



Wirral MBC

**Contaminated Land
Inspection Strategy**

Executive Summary.

This inspection strategy will meet the requirement under Part IIA of the Environmental Protection Act, 1990. This places a requirement on the Council to inspect the land in its district for contamination. The strategy must be submitted to the Department of the Environment, Transport and the Regions by July 2001, detailing how Wirral MBC will take a rational, ordered and efficient approach to this inspection.

The Council's priorities in dealing with contaminated land will be:

- The protection of human health;
- The protection of controlled waters;
- The protection of designated areas of special ecosystems and nature conservation generally;
- The prevention of damage to property and the historic environment;
- The encouragement of voluntary remediation; and
- The encouragement of the reuse of previously used and derelict land.

The Council is the lead regulator on contaminated land but will work in partnership with other Merseyside local authorities and the Environment Agency. Detailed consultations were undertaken with these partners, major landowners and statutory consultees between January 2001 and February 2001.

The inspection programme will initially concentrate on the wards where potentially contaminating development was developed in the past. These are mainly concentrated within the Seacombe, Birkenhead, Tranmere, Bromborough and Eastham wards.

It is recognised that some sites may be identified outside this general approach to inspection that will require urgent attention. The Council will also support parties wishing to undertake voluntary remediation and will encourage the re-use of brownfield land.

The regulations set clear criteria that must be met before land can be formally designated as contaminated land. The Council must also maintain a public register that must contain certain specified information.

Contents.

Executive Summary

1 Introduction

- 1.1 Corporate Objectives of the Council
- 1.2 Objectives of the Strategy

2 Aims of the Strategy

- 2.1 General Aims
- 2.2 Environmental
- 2.3 Derelict Land

3 The Strategy and Action

- 3.1 Regulatory Context.
 - 3.1.1 Statutory Definition of Contaminated Land
 - 3.1.2 Local Authority Role as Regulator
- 3.2 Enforcement

4 Information and Complaints

- 4.1 Public Register
- 4.2 Inspection Information
- 4.3 Voluntary Information Provision and Complaints
- 4.4 Complaints
- 4.5 Anonymously Supplied Information and Anecdotal Evidence
- 4.6 Confidentiality

5 Characteristics of the Borough

- 5.1 Geographical Location
- 5.2 Size
- 5.3 Brief Description and History
- 5.4 Population Distribution – Geographical
- 5.5 Land Ownership Details
- 5.6 Current Land Use Characteristics
- 5.7 Protected Locations
- 5.8 Scheduled Ancient Monuments
- 5.9 Solid and Drift Geology
 - 5.9.1 Solid Geology
 - 5.9.2 Drift Geology
- 5.10 Hydrogeology
 - 5.10.1 Major Aquifers
 - 5.10.2 Minor Aquifers
 - 5.10.3 Surface Waters and Water Quality
- 5.11 Natural Contamination and Known Information on Contamination
 - 5.11.1 Natural Contamination
 - 5.11.2 Known Information on Contamination

6 Roles and Responsibilities

- 6.1 Overall Approach
- 6.2 Internal Team Responsibilities
- 6.3 Internal Liaison

7 Consultation

- 7.1 External Liaison and Consultation with the Environment Agency, and Other Governmental Interested Parties
 - 7.1.1 Environment Agency
 - 7.1.2 English Nature
 - 7.1.3 English Heritage
 - 7.1.4 Food Standards Agency
 - 7.1.5 Ministry of Agriculture, Fisheries and Food
 - 7.1.6 North West Development Agency and Government Office North West
- 7.2 Consultation With Major Landowners, Other Organisations, Local Community Groups, etc.

8 Cross Border Issues

- 8.1 Notification
- 8.2 Liaison

9 Inspection Priorities

- 9.1 Considering Land Where the Local Authority Has an Interest
- 9.2 Management of Information on Contaminated Land
 - 9.2.1 Contaminated Land Information Management System (Appendix 2)
 - 9.2.2 Data Sets used within the inspection Strategy
- 9.3 Programme for Inspection
- 9.4 Consultation with Land Owners and Tenants
- 9.5 Site Visit
- 9.6 Site Specific Risk Assessment
 - 9.6.1 Human Health
 - 9.6.2 Controlled Waters
 - 9.6.3 Other Receptors
- 9.7 Intrusive Site Investigation
- 9.8 Health and Safety Procedures
- 9.9 Potential Special Sites
- 9.10 Notifying the Environment Agency
- 9.11 Risk Communication

10 Outputs from the Inspection Process

- 10.1 The Planning Process
- 10.2 Building Control
- 10.3 Contaminated Land Report

11 Timescales

12 Review Procedures

13 Resource Implications

Appendix 1: Definitions of Significant Harm

Appendix 2: Merseyside Contaminated Land Information Management System

Appendix 3: Classification of Historic Land Uses

Appendix 4: Draft Specification for Analysis Module

Appendix 5 Consultees

References Referred to Within the Strategy Document

1 Introduction.

1.1 Corporate Objectives of the Council

Wirral MBC has identified three key priorities upon which all future strategies and funding policies will be focused and will work closely with local people, communities and businesses to achieve them:

- **To create local employment opportunities to attract and retain private sector commitment;**
- **To secure delivery of high quality cost effective services that our customers want;**
- **To ensure the social, economic, cultural and environmental well being of Wirral to make it attractive, safe and healthy.**

In order to achieve these key priorities the authority will direct its resources towards the following objectives:

- To protect and improve the environment;
- Encourage employment and business opportunities;
- Help improve the health of Wirral people;
- Help make Wirral a safer place to live and work;
- Ensure that everyone has decent housing;
- Help vulnerable people in need of support and protection;
- Ensure the delivery of efficient and accessible transport services.

1.2 Objectives of the Strategy

The strategy to be adopted by the Council in the investigation of potentially contaminated land will take regard of the following:

- be rational, ordered and efficient;
- be proportionate to the seriousness of any actual or potential risk;
- seek to ensure that the most pressing and serious problems are located first;
- ensure that resources are concentrated on investigating an area where the Authority is most likely to identify contaminated land; and
- ensure that the Authority efficiently identifies requirements for the detailed inspection of particular areas of land.

The above objectives set out the underlying principles to be applied to the development of a strategic approach and provide the ultimate reference point for any strategy that is subsequently developed.

The strategy contains:

- a description of the characteristics of the area and how that influences the approach of the Authority;
- the particular aims, objectives and priorities of the Authority;
- appropriate time-scales for the inspection of different parts of the Authority's area; and

Arrangements and Procedures for:

- considering land for which the Authority may have responsibilities by virtue of its current or former ownership or occupation;
- obtaining and evaluating information on actual harm, or pollution of controlled waters;
- identifying receptors, and assessing the possibility or likelihood that they are being, or could be, exposed to or affected by a contaminant;
- obtaining and evaluating existing information on the possible presence of contaminants and their effects;
- liaison with, and responding to information from, other statutory bodies, including, in particular the Environment Agency, English Nature and the Ministry of Agriculture, Fisheries and Food;
- liaison with, and responding to information from, the owners and occupiers of land, and other relevant interested parties;
- responding to information or complaints from members of the public, businesses and voluntary organisations;
- planning and reviewing a programme for inspecting particular areas of land;
- carrying out the detailed inspection of particular areas of land;
- reviewing and updating assumptions and information previously used to assess the need for detailed inspection of different areas, and managing new information; and
- managing information obtained and held in the course of carrying out inspection duties.

2 Aims of the Strategy.

2.1 General Aims

This Contaminated Land Inspection Strategy aims to fulfill the legal requirement placed upon Wirral MBC to implement Part IIA of the Environmental Protection Act 1990.

The Inspection Strategy provides an opportunity to consider how best to prepare and deliver the aims of the Strategy through the co-operative efforts of individual departments and to anticipate the practical working arrangements with external organisations which will have to be in place to implement the legislation as a whole.

2.2 Environmental

The Council has, through its Local Agenda 21 work developed a policy that questions the impact that we are having on our quality of life and on the planet upon which we live.

A large proportion of the Contaminated Land Inspection Strategy relates to the Councils' policy regarding sustainability, waste reduction and the recycling of brownfield sites. The investigation of potentially contaminative uses and sites as part of the Part IIA strategy means that the Council will be in a position to identify areas where site investigations are required and give improved and more accurate advice on land quality and potential land contamination.

2.3 Derelict Land

The re-use of derelict and brownfield land is strongly encouraged by central government wherever possible. It is hoped that the Contaminated Land Regime will support this aim together with the Council's Strategic Programme of Reclamation (SPR) sponsored by the North West Regional Development Agency (NWRDA).

The Councils' survey shows that Wirral has more than 164 hectares of derelict land. Over 80% of these lies within Wirral's Strategic Spatial Development Area (SSDA) which stretches from New Brighton to Bromborough. This also represents the areas of greatest opportunity for economic growth within the Borough.

The SPR aims to tackle dereliction and poor physical environment and can involve treating land that has been contaminated or degraded by former uses. It also supports Wirral's Local Agenda 21 Strategy by tackling contamination and promoting the re-use of land.

3 The Strategy and Action.

3.1 Regulatory Context

The purpose of the regime is to introduce an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment.

3.1.1 Statutory Definition of Contaminated Land

Section 78a(2) of the Environment Act, 1990 defines contaminated land as:

‘Any land which appears to the Local Authority in whose area it is situated to be in such a condition by means of the substances in, or under the land that:

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

The underlying principle is that there must be a likelihood of significant harm to specified types of receptor. This necessitates the existence of the three elements of a pollution linkage, i.e. the source (pollutant(s)), a pathway or pathways and receptor(s)/target.

If any element is missing then the land is not contaminated land in accordance with the statutory definition. (See Appendix 1 for definitions of significant harm)

3.1.2 Local Authority Role as Regulator

The Local Authority is the primary regulator under Part IIA of the Environmental Protection Act, 1990 (EPA).

Prior to the new regime, contaminated land has been dealt with as part of the regeneration process. However, there are circumstances where contamination may be causing unacceptable risks on land that is either not suitable or not scheduled for development. Hence the need for the new regime which both identifies problem sites of this kind, and more significantly, ensures that the problems are dealt with and the contamination remediated.

Until the implementation of Part IIA, the main regulatory mechanism for contaminated land issues were:

- Statutory Nuisance provisions;
- Water Resources Act 1991;
- Waste licensing;
- IPPC and PPC; and
- Planning and Development Control.

With the introduction of the new regime there is clear overlap between the existing powers for enforcing authorities and the new regime. However, in any case where land has been identified as “contaminated land” under the Part IIA regime, the enforcement mechanisms of Part IIA would normally be used, unless other regulatory powers are clearly more appropriate. The Part IIA regime creates a new framework for the identification and remediation of contaminated land in circumstances where there has not been any identifiable breach of a pollution prevention regime.

The main objectives of the new regime are:

- to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment (assessed in the context of the current use and circumstances of the land);
- to improve the focus and transparency of the controls ensuring enforcement authorities take a strategic approach to problems of land contamination;
- to enable all problems resulting from contamination to be handled as part of the same process, (previously separate regulatory action was needed to protect human health and to protect the water environment);
- to increase the consistency of approach taken by different authorities;
- to provide a more tailored regulatory mechanism, including liability rules, better able to reflect the complexity and range of circumstances found on individual sites;
- to encourage voluntary remediation;
- to assist in the recycling of previously developed land; and
- to enable companies who may be responsible for contamination to plan investment programmes to enable them to carry out remediation in advance of any regulatory intervention.

There are regulations made under Part IIA that deal with:

- the descriptions of land which is required to be designated as “Special Sites”;
- the contents of, and arrangements for, serving Remediation Notices;
- compensation to third parties for granting rights of entry etc. to land;
- grounds of appeal against a Remediation Notice, and procedures relating to any such appeal; and
- particulars to be contained in registers compiled by enforcing authorities, and the locations at which such registers must be available for public inspection.

The primary legislation in Part IIA of the EPA contains the main provisions of the new regime; the statutory guidance (Annex 3) provides the detailed framework for the following key elements of the new regime:

- the definition of contaminated land (Chapter A);

- the identification of contaminated land (Chapter B);
- the remediation of contaminated land (Chapter C);
- exclusion from, and appointment of, liability for remediation (Chapter D); and
- the recovery of the costs of remediation and the relief from hardship (Chapter E).

Annex 4 of the circular provides a detailed description of the Contaminated Land (England) Regulations 2000.

Currently the regime does not apply with respect to harm or water pollution that is attributable to any radioactivity possessed by any substance. However, future developments to deal with issues of radioactivity are anticipated.

Other regimes which may have implications for land contamination, or which may overlap with Part IIA include:

- Food Safety;
- Health and Safety;
- Landfill Tax;
- Major Accident Hazards.

Guidance on these areas of overlap is given in Circular 02/2000 Environmental Protection Act 1990: Part IIA Contaminated Land.

Information on substances in or under the ground that may cause significant harm or pollution will be evaluated against current government guidelines.

3.2 Enforcement

The enforcement of the contaminated land regime is the responsibility of Local Authorities and the Environment Agency. The primary regulatory role under Part IIA rests with Local Authorities (LA's). This reflects their existing functions under the statutory nuisance regime and also complements their roles as planning authorities.

The role of LA's under Part IIA will be:

- to cause their areas to be inspected to identify contaminated land;
- to determine whether any particular site is contaminated; and
- to act as the enforcing authority for all contaminated land which is not designated as a "special site" (the Environment Agency will be the enforcing authority for special sites).

The role of the Environment Agency with respect to contaminated land will be:

- to assist Local Authorities in identifying contaminated land, particularly in cases where water pollution is involved;
- to provide site-specific guidance to Local Authorities on contaminated land;
- to act as the “enforcing authority” for any land designated as a “special site” (the descriptions of land which are required to be designated in this way are prescribed in the Regulations); and
- to publish periodic reports on contaminated land.

It is proposed that the Council’s Planning and Economic Development and Housing and Environmental Protection Departments will work jointly to enforce the requirements of the new regime. The council will seek voluntary action before taking enforcement action, recognising that in many cases effective remediation can be achieved by agreement rather than by enforcement. The regulations provide an incentive to undertake voluntary action, in that any materials that require disposal as a result of voluntary remediation will be exempt from landfill taxes. This exemption does not apply to materials generated as a result of a remediation notice having been served.

Wirral has an enforcement policy that is consistent with Central Government’s enforcement concordat. The Government’s Cabinet Office published the concordat and this sets out what businesses and others being regulated can expect from enforcement officers employed by Local Authorities and other agencies. Wirral has adopted the concordat into existing policy thereby committing itself to good enforcement policies and procedures, which contribute to Best Value. The concordat’s main principles are:

- Openness;
- Helpfulness;
- Consistency;
- Proportionality;
- Agreed Standards of Service;
- Access to complaint process.

The Council will have four main tasks:

- To establish whom should bear responsibility for the remediation of the land (the appropriate person or persons);
- To decide, after consultation what remediation is required in any individual case and to ensure that such remediation takes place. This will either be through agreement with the appropriate person or by serving a Remediation Notice on the appropriate person if agreement is not possible or, in certain circumstances, through carrying out the work itself;
- Where a Remediation Notice is served, or the Authority itself carries out the work, to determine who should bear what proportion of the liability for meeting the costs of the work; and
- To record certain prescribed information about its regulatory actions on a public register.

4 Information and Complaints.

Transparency is one of the underlying principles of the contaminated land regime. The strategy will be developed to take account of the changes in legislation regarding the right of access to environmental information.

Any accrued information will be sub-divided into “Public Register Information” and “Inspection Information”. The “Public Register” will contain details of incidences where enforcement action has been taken and the “Inspection Information” will be information relating to specific sites not subject to enforcement action.

4.1 Public Register

The Public Register is in the form of a written document and access to it can be gained during normal office hours at the Department of Planning and Economic Development and the Department Housing and Environmental Protection Department.

It will include the following information:-

- Remediation notices
- Appeals against remediation notices
- Remediation declarations
- Remediation statements
- Appeals against charging notices
- Designation of Special Sites
- Notification of claimed remediation
- Convictions
- Guidance issued by the Environment Agency
- Other environmental controls

4.2 Inspection Information

This will come under the scope of the Environmental Information (Amendment) Regulations, 1998 which requires the release of environmental information to the public upon request within certain time restraints.

The Contaminated Land Information Management System will be designed to ensure information is released unless there are compelling and substantive reasons to withhold it, i.e., breach of national security or confidentiality. A charging policy may be introduced to take into account the cost and time involved in the gathering of “Inspection Information” and production of reports.

The Management System will produce reports for sites to assist in the dissemination of potentially contaminated sites for thresholds below those requiring action under Part IIA. This would also assist in delivering brownfield redevelopment by raising awareness of land contamination matters outlined in the Government’s White Paper ‘Towns and Cities Today’. These reports could be used as a basis for the Land Condition Record as proposed by Lord Rogers of the Urban Task Force.

4.3 Voluntary Information Provision

There will be, from time to time, information provided on a voluntary basis from members of the public, businesses or community groups. Interested residents may also voluntarily supply information relating to land contamination that is not directly affecting themselves, their families or their property.

If a person provides information relating to contaminated land not directly affecting their own health, the health of their families or their property, the information will be recorded and may be acted upon at a later date but will not be treated as a complaint.

Within the guidelines, there is no obligation for the Council to keep the person or organisation informed of progress towards resolution. However, it may choose to do so as general good practice.

4.4 Complaints

The procedure for dealing with complaints concerning contaminated land from any interested party, including the public, will be the same as the one currently used by the Councils Department of Environmental Health to deal with statutory nuisance complaints. These complaints or acts of information provision may impact on the approach to inspection and so the procedures to be adopted are listed below.

All complainants may expect:

- Their complaint to be logged and recorded;
- To be contacted by an officer regarding their complaint within three working days of receipt;
- All letters concerning a complaint to be answered within 15 working days of receipt. If a full reply at that time is not possible then a holding letter will be sent explaining the delay and giving a timescale for a full reply.

Every effort will be made to resolve complaints quickly and efficiently. However, the legislative framework does present a number of obstacles and conditions that must be overcome or implemented prior to the resolution of problems, for example:

- Viable pollution linkage must be proved before any formal designation, as contaminated land is permissible. This may only be possible with detailed investigation;
- Consultation with interested parties must be undertaken prior to designation as contaminated land;
- A minimum of three months must elapse before designation of contaminated land and the serving of a remediation notice;
- There is a requirement for the enforcing authority to make every effort to identify the original polluter of the land.

The regulations allow for the second and third condition above to be waived in extreme circumstances.

4.5 Anonymously Supplied Information and Anecdotal Evidence

Information relating to contaminated land provided anonymously or on anecdotal evidence will be recorded, but no designation of contaminated land will occur without robust scientific evidence. In all situations the case officer will use knowledge and experience to decide what, if any, further investigation is required following an anonymous complaint or provision of information.

4.6 Confidentiality

All complainants will be asked to supply their names and addresses and, if appropriate the address giving rise to the complaint. The identity of the complainant will remain confidential. The only circumstance in which this information might be made public would be in the case of a remediation notice being appealed to a court of law and an adverse effect on the complainant's health was an important reason for the original contaminated land designation.

5 Characteristics of the Borough.

5.1 Geographical Location

The Metropolitan Borough of Wirral is situated on the Wirral peninsula bounded by the River Mersey, the Irish Sea and the River Dee. The location of the Borough is shown in Map 1.

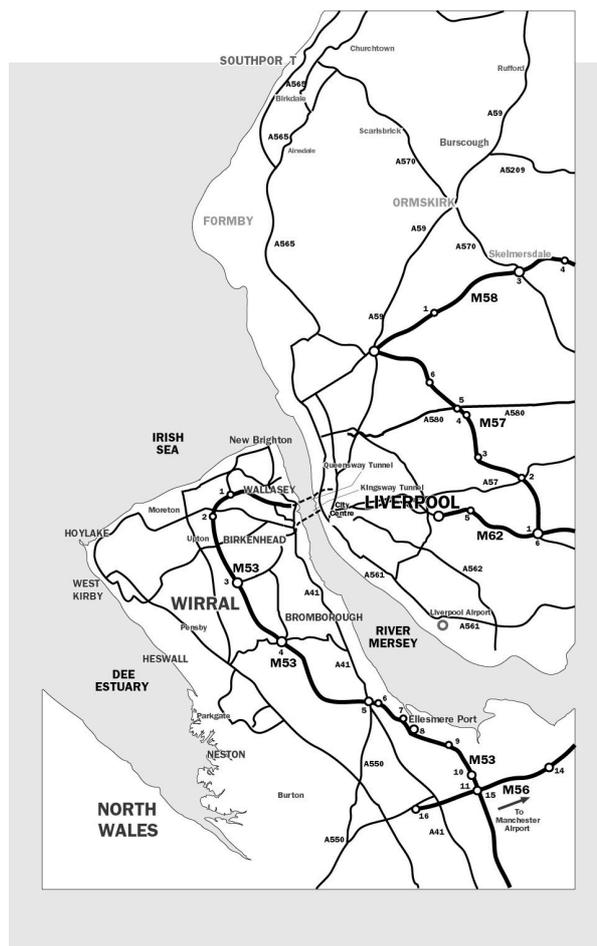
The East Side of the Borough is the focus for intensive industrial and residential development, whereas the hamlets and villages of the West Side of the peninsula have grown into dormitory settlements for workers in Birkenhead, Liverpool, Ellesmere Port and Chester.

Birkenhead, Wirral's largest town, and Wallasey have grown around the dockland area, which serves as a location for maritime services.

Wirral has become an established industrial and commercial base where company products and services are manufactured and dispatched worldwide.

In between there are areas of agricultural land, with some areas of special landscape value largely protected by Green Belt designation. There are many areas of open space including recreational, ornamental and country parks, National Trust property and much of the coastline. The Hilbre Islands, in the Dee estuary off the coast at West Kirby, are well known as a bird sanctuary and seal colony.

The Borough of Wirral shares its southern boundary with the industrial and residential conurbation of Ellesmere Port.



Map1: Location of the Borough

5.2 Size

Wirral became a Metropolitan Authority in 1974 and comprises an area of 15,700 hectares (60 square miles) and has a population of approximately 326,600 (ONS 1999 Mid Year Estimate). The Borough is comprised of 22 wards and 4 parliamentary constituencies. Clatterbridge ward has the biggest population (18,179) and Leasowe has the smallest (13,680). Wards that experienced the greatest increase in population between 1971 and 1999 were Clatterbridge, Royden, Oxton, Claughton and Moreton where new housing development has been taking place. The wards of Bidston, Birkenhead, Seacombe and Tranmere in the Inner Area showed the greatest net decrease.

5.3 Brief Description and History

The key to Wirral's development throughout the ages has been enhanced communications, starting with the granting in 1330, by Edward III, of a charter establishing the original ferry over the Mersey from the Priory in Birkenhead.

In 1536, Henry VIII dissolved monasteries with Birkenhead Priory among the first to go. The Priory buildings, from which Birkenhead sprang and the Birchen Head - the headlands of birches reached out into the Mersey estuary between the tidal inlets of Wallasey Pool and Tranmere Pool. However, they became polluted with household and industrial effluent and were eventually turned into docks and the sandy, rocky shore was gradually eroded.

In the 1820's steam powered boats were introduced into the ferry service. Increased reliability encouraged Liverpool businessmen and merchants to establish homes in Wirral, which in turn led to industrialisation, particularly along the Mersey coast.

John Laird, in 1824, built a boiler and ironworks on the Mersey shore, which later became the famous shipyard of Cammell Lairds. Wirral's first railway was built by Thomas Brassey in 1840 who also built a new turnpike road from Tranmere to Bromborough connecting Birkenhead with Chester and is now known as the A41.

Such improvements encouraged the growth of Wirral: Birkenhead and Wallasey grew into large towns, and houses were also built at Rock Ferry, New Ferry, Seacombe, Egremont and New Brighton around extra terminals added to the expanded ferry service. The year 1847 saw the opening of Birkenhead's first docks, and its municipal park, the first in Britain.

Birkenhead was expanding rapidly and between Birkenhead Town Centre and Claughton, 123 acres of marshland was turned into Britain's first Municipal Park. The park was laid out by the landscape architect Sir Joseph Paxton, which provided the inspiration for many other park developments, such as New York's Central Park.

In 1840, the first gas works were built in Tranmere and more industries began to appear along the Mersey shores.

The first chemical works to be established at Bromborough was Price's Candle Works in 1854, with the world-famous Lever Bros. Factory being established in the 1880's.

If the ferry opened up Wirral, it was the Mersey Railway that led to its explosive development in the late nineteenth and early twentieth centuries. Started in 1886 (the first underwater railway in the world), it connected Birkenhead, Wallasey and West Kirby with Liverpool, and by 1891 it extended to Rock Ferry.

The nature of the peninsula for the most part remained rural right up to the time of the First World War. Only in the 1920's did places like Upton and Heswall become in any way urbanised. Such development continued apace, reaching its peak in the 1960's, when the population reached 360,000 and unemployment was around 2.5%. Since then, there has been a steady if unspectacular decline.

5.4 Population Distribution - Geographical

Its peninsular setting bounded by the Rivers Mersey and Dee and the Irish Sea to east, west and north respectively, has strongly influenced settlement patterns.

There is a complete spectrum of residential locations across the Borough ranging from terraced housing, convenient for public transport and urban facilities, to luxurious executive homes in a choice of town, and rural, village or coastal settings.

The West Side of the peninsula is substantially free from industry and the old village centres of Heswall, Caldy, West Kirby and Hoylake, overlooking the Dee estuary, have gradually expanded to provide one of the most attractive residential areas in the North West of England. To protect and enhance Wirral's rural heartland and open coastal areas, the strict application of Green Belt control restricts peripheral development.

5.5 Land Ownership Details

Historically, the major landowners within Wirral are the Local Authority itself, Unilever Estates, Mersey Docks and Harbour Board, Vyner Estates, Leverhulme Estates, Railtrack and the Manchester Ship Canal Company.

5.6 Current Land Use Characteristics

The Borough contains many environments, which are different in type as well as in size and location. The urban areas, accounting for 55% of the Borough, include the large and densely developed towns such as Birkenhead and Wallasey, resorts such as New Brighton and West Kirby and planned settlements such as Port Sunlight and Bromborough Pool. This urban development, coupled with the area's industrial development, has created a varied architectural heritage, buildings and sites of interest.

The Green Belt in Wirral has been drawn tightly against the existing urban areas. It covers 47% of the Borough, 7,342 hectares in total. Virtually all of Wirral's agricultural land is within the Green Belt and represents one third of the Borough's land area. Recent figures from the Agricultural Census indicate that up to 1800 hectares of land are still used for arable production and that there are 7000 head of livestock and 6400 poultry present throughout the Borough. Agriculture is of considerable significance in terms of its impact on the local economy.

5.7 Protected Locations

Wirral has a significant wildlife resource - 12 Sites of Special Scientific Interest (SSSI), 2 Local Nature Reserves and over 50 sites of local ecological value.

Two of the SSSI's, the Dee and Mersey Estuaries, are also recognised internationally as important for migrant wildfowl and waders by being classified as Special Protection areas and Ramsar sites.

The 12 SSSIs, covering around 22,000 hectares of land, including large areas of inter-tidal foreshore are:

- Mersey Estuary SSSI
- Dee Estuary SSSI
- North Wirral Foreshore SSSI
- Red Rocks SSSI
- Dee Cliffs SSSI
- Heswall Dales SSSI
- The Dungeon SSSI
- Thurstaston Common SSSI
- Dibbinsdale SSSI
- Meols Meadow SSSI
- Mersey Narrows SSSI
- New Ferry Shore SSSI

Wirral has a further 70 non-statutory sites of Biological Importance designated by Cheshire Wildlife Trust and 12 Regionally Important Geological Sites also designated by Cheshire Wildlife Trust.

5.8 Scheduled Ancient Monuments

The need for new development must be seen alongside the high priority to be given to conserving Wirral's built and archaeological heritage and the need to protect areas of special environmental quality. Conservation Areas, Listed Buildings, Scheduled Ancient Monuments and other Archaeological Sites all represent important landmarks throughout the Borough which directly contribute to the wider character of the area. They are worthy of special protection in their own right.

Scheduled Ancient Monuments are designated by the Secretary Of State by virtue of the historic, architectural, traditional, artistic or archaeological interest attached to them. They are of national importance and separate legal provisions exist to prevent works involving removal, alteration or damage to the monument without written consent from the Secretary of State.

There are six Scheduled Ancient Monuments in Wirral. They are:

- Grange Beacon, Column Road, West Kirby;
- Birkenhead Priory, Birkenhead;
- Site of pre-Norman and medieval church, Upton;
- Storeton Hall, Bebington;
- Irby Hall moated site;
- Bromborough Court House moated site and fishponds.

Development proposals liable to destroy, damage or otherwise disturb features of archaeological interest in these areas or which would have a detrimental impact on their setting will normally be refused.

There are also 23 Conservation Areas and over 500 Listed Buildings.

5.9 Solid and Drift Geology

The geology of the area is vitally important. Depending upon the strata it can act as a source of naturally occurring elements such as heavy metal contamination which can pose a risk to receptors in the locality. Also, readily porous or fractured strata, such as sandstone can act as a pathway by the transmission of pollutants to a receptor and finally strata which are important sources of drinking water are receptors which must be protected against contamination.

5.9.1 Solid Geology

Permo-Triassic rocks underlie the whole of the Wirral peninsular. These are well exposed on Bidston, Caldy, Thurstaston and Storeton hills.

There are two minor synclines running north and south bounded by fault lines. These are the Storeton/Liscard syncline and the Heswall/Moreton syncline.

The formation divides into two principal parts with the lower 'Bunter' sandstone consisting mainly of soft red or mottled sandstone with or without pebbles and the upper or 'Keuper', mainly of red marl with some firm sandstone at the base. The Bunter sandstone covers by far the largest area with the Keuper being confined to the northern part of Wirral.

The thickness of the Bunter is variable in parts but it is known to reach not less than 877 metres of which 385 metres is assigned to the Lower Mottled Sandstone. The chief quality of the Bunter is its free permeability and its storage of large supplies of good quality groundwater.

The basement beds of the Keuper, composed of massive pale-red sandstone with beds of pebbly conglomerate, are the hardest rocks in Wirral and therefore rise in bold ridges. The sandstone was extensively quarried at Storeton.

The next higher subdivision of the Keuper is the Waterstones, consisting of alternations of soft sandstone and red shaly marl. These beds pass upward gradually into the Keuper marl, which is composed almost wholly of red silty clay. In Wirral it is confined to the low ground and almost wholly concealed by drift.

5.9.2 Drift Geology

Almost the whole of Wirral is covered by a variable thickness of glacial drift which overlies the solid rock. Boulder clay predominates and these can be sandy or contain lenses and layers of sand. Towards the north coast alluvial deposits and wind blown sand occur. The British Geological Survey will be able to supply a new digital 1:50,000 solid/drift geological map of Wirral in late 2002.

5.10 Hydrogeology

5.10.1 Major Aquifers

The major aquifer within the Borough is the Permo-Triassic Sandstone which is present over almost the entire Borough. The sandstone forms the bulk of the Wirral aquifer unit. The aquifer is heavily exploited for both public water supply and for industrial abstraction.

There are numerous major sources, with designated Source Protection Zones, both within the Borough and adjacent to the borough boundary. These are located at Grange, Newton, Springhill, Prenton, Arrowe Park, Clatterbridge and at Hooton and Gorstons within Ellesmere Port and Neston Borough Council area.

Groundwater within this system also supports many small scale abstractions and additionally, provides baseflow to Clatterbrook and discharges to the Dee and Mersey estuaries.

Groundwater levels are generally below ground surface in response to past over-abstraction and some saline intrusion, adjacent to the River Mersey, has taken place. There is currently an embargo on new abstractions.

Much of the aquifer outcrop is covered by drift deposits of variable thickness. Up to 50 metres of drift infills buried channels along the Float and Dibbensdale. In contrast rock outcrops are common bordering the River Mersey and here the groundwater will be particularly vulnerable to pollution. Where drift deposits are dominated by relatively impermeable boulder clay aquifer recharge will be limited thereby reducing the vulnerability of the aquifer to pollution. However, where more permeable drift deposits are present they should be regarded as being capable of transmitting water to the aquifer beneath.

5.10.2 Minor Aquifers

Minor aquifers within the Borough are confined to the more permeable drift deposits. There are no solid rock minor aquifers in the Borough.

Where present, drift cover is almost entirely glacial boulder clay but localised deposits of a more permeable nature can be classified as minor aquifers in their own right and have some potential for localised exploitation. These include blown sand along the coast between West Kirby and New Brighton and the alluvial deposits along the watercourses, particularly in the north around the Birket, the Fender and Arrowe Brook.

Glacial sand and gravel occurs in a few small scattered deposits in the south east of the Borough. A small peat deposit is present along the coast in the area around the Leasowe lighthouse. These deposits often occur as complex or mixed drift sequences and whilst they may generally reduce the vulnerability of the underlying aquifer, there may be hydraulic continuity between the two levels.

Groundwater levels in the superficial deposits will generally be close to ground level with flow ultimately towards surface waters. Groundwater quality in the drift deposits is variable and may be highly susceptible to surface pollution.

5.10.3 Surface Waters and Water Quality

The River Birket and its tributaries is poor. The area is predominantly urban in character and the sources of pollution are from urban run-off, contaminated surface drainage and combined sewer overflows. The river enters the Great Culvert where it practically becomes a sewer receiving a number of discharges. At the end of the great culvert is the Birkenhead water treatment plant, where river and sewage go prior to entering the River Mersey.

Dibbinsdale brook starts with fair water quality but becomes progressively more polluted before discharging to the River Mersey at Port Sunlight. Septic tank discharges, combined sewer overflows, contaminated surface water discharges and urban run-off all have an impact on water quality.

5.11 Natural Contamination and Known Information on Contamination

5.11.1 Natural Contamination

A small area to the south of the Borough is identified within the 1999 edition of BR211, Radon: guidance on protective measures for new dwellings. It is within a lightly shaded area where basic protection might be necessary under the Part C of the Building Regulations Act, 1991.

Within the alluvial deposits there is the possible breakdown of organic material to form methane.

The British Geological Survey recently undertook a geochemistry survey of the Wirral area under its Geochemical Baseline Survey of the Environment (G-BASE) programme. However, the urban areas were not included in the survey. The results for different elements, some of which are potentially harmful, occurring in stream sediments, stream waters and soils have been published in a geochemical atlas (BGS 1997). In particular, this atlas indicates the background concentrations of barium, cadmium, calcium, chromium, cobalt, copper, iron, lead, molybdenum, nickel, phosphorus, tin, vanadium and zinc in soils distributed across the Wirral. Some areas of alluvium have soils enriched in naturally occurring heavy metals.

5.11.2 Known Information on Contamination

The Council holds some information relating to contamination chiefly through its past regeneration activity and through the development control process.

The following sources of information are currently being investigated. It is proposed to identify, and wherever possible, catalogue and review all identified internal sources of information. Specific details will be recorded on the Contaminated Land Management Information System.

- Site investigations undertaken through the various programmes and initiatives
- Site investigations submitted as part of the development control process
- Waste management sites
- Part A and B Processes
- Information supplied by the Environment Agency and other regulatory bodies

6 Roles and Responsibilities.

6.1 Overall Approach

Wirral, together with the other four Merseyside Authorities of Knowsley, Liverpool, Sefton and St Helens and the Cheshire Authorities of Halton and Warrington Borough Councils, The Environment Agency (EA), The Environmental Advisory Service (EAS), Merseyside Waste Disposal Authority (MWDA) and Merseyside Information Services (MIS) have adopted a common approach towards the implementation of the Contaminated Land Regime.

The Merseyside Contaminated Land Officers Group (MCLOG) was formed and has throughout the long gestation period of these Regulations formulated a common pan-Merseyside approach. This was adopted due to the need to ensure consistency throughout the Merseyside sub-region and could assist in the development of common inspection strategies. It would also assist in ensuring that information tools could be developed which would not be available if Wirral had developed the strategy in isolation.

6.2 Internal Team Responsibilities

Officers from the Department of Planning and Economic Development Implementation Team and from the Department of Housing and Environmental Protection Pollution Control section are progressing the requirements of the Part IIA process.

The Planning and Economic Development Department will be responsible for data collection and capture together with the production of reports and supporting the development control and land charge searches function.

The Department of Housing and Environmental Protection will be responsible for undertaking risk assessment of the data and prioritising the sites with regard to further investigation with assistance from the Environmental Advisory Service.

Officers from the Borough Solicitor and Secretary's Department and Property Services Department have been identified and will be brought into the team when there is a requirement for their expertise. They will of course be kept informed and have the opportunity to comment on the draft Strategy as it is progressing.

6.3 Internal Liaison

The initial designated team is, as listed above but other relevant departments will be consulted as the development of the strategy progresses. This will include Development Control, Building Control, Engineers Department, Construction Services and the regeneration initiative teams.

The MCLOG is also developing a Contaminated Land Information Management System to ensure that the data can be stored, modified and interrogated in an orderly and transparent way. The detail of the specification of this system appears in Appendix 2.

7 Consultation.

The Council must undertake to consult with a number of key organisations and this will include the major landowners within the Borough. The Council's approach will be to circulate a consultation draft of the strategy that can also be used to involve other organisations in the wider process of site inspection. A list of organisations consulted is included in Appendix 5.

Consultation comments will then be taken into account prior to the publishing of a final strategy document, together with any amendments forthcoming from the DETR on the technical guidance.

7.1 External Liaison and Consultation with the Environment Agency, and Other Governmental Interested Parties.

7.1.1 Environment Agency

Wirral is covered by both the Environment Agency and the Environment Agency Wales. A Memorandum of Understanding for co-operation between the Environment Agency and Local Authorities has been agreed. The Council will develop local arrangements with both Agencies utilising this framework.

The Environment Agency's Process Handbook defines the procedures to be adopted and areas of interaction between the Agency and the Authority.

The consultation with the Environment Agency is also on going through the MCLOG.

7.1.2 English Nature

English Nature is responsible for maintaining information on protected species and habitats. It is the main contact for issues relating to ecological systems within this strategy and will be consulted for site specific advice when an ecological system is identified as a receptor.

7.1.3 English Heritage

English Heritage provides expert advice to the Government relating to the historic environment and its conservation. It will be consulted when an ancient monument or other historic building or archaeological resource is identified as part of the inspection process.

7.1.4 Food Standards Agency

The Food Standards Agency is responsible for food safety. In addition to commercially produced food any food produced within a domestic garden or allotment or collected from the wild is also covered by the regime. It will provide advice on the food safety aspects of any potentially contaminated land.

7.1.5 Ministry of Agriculture, Fisheries and Food

The responsibility for contaminated land currently lies with the Rural and Marine Environment Division of Ministry of Agriculture, Fisheries and Food. It will provide advice whenever property in the form of livestock and crops may be affected by potentially contaminated land.

7.1.6 North West Development Agency and Government Office North West

These are potentially the main funding agencies relating to the remediation of derelict and contaminated land.

Their objectives are to invest in business and ideas, investing in people and communities, investing in infrastructure and investing in image and environment.

They hold significant amounts of valuable information relevant to the implementation of this strategy.

7.2 Consultation with Major Landowners, Other Organisations, Local Community Groups, etc.

Consultation on the strategy will include industrial landowners, major landowners, Cheshire Wildlife Group, statutory undertakers, conservation groups, etc. Their information and comments will be included, wherever possible, as part of the inspection process.

The strategy will also appear on the Council's web site to enable members of the public to view the document.

8 Cross Border Issues.

The neighbouring Local Authority of Ellesmere Port and Neston Borough Council has also been contacted and agreement reached to share information on cross border issues.

It has been recognised, however, that a formal notification procedure needed to be adopted to deal with site-specific issues. Therefore the following will be adopted:

8.1 Notification

If an authority suspects that a cross boundary pollutant linkage may exist then it will notify the neighbouring authority within 10 working days. If the authority considers that urgent action may be required then this notification should take place without undue delay.

8.2 Liaison

The authorities will agree an action plan identifying each authorities role in determining the status of the land and associated issues. The enforcing authority will be the authority in whose area the source is situated.

Both parties accept that the above agreement is without prejudice to the statutory guidance and legislation and any legal advice received. The Secretary of State will be asked to determine any disputes.

Wirral Council will also continue to work with its partners within the MCLOG to ensure consistency of application of the Strategy in and around the Greater Merseyside area.

9 Inspection Priorities.

In order to adopt a rationalised process, as recommended in the Contaminated Land Regulations, the Council will undertake an initial study that will aim to identify and prioritise sites based upon their proximity to a receptor. To begin with, this will concentrate upon the east side of Wirral, in particular the Seacombe, Birkenhead, Tranmere, Rock Ferry, New Ferry, Bromborough and Eastham areas, as this is where the majority of industrial uses are located and redevelopment of previously used sites is most prevalent.



Area of Initial Investigation

The other areas within the Borough consist of primarily first generation development, although landfill could be problematic within these areas. This will be brought forward for investigation once the initial study of the above wards has been completed. It is hoped that the whole Borough will be investigated within 5 years of the start of the process.

9.1 Considering Land Where the Local Authority Has an Interest.

The investigation of Council owned land will be undertaken alongside the initial inspection process and this land will be amongst the first investigated. Elected Members will be informed at the earliest opportunity of any plans to undertake further investigation of an area of Council owned land, or land where the Council is the 'appropriate' person, and may therefore become liable for remediation costs.

9.2 Management of Information on Contaminated Land

9.2.1 Contaminated Land Information Management System (Appendix 2)

Within MCLOG, careful consideration has been given to the requirements of the legislation and in particular the identification of essential data sets required for the inspection strategy.

The data sets are divided according to hazard, pathway and receptors along with the current OS landline and historic maps.

9.2.2 Data Sets Used within the Inspection Strategy

These have been identified within the MCLOG and are divided according to the hazard, pathway and receptor criteria.

- **Hazards**

Information Type	Sources of Information
Contaminated sites already known to the Authority	Local Authority Records
Possible contaminative uses from historic OS maps and historic documents	Ordnance Survey/Landmark Historical Records held in Archives.
Landfill pre-licensing	Local Authority/MWDA/Environment Agency
Landfill post-licensing	Local Authority/MWDA/Environment Agency
Part A+B Processes	Local Authority/Environment Agency
Site investigation reports	Local Authority/Major Land Owners
Natural Occurring Contamination	British Geological Survey

- **Pathway**

Groundwater Vulnerability	Environment Agency
Controlled waters	Environment Agency
Solid geology	British Geological Survey
Drift geology	British Geological Survey

- **Receptors**

Current land use	Local Authority/Unitary Development Plan
Residential areas	Local Authority/Unitary Development Plan
Schools	Local Authority/Unitary Development Plan
Agricultural Land Classification	MAFF/FRCA
Controlled Waters	Environment Agency
Abstractions	Environment Agency
Source Protection Zones	Environment Agency
SSSI and locally designated sites	English Nature/English Heritage/Cheshire & Wirral Wildlife/Merseyside Archaeological Survey

- **Base information**

Current OS layers	Ordnance Survey
OS historical maps	Landmark/Ordnance Survey
Other Historical maps and data	County Archives/Local Archives/Libraries

This system will run within the MapInfo Geographical Information System (GIS) and will be the primary tool used to manage contaminated land information. It will comprise three modules:

- Data Capture;
- Standard Output Production; and
- Analysis to Assist in the Prioritisation of Sites.

The Data Capture module has already been designed and is currently being tested. The Analysis Module is currently under development. The Output Module will be designed once the Data Capture Module is seen to be working satisfactorily.

The Data Capture Module is designed with regard to the guidance found in the joint British Geological Survey and Environment Agency report: Some Guidance On The Use Of Digital Environmental Data, BGS Ref WE/99/14 (Appendix 2).

The Module will utilise the appropriate industrial classification from the Department of the Environment 'Public Registers of Land which may be Contaminated' 1991 plus some local additions (Appendix 3).

The Analysis Module takes into account guidance with regard to Risk Assessment as laid down in the Department of the Environment Contaminated Land Research Report No. 6: 'Prioritisation and Catagorisation Procedure for Sites that may be Contaminated' (1995). This is currently under review and will be updated as and when any new guidance is forthcoming. It will also utilise the guidance contained within 'Desk Reference Guide to Potentially Contaminated Land Uses', Symms P (1999) (Appendix 4).

9.3 Programme for Inspection

The analysis module will identify sites where further investigation is required. This makes the assumption that a possible pollution linkage exists. Therefore extra site specific data and information will be required before determination can be made whether or not the land appears to be contaminated land or a potential special site.

9.4 Consultation with landowners and tenants

In undertaking these detailed surveys the Council will respect the landowner and tenant rights before a site visit is organised. In the unlikely event that emergency access is required, the council will still attempt to seek the co-operation of the landowner before entering on to the site.

Where permission is still not forthcoming or the owner and/or occupier of the site cannot be traced, the Council will not seek entry unless it is satisfied that a significant risk is present. In such circumstances, an application for entry under warrant will be considered.

9.5 Site Visit

A site visit will always be made to verify or substantiate that information.

During the visit photographs will be taken and will contribute to the records for the visit and may be used to provide photographic evidence of any visual contamination present. Limited surface sampling of materials may also take place. The purpose of this kind of sampling will be to help confirm or refute any further need for more detailed intrusive investigations.

The landowner will be notified of any surface sampling undertaken during an initial site visit. The procedures used for sampling will be in accordance with BS10175 (2001): Investigation of potentially contaminated sites – Code of Practice.

9.6 Site Specific Risk Assessment

The Council will take a risk based approach to the assessment and identification of contaminated land. There are a number of models available and the Council will ensure that the models and guideline values are suitable for the purpose for which they are being used and that the guidelines are appropriately applied. It should be noted that decisions as to the most appropriate technique will be determined on a site specific basis.

9.6.1 Human Health

A new set of guidelines, the Contaminated Land Exposure Assessment (CLEA), are expected from the Department of the Environment, Transport and the Regions (DETR) shortly.

Until these guidelines are available, however, the Council will evaluate all information against current guidelines issued by the Interdepartmental Committee on Redevelopment of Contaminated Land (ICRCL) or the Framework for Deriving Numeric Targets to Minimise the Adverse Human Health Effects of Long term Exposure to Contaminants in Soil produced by the Scotland and Northern Ireland Forum for Environmental Research (SNIFFER).

Where guideline values are not available or the basis from which they are derived is not appropriate to the particular circumstances of a site, it may be necessary to estimate site specific assessment criteria based on toxicity data and calculated exposure. DETR are producing comprehensive guidance on these matters. When this guidance is available, the Council will review this guidance and consider its use in appropriate circumstances.

9.6.2 Controlled Waters

The Council will seek the advice of the Environment Agency when assessing risks to controlled waters. The Environment Agency within their Process Document have stated that they will use the ConSim model and methodology for the derivation of remedial targets for soil and groundwater to protect water resources as its preferred tools in assessing the need for remediation. For surface waters, the Agency will seek to protect existing water quality. In doing this it will use a tiered approach to the utilisation of site investigation data in evaluating the risks of pollution to groundwater or other water bodies which are in continuity.

9.6.3 Other Receptors

The Council will consult the relevant specialist organisation when assessing risk to ecological, animal, crop and building receptors to achieve a consistent approach when applying the Regime.

9.7 Intrusive Site Investigation

Whenever it becomes necessary to perform a more detailed intrusive site investigation on a site the specification will need to be in accordance with BS10175:2001, Investigation of potentially contaminated sites – Code of Practice and BS 5930:1999, Code of Practice for site investigations.

Where it becomes necessary for the Council itself to perform intrusive investigations then the above codes of practice will apply and will be subject to the Councils' Tendering Processes

Officers from the Department of Housing and Environmental Protection Pollution Control Section will be responsible for overseeing intrusive investigations to ensure that they fulfill the requirements of the brief and to ensure the investigations do not cause harm to the surrounding environments.

9.8 Health and Safety Procedures

Following the identification of potential hazards highlighted in the assessment of risk a full health and safety procedure document will be prepared and training implications identified for those employees, before any investigation is undertaken by Council employees.

Contractors will be required to submit a Health and Safety method statement to demonstrate that the investigative work will be carried out in a safe manner and to the requirements of the Health and Safety at Work Act 1974 and all other statutory requirements.

9.9 Potential Special Sites

The actual designation of a special site cannot take place until the land in question has been identified as contaminated land. In identifying a potential special site at least one significant pollution linkage has to be established. Evidence from information gathered and the results of any investigations performed prior to making the request to designate a site as a special site will be supplied to the Environment Agency.

Where it is believed that a site has the potential to be designated as a special site, the Council has a duty to contact the following in writing:

- The Environment Agency
- The owner of the land
- The person who appears to be the occupier of the land, and
- Each person who appears to be an appropriate person

9.10 Notifying the Environment Agency

When the Council informs the Environment Agency of its intention to designate a site as a special site, the Environment Agency has 21 days to respond to the written notification stating whether or not it agrees with the intended designation. If the Agency disagrees it should provide the Council with a written statement of its reasons.

If the Agency fails to notify the Council of its disagreement within the 21 days allowed, the contaminated land will be designated as a special site.

9.11 Risk Communication

The Council will treat any concerns raised by a member of the public seriously and with respect, recognising the importance of the issue to the individual. In all instances, the Council will recognise and try to overcome the critical barriers to effective risk communication.

It will follow the guidance contained within Communicating Understanding of Contaminated Land Risks produced jointly by Scotland and Northern Ireland Forum for Environmental Research (SNIFFER).

These regulations grant only limited powers to the Council to deal with materials in, on or under the ground. Many members of the public believe that any material that is not naturally present in the ground should be removed, especially if it is within the vicinity of their own home. It will be critical to explain that this can only be achieved where there is a risk of significant harm, and it is to be expected that some members of the public will have difficulty accepting this. It is important, therefore, to realise that the expectations of some members of the public will not be met by the powers available to the Council under the contaminated land regulations.

10 Outputs from the Inspection Process.

The inspection process will generate a large amount of information about the condition of sites in addition to those sites formally identified as contaminated land. This information will assist within the various regeneration and reclamation strategies that the Local Authority along with its various partners is actively promoting. Of necessity this will mean procedures being set up within the development control and building control sections to inspect this information. This will be provided for within the Contaminated Land Information Management System.

10.1 The Planning Process

A major part of the remediation process will be undertaken through the redevelopment of land. The Local Planning Authority is obliged to ensure that all material planning considerations, which can include the actual or possible presence of contamination, are satisfactorily addressed.

As part of the Unitary Development Plan review the policies relating to contaminated land will be revisited and Supplementary Planning Guidance developed to assist in information dissemination.

Local Planning Authorities have the power to require the developer to provide such further information as is needed to determine an application for planning permission, and may ask for reports on investigation of contamination. Planning officers will be able to use the information provided as a result of this strategy to determine whether to request further information about site contamination.

Where the Local Planning Authority identifies specific measures to be undertaken, these requirements can be imposed either by conditions attached to the planning permission or by means of planning agreements under Section 106 of the Town and Country Planning Act, 1990.

If development is proposed on an area of land where past use may have resulted in contamination, the Council will request a site investigation as part of a planning approval. This condition is being developed for use by the constituent authorities within the MCLOG. If development proceeds on these sites, remedial works will often have been undertaken to improve the site conditions and make the site fit for its intended future use.

The Town and Country Planning (General Permitted Development) Order, 1995 grants deemed planning permission for a wide range of certain types of development, which are immune from planning control under the Town and Country Planning Act, 1990. Where such permitted development could be inappropriate in relation to contamination then withdrawal of this permitted development should be considered using an Article 4 direction.

10.2 Building Control

Building Control provides for the health and safety of people in and around buildings by providing functional requirements for building design and construction. There are two types of building control providers, the Local Authority and Approved Inspectors.

Contamination is covered by Requirement C2 of the Building Regulations Act, 2000 that states that 'precautions should be taken to avoid danger to health and safety caused by substances found on or in the ground to be covered by the building'. Contamination is also relevant to Requirement A of the Regulations concerning the structural integrity of buildings.

10.3 Contaminated Land Report

The Environment Agency has a specific duty to provide a written report on the state of Contaminated Land from time to time, or if the Secretary of State requests such a report.

An agreed framework for co-operation and working arrangements have been agreed in the Memorandum of Understanding and is contained within Procedural Note 6 within the Environment Agency Part IIA Process Manual. The Council, alongside our partners within MCLOG, to facilitate the provision of the required information.

11 Timescales.

The identification of a fixed timescale for the whole investigative process is not possible at present.

However, it is anticipated that the initial data acquisition and set up of the system will take 3 months. As soon as the system is in situ, the digitising and initial categorisation and identification of high priority wards will be commenced. The Council aims to have this complete within two years of the commencement of the strategy. It is hoped that the process of interrogating the data for the rest of the Borough will be completed within one year of the high priority sites review.

The stated aim of the new regime is for the majority of land contamination to be remediated as a result of the land redevelopment process. However, there may be instances where the Authority will be subject to legal challenge, therefore this process could be very time consuming and is difficult to predict at this time.

The Council hopes to commence action on urgent sites within seven days of notification however, this must be tempered with the fact that intrusive action by the Local Authority will be dependent upon the necessary funding being sought and obtained.

It is the Council's intention to benchmark itself against other Local Authorities to ensure that it is achieving a high level of performance.

Timetable

Preparation of Strategy	To be completed and submitted by the end of June 2001
Development of Contamination Information Management System	On going
Input Module	Completed subject to testing
Output Module	Substantially Complete subject to further development
Evaluation Module	To be agreed
Purchase of key data sets required for assessment and evaluation	Out of copyright O.S. digitised historic maps Completed In copyright O.S. digitised historic maps 2001 financial year Purchase of other digitised mapping as and when necessary
Purchase of historic potentially contaminative uses data in digitised form	Completed
Checking purchased data and assimilating into Contaminated Land Information Management System	September 2001
Further digitisation and adjusting of data from historic maps for priority wards	September 2003
Further digitisation and adjusting of data from historic maps for other wards	July 2004

Collection of information on hazards, pathways and receptors	This is dependant upon the availability of data sets in digital form. As a target the Council will aim to have sufficient information to commence the initial assessment by July 2002. On going
Identify areas of land owned or previously owned/occupied by the Council	July 2002
Establishment of efficient liaison, Internal to the Council	In part, complete with named officers identified. On going
Establishment of efficient liaison, External	On going
First risk assessment and desk top study for priority wards.	September 2003
First risk assessment and desk top study for other wards	July 2004
Further detailed site investigation of potentially contaminated sites, high and medium priority sites	This is dependant upon the number of potentially contaminated land identified during the first risk assessment and desk top study. The timetable for this will probably be based on the outcome of the first review of the strategy
Further detailed site investigation of potentially contaminated sites, low priority sites	It is not possible to determine timescales at this time. Such sites will be kept under review as the priority may change with circumstances
Prepare progress report for Environment Agency	As and when necessary
Programme detailed Site inspections	To be determined but due to potential financial implications for the Council this will form part of a rolling programme Where urgent action is needed immediate and on going
Review of strategy if other review triggers have not been reached	Initial review July 2002, then periodic review depending upon progress.

12 Review Procedures.

With so much guidance in draft form or currently being prepared, the Council has based this strategy on guidance available to it at the time. The strategy may need to be reviewed as new guidance is released. This is an on-going process and will be undertaken in line with the Council's other partners within the MCLOG.

The information produced as part of the implementation of the strategy will need to be reviewed when the following changes have occurred:

- Proposed changes in the use of the land itself or surrounding land;
- Unplanned changes in the use of the land, particularly where this increases the sensitivity of the receptor;
- Unplanned events which cannot be addressed through other relevant environmental legislation;
- Reports of localised health effects, which appear to relate to a particular area of land;
- Reports from other organisations and members of the public;
- Changes in guidance or knowledge in relation to particular contaminant, pathway or receptor.

13 Resource Implications.

The implementation of the Part IIA procedure will have on-going resource implications with regard to staff input. As it is a continually evolving process, once the initial stages have been completed there will be a continuing requirement to interrogate the data to ensure that changes are integrated within the system. Also the changes brought about by the redevelopment of land will have to be accommodated. This review process will thus make demands on all key groups involved.

Although the aim of the regime is for the costs to be borne by the person responsible for the contamination of the land, the Local Authority will initially have to employ the services of specialist consultants to undertake the assessment of specific areas of land. It will also require the employment of counsel in order to defend any legal challenge in the High Court.

The Council may also choose, as a result of its land ownership and its responsibilities, to remediate so called 'orphan' sites where no appropriate person can be found. It will also have to identify the means to fund more detailed, intrusive investigations of these sites, although it is recognised that Supplementary Credit Approval will be available for the remediation of statutory contaminated land.

Appendix 1: Table A: Categories of Significant Harm.

Type of Receptor	Description of harm to that type of receptor that is to be regarded as significant harm
Human beings	Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.
Any ecological system, or living organism forming part of such a system, within a location which is: <ul style="list-style-type: none"> any area notified as an area of special scientific interest under section 28 of the Wildlife and Countryside Act 1981; any land declared a national nature reserve under section 35 of that Act; any area designated as a marine nature reserve under section 36 of that Act; any area of special protection for birds, established under section 3 of that Act; any European Site within the meaning of regulation 10 of the Conservation (Natural Habitats etc) Regulations 1994 (i.e. Special Areas of Conservation and Special Protection Areas); any candidate Special Areas of Conservation or potential Special Protection Areas given equivalent protection; any habitat or site afforded policy protection under paragraph 13 of Planning Policy Guidance Note 9 (PPG9) on nature conservation (i.e. candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); or any nature reserve established under section 21 of the National Parks and Access to the Countryside Act 1949. 	<p>For any protected location:</p> <ul style="list-style-type: none"> harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location. <p>In addition, in the case of a protected location which is a European Site (or a candidate Special Area of Conservation or a potential Special Protection Area), harm which is incompatible with the favourable conservation status of natural habitats at that location or species typically found there.</p> <p>In determining what constitutes such harm, the local authority should have regard to the advice of English Nature and to the requirements of the Conservation (Natural Habitats etc) Regulations 1994.</p>
Property in the form of: <ul style="list-style-type: none"> crops, including timber; produce grown domestically, or on allotments, for consumption; livestock; other owned or domesticated animals; wild animals which are the subject of shooting or fishing rights. 	<p>For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.</p> <p>The local authority should regard a substantial loss in value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the Food Safety Act 1990. Where a diminution in yield or loss in value is caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss.</p>
Property in the form of buildings. For this purpose, "building" means any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building.	<p>Structural failure, substantial damage or substantial interference with any right of occupation.</p> <p>For this purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended.</p> <p>Additionally, in the case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.</p>

Table B: Significant Possibility of Significant Harm

Descriptions Of Significant Harm (As Defined In Table A)	Conditions For There Being a Significant Possibility of Significant Harm
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<p>Human health effects arising from</p> <ul style="list-style-type: none"> • the intake of a contaminant, • or other direct bodily contact with a contaminant. 	<p>If the amount of the pollutant in the pollutant linkage in question:</p> <ul style="list-style-type: none"> • which a human receptor in that linkage might take in, or • to which such a human might otherwise be exposed, <p>as a result of the pathway in that linkage, would represent an unacceptable intake or direct bodily contact, assessed on the basis of relevant information on the toxicological properties of that pollutant. Such an assessment should take into account:</p> <ul style="list-style-type: none"> • the likely total intake of, or exposure to, the substance or substances which form the pollutant, from all sources including that from the pollutant linkage in question; • the relative contribution of the pollutant linkage in question to the likely aggregate intake of, or exposure to, the relevant substance or substances; and • the duration of intake or exposure resulting from the pollutant linkage in question. <p>The question of whether an intake or exposure is unacceptable is independent of the number of people who might experience or be affected by that intake or exposure. Toxicological properties should be taken to include carcinogenic, mutagenic, teratogenic, pathogenic, endocrine-disrupting and other similar properties</p>
<p>2 All other human health effects (particularly by way of explosion or fire).</p>	<p>If the probability, or frequency, of occurrence of significant harm of that description is unacceptable, assessed on the basis of relevant information concerning:</p> <ul style="list-style-type: none"> • that type of pollutant linkage, or • that type of significant harm arising from other causes. <p>In making such an assessment, the local authority should take into account the levels of risk which have been judged unacceptable in other similar contexts and should give particular weight to cases where the pollutant linkage might cause significant harm which:</p> <ul style="list-style-type: none"> • would be irreversible or incapable of being treated; • would affect a substantial number of people; • would result from a single incident such as a fire or an explosion; or • would be likely to result from a short-term (that is, less than 24-hour) exposure to the pollutant.
<p>3 All ecological system effects.</p>	<p>If either:</p> <ul style="list-style-type: none"> • significant harm of that description is more likely than not to result from the pollutant linkage in question; or • there is a reasonable possibility of significant harm of that description being caused, and if that 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. <p>Any assessment made for these purposes should take into account relevant information for that type of pollutant linkage, particularly in relation to the ecotoxicological effects of the pollutant.</p>
<p>4 All animal and crop effects</p>	<p>If significant harm of that description is more likely than not to result from the pollutant linkage in question, taking into account relevant information for that type of pollutant linkage, particularly in relation to the ecotoxicological effects of the pollutant.</p>
<p>5 All building effects</p>	<p>If significant harm of that description is more likely than not to result from the pollutant linkage in question during the expected economic life of the building (or, in the case of a scheduled Ancient Monument, the foreseeable future), taking into account relevant information for that type of pollutant linkage.</p>

Appendix 2.

Merseyside Contaminated Land Information Management System

Introduction

The model to be applied works on the concept of a pollution source, pathway to move the contamination e.g. water course and target e.g. land use that could be adversely affected by the contamination. To create the strategy Local Authorities will need to assemble a large range of different data sets. A GIS system is the most manageable way to achieve this

The use of a common system across Merseyside will make it easier to share data and result in economies of scale in development of the system and support once it is in use. In broad terms the system will be required to capture, hold and display all the basic information required to develop the strategy and produce information on specific sites in response to one-off enquiries. It may be possible to use it as an aid to identifying the areas of high priority for investigation but it is recognized that detailed risk assessments will have to be done for individual sites by people with a detailed knowledge of contamination.

Set out below is a specification for a computer application to be developed in Mapinfo for use by all the 8 Merseyside Local Authorities.

System Outline

The system will consist of 3 modules to deal with

1. data capture
2. standard output production
3. analysis to assist in the creation of the strategy.

System Overview

A wide range of people across several departments will be either using or supplying data for use in the system. Given the nature of some of the data in the system and the potential liability issues access to the system for different users will need to be controlled and all output produced will need to contain appropriate copyright and disclaimer notices.

Where possible the system will access the data held in the departments rather than copies of the data to ensure that the most up to date picture is available. The system should therefore accommodate a set up where the information is stored in a range of machines.

Details of the functionality required in each component of the system is set out below. The different components will be developed separately. The first phase of development will be to enable data to be captured and standard map extracts created. The creation of the public register will be the last. The system will be developed in Mapinfo but at a future date some of the standard outputs may need to be available via web technology.

Data Sets

A large amount of data needs to be pulled together to develop the strategy. The data sets have been identified by the Merseyside Contaminated Land Officers for inclusion in the system are listed within the body of the strategy

- As a general rule data should be captured at 1:1250 scale. In some cases the information is not available at this scale and will be included at the smaller scales if this is the case.
- A common set of attribute data will be included for each data set in all authorities .
- The system will not include detailed information about individual sites e.g. site investigation reports will hold just the name and where the report can be obtained.

Meta Data

Meta data is 'data about data' so it is not used inappropriately. All data sets in the system will contain the following meta data.

- Source of the data
- How it was collected
- Ownership /copyright of the information
- Scale
- Date
- Notes on accuracy/completeness
- Data dictionary –description of any classifications or codes etc

E.G. Data set :- Residential Areas

Source – Digitised by MIS

Method – Captured over 1:1250 OS maps and MARS residential properties.

Copyright – MIS and OS as derived data

Scale – 1:1250

Date – 1997

Notes – All Merseyside digitised

Data Dictionary - Areas named as Houses or with name of the area

System Users

This should ensure that different users will have access to a different set of modules and functionality within them. There are potentially 5 different types of users.

- System administrator Full access to all components of the application
- Data capture users Full access to modify the data layers were data is being input specifically for the application.
- Public access Limited access for viewing and producing a predefined set of map and report outputs.
- Officer access Viewing and the production of output as for public access but with access to a wider range of data layers.
- Analyst Access to the analysis module to query and combine the data for the purposes of the Strategy Report.

Data Capture Module

The range of functionality that will be required is outlined below:-

- The standard set of tools to move around the map base. Pan, zoom and locate by typing in and address, street etc.
- Easy select of data layers for data creation and amendment. Initially 7 data layers will be set up one for potential risk categories identified on each of the 6 sets of historic maps and one for identified contaminated sites.
- Digitizing tools to create point, line and polygon features freehand or by selecting the underlying OS line work. The symbology to display the data will be agreed for all users and after a feature has been add the user will be presented with a form to input the attribute data. The use of pick lists for attribute data entry will be included wherever possible to ensure data accuracy
- Tools to add, delete and modify the graphic and attribute data.
- A record will be kept of changes made to site data records recording the date of the change, who made it and why.

Output Module

In this module the user will be able to view the data and produce a standard set of outputs. The range of data sets available to the 'public' user will be restricted.

The functionality is as follows:

- Locate the area of interest by inputting an address or street
- Pan and zoom functionality
- Tools to add, remove and select different layers of data to display together using a standard agreed symbology.
- The user will be able to digitise sites and add limited text attributes to them. These sites will then be used to produce standard map and report outputs.

Standard outputs for public use :

- Current OS 1250 or 1:10,000 base maps with site of interest overlaid and boundaries of possible risk sites identified as lying within a user specified buffer distance of the site. The default distance will be set to 250 metres. If no sites are identified the map should be produced with a note to this effect. The map will contain standard OS copyright notice, the date of production, authority and department producing the map and a general disclaimer along the lines of 'information on this map represents the information available to the Local Authority at the time of production'
- A standard report to accompany the map will contain a site name, date of production and list the information held against all the possible risk sites plotted on the map.
- Map extracts of the historic maps for the area with the site boundary superimposed. The user will have the option to select one or all of the 7 epochs historic of maps. If no map exists for the area a report to this effect should be created. The maps will contain the relevant copyright notice, date of production, date of the map extract, and the department and authority who created the map.
- The Officer user will have the option to add other data sets to the map extracts such as the location of potential receptors.

Analysis

Detailed risk assessment cannot be done with confidence without the appropriate knowledge on a site by site basis. However it should be possible to incorporate some tools to assist in the development of the Strategy. More thought needs to be given to the appropriate queries to be included but possible examples are :-

- all potential contaminative uses within a user specified distance of certain receptors.
- potential contaminative uses within a user specified distance of pathways.
- for a specific site all potential contaminative uses within a user defined distance.
- All instances of specific types of potentially hazardous uses.

Examples of Table Specification

Historic Land Use

The system will hold 7 tables with the same record structure one for data identified on each on the historic map layers.

The 7 tables will be:

Historic Uses 1840's From the 6 inch County series

Historic Uses epoch 1 from the 1:2500 1880/1890

Historic Uses epoch 2 from the 1:2500 1890/1912

Historic Uses epoch 3 from the 1:2500 1904/1939

Historic Uses epoch 4 from the 1:2500 1919/1943

Historic Uses epoch 5 from the 1:2500 1945/1970

Historic Uses epoch 6 from the 1:2500 1970/1996

- Site reference

The same feature on more than one map layer should have the same number with an epoch marker eg –1 or –2 etc (When capturing data the historic maps will have to be checked in sequence using the methodology produced by Landmark)

- Description of the site
- Classification of use - (See Appendix 3)
- Date of Map
- OSGR centroid of site)
- Scale of source map) Automatically added by the system
- Date site identified/last modified))
- Who made last modification))

Waste Management Sites

- Type of facility 3 categories pre-license/COPA license/Environment Act
- Types of waste accepted : 7 Categories
Domestic /Commercial/Industrial/Inert/Hazardous/Special Waste/Unknown
- License Reference number
- IPPC year

Site Investigation Reports

- Reference number of the report
- Title of the report
- Date of the report
- Where it can be obtained
- Type of Site Investigations included

Part A and B Processes

- Type A/B/A(ii)
- Date of authorisation
- Authorisation Number
- Type of Process
- IPPC Year

Contaminated Sites

- Local Authority code - added automatically (use DETR codes 4305 Knowsley, 4310 Liverpool, 4315 St Helens, 4320 Sefton, 4325 Wirral, 625 Halton, 640 Warrington)
- Site reference - numbered 1 to n as sites are identified
- PAON)
- SAON) Address of site in
- Street) BS7666 format
- Locality)
- Settlement)
- Town)
- Administrative area)
- Postcode
- OSGR centroid - Automatically added
- Source of data
- Date identified
- Date site details last modified - Automatically added
- Who made last modification - Automatically added
- Reason for modification
- Ownership
- Contaminates known or suspected
- Site area - Calculated by the system
- Waste Management License Number
- Special Site (as defined by the regulations) Y/N
- Details of any remediation undertaken
- Notes

Appendix 3. Classification of Historic Land Uses

Historic land uses have been categorised with regard to the guidance in the Desk Reference Guide to Potentially Contaminated Land Uses P Syms 1999. Those industries not listed in the latter text but included within the keycode list have been assigned a category based upon comparison with industries of similar polluting potential. (MCLOG amendments are in bold italics)

Code	Keywords	Description	Priority Class
AB	ABATTOIR	Animal slaughtering and basic processing	HIGH
AF	ANFOD	Manufacture of pet foods or animal foodstuffs	HIGH
AN	ANIMAL	Animal by-products (i.e. animal parts) e.g. soap, candles & bone works	HIGH
AS	ASBESTOS	Asbestos Manufacture and use.	HIGH
BU	BURAN	Burial of diseased livestock	HIGH
CH	CHEM	Manufacture of cosmetics, manure, fertilizers & pesticides, detergents, oil, organic-based pharmaceuticals, other incl. glues, gelatines, recording tapes, photographic film	HIGH
DT	DRUM	Drum and tank cleaning	HIGH
FY	FOUNDRY	Furnaces & Metal processing/casting/forges/smelting-Ferro and Aluminum Alloys-Manganese Works, Slag Works	HIGH
GA	GAS	Gasworks, coke works, coal carbonisation and similar sites. Production of gas from coal, lignite, oil or other carbonaceous material other than waste	HIGH
OR	OIL	Oil Refining Petrochemical production and storage.	HIGH
HM	HM WORKS	Heavy product manufacture-rolling & drawing of iron, steel & ferroalloys-includes major Tube Works	HIGH
MD	MOD	All Military Establishments incl. Firing Ranges (if not specified as Civilian)	HIGH
MG	MAG	Civilian manufacture & storage of weapons, ammunition, explosives & rockets, incl. Ordnance	HIGH
OL(<i>this is an EAS modification</i>)	OIL	Major oil & petrol storage (not including refining or production) and all gasometers which are not in gasworks	HIGH
PA	PAINT	Paints, varnishes, printing inks, mastics, sealants & creosote	HIGH
PL	PLATING	Electro-plating, Galvanising & Anodising	HIGH
RA	RADIO	Storage, processing or disposal of radioactive material	HIGH
SP	SCRAP	Recycling of metal waste incl. Scrapyards and car breakers	HIGH
TY	TANNERY	Tannery, leather goods and skinnery	HIGH
XI	LAND INCIN	Incinerators-waste management operations	HIGH
TA	TAR	Tar, bitumen, linoleum, vinyl and asphalt works.	HIGH
TR	TIMBER	Timber treatment.	HIGH
XL	LANDFILL	Landfill waste-the deposit of waste in, on or above land	HIGH
BK	BRICK	Manufacture of clay bricks & tiles, including assoc. activities e.g. brickfields, also solitary kilns (other than limekilns)	MEDIUM
BT	BATT	Batteries, accumulators, primary cells, electric motors, generators & transformers	MEDIUM
CC	C&C	Coal storage/depot	MEDIUM
CE	CEMENT	Concrete, cement, lime & plaster products, also includes solitary lime kilns	MEDIUM
CR	CERAMICS	Tableware & other ceramics	MEDIUM
CY	COLLIERY	Coal mining. Areas include assoc. surface activities in area but not including spoil heaps or coal mine shafts (<i>this is an EAS modification</i>)	MEDIUM
DE	DEGREASING	Premises housing surface cleaning and degreasing operations	MEDIUM
DK	DOCKS	Boat-building, wharf and quays, cargo/transport handling facilities - marine or inland	MEDIUM
DP	DEPOT	Transport Depot, Road Haulage, Corporation Yards,	MEDIUM

Commercial vehicle fuelling.			
DY	DYE	Dye & pigments	MEDIUM
FU	FUEL	Sale of automotive fuel	MEDIUM
GG	GARAGE	Repair & sale of (i) cars & bikes (ii) parts (iii) motorway services	MEDIUM
GL	GLASS	Flat glass and glass products manufacture	MEDIUM
HS	HOUSE	Manufacturing of electrical and electronic appliances	MEDIUM
HT	HEAVY TRANS	Manufacturing & repair incl. (i) ships (ii) aerospace (iii) rail engines and rolling stock	MEDIUM
LT	L TRANS	Manufacture of cars, lorries, buses, motorcycles & bicycles	MEDIUM
LY	LAUNDRY	Laundries & dry cleaning (larger scale not usually "high street")	MEDIUM
MA	MACH	Manufacturing of engines, building & general industrial machinery, incl. nuts & bolts, gas fittings, wire rope/cable and ordnance accessories	MEDIUM
MN	MINE	Areas of mining and single or a group of shafts other than coal, or not specified-incl. levels, adits, etc. Also areas assoc. with Mineral Railways	MEDIUM
MP	METAL PROD	Constructional steelwork, metal structures & products & building materials	MEDIUM
NW	NEWS	Printing of newspapers	MEDIUM
OF (<i>this is an EAS modification</i>)	OUTFALL	Outfalls incl. Warm water, industrial effluent, etc. unless directly attached to other feature e.g. end of sewer pipe	MEDIUM
PN	PRINTERS	Printing other than News Print	MEDIUM
PR	PAPER	Pulp, paper & cardboard manufacture	MEDIUM
PS	PLASTICS	All plastic goods, incl. building, packaging, tubing, moulding and extrusion, fibre glass and fibre glass resin and products, excluding the manufacture of Tar, Bitumen & Asphalt	MEDIUM
PW	POWER	Electricity generation and distribution, incl. large Transfer Stations	MEDIUM
QU	QUARRY	Quarrying of all stone (incl. Limestone, gypsum, chalk & slate) and ores, includes all opencast mining & slant workings also slate/slab works, flint works, stone yards	MEDIUM
RB	RUBBER	Natural and Synthetic Rubber Products incl. tyres and rubber products	MEDIUM
RL	RLAND	Rail sidings, Yards, Rail Wharf, Goods Depot, Station etc.	MEDIUM
RW	RAILWAY	Railway Tracks-up to 4 tracks wide or 30m.	MEDIUM
SL	SLUDG	Storage treatment or disposal of sludge including sludge from water treatment works	MEDIUM
SW	SEWERAGE	Sewerage, septic-tanks, effluent-incl. all filter beds	MEDIUM
TX	TEXTILES	Natural and man-made textile manufacture and products including Hemp rope and linoleum	MEDIUM
XO	OTH LNDFIL	Other waste facilities (e.g. clean and dirty manufacture)	MEDIUM
XT	LAND TRAN ST	Waste transfer stations	MEDIUM
WR	WIRES	Insulated wire & cable for electrical/telephone purposes	MEDIUM
AP	AIRPORT	Air & space transport	LOW
AR	AIR	Air Shafts	LOW
BW	BREW	Brewing and malting	LOW
CS	CO MN SHAFT	Coal mine shafts	LOW
DG	D GROUND	Disturbed ground >200m in one dimension	LOW
DL	DISTILL	Spirit distilling & compounding	LOW
DM	DEMOL	Demolition of building, plant or equipment used for any of the activities in the schedule	LOW
ES	ELSUB	Electricity sub-station	LOW
FD	FOOD	Major food processing includes large Dairies. Exceptionally large scale Corn/Flour milling	LOW
FL	FLOOD	Areas 'Liable to Flood'-shown as point features central to flooding area	LOW
GV	GRAVE	Cemetery, modern burial grounds and grave yards	LOW
HE	HEAVY ELEC	Manufacturing of distribution, telecomms, medical, navigation, metering & lighting	LOW
HL	HOSPITAL	All Hospitals including sanatoriums but not lunatic asylums	LOW
HP	HEAP	Must be assoc. with relevant industry-incl. spoil & slag-use	LOW

Wirral MBC Contaminated Land Inspection Strategy

		symbology and assoc. features to identify heap boundary (except for colliery spoil heap- <i>this is an EAS modification</i>)	
LB	LAB	Various-technical & environmental testing & analysis	LOW
LE	LIGHT ELEC	Computers, office machinery, business/industrial electrical goods	LOW
ML	MINERALS	Abrasives, and products (not including Asbestos)	LOW
MR	MRAIL	Mineral Railways also known as 'Tramways' or inclines-not incl. urban passenger 'Tramways'	LOW
PD	P PROD	Paper, card, etc. products (e.g.packaging)	LOW
PP	P	Above ground pipelines other than sewerage	LOW
WA	D DITCH	Drainage ditches are often identified by straight parallel lines creating a boundary line of a field or fields	LOW
WC	CANAL	Canals are often identified by OS text (e.g. Leeds & Liverpool Canal)	LOW
WD	WOOD	Sawmills and manufacture of wood products (excluding treatment).	LOW
WO	OTH WAT	All other water features on the site incl. marshes, wells, springs and sluices	LOW
WP	POND	Surface ponds often located within a field surrounded by trees	LOW
WS	STREAM	Surface streams are often identified by irregular parallel lines and an arrow to show directional flow of the stream	LOW
WV	RIVER	Rivers are often identified by OS text (e.g. River Mersey)	LOW
WK	WORKS	Factory & Works-use not specified	LOW
PT	PIT	Extraction of alluvial sediments (sand, clay, peat, marl and gravel) (not used as conflicts with QU QUARRY- <i>this is an EAS modification</i>)	*
RF	REFUSE	Refuse and waste disposal incl. Incinerators & sanitary depot (not uses as not sufficient detail- <i>this is an EAS modification</i>)	*

Appendix 4.**Draft Merseyside Contaminated Land Information Management System: Analysis Module****Risk Prioritisation Model: Specification**

The aim of the model is to identify areas of land which could pose a threat to human health or environmental receptors-either from current or historical use- and then to prioritise these areas in order to plan further investigations and assessments in a systematic way. The approach is a probabilistic one rather than proving. This document is an initial draft of the prioritisation procedure and as such is open for discussion and modification by members of the MCLOG and the GIS sub-group.

The model will utilise the pollutant linkage concept (source-pathway-receptor) generating potential pollutant linkages by investigating the spatial correlation between potential contamination sources and receptors. The correlation maybe:

- coincidence (occupying the same space); or
- influential (assumed or known zone of influence)

Information Requirements

These shall include all datasets in the Local Surveys set outlined in the MIS project brief.

Classification of Datasets

A first stage in the analysis will be to classify both source and receptor datasets. Potentially contaminative land-uses will be classified into three risk categories, which shall be re-named as Priority Classes, based upon an index of perceived risk (Syms, 1999). These classes (High, Medium & Low) shall represent the potential for contaminative substances to be present at concentrations which are likely to require remedial action if the site is to be redeveloped and have been established using formalised professional judgement based on the industries concerned and indicate the likelihood of contaminative substances being present at concentrations which may result in 'significant harm' being caused, or may result in pollution of controlled waters.

Industries have been categorised with regard to the guidance in the Syms document. Those industries not listed in the latter text but included within the keycode list have been assigned a category based upon comparison with industries of similar polluting potential. (Appendix 3)

Method

The qualitative risk-based functionality of this module broadly follows the Part I prioritisation scheme outlined in the CLR 6 report, (DoE, 1995), (currently under review) and will, at least initially, focus on sensitive exposure scenarios e.g.

- producing a list of all contaminative uses within a user defined area
- whether a potentially contaminated site is within a specified radius of certain critical land-use areas e.g. schools

- all contaminative uses within a specified distance of certain pathways (to be considered for the future)

Proposed algorithms for an inspection prioritisation procedure for development, surface waters and ground waters are shown in at the end of this document. To enable users of the procedure to monitor progress through their individual districts, MapInfo can run the algorithms for distinct areas or quadrants in a logical manner. For example, such areas could be based upon ward boundaries, police sectors or user-defined grid squares. For each designated area the system will place sites in one of three groups. Sites placed in Group A are subjected to further assessment first, followed by sites in Group B and then those in Group C. The further Part II assessment will place the sites into further priority categories using more detailed information about each site. Part II should follow established guidance, including CLR6, and could include a more detailed desktop study, further site investigation, site-specific risk assessment or development of a remedial strategy. If the land is subject to a combination of uses, the whole site should be placed in the highest possible group. e.g. if a site comprises residential development (Group A) and a park (Group B), the whole site should be classified as Group A. If the site has been subject to more than one potentially contaminative use, the module should place the site in the highest priority class produced and then proceed with the rest of the prioritisation procedure.

At the end of the Part I assessment sites should be placed in the highest group identified under either Development, Surface Waters or Groundwater. For example, if assessment under “Development” results in the placement of a site in Group A and assessment under “Surface Waters” results in Group B, then the site should be placed in Group A. Where one or more sources affect the same receptor, given the potential for additive effects, the relative priority of the source sites will be increased. Following the initial Part I assessments, MapInfo could run a subroutine identifying any receptor within a set distance (50m?) of more than one site, whether it be Group A, B or C. In this case the lower ranked site should then be upgraded. Thus, if there is a Group B and a Group C site within 50m of the same school, the Group C site should then be placed in Group B.

For user-defined areas the module could produce a significant number of sites within the same group. Using the ‘Index of Perceived Risk’, Syms (1999), contaminative categories can be assigned a ‘Hazard Rank’, a number between 1 and 39 (Syms uses 39 land use categories). It should be stressed that the ranking is a generalisation that should be used in the context of site specific factors. Those categories in the EAS codes not used in Syms have been allocated a ranking based upon professional judgement.

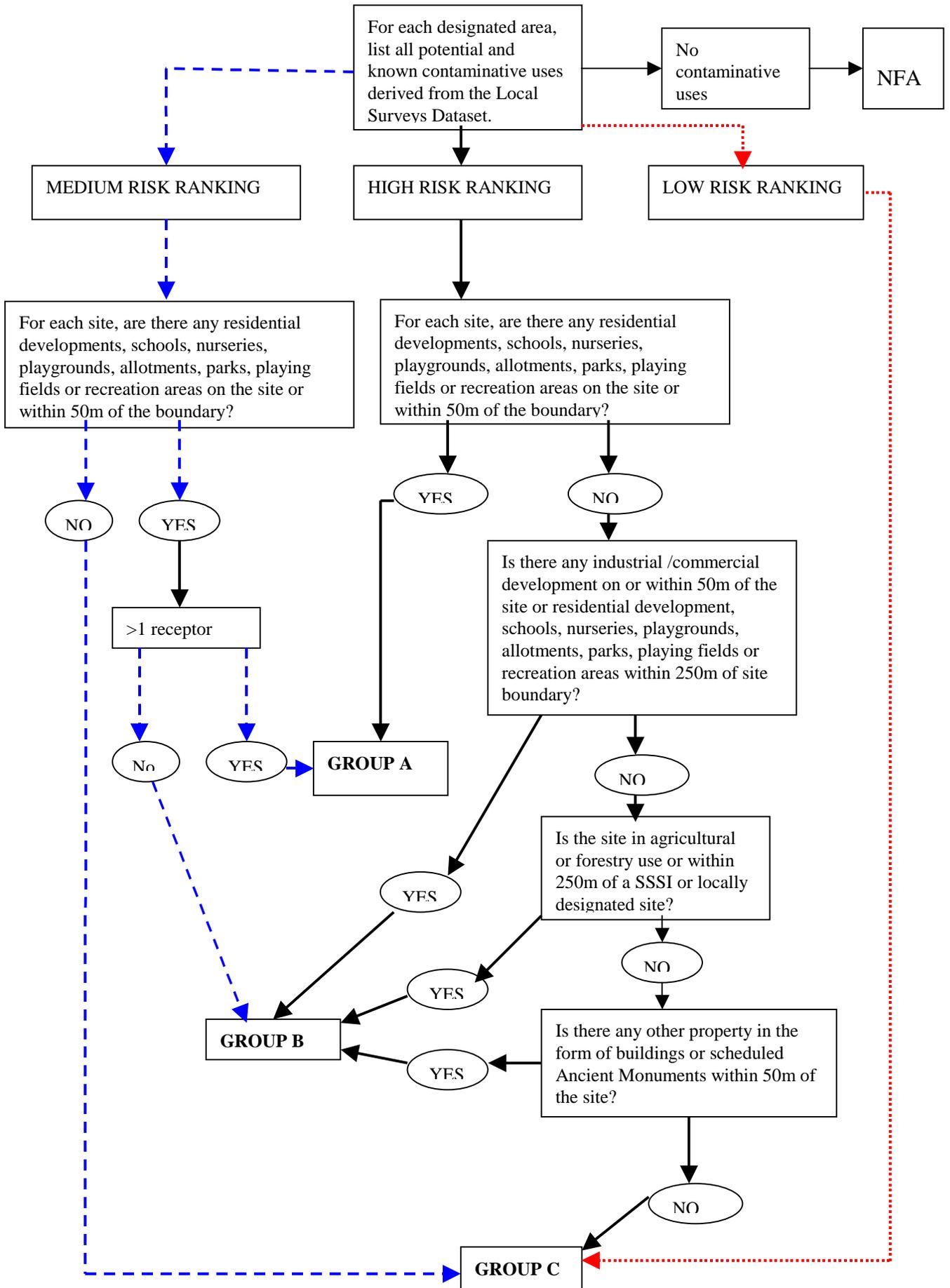
Thus, all of the sites within a certain group (A, B or C) and within a specific user-defined area could be further prioritised using a sort procedure based on this ranking of hazard, further refining the prioritisation procedure.

Therefore, the outcome of running the module for each designated area within a LA would be a map showing the individual sites, possibly colour coded for each group, and a more detailed schedule highlighting the groupings and assigned hazard ranking of each potentially contaminated site. Where identified sites overlap selected areas, the site shall be placed in the quadrant where the majority of the site area lies.

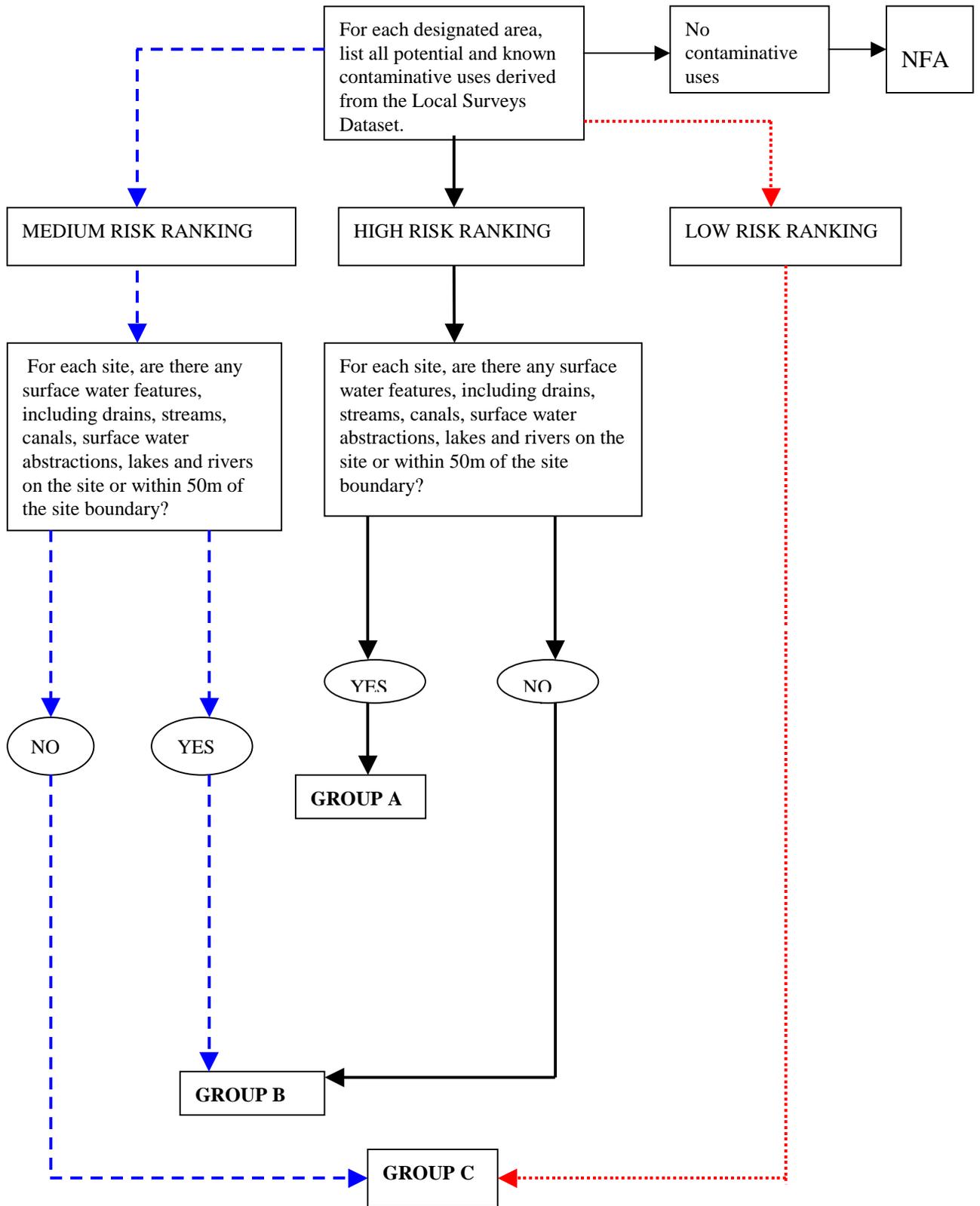
A sub module should be able to answer such queries as ‘What are the potentially contaminated sites within a certain user-defined distance of a sensitive receptor’? A list of likely queries needs to be further developed by the MCLOG sub-group.

The procedure outlined above and shown in the following flowcharts is a simple and systematic approach to deciding what priority to give certain sites when implementing an Inspection Strategy, based upon an assessment of the proximity of a potential target.

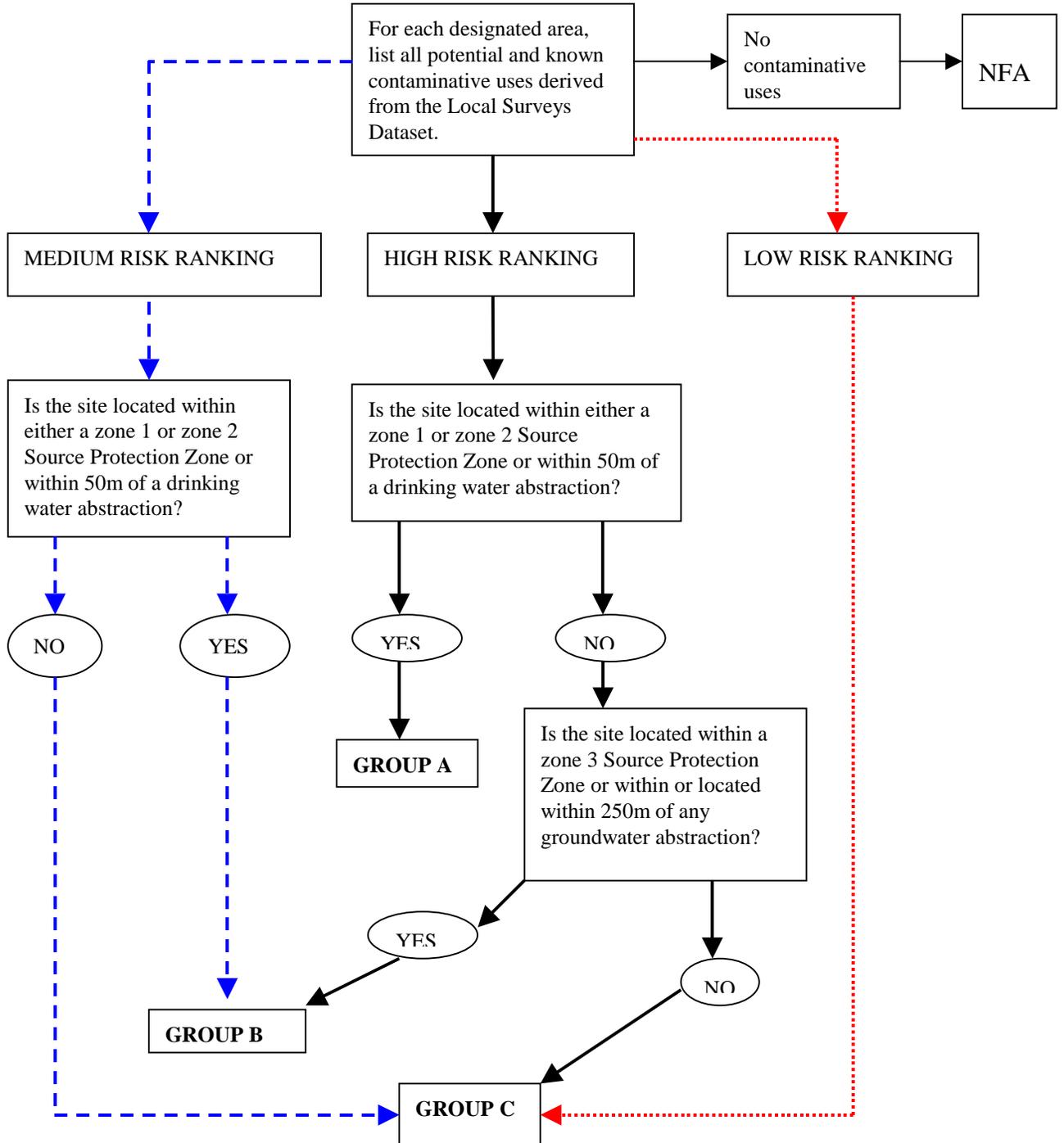
Part I Assessment - Development



Part I Assessment - Controlled Surface Waters



Part I Assessment- Controlled Ground Waters



Appendix 5.

Consultees

The list below is indicative of the groups the Council will need to consult. This list is not exhaustive and new consultees will be added as and when necessary.

Relevant Council Departments
Single Regeneration Budget teams
Members of Merseyside Contaminated Land Officers Group
North West Regional Development Agency
Environment Agency England & Wales
Health and Safety Executive
English Heritage
English Nature
Ministry of Agriculture, Fisheries and Food
Food Standards Agency
British Geological Survey
Local Conservation groups
Local Wildlife groups
Mersey Docks and Harbour Company
Cammell Laird (Merseyside)
Unilever Estates/Pattens
Leverhulme Estates
Vyner Estates
Manchester Ship Canal Company/Peel Holdings
Ellesmere Port and Neston District Council
Railtrack

References referred to within the Strategy Document.

HMSO: *Environmental Protection Act 1990*

Department of the Environment, Transport and the Regions, *Circular 02/2000 Environmental Protection Act 1990: Part IIA Contaminated Land*

Department of the Environment, Transport and the Regions (2000 No.227), *The Contaminated Land (England) Regulations 2000*

Department of the Environment, Transport and the Regions (2000), *Draft Contaminated Land Inspection Strategies, Technical Advice for Local Authorities*

Wirral MBC (2000), *Wirral's Local Agenda 21 Community Consultation Document*

Department of Environment, Transport and the Regions, *Contaminated Land Research Report 10 Contaminated Land Exposure Assessment model* (in preparation)

Interdepartmental Committee on the Redevelopment of Contaminated Land Publications

DETR (1998) *Environmental Information (Amendment) Regulations*

Department of the Environment, Transport and the Regions (2000) *White Paper: Our Towns and Cities: The Future*

British Geological Survey/Environment Agency Joint Report (2000): *Some Guidance on the use of Digital Environmental Data*

1999 Edition *BR211 Radon: Guidance on Protective Measures for New Dwellings*

Department of Environment, (1995): *Contaminated Land Research Report No.6, Prioritisation and Categorisation Procedure for Sites which may be Contaminated.*

Syms, P. (1999): *Desk Reference Guide to Potentially Contaminated Land Uses..*

HMSO: *Town and Country Planning Act 1990*

HMSO: *Town and Country Planning (General Permitted Development) Order 1995*

HMSO: *Building Regulations Act 2000*

Scottish and Northern Ireland Forum for Environmental Research (SNIFFER) 1999: *Communicating Understanding of Contaminated Land Risks*

Scottish and Northern Ireland Forum for Environmental Research (SNIFFER) 2000: *Framework for Deriving Numeric Targets to Minimise the Adverse Human Health Effects of Long Term Exposure to Contaminants in Soil*

Environment Agency 1997: *Local Environment Agency Plan, Lower Mersey, Consultation Report*

Environment Agency Wales 1999: *Local Environment Agency Plan, Dee, Consultation Report*

Environment Agency 2000: *Part IIA EPA (1990) (England) Process Handbook*