. You are advised to contact the Environmental Health Team on 01962 848503 to verify the status of the register prior to visiting.

WCC aim to provide access to the public register electronically through its website in future.

10.2 Requests for information

In fulfilling it Part 2A duties, Winchester City Council holds a considerable amount of data relating to the historic use of land that may give rise to land contamination issues.

Winchester City Council provides a variety of standard searches in response to requests for historic land use information associated with property transactions or the redevelopment of land:

Part 2A Statement
This Service will provide a written statement regarding current status of land in accordance with the provisions set out in Part 2A of the Environmental Protection Act 1990 free of charge. This is based on historical land use data captured, although details of these uses will not be provided as part of this response.

Informal discussions
The Environmental Health Service is able to provide verbal advice regarding information on potentially contaminating land uses on or within the immediate vicinity of a site free of charge.

Historic Land Use Enquiry Search
This detailed report is aimed at developers or their consultants who are looking to gain information regarding the history of a site as part of a Phase 1 site assessment; or members of the public or their solicitors looking to gain an understanding of the site history as part of the conveyancing process.

The computer generated report will containing the following information (where such information exists within the search area):

- Extracts from all available historic maps annotated with the site boundary and search area – possible map scales include 1:1250, 1:2500, 1:10000, 1:10560.
- A summary of the historical land use data collated by Winchester City Council on or within 50m of the site. This includes:
    - potentially contaminative land uses captured from historic maps and historic trade directories;
    - historic wells and pumps
    - licensed petroleum sites
    - authorised industrial processes
    - licensed waste disposal sites
    - scrap metal licences
    - radioactive substance licences
    - pollution incidents
- Details of any site reports (including desk studies, site investigations, remedial strategies or validation reports) completed on or within 50m of the site.

This report does not include a detailed review of any identified site reports. Where such information is available, an appointment can be made to view this at a mutually convenient time.

There is a fee for completion of this Service (£125+VAT in 2013/14). You should receive your report within 10 working days from receipt of a written request and acceptance of the current fee.

Bespoke Search Requests
In the event that additional search information is required please contact the Environmental Health Service to provide a quote and timeframe for completion. Circumstances where this could apply include:

- Where a search area buffer of >50m is required
- Where a detailed review of site assessment reports is required

Requests for historic land use information need to be submitted in writing to the Contaminated Land Officer, Environmental Health Team, Winchester City Council, City Offices, Colebrook Street, Winchester, SO23 9LJ or via email healthprotection@winchester.gov.uk. All requests should be accompanied by a plan of the area with the boundary of the search area clearly marked.

For details of the current charges please visit the contaminated land web pages - www.winchester.gov.uk/environment/contaminated-land or contact the Environmental Health Team via telephone - 01962 848503 or email - healthprotection@winchester.gov.uk for details of the current charges.

10.3 Information received from external sources

The Council welcomes receipt of any information on the nature and extent of potentially contaminating activities that have taken place across the district. In particular, WCC values input from long standing local residents and visitors to the

district who have detailed knowledge of the areas they live, work or visit and the activities that have taken place there.

Should a member of the public wish to discuss potential land contamination issues with an officer, they should contact the Environmental Health Team via telephone (01962 848503), email (healthprotection@winchester.gov.uk) or make an appointment to meet with the Contaminated Land Officer during office hours.

11 Strategy Publication, Development and Review

This Contaminated Land Inspection Strategy 2013-2018 replaces the Council's previous strategy (January 2002, Version 2). The following key stages in the revised strategy publication and development programme are as follows:

Timescale	Task Summary
16 December 2013	Draft strategy completed for internal and external circulation
10 January 2013	Consultation period closes amendments made.
15 January 2014	Final strategy incorporating any amendments from consultation presented to Portfolio Holder for Neighbourhoods and Environment for approval.
17 January 2014	Approved strategy published
January – March 2014	Development of prioritisation model through external agency
31 March 2014	Run prioritisation model and verify results
31 March 2015 onwards	Undertake detailed inspection of highest priority site(s).

The prioritisation model should be reviewed and updated prior to use to ensure the datasets used are up-to date and any new data is taken into consideration. This will serve to ensure the output from the model is valid and reflects the current situation within Winchester District.

The Council has a duty to keep its written strategy under periodic review to ensure it remains up to date and suggests a 5 yearly review period would be good practice. In accordance with this a strategy review is programmed for 2018.

Ongoing development of the strategy is likely to be a continuum, balancing a systematic approach with the availability of resources. This contaminated land strategy must work alongside other statutory functions and regimes that are used to address land contamination issues. Given this, a holistic approach to land contamination issues is required and the following priority actions for the 2013-2018 strategy period have been identified:

- Development of prioritisation model and undertake detailed inspection of the highest priority site
- Development of cost recovery and hardship policies
- Produce a corporate contaminated land strategy to ensure WCC take into consideration the impact of land contamination on other regulatory functions.
- Continued input into planning and building control process
- Provide a quality search facility to impart information on land contamination to external customers for a reasonable fee.

- Provide contaminated land expertise to internal customers as set out in service level agreements.

12 References

Cairney T (1995) *The Re-use of Contaminated Land*. Chichester: John Wiley & Sons

Darlow, AJ (2009) *The development of a framework for Winchester City Council to identify and prioritise potentially contaminated land.* University of Derby

Department of the Environment (1995) *CLR Report No 6 – Prioritisation and Categorisation Procedure for Sites which may be contaminated.* London: HMSO.

Department for Environment, Food and Rural Affairs (2012) *Environmental Protection Act 1990: Part 2A. Contaminated Land Statutory Guidance*. London: DEFRA.

Drinking Water Inspectorate (2010) Legislative background to the Private Water Supplies Regulations 2009 Section 9(E) of the private water supplies, technical manual. London: DWI

Environmental Protection Act 1990, Chapter 43. London: HMSO

Environment Agency (2009c) *Scrience Report SC050021/SR3. Updated technical background to the CLEA model.* Bristol: Environment Agency

Hayes, S (2009) *Email communication dated 25 November 2009.*

Office for National Statistics (2012) Neighbourhood Statistics. Area: Winchester (Local Authority). Resident Population Estimates, All Persons, Mid 2012. Available from: http://neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=276987&c=Winchester&d=13&e=13&g=453014&i=1001x1003x1004&m=0&r=1&s=1379674612246&enc=1&dsFamilyId=1813 [Accessed 20 September 2013]

Petts, J., Cairney, T. and Smith, M. (1997) *Risk-based Contaminated Land Investigation and Assessment.* Chichester: John Wiley & Sons Ltd

Statutory Instrument 2009 No. 3101. *The Private Water Supplies Regulations 2009.* London: HMSO

Statutory Instrument 2000 No. 227. *The Contaminated Land (England) Regulations 2000.* London: HMSO

Statutory Instrument 2006 No, 1379. *The Radioactive Contaminated Land (modification of Enactments)(England) Regulations 2006.* London: HMSO.

Water Resources Act 1991 Chapter 57. London: HMSO

Winchester City Council (2002) *Contaminated Land Inspection Strategy 2001-2006. As required by Part IIA of the Environmental Protection Act 1990*. Winchester City Council: Health and Housing Department

Appendix 1

Contaminant Risk Categories

High Risk Activities

Category	Sub-categories	Keyword
Animal	Slaughter houses, knackers yard & rendering plants; meat processing plants	ABATTOIR
	Gelatine, glue soap, candle and bone works	ANIMAL
	Burial of diseased livestock	BURIAL
	Tanneries and fellmongers, leather goods and skinnery	TANNERY
	Manufacture of pet foods or animal foodstuffs	ANFOOD
Asbestos	Asbestos manufacture and use	ASBESTOS
Chemical Works	Coatings (paints and printing inks) manufacturing works including varnishes, mastics, sealants and creosote	PAINT
	Cosmetics and toiletries manufacturing works	COSMETIC
	Disinfectants manufacturing works	DISINFECTANT
	Explosives, propellants and pyrotechnics manufacturing works including the civilian manufacture & storage of weapons, ammunition, explosives & rockets and ordnance.	MAG
	Fertiliser manufacturing works	FERTILISER
	Fine chemicals manufacturing works	FINE CHEM
	Inorganic chemical manufacturing works	INORGANIC
	Linoleum, vinyl and bitumen-based floor covering manufacturing works, including tar, bitumen and asphalt manufacturing works	LINO
	Organic chemicals manufacturing works including the manufacture of plastic goods, including building, packages, tubing etc.	PLASTICS
	Pesticide manufacturing works	PESTICIDE
	Pharmaceutical manufacturing works	PHARM
	Soap and detergent manufacturing works	SOAP
Energy / Oil / Coal	Gasworks, coke works and other coal carbonisation plants: Oil Refining and production of gas from coal, lignite, oil or other carbonaceous material other than waste	GAS
	Oil refineries and bulk storage of crude oil and petroleum products: Major oil & petrol storage and all gasometers which are not in gasworks	OIL
	Power stations (excluding nuclear power stations): Electricity generation and distribution, including large Transfer stations	POWER
Engineering Works	Premises housing surface cleaning and degreasing operations	DEGREASING
	Electrical and electronic equipment manufacturing works (distribution, telecoms, medical, navigation, metering, lighting and works manufacturing equipment containing PCBs)	HEAVY ELEC
	Mechanical Engineering and Ordnance Works	ORDNANCE
	Railway engineering works	RENG
	Vehicle manufacturing works	L TRANS

Category	Sub-categories	Keyword
Metal manufacturing, refining and finishing	Electroplating, galvanising, anodising and other metal finishing works	PLATING
	Iron and steel works including major tube works incl Smithy	HM WORKS
	Lead works	LEAD
	Non ferrous metal works (excluding lead works)	NON FERROUS
	Furnaces & Metal processing/casting / forges / smelting—Ferro and Aluminium Alloys—Manganese Works, Slag Works	FOUNDRY
Military / Ammunition	ALL Military Establishments incl. Firing Ranges (if not specified as Civilian)	MOD
Miscellaneous Trades	Charcoal works	CHARCOAL
	Glass manufacturing works (including flat glass)	GLASS
	Fibreglass and fibreglass resins manufacturing works	FIBREGLASS
	Laundries & dry cleaning	LAUNDRY
	Photographic processing industry	PHOTO
	Printing and bookbinding works (including newspapers)	PRINTERS
	Storage, processing or disposal of radioactive material	RADIO
Pollution Incidents	Category 1 pollution incident	POLLUTE1
Textiles and Paper	Dye & pigments	DYE
	Natural and man-made textile manufacture and products including hemp rope and linoleum	TEXTILES
	Pulp & paper manufacturing works	PAPER
Transport	Dockyards and dockland: Boat-building, wharf and quays, cargo/transport handling facilities - marine or inland	DOCKS
	Road vehicle fuelling, service and repair: Petrol filling stations	FUEL
Waste recycling, treatment and disposal sites	Drum and tank cleaning and recycling plants	DRUM
	Hazardous waste treatment plants	HAZARD
	Landfills and other waste treatment or waste disposal sites (including incinerators & sanitary depots)	REFUSE
	Metal recycling sites	SCRAP
	Solvent recovery works	SOLVENT
	Waste transfer station	TRANSFER
Water	Sewage Works and sewage farms including all sewerage, septic-tanks, effluent—incl. all filter beds, sludge treatment or disposal	SEWERAGE
Wood	Timber treatment works	TIMBER

Medium Risk Activities

Category	Sub-categories	Keyword
Asbestos	Abrasives and products	MINERALS
Chemical Works	Mastics, sealants, adhesives and roofing felt manufacturing works	MASTICS
	Rubber processing works (including works manufacturing tyres or other rubber products)	RUBBER
Energy / Oil / Coal	Batteries, accumulators, primary cells, electric motors, generators & transformers	BATT
	Coal storage/depot.	C&C
	Coal Mining (and the manufacturing of Coke and Charcoal) -- areas include associated surface activities in area, and coal mine shafts	COLLIERY
	Electricity sub-station	ELEC SS
	Storage tanks (above and below ground)	TANK
Engineering Works	Aircraft manufacturing works	AIRCRAFT
	Electrical and electronic equipment manufacturing works (electrical and electronic domestic appliances)	HOUSE
	Electrical and electronic equipment manufacturing works (Computers, office machinery, business/industrial electrical goods)	LIGHT ELEC
	Manufacturing of engines, building & general industrial machinery, incl. nuts & bolts, Gas Fittings, wire rope/cable and ordnance accessories	MACH
	Shipbuilding, repair and ship breaking	SHIP
	Electrical and electronic equipment manufacturing works (Insulated wire & cable for electrical/tel. purposes)	WIRES
Food	Major food processing, includes large Dairies. Exceptionally Large Scale Corn/Flour Milling	FOOD
Medical / Science	ALL Hospitals including sanatoriums but not lunatic asylums	HOSPITAL
Metal manufacturing, refining and finishing	Precious metal recovery works	PRECIOUS
	Constructional steelwork, metal structures & products & building materials	METAL PROD
Miscellaneous Trades	Ceramics, cement and asphalt manufacturing works: Tableware & other ceramics	CERAMICS
	Builders Yard	YARD
	Factory & Works - use not specified	WORKS
Pollution Incidents	Category 2 pollution incident	POLLUTE2
Potential Infill, Deposition and Disturbed Ground	Unknown filled ground (pit, quarry etc): Natural or man-made depression or unspecified pits	FILL PIT
	Unknown filled ground (pond, marsh, river, dock etc): Water features which were previously mapped but which no longer appear on subsequent and current map editions	FILL WATER
	Disturbed Ground >200m in one dimension -	D GROUND
	Feature should only be shown when the following criteria are satisfied: i) It is Epoch 4 or later ii) Land is vulnerable to or has been built on, in a later Epoch	MARSH
	Areas ‘Liable to Flood’ --- shown as point features central to flooding area	FLOOD

Category	Sub-categories	Keyword
Quarry, Natural Product Extraction and Manufacture	Manufacture of clay bricks & tiles, including associated activities e.g. brickfields, also solitary kilns (other than lime kilns)	BRICK
	Must be associated with relevant industry—incl. Spoil & Slag—use symbology and associated features to identify heap boundary	HEAP
	Quarrying of all stone (incl. limestone, gypsum, chalk & slate) and ores, includes all opencast mining and slant workings - also slate/slab works, flint works, and stone yards.	QUARRY
	Extraction of alluvial sediments (sand, stone, clay, peat, marl and gravel)	PIT
	Areas of mining and single or groups of shafts other than coal, OR not specified. Also areas associated with Mineral Railways	MINE
	Ceramics, cement and asphalt manufacturing works: Concrete, cement, lime & plaster products, also includes solitary Lime Kilns	CEMENT
Textiles and Paper	Pulp & paper manufacturing works: Products including packaging	P PROD
Transport	Air & space transport	AIRPORT
	Transport and haulage centres; Corporation Yards	DEPOT
	Service, repair and sale of cars, bikes and parts; motorway services	GARAGE
	Mineral railways also known as 'Tramways' or Inclines—NOT including urban passenger 'Tramways'	MRAIL
	Rail sidings, Yards, Rail Wharf, Goods Depots, Station, etc.	RLAND
	Railway Tracks—up to 4 tracks wide or 30m.	RAILWAY
Water	Outfalls incl. warm water, industrial effluent, etc. unless directly attached to other feature e.g. end of sewer pipe	OUTFALL
	Above ground pipelines other than sewerage	PIPE
Wood	Timber products manufacturing works (including sawmills, planing, telegraph works, timber yard excl treatment)	WOOD

Low Risk Activities

Category	Sub-categories	Keyword
Food	Brewing & malting	BREW
	Spirit distilling & compounding	DISTILL
	Agricultural Land	AGRICULTURE
Medical / Science	Cemetery, modern Burial Grounds and Grave yards	GRAVE
	Various. Technical & environmental testing & analysis	LAB
Pollution Incidents	Category 2 pollution incident	POLLUTE2
Potential Infill, Deposition and Disturbed Ground	Air Shafts	AIR

Appendix 2

Pathway Risk Categories

Solid Geology Risk Ranking

Formation	Member	Code	Rank
Wittering formation		Wtt	M
London Clay formation	Nursling Sand member	Nu	M
	Whitecliff Sand Member	Whi	M
		PeS	M
	London Clay	LC	L
	Durley Member	Du	M
	Portsmouth Member	Po	M
	Bognor Sand Member	BoS	M
Reading Formation		Rea	M
		S	M
		PB	M
Upper Chalk	Portsdown Chalk Member	PCk	H
	Culver Chalk Member	CCk	H
	Spetisbury Chalk Member	SpCk	H
	Tarrant Chalk Member	TCk	H
	Newhaven Chalk Member	NCk	H
	Seaford Chalk Member	SCk	H
	Stockbridge Rock Member	STRK	H
	Lewes Nodular Chalk Member	LeCk	H
Middle Chalk	New Pit Chalk Member	NPCk	H
	Hollywell Nodular Chalk Member	HCk	H
Lower Chalk	Zigzag Chalk Member	ZCk	H
	West Melbury Marly Chalk Member	WMCk	H

Drift Geology Risk Ranking

Drift Geology	Rank
Head Deposits	M
Alluvium	M
River Terrace Deposits	M

Artificial Modified Ground Risk Ranking

Artificially Modified Ground	Rank
Made Ground	M
Worked Ground	M
Infilled Ground	M
Landscaped Ground	M
Landslip	M

Source Protection Zones Hazard Ranking

Zone	Description	Rank
1	Inner Protection Zone - 50m protection radius around borehole and/or 50 day travel time from pollution source to borehole	H
2	Outer Protection Zone - 400 day travel time from pollution source to borehole or 25% of total catchment area	M
3	Total catchment - the total area needed to support removal of water from the borehole	L
4	Zone of special interest - where local conditions mean that industrial sites and other polluters could affect the groundwater source even though they are outside the normal catchment area	M

Ground Cover Risk Ranking reflects permeability

Land Use	Permeability of ground cover
Agricultural	HIGH
Woodland	MEDIUM
Unimproved Grass and Health land	HIGH
Water and Wetland	HIGH
Rock and Coastal Land	MEDIUM
Minerals and Landfill	HIGH
Recreation	HIGH
Transport	LOW
Residential	HIGH
Community Buildings	HIGH
Industrial and Commercial	LOW
Vacant Land and Buildings	MEDIUM
Defence Land and Buildings	MEDIUM
Unknown	MEDIUM

Hazard Ranking for proximity to historic well

Historic Well	Rank
Within site boundary	H
<25m from site boundary	M
25-50m from site boundary	L

Flood Potential

Flood source	Annual flooding probability (%)	Rank
Fluvial	>1%	M
	0.1-1%	L
Tidal	>0.5%	M
	0.1-0.5%	L
Historical Flood Zones	N/A	H

Appendix 3

Receptor Risk Categories

Current Land Use

Primary Class	Secondary Class	Land Use Code
Agricultural	Field Crops	1.1
	Fallow Land	1.2
	Horticulture and orchards	1.3
	Improved pasture	1.4
	Field Margins	1.5
Woodland	Conifer Woodland	2.1
	Mixed Woodland	2.2
	Broadleaved woodland	2.3
	Undifferentialed young woodland	2.4
	Scrub	2.5
	Felled woodland	2.6
	Land cultivated for afforestation	2.7
Unimproved Grassland and Healthland	Unimproved grassland	3.1
	Healthland	3.2
	Bracken	3.3
	Upland mosaics	3.4
Water and Wetland	Sea Estury	4.1
	Standing Water	4.2
	Running Water	4.3
	Freshwater marsh	4.4
	Salt marsh	4.5
	Bog	4.6
Rock and Coastal Land	Inland rock	5.1
	Coastal rocks and cliffs	5.2
	Inter-tidal sand and mud	5.3
	Dunes	5.4
Minerals and Landfill	Mineral workings and quaries	6.1
	Landfill waste disposal	6.2
Recreation	Leasure and recreational buildings	7.1
	Outdoor recreation	7.2
	Allotments	7.3
Transport	Roads	8.1
	Public car parks	8.2
	Railways	8.3
	Airports	8.4
	Docks	8.5
Residential	Residential	9.1
	Institutional and communal accommodation	9.2
Community Buildings	Institutional buildings	10.1
	Educational buildings	10.2
	Religious buildings	10.3
Industrial and Commercial	Industry	11.1
	Offices	11.2
	Retailing	11.3
	Storage and warehousing	11.4
	Utilities	11.5
	Agricultural buildings	11.6
Vacant Land and Buildings	Vacant land previously developed	12.1
	Vacant buildings	12.2
	Derelict land and buildings	12.3
Defence Land and Buildings	Defence Land and Buildings	13
Other	Map base out of date	88.1
	Image base out of date	88.2
	Unknown which is more up to date	88.3
	Unknown / Not classified	99

Land use categories and sub-categories

Current Land Use	Exposure Potential	Exposure Duration
	Rank	Rank
Agricultural	MEDIUM	MEDIUM
Woodland	LOW	LOW
Unimproved Grassland and Health land	LOW	LOW
Water and Wetland	LOW	LOW
Rock and Coastal Land	LOW	LOW
Minerals and Landfill	LOW	LOW
Recreation	HIGH	MEDIUM
Transport	LOW	LOW
Residential	HIGH	HIGH
Community Buildings	HIGH	MEDIUM
Industrial and Commercial	MEDIUM	LOW
Vacant Land and Buildings	MEDIUM	LOW
Defence Land and Buildings	MEDIUM	MEDIUM
Unknown	MEDIUM	MEDIUM

Summary of exposure potential and exposure duration ranking for human health

Controlled Waters – Groundwater

Geological Classification		Soil Classification	
		Soil Vulnerability Classification is only applied above major and minor aquifers. It is based on soil physical and chemical properties that affect the downward passage of water and contaminants. Soils are grouped according to their leaching potential.	
Class	**Description**	**Leaching potential**	**Description**
Major Aquifer	Highly permeable formations. Highly productive and able to support large abstractions for public supply and other purposes.	High	High Leaching Potential soils have little ability to attenuate diffuse pollutants and in which non-adsorbed diffuse source pollutants and liquids have the potential to move rapidly to underlying strata. Four sub-classes are recognised:
		• High 1	Soils that readily transmit liquid discharges because they are either shallow, or susceptible to rapid by-pass flow directly to rock, gravel or groundwater
		• High 2	Deep, permeable, course textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.
		• High 3	Course textured or moderately shallow soils which readily transmit non-absorbed pollutants and liquid discharges but which have some ability to attenuate absorbed pollutants because of their large clay or organic matter contents.
		• Urban	Because soil information for urban areas is less reliable and based on fewer observations than in rural areas, the worst case is assumed and such land is classified as high leaching potential until proved otherwise.
		Intermediate	Intermediate Leaching Potential Soils have a moderate ability to attenuate diffuse source pollutants or in which it is possible that some non-adsorbed diffuse source pollutants and liquids could penetrate the soil layer. Two sub classes are recognised.
		• Intermediate 1	Soil that can possibly transmit a wide range of pollutants
		• Intermediate 2	Soils that can possible transmit non or weakly absorbed pollutants but are unlikely to transmit absorbed pollutants
		Low	Low leaching potential soils are those in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal or the soil can effectively attenuate diffuse pollutants. However, lateral flow of water in these soils may result in recharge elsewhere.

Continued…

Geological Classification		Soil Classification	
Class	**Description**	**Leaching potential**	**Description**
Minor Aquifer	Variable permeable formations of fractured or potentially fractured rocks or other formations of variable permeability including unconsolidated deposits. They are important for local supplies and in supplying base flow to rivers.	High	High Leaching Potential soils have little ability to attenuate diffuse pollutants and in which non-adsorbed diffuse source pollutants and liquids have the potential to move rapidly to underlying strata. Four sub-classes are recognised:
		• High 1	Soils that readily transmit liquid discharges because they are either shallow, or susceptible to rapid by-pass flow directly to rock, gravel or groundwater
		• High 2	Deep, permeable, course textured solid which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.
		• High 3	Course textured or moderately shallow soils which readily transmit non-absorbed pollutants and liquid discharges but which have some ability to attenuate absorbed pollutants because of their large clay or organic matter contents.
		• Urban	Because soil information for urban areas is less reliable and based on fewer observations than in rural areas, the worst case is assumed and such land is classified as high leaching potential until proved otherwise.
		Intermediate	Intermediate Leaching Potential Soils have a moderate ability to attenuate diffuse source pollutants or in which it is possible that some non-adsorbed diffuse source pollutants and liquids could penetrate the soil layer. Two sub classes are recognised.
		• Intermediate 1	Soil that can possibly transmit a wide range of pollutants
		• Intermediate 2	Soils that can possible transmit non or weakly absorbed pollutants but are unlikely to transmit absorbed pollutants
		Low	Low leaching potential soils are those in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal or the soil can effectively attenuate diffuse pollutants. However, lateral flow of water in these soils may result in recharge elsewhere.
Non Aquifer	Formations containing insignificant quantities of groundwater. However groundwater flow does take place and should be considered in assessing risk.		

Controlled Waters - Surface Water

Grade	Biology	Chemistry
	Description	**Likely uses and characteristics**
A - very good	Biology similar to that expected for an unpolluted river	All abstractions Very good salmonoid fisheries Cyprinid fisheries Natural ecosystems
B - good	Biology is a little short of an unpolluted river	All abstractions Very good salmonoid fisheries Cyprinid fisheries Ecosystems at or close to natural
C - fairly good	Biology worse than expected for unpolluted river	Potable supply after advanced treatment Other abstractions Good cyprinid fisheries Natural ecosystems, or those corresponding to good cyprinid fisheries
D - fair	A range of pollution tolerant species present	Potable supply after advanced treatment Other abstractions Fair cyprinid fisheries Impacted ecosystems
E - poor	Biology restricted to pollution tolerant species	Low grade abstraction for industry Fish absent or sporadically present, vulnerable to pollution Impoverished ecosystems
F - bad	Biology limited to a small number of species very tolerant of pollution	Very polluted rivers which may cause nuisance Severely restricted ecosystems

Biological and Chemical River Water Classification

Controlled Waters - Private Water Supplies

Supply class	No. of persons supplied	Average daily volume (m^3/day)	Other factors
Large	>50 people	>10m^3/day	Supply being used for a commercial activity (where water is consumed by end users or used in food preparation including hotel or B&B); or a supply to a public premises e.g. Schools, hospitals, halls, restaurants etc.
Small	<50 people	<10m^3/day	Multiple domestic properties on supply. No commercial or public activity.
Single	n/a	n/a	Single domestic property only
Other	n/a	n/a	Private distribution network where water originates from a public supply including caravan sites and university campuses.

Water Supply Classification

Ecological Receptors

Designation	Relevant Legislation
Local Nature Reserve (LNR)	Section 21 of the National Parks and Access to the Countryside Act 1949
National Nature Reserve (NNR)	National Parks and Access to the Countryside Act 1949 or Wildlife and Countryside Act 1981 (as amended)
Special Area of Conservation (SAC)	EU Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora
Special Protection Area (SPA)	EU Directive 79/409 on the Conservation of Wild Birds
Site of Special Scientific Interest (SSSI)	Wildlife and Countryside Act 1981 (as amended)
Ancient Woodlands	Natural Environment and Rural Communities (NERC) Act 2006
Ramsar Sites	Ramsar Convention on Wetlands (1971)