

North Lincolnshire Council Contaminated Land Inspection Strategy Executive Summary

Under Part IIA of the Environmental Protection Act 1990, North Lincolnshire Council is required to inspect its area for the purpose of identifying contaminated land. As the first stage in this process, the Council is required to submit a Strategy for inspection to the Department of the Environment, Transport and Regions, setting out a rational, ordered and efficient approach to the inspection.

North Lincolnshire Council's primary aim in addressing issues relating to land contamination is stated as follows:

"To identify potentially contaminated land in North Lincolnshire, using a clear, robust methodology that will focus resources on inspecting those areas of North Lincolnshire where the most serious risks are likely to be found".

A five-year inspection programme, beginning in July 2001 following publication of the Strategy, will be undertaken. The area will be divided into parishes, and prioritised initially based on population size. Further prioritisation will be based on other sensitive receptors (controlled waters, protected ecosystems etc.) within the parishes.

Within the general Strategy for inspection, priority will be given to Council-owned land and land identified for development in the Council's Local Plan. Once the area has been inspected and potentially contaminated land identified a final exercise will be undertaken to establish priorities for remediation. There is a potential for areas of land to be identified that will require urgent remedial action, and these will be addressed as they arise.

North Lincolnshire Council is the primary regulator for Part IIA and contaminated land. However there will be a need for consultation with other organisations, particularly the Environment Agency. Detailed consultation will be undertaken with both statutory and non-statutory consultees, including Town and Parish Councils, between January and June 2001, when comments will be invited on the draft version of the Inspection Strategy.

The new regime for contaminated land sets out a clear and detailed framework for the management of contaminated land, including clear criteria that must be met before land may be designated as statutory contaminated land. The authority must also maintain a Part IIA register for public inspection. It is likely that the expectations of some members of the public will not be met by the powers of local authorities under Part IIA.



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Introduction

Under Part IIA of the Environmental Protection Act 1990 ('Part IIA'), Local authorities have been given regulatory responsibilities in respect of 'Contaminated Land'. North Lincolnshire Council has a statutory duty to inspect land within its area under the new regulatory regime that came into force on April 1st 2000. This Strategy sets out how this inspection will be undertaken, and how land identified as 'Contaminated Land' will be dealt with.

The new regime aims to deal with England's legacy of land that has been contaminated by historical industrial, mining and waste disposal activities. The regime consists of the following components:

Part IIA – primary legislation setting out the Inspection and Regulatory duties of local authorities for Contaminated Land;

Statutory Guidance – supports primary legislation and expands on the details of identification and determination of Contaminated Land, including the requirement to produce an Inspection Strategy;

The Contaminated Land (England) Regulations 2000 (amended April 2001) – set out detailed provisions on:

- Special sites
- Remediation notices
- Compensation
- Appeals
- Public registers

1.1 Objectives of the Strategy

The objectives of this Strategy for

inspection are fourfold, as set out below:

1. To meet with the statutory requirement to produce a Strategy;
2. To demonstrate how the Inspection Strategy will be consistent with the statutory aims (see below);
3. To inform all stakeholders of the authority's intentions with respect to contaminated land; and
4. To provide information to the Environment Agency for its national report on contaminated land.

1.2 National Policy – Statutory Aims of Inspection Strategy

The statutory objectives for North Lincolnshire Council's Strategy for identification of Contaminated Land in North Lincolnshire are taken from the Part IIA of the Environmental Protection Act 1990 (as amended) (EPA 1990), and the supporting statutory guidance, as follows:

- It should set out protocols that allow a '*rational, ordered and efficient approach*' to be taken in the dispensation of the Authority's duties of inspection and identification of contaminated land;
- It should ensure that the approach taken by the local authority is '*proportionate to the seriousness of any actual or potential risk*' from contaminants in, on or under land;
- It should ensure that the most serious contamination problems are located and addressed first;
- It should ensure that Authority resources are concentrated on investigating areas where contaminated land is most likely to be identified;
- It should ensure that the Authority efficiently identifies requirements

and protocols for the detailed inspection of particular areas of land; and

- Above all, the Strategy should reflect the unique local circumstances.

It is essential that the Strategy is also consistent with other relevant Council Policies.

1.3 North Lincolnshire Council Visions and Priorities

The Council's 'vision statement' sets out the goals that the Council aims to achieve for North Lincolnshire and the ways in which it intends to meet them.

'In our vision North Lincolnshire is a prosperous, safe and healthy place to live and work, providing an attractive town and country environment in which people take pride'

The Council has set out five key priorities that will focus on delivering this vision:

- Community Leadership
- Customer Service
- Economic Regeneration
- Social Inclusion
- Environment

The Contaminated Land Inspection Strategy represents one link between these published priorities and the Council's approved objectives for the built and natural environment of North Lincolnshire, and is presented within this context:

- To enhance the quality and public enjoyment of the local environment;
- To increase the amount of sustainable development on brownfield sites; and

- To reduce levels of pollution across North Lincolnshire

The issue of land contamination has wide and potentially significant environmental and economic impacts. It is therefore important that the development of the Strategy has regard to both of these factors.

The Strategy must also be developed within the context of the Council's approved objectives for modernised decision-making, by emphasising transparency and openness and encouraging the community to be involved. Therefore a consultation draft will be published and made available to all interested parties for comment within the community, including local businesses, developers and parish councils. Comments will be considered in the development of the final draft of the Strategy, which will be submitted to the DETR by July 2001.

1.4 Regional Planning Guidance

RPG12 for Yorkshire and Humberside seeks to ensure that the regions needs are met in a sustainable manner while protecting the critical environmental assets of the area. In particular, RPG12 promotes the following objectives:

- to conserve and, where possible, to enhance the region's environment; and
- to facilitate the processes of industrial adjustment, economic diversification and urban and rural regeneration and renewal.

Regional Planning Guidance also advises that new development should protect valuable urban open spaces. Priority should be given to regenerating

derelict, contaminated and under-used land and to improve the environment of such areas.

1.5 North Lincolnshire Local Plan

The North Lincolnshire Local Plan is being prepared in accordance with the Town and Country Planning Act 1990 (as amended by the 1991 Planning and Compensation Act). Planning decisions are required to be made in accordance with this development plan unless material considerations indicate otherwise.

To a certain extent, the policies of the Local Plan must guide other corporate strategies of the Authority. The Contaminated Land Inspection Strategy is one such policy.

The main aim of the North Lincolnshire Local Plan is stated as follows:

‘to improve and enhance the environment of North Lincolnshire by enabling development to be undertaken in the most economically, socially and environmentally sustainable way’

Within this aim, there are a number of objectives that are relevant to the Strategy for contaminated land. These are:

- to facilitate urban and rural regeneration, making optimum use of derelict and under-used sites, by directing new development to brownfield sites, wherever practicable, and supporting the environmental enhancement of derelict sites;
- to conserve and, where possible, enhance the local character and diversity of the natural, historic and

built environment of North Lincolnshire;

- to maintain and, where possible, enhance the biodiversity of North Lincolnshire, by safeguarding all statutory and locally designated nature conservation sites (SSSI, NNR, LNR and SINC’s – sites of importance for nature conservation), through the planning process; and
- to reduce pollution and improve the quality of land, air and water.

1.6 Environment Policy

North Lincolnshire Council is committed to protecting and improving the local environment. The policy includes the following aims:

- minimise and monitor air, water, noise and land pollution, accepting the ‘polluter pays’ principle;
- work with others to protect and enhance the diversity of the natural environment while encouraging community awareness and participation; and
- raise awareness and encourage participation in environmental issues throughout the whole community, and work with others in the community to encourage good environmental practices.

1.7 Enforcement Concordat

North Lincolnshire Council became signatories to this voluntary government initiative in January 2000. It aims to ensure that British businesses, and in particular small businesses, don’t suffer from over-burdensome enforcement of regulation.

The six principles of good enforcement are set out in the concordat. They are:

1. **Clear standards**, drawn up in consultation with business and other relevant interested parties;
2. **Openness**, in providing information and advice, in about how we set about our work, including setting charges, and in consulting and discussing issues.
3. **Helpfulness** to business, especially small and medium enterprises, to advise and assist with compliance. Striving to provide a courteous, efficient and prompt service.
4. **Complaints** about services. Providing well publicised, effective and timely complaints procedures that are easily accessible. Clearly explaining rights of complaints or appeal where necessary.
5. **Proportionality**. In terms of ensuring that the action required by business is proportionate to the risks involved.
6. **Consistency**, in our approach to our duties.

1.8 The Regulatory Context

The new statutory regime for the identification and remediation of contaminated land in England was given effect from April 1st 2000, with the Contaminated Land (England) Regulations 2000 (SI 2000/227). The regulations bring into force Part IIA of the 1990 Environmental Protection Act (EPA).

The new regime represents the climax of a process of policy development that began in 1990, when the Environmental Protection Act obtained royal assent.

The issue of liability for pollution gained momentum throughout the

1990's. In 1994 the United Kingdom government launched the 'Paying for Our Past' consultation, as an attempt to determine what contaminated land policy should be trying to achieve. The resulting 'Framework for Contaminated Land' concluded that a modern power targeted specifically at contaminated land was required. The result was the Part IIA (Section 78) provisions, inserted into the 1990 Act by section 57 of the 1995 Environment Act.

Under the new regime, local authorities have a duty to strategically inspect their areas to identify contaminated land, in accordance with statutory guidance issued by the Secretary of State for the Environment, Transport and Regions. The first stage in the implementation of the new regime at a local level is the development of a corporate Strategy by Local Authorities in England.

1.9 Roles of North Lincolnshire Council and The Environment Agency

As the primary regulatory authority for the provisions of the Part IIA regime, North Lincolnshire Council has been vested with 12 main responsibilities:

1. prepare a Strategy for the inspection of the area for contaminated land;
2. determine whether any particular areas of land are 'statutorily contaminated' in accordance with the Part IIA definition;
3. decide, in consultation with the Environment Agency, whether any contaminated land should also be designated as a 'Special Site', in accordance with the Contaminated Land (England) Regulations 2000;
4. undertake immediate remediation

- action where there is imminent danger of serious harm;
5. decide whether other statutory regimes provide a more applicable means of control than Part IIA;
 6. identify and notify those who may need to take action in respect of a particular contaminated or Special Site;
 7. determine who may be liable to bear responsibility for remediation;
 8. consult with the relevant parties on what remediation action is required;
 9. serve a remediation notice unless restrictions apply;
 10. monitor the effectiveness of any remediation works;
 11. maintain a public register containing details of regulatory actions taken under Part IIA or other means; and
 12. report progress under Part IIA to the Environment Agency to allow preparation of a national report on contaminated land.

These roles reflect the historic duties of Local Authorities under the statutory nuisance regime.

The Environment Agency (EA) has four main roles under Part IIA:

1. to assist Local Authorities in identifying contaminated land, especially where water pollution is an issue;
2. to provide site-specific guidance to local authorities on contaminated land;
3. to act as the enforcing authority for 'special sites'; and
4. to publish periodic reports on contaminated land.

In carrying out its duties under Part IIA, North Lincolnshire Council shall have

regard to statutory guidance issued by the Secretary of State for the Environment, Transport and Regions.

1.10 The Definition of Contaminated Land

'Contaminated Land' is defined for the purposes of Part IIA under section 78A(2) of the 1990 Environmental Protection Act:

Contaminated land is any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

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

'Significance' in either context is to be determined by the Authority in accordance with the statutory guidance.

1.11 Risk Assessment and the Significant Pollutant Linkage (SPL)

The provisions of Part IIA are based on the principles of risk assessment, within the 'suitable for use' approach to land contamination which the government considers to be the most sustainable approach. Risks caused by land contamination will be assessed on a site-by-site basis.

The presence of a pollutant in, on or under the land does not automatically mean it will be 'contaminated land'. For any site to meet the statutory definition of contaminated land, a pollutant linkage must be established (see figure



Figure 1.1 Pollutant Linkage (Source→Pathway→Receptor)

1 below). This consists of three elements, all of which must be present (the 'contaminant→pathway→receptor' approach):

- A **contaminant** (source of contamination) in the form of substances in, on or under the land with the potential to cause harm or pollution of controlled waters;
- A **receptor** of a type specified in the government guidance; and
- A **pathway**, by which significant harm is being, or may be possibly, caused in the receptor

The statutory guidance defines the following receptors for the purposes of significant harm:

- **Human Beings**
- **Ecological Systems or living organism forming part of such a system, within any of the following:**
 - Site of Special Scientific Interest (SSSI)
 - National Nature Reserve (NNR)
 - Marine Nature Reserve (MNR)
 - Area of Special Protection for Birds (SPB)
 - Special Areas of Conservation (SAC's)
 - Special Protection Areas (SPA's)
 - Candidate SAC's)
 - RAMSAR sites
 - Nature Reserves
- **Property in the form of buildings**
- **Property in the following other forms:**
 - Crops, including timber
 - Livestock
 - Home-grown produce
 - Owned or domesticated animals

- Wild animals subject to shooting or fishing rights
- **Controlled Waters, including:**
 - Surface waters (rivers, lakes, etc.)
 - Drinking water abstractions
 - Groundwater (as defined in S.104 of the 1991 Water Resources Act), including major and minor aquifers

The guidance describes what harm is to be regarded as significant, and the conditions for there being a significant possibility of significant harm. Where a pollutant linkage is established, a risk assessment will be carried out to determine whether the pollutant linkage is a 'significant pollutant linkage' (SPL). Areas of land may be designated as *contaminated land* if an SPL has been identified on the basis of a 'reasonable assessment of the general scientific knowledge of a nature of a particular contaminant and the circumstances of the land in question' (paragraph A.15, statutory guidance). The pathway does not have to be directly observed.

1.12 Other Control Mechanisms for Contaminated Land

Part IIA is not the only legislation relevant to contaminated land, and may not be the most appropriate in all circumstances. Other controls to consider are:

1.12.1 Development Control

Land redevelopment and regeneration is expected to continue to be the

primary means of managing contaminated land issues. See section 4.7.1 for more information on the role of Development control in managing contaminated land.

1.12.2 Integrated Pollution Prevention and Control (IPPC) (formerly Integrated Pollution Control – IPC)

The regulatory authority has duties under the Pollution Prevention and Control Act 1999 to prevent new contamination by taking action where contamination arises through the breach of a process authorisation. The former IPC sites controlled under the Environmental Protection Act 1990 will transfer to the IPPC regime.

1.12.3 Waste Management Licensing

Part IIA cannot be applied where contamination has arisen on land subject to a Waste Management Licence, although it may be applied where adverse effects arise from causes other than a breach of the licence conditions or from activities permitted under the licence.

1.12.4 Water Resources Act 1991

The Environment Agency have powers to take action to prevent or remedy the pollution of controlled waters, through this regulatory regime based on statutory discharge consents. The Agency also have powers under s.161 of the 1991 Water Resources Act to deal with pollution of controlled waters (where the pollutant is wholly on the water table).

1.12.5 Statutory Nuisance

The SN provisions will no longer apply in cases of land contamination, although they may be applied where the land itself gives rise to a nuisance, e.g. an odour that is an offence to human senses but is not expected to cause significant harm.

The Authority will check in each particular case whether another regime is more appropriate for the management of contaminated land, since restrictions apply to the service of a remediation notice where the necessary level of control can be achieved by means other than Part IIA.

1.13 Development of the Inspection Strategy

The Contaminated Land Inspection Strategy has been prepared by NLC's Scientific Officer (Contaminated Land), the Authority's lead officer on contaminated land, in accordance with the government guidance. (May 2000 – June 2001)

A draft of the Strategy was submitted to North Lincolnshire Council's Environment and Public Protection Committee in January 2001, for approval as a corporate policy.

The draft Strategy for consultation was presented to senior Council Officers and Council Members at a Contaminated Land Information Forum (February 2001). Delegates were invited from Development Plans, Development Control, Estates and Property Services, Legal, Building Control, Regeneration, and Environmental Health. Comments were also invited from any other interested corporate party. (January – April 2001).

Formal and informal consultees were also invited to comment on the draft Strategy, including Parish Councils, local business and the wider community. (January-April 2001).

Following approval by the Council's Cabinet Committee, the final version of

the Strategy will be formally adopted and a copy sent to the Environment Agency by 1st July, 2001.

Chapter 2 Characteristics of North Lincolnshire

2.1 North Lincolnshire

North Lincolnshire Council was established as a unitary authority on April 1st 1996. The Council comprises the former district councils of Scunthorpe, Grantham and the Isle of Axholme part of Boothferry, previously part of the County of Humberside. The new North Lincolnshire Council is responsible for implementing the provisions of the new contaminated land regime for England, contained in Part IIA (Section 78) of the 1990 Environmental Protection Act.

2.2 Geographical Location

North Lincolnshire is an area of around 85,000 hectares located on the southern side of the Humber estuary, and occupying tracts of land on either side of the River Trent (see Fig.2.1 below).

2.3 Population

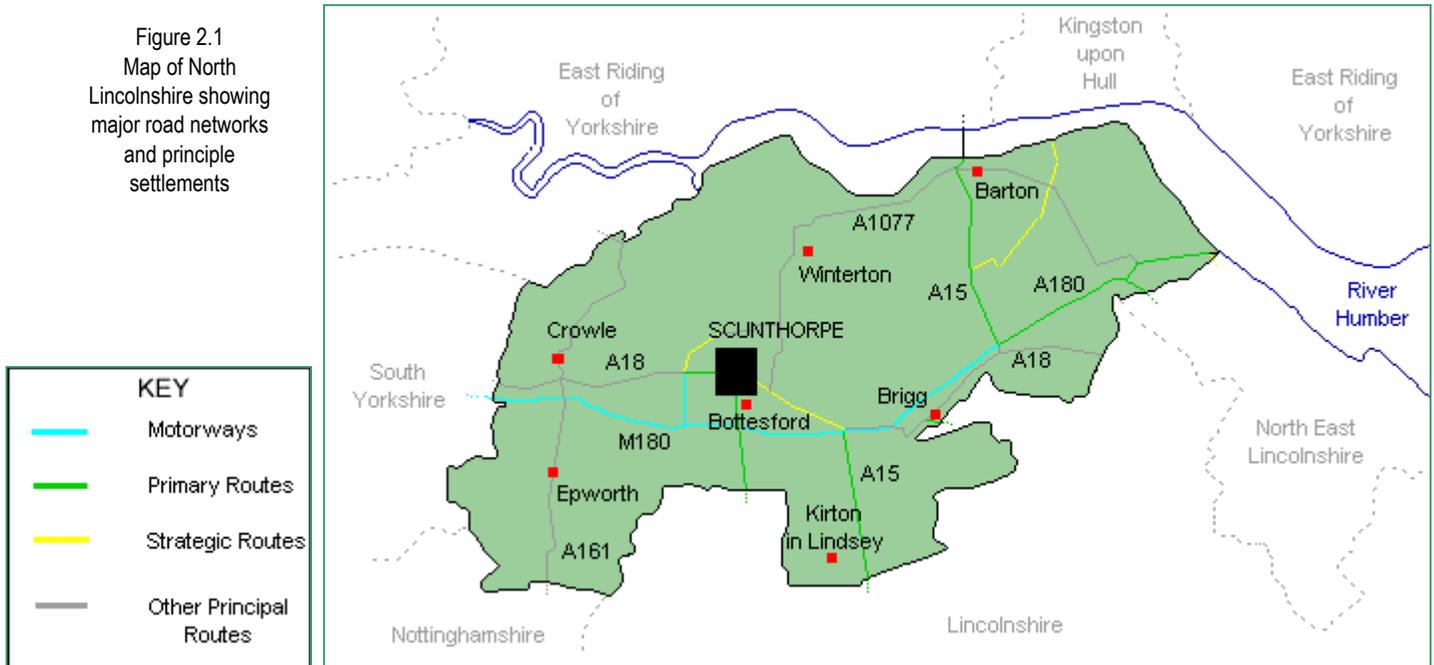
North Lincolnshire has a population of 152,000. Around 60% of the population live in the 3 major urban areas:

Town	Population (No)	Population (% of 152,000)
Scunthorpe & Bottesford	76547	50.3
Barton upon Humber	9,442	6.2
Brigg	5,328	3.5
Rural Areas	6,981	40.0

Source: North Lincolnshire Local Plan Deposit Draft 1999

The remainder of North Lincolnshire is predominantly rural, the larger settlements being Broughton, Crowle, Epworth, Kirton in Lindsey and Winterton. The settlement pattern reflects the physical features of the River Trent and its flood plain, the network of low hills on the Isle of Axholme, the Lincolnshire Wolds and the Humber Estuary.

Figure 2.1
Map of North Lincolnshire showing major road networks and principle settlements



2.4 Current Land Use Characteristics

Almost 89% of the North Lincolnshire area is in some form of agricultural use. An important exception to this is the substantial urban and industrial area of Scunthorpe.

The history of North Lincolnshire is primarily an agricultural one determined by the physical geography of the area. To the left of the River Trent is the Isle of Axholme where settlements developed on low hills surrounded by wetlands.

Agriculture also dominates to the east of the Trent, which, together with the River Ancholme and the Humber estuary, formed important communication links. This rich agricultural heritage is reflected in the development of several historic market towns including Brigg, Barton, Kirton Lindsey and Epworth.

Over 54% of the total area is Land Quality Grades 1 and 2 which is a relatively high proportion of good quality land, the average for England being only 16%. Figure 2.4 below shows the distribution of this land.

A reflection of the high percentage of Grades 1 and 2 land in North Lincolnshire is that 78% of the land is in crops and fallow, whereas the average for England is 46%.

There are more than 30 industrial sites in North Lincolnshire. Industrial activity is mainly concentrated around the urban centres of Scunthorpe, Barton and Brigg, and in Killingholme on the eastern boundary of North Lincolnshire. Steel manufacturing and its ancillary business and power generation are the dominant industries.

The extraction of ironstone from the ironstone gulleys to the north and east of Scunthorpe commenced soon after its discovery in 1859 and ceased in 1989. Opencast ironstone mining has been superseded by the extraction of other minerals. 21 mineral workings are currently operational in North Lincolnshire as follows (also see fig. 2.7):

Mineral Type	Number of Sites
Sand & gravel	4
Chalk (aggregate)	1
Chalk (industrial)	2
Limestone	1
Silica Sand	4
Clay	4
Peat	4
Oil & Gas	1

Source: www.northlincs.gov.uk, 2000

The area is well catered for in terms of waste management facilities, with 65 sites, including transfer stations and scrapyards, currently operational across North Lincolnshire (fig. 2.8).

2.5 Protected Locations

In addition to its landscape value, North Lincolnshire has an abundance of wildlife habitats. These range from the internationally important areas of the Humber estuary (Special Protection Area and potential Special Area of Conservation - SAC), and Thorne, Crowle & Hatfield Moors (SPA and part candidate SAC), through nationally and regionally important wildlife and geological sites to sites of particular local importance (see figure 2.9). North Lincolnshire's natural assets include:

- 28 Sites of Special Scientific Interest (SSSIs) including the upper Humber Estuary, The Grues and Barton & Barrow Claypits;
- The Humber Flats, Marshes & Coast Special Protection Area

(SPA)/RAMSAR);

- it is proposed that the whole Humber Estuary is designated a SAC and the SPA and RAMSAR are extended to include Barton Claypits;
- Crowle Moor has been declared a National Nature Reserve (NNR);
- Frodingham Railway Cutting is a Local Nature Reserve (LNR);
- Thorne & Hatfield SPA;
- A candidate SAC in Thorne and a possible SAC at Hatfield;
- over 200 Tree Preservation Orders;
- Lincolnshire Wolds, Broughton & Greetwell woodlands are areas of High Landscape Value;
- over 400 kilometres of Public Rights of Way;
- 760 hectares of public open space secured through access agreements with local landowners;
- Barton and Barrow Clay Pits, once the site of clay extraction are now providing valuable wildlife habitats and recreation facilities.

It is proposed that the following areas are designated as LNR's:

1. Brumby Wood, Scunthorpe
2. Atkinsons Warren / Skippingdale Plantation, Scunthorpe
3. Dragonby Ponds, Scunthorpe
4. Silkstone Pond, Scunthorpe
5. Ashby Ville Ballast Pits, Scunthorpe
6. Axholme Lane, Haxey
7. Land adjacent to Johnson's Transport, Scunthorpe
8. Butterwick Hale and Common, East Butterwick
9. River Eau and Messingham Ings
10. Elsham Marsh
11. Waters Edge, Barton upon Humber
12. Chase Hill Wood
13. Burton Woodland
14. Sheffields Hill
15. Thealby Gullet

16. Yorkshire East Gullet (north)
17. Brumby Common, Scunthorpe
18. Owston Ferry Castle

The following areas are proposed as Areas of High Landscape Value:

1. Deepdale
2. Barton Claypits
3. Areas of woodland at Kirmington

2.6 Key Property Types

North Lincolnshire is rich in archaeological remains indicative of past settlement and land use, burial sites, and of farming and industrial activities. Archaeological sites are sometimes visible as upstanding remains or standing structures, but are often buried or invisible. Finds of stone implements of prehistoric hunter gatherers and the first farmers are especially well known from the sandy warrens around Scunthorpe. Remains from the Iron Age and Romano-British periods are particularly prolific on the limestone edge and also occur along the chalk wolds; well known settlements of this date are located at Dragonby and Kirmington. Roman Ermine Street runs through North Lincolnshire to the Humber and there are Roman small towns at Old Winteringham and Hibaldstow and a number of important villas.

Many of North Lincolnshire's towns and villages have historic origins in the Anglo Saxon period and traces of their original planned layout survive. The area is noted for its fine churches, many of which contain surviving 11th century masonry. There are a number of medieval earthworks, including several moated sites, village earthworks and fields of ridges and furrow lying between Goxhill and South Killingholme on the

Lincolnshire marsh. From the post-medieval period there are remains of the early brick and tile, quarrying and lime-burning industries. The regional wetland potential for archaeological sites is only just being recognised.

The Isle of Axholme has a unique character as largely reclaimed land created by the construction of a complex network of dykes, which, together with its bridges, pumping stations, and outfalls, forms an important record of the development of land drainage systems as well as providing wildlife habitats. The more significant structures are listed.

Both Crowle and Epworth have Conservation Areas. They derive much of their character from the listed and historic buildings grouped in the centre.

The market towns of Brigg and Barton upon Humber contain significant areas of built heritage, and both contain Conservation Areas within their centres. The centres of Alkborough, Appleby, Barrow upon Humber, Burton upon Stather, Kirton in Lindsey and Winterton have also been designated as Conservation areas.

Within North Lincolnshire there are:

- 17 Conservation Areas and 35 Scheduled Ancient Monuments (SAM's)
- over 1000 Listed Buildings of special architectural or historical interest, of which 43 are Grade 1 listed, e.g. Thornton Abbey

Historic parks, gardens and landscapes are an important part of the heritage and environment of North Lincolnshire. English Heritage is currently updating

the national 'Register of Parks and Gardens of Special Historic Interest'

2.7 Key Water Resource / Protection Issues

The water companies Severn Trent and Anglian Water supply drinking water and sewerage services to the North Lincolnshire area. Scunthorpe is supplied from boreholes within the Lincolnshire Limestone group (Lincolnshire Wolds') at Winterton Holmes near Winterton. Boreholes around Barrow on Humber supply the rest of the district to the East of the River Trent, while the Isle of Axholme is supplied from boreholes into the Sherwood Sandstone group. Surface water abstraction for drinking water supply is limited to the River Ancholme at Cadney, and therefore any contaminated land located upstream of the abstraction point carries a risk of contaminating the supply.

The Food and Safety Unit of the Council inspects 15 private drinking water supplies in the area at least once annually. An inspection includes a full chemical and bacteriological analysis. Most of these private supplies are derived from the Lincolnshire Wolds chalk aquifer.

Surface waters in North Lincolnshire are also used recreationally, for yachting, boating, water skiing, swimming and fishing. Pollutants from contaminated land may find their way into such waters.

2.8 Broad Geological Characteristics

In general, the solid geology in the region consists mainly of sandstones, limestones and mudstones, overlain by younger chalk deposits in the eastern reaches (see fig. 2.10). The Isle of Axholme, to the west, consists of peat

and wind-blown sand drift deposits overlying the Triassic Mercia Mudstone group. Scunthorpe sits on the westward scarp of the Lincolnshire Edge formed by the middle-jurassic Lincolnshire Limestone. The Scunthorpe area is characterised by Jurassic Ironstone deposits (the Frodingham Ironstone forms the secondary scarps around Scunthorpe). These occur within the Jurassic clays, the oldest being the Liassic clays, with the Oxford and Kimmeridge clays being deposited later. The Oxford Clay became the raw material for local brickyards. The solid geology is exposed in the upland areas of the Lincolnshire Wolds, (a west-facing mid-jurassic chalk escarpment some 50m high) including Kirmington, Barnetby, and South Ferriby.

Extensive surface drift deposits, including clay and silt tidal or alluvial deposits in the centre of the region, and glacial tills (sand, gravel, clays and silts) towards the east, overlie the rest of North Lincolnshire. Small areas around Scunthorpe (Messingham and Manton) are also covered with wind-blown sand deposits. The Lincolnshire Wolds is a major chalk aquifer classified as highly vulnerable to pollution.

The geology of North Lincolnshire includes the following rock formations that are listed in Schedule I of the Contaminated Land (England) Regulations 2000:

- Upper Cretaceous Chalk
- Lower Cretaceous Sandstones
- Middle Jurassic Limestones
- Permo-Triassic Sherwood Sandstone Group

Any contaminated land causing pollution of controlled waters contained within

these strata by virtue of contaminants specified in the Contaminated Land (England) Regulations 2000 would require designation as a 'Special Site', for which the Environment Agency are the enforcing authority.

2.9 Broad Hydrogeological Characteristics

Watercourses in North Lincolnshire include surface bodies (rivers, lakes, ponds, becks, drains, canals etc) and groundwater (subsurface aquifers). The River Trent flows south to north through North Lincolnshire to the west of Scunthorpe, and drains into the River Humber at the Trent Falls. The River Humber flows eastwards out into the North Sea to the north of North Lincolnshire. Other tributaries include the New and Old Ancholme rivers, and the River Idle. Other surface water features include an extensive network of drains, becks, and canals, ponds and

• Figure 2.2 SSSI's including Surface Water Features

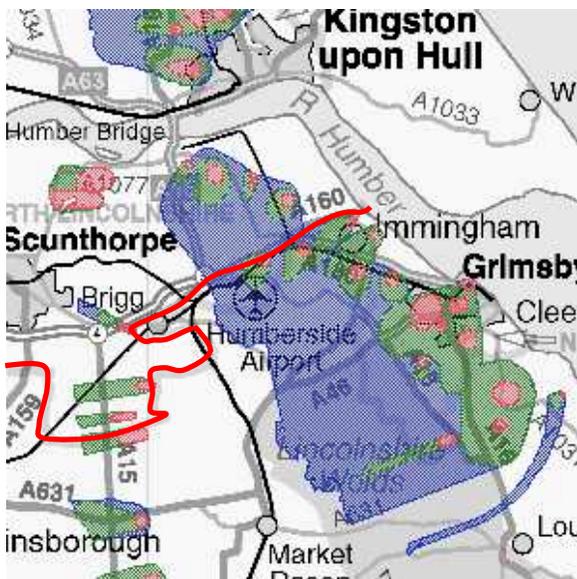
Killingholme Marshes – SSSI & ponds
Kirmington SSSI
Wrawby Moor
Manton Warren (1&2)
Messingham Nature Reserve
Risby Warren
Crowle SSSI
Paupers Drain SSSI
Epworth NR
Haxey Turbary
Haxey East
Tindale Bank Road

lakes, such as the Barton Clay Pits. Some surface water bodies coincide with SSSI's (see fig. 2.2 below).

The Environment Agency Groundwater Vulnerability maps for the area show

that approximately two-thirds of North Lincolnshire is underlain by major or minor aquifers that are themselves overlain by soils with high to intermediate leaching potential. This means that groundwater is highly vulnerable to pollution associated with contaminated land.

Several groundwater source protection zones (SPZ's) have been defined by the Environment Agency for boreholes and springs abstracted for drinking water supply in North Lincolnshire. Figure 2.3 shows the total catchment for the Lincolnshire Wolds Aquifer. Pollutants within zone I can impact on an abstraction point within 50 days; pollutants within zone II can impact



Key

-  Inner Protection Zone (Zone I)
-  Outer Protection Zone (Zone II)
-  Total Catchment (Zone III)
-  Zone of Special Interest

• **Figure 2.3 Groundwater Source Protection Zones in North Lincolnshire**

within 400 days. There are no zones of special interest defined in North Lincolnshire; these are areas where local conditions mean that polluting activities could potentially impact on a groundwater source even though the area is outside the normal catchment. Drinking water abstraction boreholes in North Lincolnshire are generally located away from industrialised and urban areas, and this distance offers some protection to groundwater from contaminant inputs.

Monitoring of the Rivers Trent and Ancholme by the Environment Agency under the General Quality Assessment (Chemistry) scheme for classifying rivers and canals indicate that while the Ancholme quality is classified as 'fairly good', the quality of the Trent varies between 'good' and 'poor', with the poorer quality being particularly downstream of the Scunthorpe urban area. A stretch of the Brumby Beck in Scunthorpe has been classified as 'bad' in terms of quality.

Clearly an objective of the inspection strategy should seek to protect the quality of the North Lincolnshire water resource from deterioration, and seek to improve the quality wherever land contamination is an issue.

2.10 Areas of Naturally Metal Enriched Soils

North Lincolnshire Council has purchased digital soil geochemistry datasets from the British Geological Survey (BGS). The data indicate that soils in the area are naturally enriched in the metals arsenic and antimony, and copper, cadmium and nickel in isolated areas, and are mainly neutral-to-alkaline in terms of pH.

2.11 Current and Past Industrial Activity

The local economy of North Lincolnshire was established mainly on agriculture, and steel manufacturing. The Frodingham Iron Company was founded at Scunthorpe in 1865.

During the late 1980s new industry was attracted to Scunthorpe and the 1990s saw the rebirth of British Steel and the consolidation of newer industries. Two enterprise zones were granted in the Scunthorpe and Bottesford Urban Area (Normanby Ridge and Queensway) in September 1983 and an improved road network encouraged substantial new investment in Scunthorpe. A third enterprise zone was designated at Flixborough in April 1984, aided by Development Area designation. This resulted in a diversification of the economic base through growth in engineering, food processing, furniture manufacture and financial services. The enterprise zones are now largely developed and their designation has now ceased.

2.11.1 Environmental Protection Act 1990 Pollution Inventory

Modern industry and commerce are extremely varied and successful within North Lincolnshire. For example, the area is the base for five power stations, two major oil refineries, Corus' massive Scunthorpe Steel Works (690 hectares and containing 90 miles of railway), over two dozen multinational companies and a similar number of British PLC's. However, details on area occupied by industry in North Lincolnshire are unknown.

As a result, North Lincolnshire is home to 18 industrial processes, which are currently subject to Integrated Pollution Control under the Environmental

Protection Act 1990 by the Environment Agency. The process details are as follows:

- 2 cement /lime manufacture & associated processes;
- 1 petrochemical
- 6 combustion
- 1 Carbonisation & assoc. processes
- 2 iron & steel
- 2 timber
- 1 manufacture & use of organic chemicals
- 1 petroleum
- 1 tar & bitumen

A further 102 industrial processes are subject to IPC through the Pollution team of the Local Authority, including:

- 12 Waste Oil Burners; and
- 22 Petrol vapour recovery systems (petrol filling stations)

2.11.2 Ironstone Mining

The Ironstone Gulleys form a series of large excavations created by the open cast excavation of ironstone from the Frodingham Ironfield, which supplied the iron, and steel industry of Scunthorpe. They extend for around 11.8km running north-south along the Lincolnshire Edge and directly north and east of Scunthorpe and around 7km east-west. The Frodingham Ironfield extends further south and east of the gulleys but is presently considered uneconomic to extract.

The extraction of ironstone commenced soon after its discovery in 1859 and led to the subsequent development of the iron and steel industry in Scunthorpe. Opencast mining gave way to underground techniques in the 1930's as the iron-bearing strata dipped further below the surface. Although mining

ceased in 1989 existing underground ironstone reserves east of Yarborough Ironstone Gullet will be safeguarded to allow extraction in the future should international ore market conditions change.

Many of the earlier worked out gullets, particularly in the northern area, have naturally regenerated and flooded. The regenerated gullets and surrounding landscape have created a valuable habitat for nature conservation and wildlife and are of considerable ecological and amenity value. The more recently worked out areas are still despoiled and further environmental enhancement and habitat restoration schemes are proposed in suitable areas. Other areas have been proposed as suitable for water-based, informal and motorised recreation. The mineral face of the Yorkshire East Gullet is of significant scientific value and will be preserved for geological research.

Planning consents have been approved at Conesby Quarry, Crosby Warren (part), Roxby Gullet, Winterton Gullet and Yarborough Gullet for the tipping of domestic and commercial waste as a means of landfill restoration. Dragonby North and Dragonby and Santon underground mines have been proposed for tipping of inert non-domestic waste, although consent will only be granted if there is confidence that tipping will not result in the contamination of aquifers and other water sources.

Oil is extracted in part of the Crosby Warren area, where 3 boreholes have been sunk. Some areas of agricultural land are susceptible to subsidence as a result of ironstone mining.

2.11.3 Steel Manufacture

Steel-making was based on the 'open hearth' process using blast furnaces. Large outputs of iron and steel led to large volumes of non-ferrous products, including blast furnace slag, sold mainly as railway ballast, phosphoric steelworks slag, and coke oven derivatives and wastes, including tars and benzoles. The open hearth process was modified with the 'Ajax furnace', which oxidised the molten iron over an 8-10hr period. This process was later replaced by the Basic oxygen steelmaking (BOS) process, which oxidised the molten iron in 12-15 minutes.

The main Brigg Road site in Scunthorpe today is the site of the Appleby-Frodingham Iron Company, formed through the amalgamation of the original Appleby and Frodingham Iron Companies that both originally occupied that site. The same site also housed the former Redbourn works. The other steelworks was that of John Lysaghts, situated at Normanby Park in Scunthorpe. The steel industry was nationalised in 1967 to form the British Steel Corporation, and later denationalised, leaving the British Steel Scunthorpe Works. The works is now owned by Corus, following the merger of British Steel plc and the Dutch firm Koninklijke Hoogovens N.V. in 1996.

Currently the former British Steel Corporation Steelworks at Normanby Park is being demolished and the site closed. The area of this site is around 300 acres in area, and included extensive coke ovens, a chemical plant, ore stockyards, sinter plants and sludge lagoons. Two quarries within the site were excavated to provide ore. Large banks of waste, containing slag and

slaked lime amongst other materials, and extensive slagheaps were deposited in this area during the lifetime of the works. Conesby Quarry occupying a further 77 hectares to the east of Normanby Road also provided ironstone for the works. Pollution issues including land and groundwater contamination are currently being addressed through the major Normanby Park reclamation scheme.

Today the Scunthorpe (Brigg Road) plant rolls heavy and medium sections for world sales. It makes plates, steel piling, re-rolling products and wire rod.

A wealth of ancillary industries supporting steel manufacturing are also based in the area, including:

- Steel Stockholders
- Die Casting Companies
- Refractory Companies
- Steel Fabricators and Installers
- General Engineering
- Repair and Maintenance
- Transport and Distribution
- Ports and Wharves

2.11.4 Power Generation

Due in part to the rise of offshore gas a total of nine electric power generating stations are currently commissioned or planned for North Lincolnshire. The stations make use of different systems including Combined Cycle Gas Turbine (CCGT), Combined Heat and Power (CHP) and a unique system involving chicken litter. The generating stations provide more than 10% of the UK base need, generating over 4,000 megawatts of electrical power.

Flixborough in North Lincolnshire is the site for one of only two electricity generating plants in the world, which use poultry litter as the fuel. Combined

Cycle Gas Turbines are one of the cleanest options for power generation.

The remaining planned developments are at Lindsey Oil Refinery, North Killingholme; Conoco, North Killingholme; and the second phase at Keadby Power Station. The planned development at Mortal Ash Hill, Scunthorpe (former British Steel) has just received permission to proceed as planned. Between them, they will generate nearly 1,600 MW of electricity.

2.11.5 Petrochemicals

Petrochemical industries based in North Lincolnshire consist of two modern refineries at North Killingholme: the TotalFinaElf Lindsey Oil Refinery and the Conoco Humber Refinery.

Lindsey Oil Refinery (LOR) is jointly owned by TotalFinaElf. The first stage of the refinery came on-line on 1st May 1968. Process units included crude distillation, LPG separation, naphtha hydrotreating and reforming, middle distillate desulphurisation, plus a utilities plant to supply steam, air, and a proportion of the electricity requirement.

In 1969 a second parallel hydroskimming train was commissioned. The expansion included pentanes/hexanes, superfractionation, kerosene de-aromatization, sulphur recovery, vacuum distillation and bitumen production units, as well as duplicating the process units of the first phase.

In 1981 new installations included a vacuum distillation unit, fluid catalytic cracker and gas recovery unit (FCCU), alkylation unit and a second sulphur recovery plant. As well as producing extra steam, the FCCU is equipped with a power recovery train to generate

additional electricity.

In 1983 a Visbreaker, a propylene/butylene catalytic polymerisation unit and a propylene/propane splitter, was commissioned. In 1987, a unit producing the high-octane additive MTBE (methyl tertiary butyl ether), and a unit producing an octane-enhanced gasoline component, were installed to provide replacements for lead compounds in motor spirits. A butylene hydro-isomerisation was added in 1990, processing the alkylation unit feed to increase its product octane value.

2.11.6 Other Industry

Chemical Factories. North Lincolnshire was the home of two major chemical manufacturing works, including the former agrochemical manufacturing plant at Waters Edge in Barton, which is currently undergoing a major reclamation programme.

Brick and Tile Making. There are at least 22 former works along the south bank of the River Humber, at Barton, Barrow Haven, New Holland and Goxhill. This industry exploited the soft clays close to the land surface.

Railways were vitally important to the development of the area, in terms of supporting both industry and agriculture. For example the Isle of Axholme Light Railway was constructed to facilitate the transport of agricultural produce and peat cutting.

Rope-making at the major Halls Ltd. Ropery at Barton started 200 years ago. Man-made fibres like nylon and polypropylene gradually replaced hemp and sisal as raw materials.

2.12 Known Information on

Contamination

Very little information exists from pre-1996, many records being lost during political reorganisation. However, certain units hold information gathered through their day-to-day activities, including Development and Building Control, and Environmental Protection. Often the development process led to site investigations and in some cases remedial works.

Two studies into potentially contaminated land in North Lincolnshire were carried out during the 1990's. The first, in 1993, focused on Brigg, identifying some 43 potentially contaminated sites. The 1997 study identified the following former industrial uses of land in North Lincolnshire:

Industry	Number of Sites
Gas works	6
Chemical Works	2
Brick & Tile Works	22
Landfill	110

Source: Blagden, 1997

In addition, the same study showed that there were 1021 areas of land occupied by potentially contaminating activities (see following table). In the parish of Barton on Humber, a total of 58 potentially contaminated sites were identified, based on current or former industrial use.

Industry	Number of Firms	Industry	Number of Firms
Steel	33	Production	276
Electronics	8	Scrapyards	14
Petrochemicals	4	Waste Transfer	12
Power Stations	5	Active landfills	30
Motor	238	Ports & Wharves	10
Transport	391	TOTAL	1021

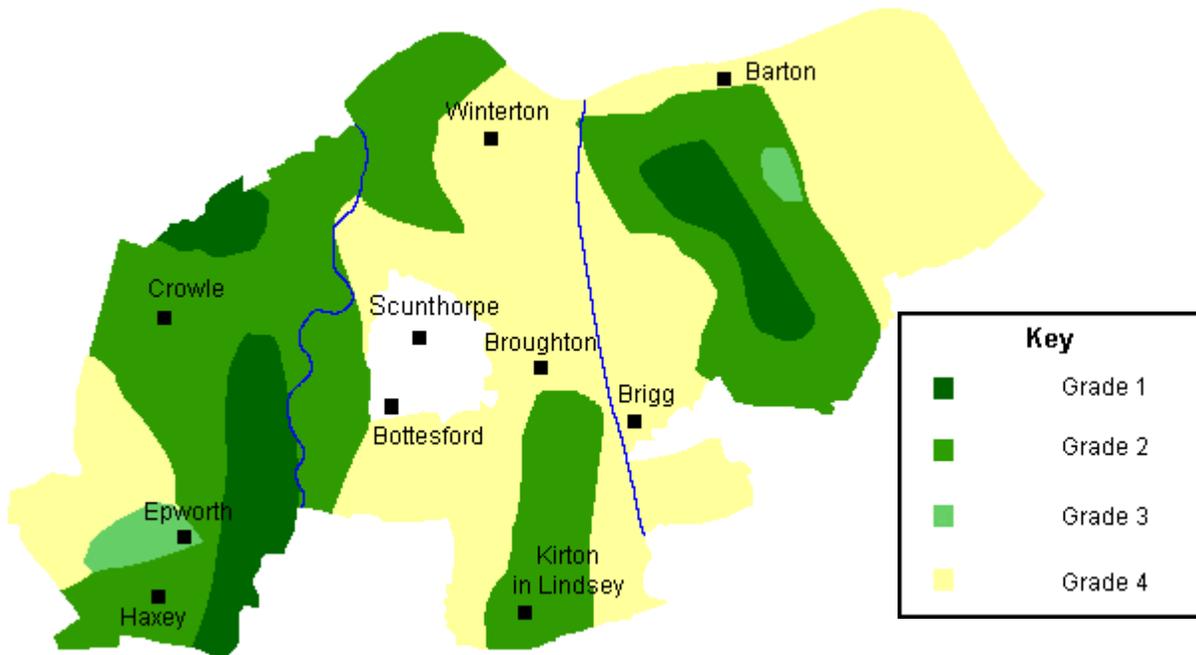
One of the sites in Barton, a former agrochemical manufacturing plant, is currently undergoing major reclamation and remediation works to address

severe contamination of land and groundwater. The Waters' Edge reclamation scheme is a partnership between North Lincolnshire Council, the current owner, English Partnerships (now Yorkshire Forward) and has attracted significant supplementary credit approval (SCA) funding.

A large former landfill in Belton has had a landfill leachate circulation system to prevent pollution of nearby watercourses, and a gas venting system, installed. A couple of former town gasworks have been redeveloped since their closure, with associated remediation.

Since 1999 North Lincolnshire Council Development Plans Unit has been involved in the assembly of the National Land Use Database (NLUD). The project is a partnership between the DETR, English Partnerships, Improvement and Development Agency (representing the interests of local government) and Ordnance Survey,

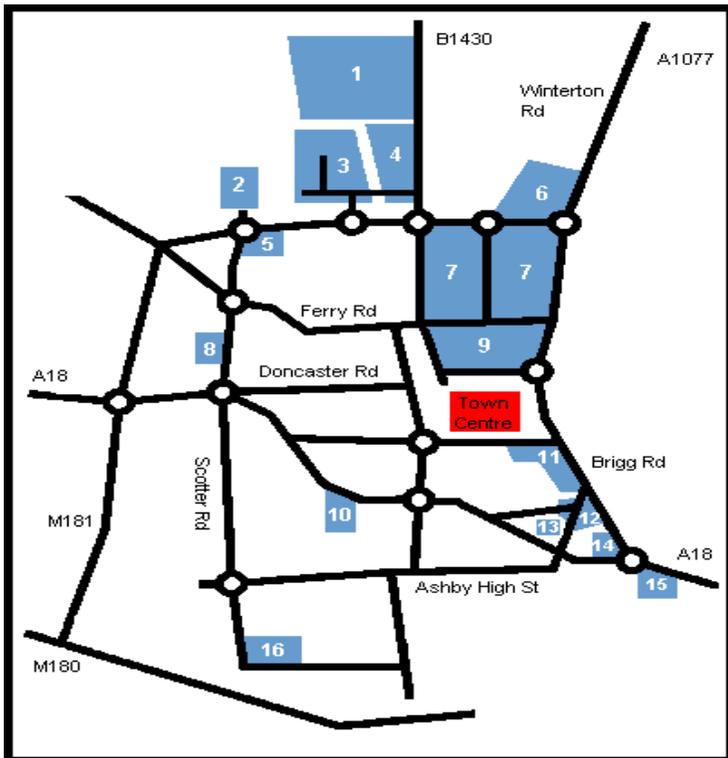
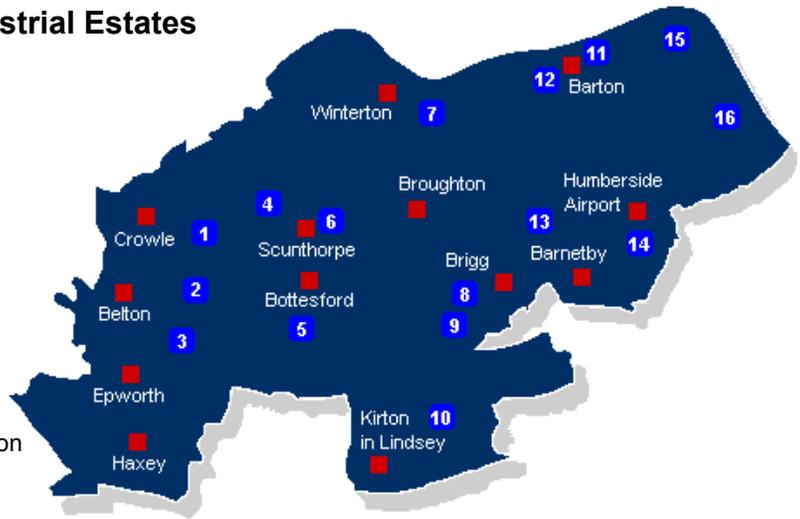
which aims to establish a complete, consistent and detailed geographical record of land use in England. The first stage of NLUD in North Lincolnshire identified around 50 potentially contaminated sites, in the context of potential for redevelopment. The Authority is now involved in the second phase of the exercise. Information gathered in the first phase will need to be examined in the context of the new contaminated land regime.



• Figure 2.4 Agricultural Land Quality in North Lincolnshire

• Figure 2.5 North Lincolnshire Industrial Estates

1. Ealand Industrial Estate, Ealand
2. Sandtoft Industrial Estate, Sandtoft
3. Station Road Industrial Estate, Epworth
4. Flixborough Industrial Estate, Scunthorpe
5. South Park Industrial Estate, Scunthorpe
6. Scunthorpe Industrial Estates
7. Roxby Road Industrial Estates
8. Island Carr Industrial Estate, Brigg
9. Ancholme Business Park, Brigg
10. Station Road Industrial Estate, Kirton in Lindsey
11. Humber Bridge Industrial Estate, Barton
12. Humber Road Industrial Estate, Barton
13. Elsham Wold Industrial Estate, Elsham
14. Humberside International Business Park, Kirmington
15. New Holland Industrial Estate, New Holland
16. N. Killingholme Industrial Estate, N. Killingholme



• Figure 2.6 Industrial Locations in Scunthorpe

1. Normanby Enterprise Park
2. Skippingdale Industrial Park
3. Foxhills Industrial Estate
4. Normanby Distribution Park
5. South Skippingdale Enterprise Park
6. Dragonby Vale Business Park
7. Sawcliffe Industry Park
8. Berkeley Industrial Estate
9. Glebe Industrial Estate
10. Kingsway Hi-tech Business Park
11. Midland Road Industrial Estate
12. Grange Lane Industrial Estate
13. New Brumby Industrial Estate
14. Queensway Enterprise Park
15. Lakeside
16. South Park Industrial Estate

Figure 2.7 Operational Mineral Workings in North Lincolnshire

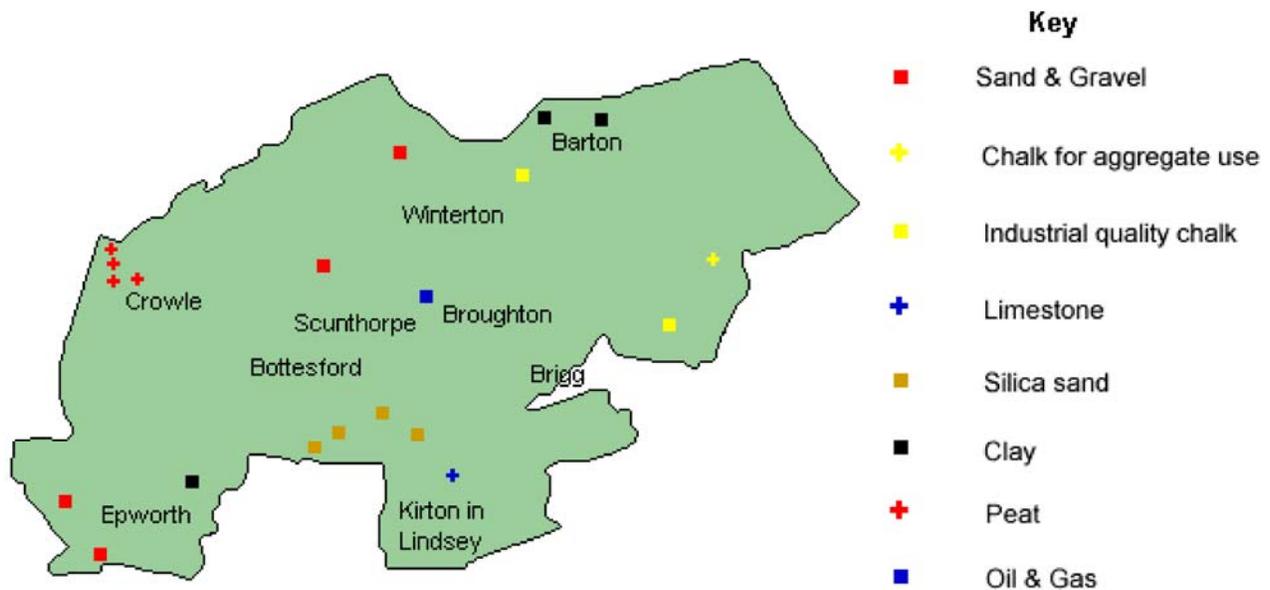
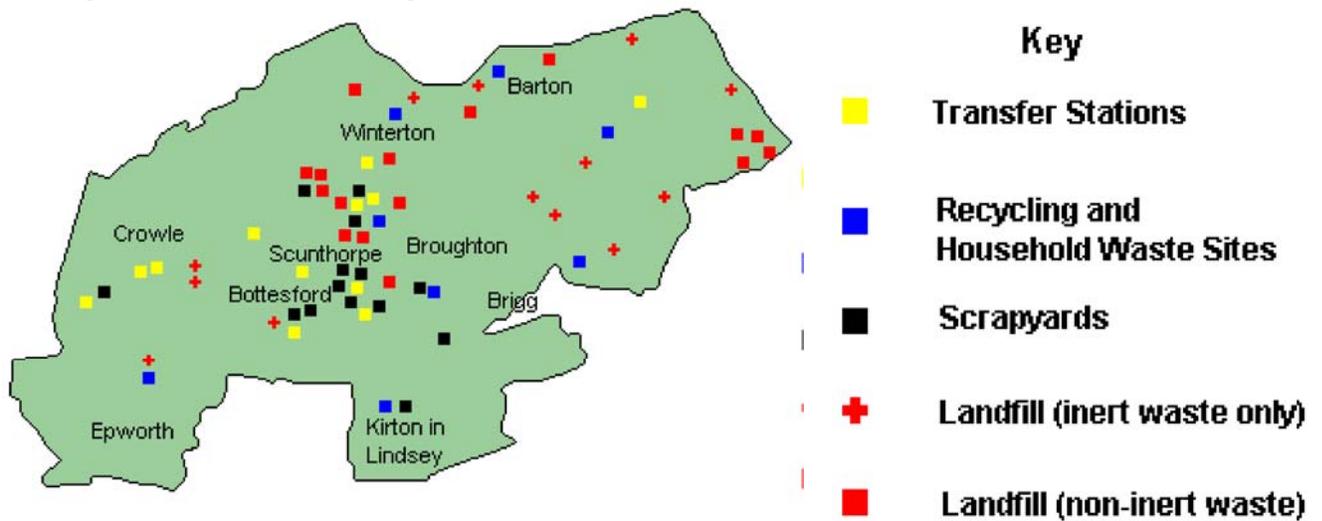
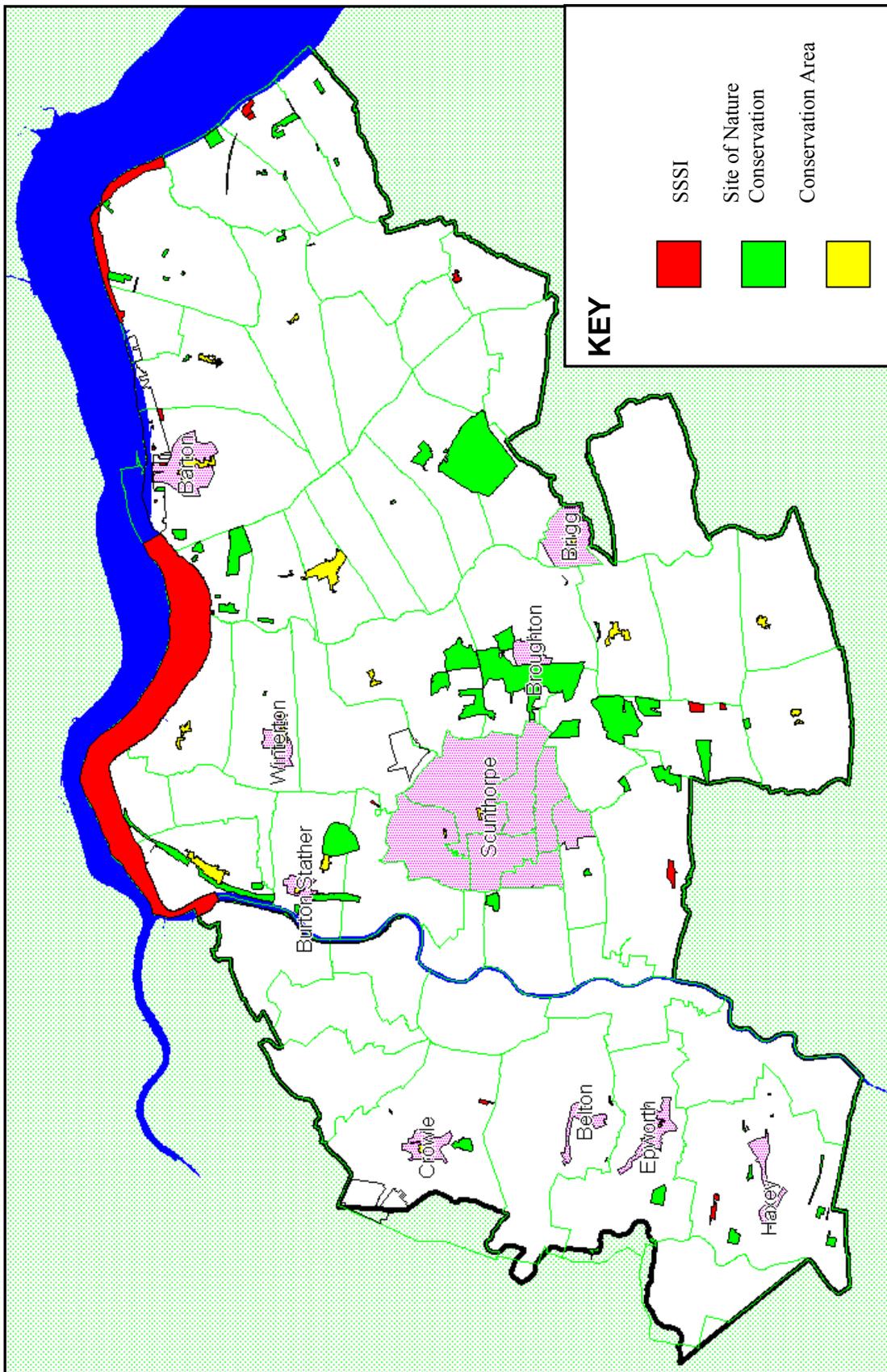
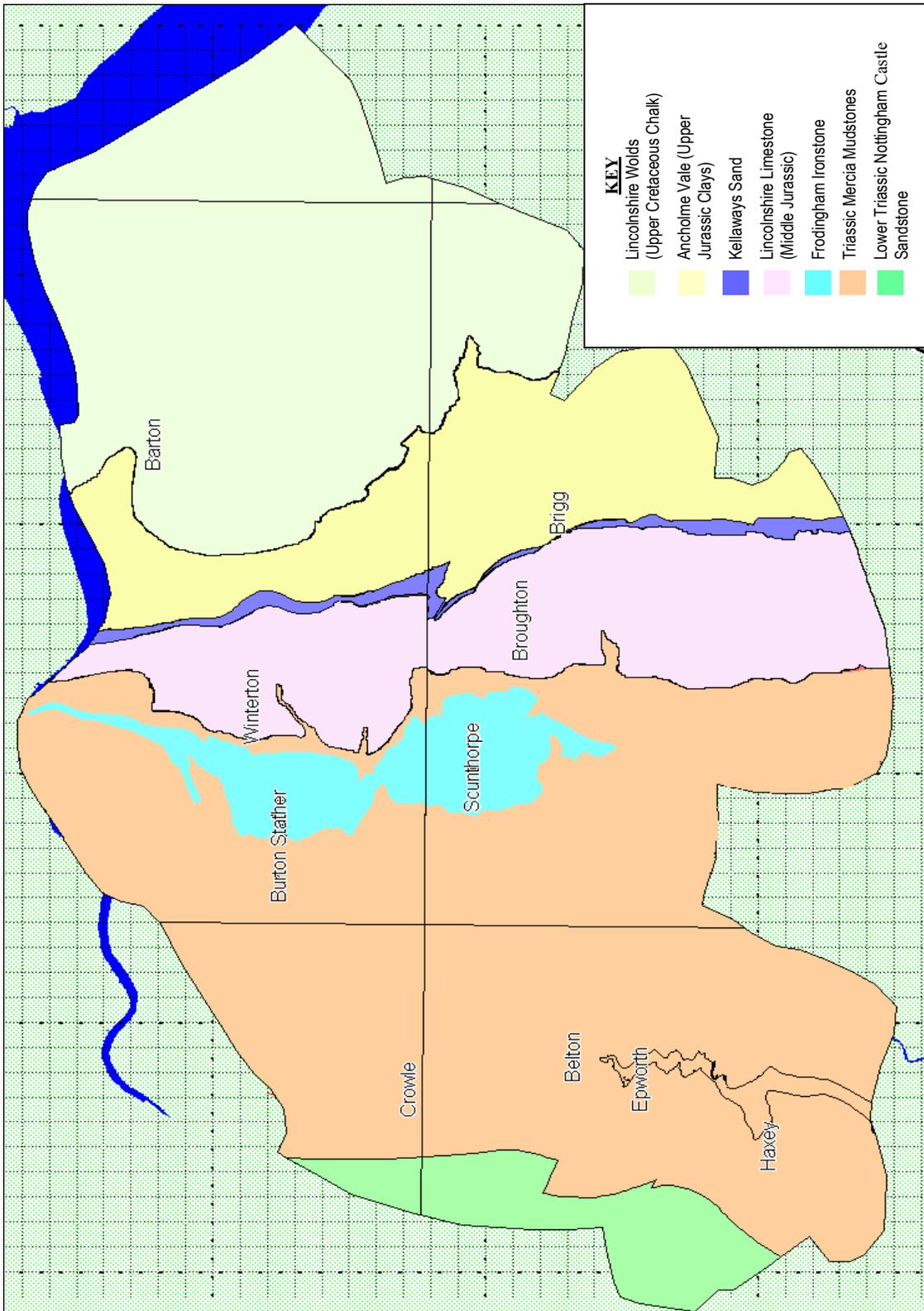


Figure 2.8 Waste Management Facilities in North





• Figure 2.9 SSSI's, SINCs and Conservation Areas in North Lincolnshire



• Figure 2.10 Generalised Geology of North Lincolnshire

Chapter 3. North Lincolnshire Council Aims and Priorities

The statutory aims of the Inspection Strategy are set out in section 1.2. This chapter will set out the unique aims and objectives of the Council in dealing with contaminated land issues, and a programme of action for meeting the objectives.

3.1 Aims of the Inspection Strategy

In addition to the statutory aims, North Lincolnshire Council's primary aim of its Strategy for Inspection is as follows:

To identify potentially contaminated land in North Lincolnshire, using a clear, robust methodology that will focus resources on inspecting those areas of North Lincolnshire where the most serious risks are likely to be found".

The objectives of North Lincolnshire Council's Inspection Strategy are set out below:

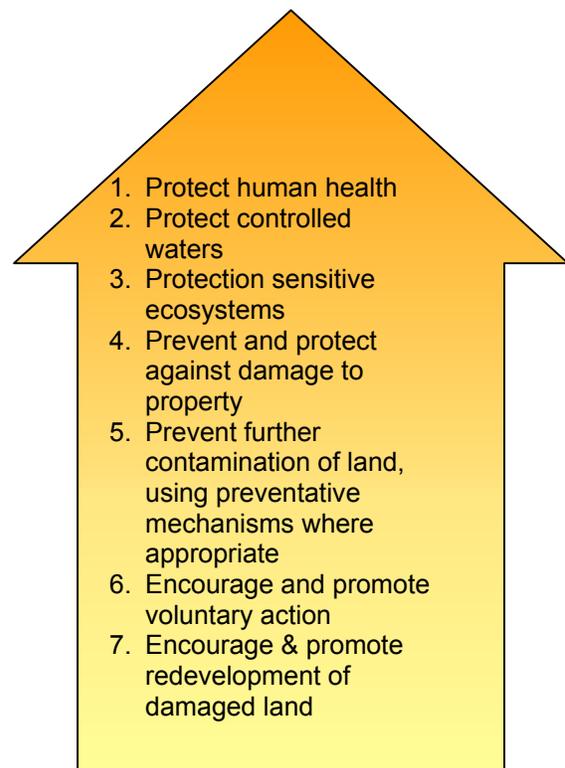
1. To prioritise North Lincolnshire Parishes for inspection based on vulnerable Part IIA within the parishes by December 2001;
2. To complete a review of the Strategy by July 2002;
3. To complete the general inspection, and identification of potentially contaminated land by December 2005;
4. To prioritise areas of potentially contaminated land for more detailed investigation by July

- 2006;
6. To educate stakeholders on Part IIA and actively promote and encourage voluntary action by local business & industry; and
7. To develop a system for the effective and efficient management of information generated by the inspection.

3.2 Council Priorities

The issues surrounding land contamination are complex and the implications are wide reaching and potentially onerous. The process of gathering information relating to individual sites is likely to be iterative, and decisions may have to be made based on limited information. The Council's priorities

Figure 3.1 Council's Priorities Relating to Contaminated Lane



for contaminated land are set out in Fig. 3.1 in priority order, and may be used to aid decision-making, having regard to the government guidance.

3.3 Programme of Action

1. Appointment of Contaminated Land Officer (May 2000)

North Lincolnshire Council appointed a new Scientific Officer for the Environmental Protection Unit, to act as the Councils' lead officer on contaminated land. The Officer is responsible for the development and implementation of the Authority's Strategy for inspection.

2. Purchase of Landmark Digital Data (May 2000)

To begin the process of inspection, North Lincolnshire Council purchased a set of digital historical ordnance survey maps for the geographical information system (GIS) software platform. Four editions of detailed 1:2500 scale mapping for North Lincolnshire have been obtained, from the following time periods or epochs:

- 1886 – 1887
- 1899 – 1890
- 1906 – 1908
- 1921 – 1932

The maps have been 'geo-rectified' to allow them to overlay existing digital ordnance survey maps. The Council is currently looking into the purchase of digital 'post-war' mapping for the area to bring the digital cartographic archive right up to the present day.

These maps can be analysed to identify areas of potentially

contaminated land, based on their historical use.

3. Purchase of Digital Geological and Geochemical Data (June 2000)

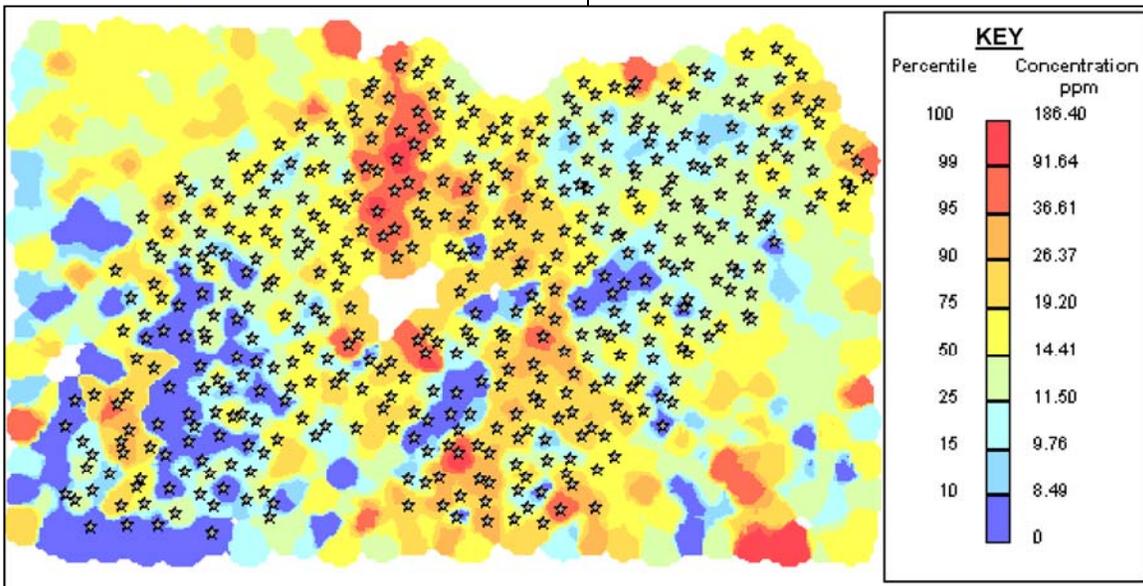
North Lincolnshire Council has purchased digital solid and drift geological mapping for the whole of the North Lincolnshire area, for use on the GIS system from the British Geological Survey (BGS). In addition, geochemical data in the form of interpolated digital maps (see fig. 3.2 below) for the following elements and physicochemical parameters were purchased:

- Arsenic
- Cadmium
- Antimony
- Lead
- Copper
- Zinc
- Nickel
- Calcium
- pH

These data were collected by BGS as part of the UK Geochemical Baseline Survey of the Environment (G-BASE), which included the rural and urban environments of North Lincolnshire. Sediments, soil and water samples were analysed for a wide range of inorganic determinands and physiochemical parameters.

This digital environmental data was analysed to establish the nature of the local geology, and determine whether any of the elements listed above were naturally enriched in the soils of the area. This has been documented in section 2.10.

Figure 3.2 Example of Interpolated Geochemical Mapping (BGS, 2000)



4. Draft Strategy for Consultation (July – December 2000)

A study of the characteristics of North Lincolnshire was carried out to provide a baseline upon which the Contaminated Land Inspection Strategy could be based (see chapter 2). The consultation draft of the Council's Contaminated Land Inspection Strategy was developed in accordance with non-mandatory technical advice relating to the drawing up of Inspection Strategies under Part IIA issued by the DETR. At the time of writing of the consultation draft, the Technical Advice was still in a draft form.

5. Dealing with Urgent Sites (Ongoing)

A piece of land may be identified at any time during the Strategy development or during the general inspection of the area where the Authority is able to verify that a significant pollutant linkage (SPL) is in imminent danger of causing serious harm.

Under these circumstances the programme of action is secondary to any urgent action needed to deal with such sites. The Authority may have to undertake investigative and remedial works before completion of the programme for inspection. The government has recognised that this is a realistic scenario and this approach is consistent with Part IIA.

This situation may involve the designation of Special Sites, in which case regulatory authority will be passed to the Environment Agency.

6. Consultation (January – April 2001)

The consultation draft of the Contaminated Land Inspection Strategy was circulated to third parties for formal consultation. Consultees included both statutory and non-statutory consultees. The consultation draft was submitted to the Councils Environment & Public Protection Committee in January 2001 for approval as a corporate policy.

The Council recognises local consultation as an important way of obtaining information relating to potential sites of interest. Local people may know of sites that have been used for a potentially contaminative activity without ever being officially recorded. This is especially feasible in North Lincolnshire where, for example, local geology has lent itself to localised small-scale quarrying, leaving holes in the landscape that may have been backfilled with waste materials.

The Council also consulted with Town and Parish Councils, in accordance with the North Lincolnshire Parish and Town Councils' charter, to which NLC was a signatory early in 1999. During the consultation exercise, Town and Parish Councils were asked to provide information or local knowledge that is relevant to the inspection within their parish.

Local history and civic societies will also be contacted as another potential source of relevant information. The consultation draft was publicised in the local press and on the Councils' website.

The consultation process generated relevant information as well as comments on the proposed Strategy. All information was given due consideration and used to modify the draft Strategy as appropriate.

7. Publication of Final Inspection Strategy (June 2001)

The Strategy was revised and finalised during June 2001. Amendments were also made as

necessary in accordance with any changes to the DETR's Technical Advice note, which was finalised in May 2001. The Strategy will be published and adopted and a copy sent to the local Environment Agency Liaison Officer for Contaminated Land.

The final Strategy will be available to the public through the usual channels (Local Link Offices, upon request) and through the Councils' website (www.northlincs.gov.uk/environment/alhealth/contamin.htm).

8. General Approach to Inspection (July 2001 – 2005)

The Council is obliged by statute to ensure that firstly, resources are concentrated on investigating those areas most likely to result in the identification of contaminated land, and secondly, that the most seriously contaminated sites are dealt with first.

The general approach to inspection in North Lincolnshire will be based on a scheme of prioritisation that aims to identify those areas where the highest concentration of vulnerable receptors will be found. The Authority will have reference to guidance contained in CLR Report No 6: *Prioritisation and Categorisation Procedure for Sites Which May Be Contaminated (Dept. of the Environment, 1995)*.

The prioritisation will be undertaken by subdividing the Authority into parishes, since many records are held on a parish basis, and the boundaries are easily identifiable on most maps.

Parishes will be prioritised for inspection purposes initially on population size, based on the assumption that larger populations exist because of localised trade and industry, which of course provides the contaminant source in a pollutant linkage. Such a scheme of prioritisation is consistent with the need to establish pollutant linkages in order to designate land as contaminated land.

Parishes will be further prioritised based on whether or not they contain other vulnerable receptors. The order of priority assigned to other vulnerable receptors will be in accordance with the Council's aims relating to contaminated land. Controlled waters will receive a higher priority than protected ecosystems, which in turn will be ranked higher than property.

The parishes of Barton on Humber, Haxey and Barrow on Humber will warrant inspection first, based on their priority scores.

The initial inspection of North Lincolnshire Town and Parish areas will be a predominantly desk-based exercise. Numerous sources of information will be consulted and used to identify potential sources, pathways and receptors during the general inspection of the area, and any further scrutiny of individual sites. Appendix A outlines some of these resources and their uses.

The investigation may bring to light further information that will warrant a reassessment of the order of

priorities for inspection. It may also reveal imminent threats of serious danger, which if verified may demonstrate a need for urgent action.

9. Council Owned Land (July 2001 – 2005)

In terms of contaminated land, North Lincolnshire Council has the following direct responsibilities:

- Sites owned or previously owned by the Authority including leased sites;
- 'Orphaned' sites where there is no appropriate person; and
- Sites where the original polluter no longer exists and contamination is migrating and affecting neighbouring sites.

As the main regulatory authority for contaminated land the Authority recognises that it is vital to adopt a responsible and transparent attitude towards dealing with contamination issues affecting publicly owned land.

As well as property linked with potentially sensitive uses, such as schools and allotments, the Council has a substantial industrial and commercial property portfolio, including:

- 60 industrial buildings and units
- 145 ground leases (Council owns the land only)
- 15 industrial estates
- 20 miscellaneous lettings. Other holdings range from open space in housing areas, to smallholdings farmed by local farmers

It is possible that the Council or its predecessors own or owned at some stage in the past land where potentially contaminative activities, like waste disposal, may have occurred, for which the present Authority has liabilities. The Council has also deliberately acquired despoiled land in the past for redevelopment and improvement of the overall quality of the local area, e.g. the Waters Edge site in Barton (former agrochemicals factory) and the Normanby Park former British Steel Corporation works in Scunthorpe.

These sites will be subject to investigation as a priority, within the general scheme of prioritisation for inspection of the area.

10. Local Plan Land (July 2001 – 2005)
Under the Town and Country Planning Act 1990, as the development authority for the area North Lincolnshire Council must draw up a development plan. The latest North Lincolnshire Local Plan Deposit Draft identifies areas of land suitable for certain types of development. Planning decisions should be made in accordance with the Local Plan wherever possible.

These areas of land will therefore be considered as a priority, within the general scheme of prioritisation for inspection of the area.

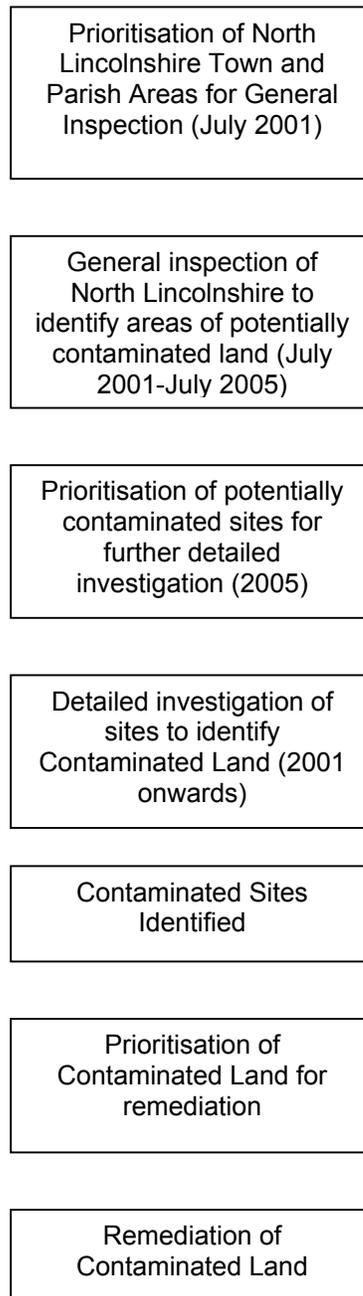
11. Final Prioritisation (2005-2006)
From the initial desktop study, sites will be identified that require further investigation, because a potential pollutant linkage has been identified. The Authority must prioritise areas of

contaminated land identified during the course of inspection of the area for further, detailed investigation. This will be carried out once the inspection of North Lincolnshire is completed.

There are currently no national guidelines for the prioritisation of potentially contaminated sites. In North Lincolnshire the prioritisation of individual sites will be achieved through a simple, but robust, 'scoring' methodology of the entire potential pollutant linkage, which places a higher priority on human health risks than on risks to other receptors.

Further detailed investigation of individual sites may involve taking samples. Any pollutant linkage will be subjected to a risk assessment to determine whether the linkage is a 'Significant Pollutant Linkage'.

Figure 3.3 Simple Flowchart Illustrating North Lincolnshire Council's Strategy for the Inspection, Identification and Management of Contaminated Land



Chapter 4. Procedures

This section will describe how the Council plans to deal with contaminated land issues. It will also detail the level of service that business and the wider community can expect from the Council in dealing with these issues.

4.1 Internal Management Arrangements for Inspection and Identification

The Environmental Protection Unit of North Lincolnshire Council has primary responsibility for the implementation of Part IIA in North Lincolnshire. As part of the Pollution Team, the Scientific Officer (Contaminated Land) is the lead officer for contaminated land, reporting to the Principal Environmental Health Officer (Pollution) and the Environmental Protection Manager.

The Scientific Officer (Contaminated Land) will be responsible for the day-to-day implementation of the Strategy for inspection of the area once approved by the Council. The same officer will also be responsible for the service of remediation notices, subject to consultation with the Environmental Protection Manager and the Council's Legal team.

Elected members will be informed at the earliest opportunity of any plans to further scrutinise and/or designate an area of council-owned land, or where the Council may be liable for remediation costs.

4.2 Considering Local Authority Interests in Land

The investigation of Council-owned land shall take place as described in Chapter 3. Land will be considered as a priority within the general approach to inspection. All sites in Council ownership will be assessed on the same basis as land in other ownership.

4.3 Information Collection

The initial inspection of North Lincolnshire Town and Parish areas will be a predominantly desk-based exercise. Numerous sources of information will be consulted and used to identify potential sources, pathways and receptors during the general inspection of the area, and any further scrutiny of individual sites. Appendix A outlines some of these resources and their uses.

It should be noted that some sources may make a charge for access to information.

The Councils GIS system will be the primary tool for the management of contaminated land information. A GIS steering group is currently looking into adopting a corporate GIS, to allow the efficient exchange of information between Council departments.

The GIS will be used to correlate information and compare receptors with sources of contamination, consider proximity, and look for potential pathways.

4.4 Complaints and Voluntary Information

From time to time a member of the public, business or the wider community may communicate a concern, or complain, to the Council about contaminated land. In addition, individuals or organisations may supply information voluntarily whether or not it affects them, or their property in any way. The receipt of any of this information may impact on the approach to inspection in North Lincolnshire.

4.4.1 Complaints / Concerns

The Environmental Protection Unit is currently developing a new complaints and enforcement policy. However, as a minimum, any complainant may expect:

- Their complaint/concern to be logged and recorded, including time and date of receipt of complaint/concern, details of complainant (name, address, postcode, contact telephone number), and name of officer receiving complaint; and
- To receive a response in respect of the complaint within three working days of receipt.

Every effort will be made to resolve complaints and concerns quickly and efficiently. However, the nature of the contaminated land regime means that some degree of investigative work may be required before a satisfactory resolution can be reached, since:

1. The authority must prove a viable significant pollutant linkage, before land can be formally designated as

contaminated;

2. The authority must consult with interested parties before designation (except in cases of urgency);
3. The authority must observe the statutory three months consultation period between designation and the service of a remediation notice (except where urgent remediation is required); and
4. The authority must make every effort to identify the original polluter or 'Class A' person(s).

4.4.2 Confidentiality and Anonymous Information

Complainants will be asked to supply their name and address, because the Council may need to contact the complainant to request further information or to provide an update on the investigation.

However, the identity of all complainants will remain confidential. It may only be made public where a remediation notice is contested in a court of law and the health effects of the complainant were an important basis for the original designation of the land.

Complainants will be encouraged in every instance to provide contact details. However, anonymously supplied information will be assessed in relation to the information held by the Council and the individual circumstances. Where it appears that there is the potential for a significant pollutant linkage the Council will undertake further investigatory work.

4.4.3 Voluntary Provision of Information

Any information supplied by a person or organisation that has no direct impact on their health, or property, will not be treated as a complaint. The information will be recorded and may be acted upon, and the Council may keep the informant up-to-date as a matter of good practice.

4.4.4 Anecdotal Evidence

Anecdotal evidence will be noted. However the Council will observe the statutory requirement that robust scientific evidence must support any designation of land. The Scientific Officer will use knowledge and experience to decide whether any further action is warranted.

4.5 Arrangements for Carrying out Detailed Inspections

Detailed inspections shall be carried out on particular areas of land identified as justifying further scrutiny through the general approach to inspection. The aims of any detailed inspection are to ensure sufficient information is available to determine whether any land appears to be Contaminated Land, and if so, whether the land is required to be designated as a Special Site.

At all stages, North Lincolnshire Council will try to encourage voluntary action (to investigate sites) by those responsible for the site, as the preferable means of action.

Evidence collected during a detailed inspection should include evidence that a pollutant (or pollutants) is (or are) actually present.

A detailed inspection may include any, or all, of the following:

- (i) 'Phase I' investigation (detailed desktop study – documentary research);
- (ii) 'Phase II' investigation (preliminary / visual inspection);
- (iii) 'Phase III' investigation (intrusive (detailed) investigation).

A risk-based approach will be taken to all investigations, as discussed in the next section.

The Authority shall endeavour to ensure that all reasonable precautions are taken during site investigations to avoid harm, water pollution or damage to natural resources or features of historical or archaeological which might be caused as a result of the investigation.

Should the need arise, the Authority may exercise statutory powers of entry (conferred under Section 108 of the 1995 Environment Act) in order to enter premises or land to carry out a detailed inspection (see also section 5.7).

If the Authority is considering a potential Special Site, it shall seek to make arrangements with the Environment Agency (as the enforcing authority for Special Sites) to carry out the detailed inspection of the land on behalf of the Authority.

Before entering any suspected contaminated site, the Authority shall give full consideration to Health and Safety Aspects. The hazard identification stage may indicate that the site poses threats to personal

safety. In addition, debris and vegetation can quickly form a superficial cover over potentially dangerous features.

Relevant guidance for H&S aspects of site investigation is included within HSE HS(G)66 Protection of Workers and the General Public During the Development of Contaminated Land (HMSO, 1991), and shall be followed at all times.

In accordance with the North Lincolnshire Council Corporate Safety Unit policy, a risk assessment for the use of personal protective equipment will be carried out where persons authorised by the Council will be entering potentially contaminated areas.

The Authority may decide to employ an external contractor to carry out a detailed inspection. Depending on the expected cost of works, the Authority may approach external professionals directly for quotations, or open tenders may be invited.

4.6 Information Evaluation – Risk Assessment

The UK approach to managing contaminated land is risk-based. The risk-based approach is underpinned by the pollutant linkage concept (see Section 1.10). Risk assessments of contaminated land will be used to evaluate information on substances in, on or under the land to verify a significant pollutant linkage, with the aim of setting targets for risk management (remediation) in an objective and scientific way. The risk assessment framework will also be used to evaluate the effectiveness of any previous action in preventing or

dealing with contamination, such as action undertaken as part of a planning permission condition.

Risk assessment should be carried out on a site-specific basis, because risks will be influenced by a number of factors, depending on the individual site, as follows:

- Sensitivity of intended use
- Nature of contamination
- Location of contamination
- Quantities (concentration) of contaminant(s)
- Physical and chemical properties of the soil
- Bioavailability of the contaminant(s)

Because of these factors, there are no prescriptive limits or guideline values for contaminant concentrations in soils. Appropriate guideline values must be selected which reflect the conditions on the individual site.

4.6.1 Principles of Risk Assessment

A model procedure for environmental risk assessment has been set out by the DETR, comprising 2 phases, each containing 2 sub-phases (see also Appendix D):

Phase 1: Hazard Identification and Assessment

Hazard Identification – information gathering through desk studies and site reconnaissance (walkover) to gain an understanding of potential risks.

Hazard Assessment – gathering of further information to refine understanding of risks, by confirming the likelihood of suspected pollutant linkages, and development of a conceptual site model.

Phase 2: Risk Estimation and Evaluation

Risk Estimation – detailed ground investigations to collect sufficient data to estimate risks from hazardous substances to receptors.

Risk Evaluation – all available risk-based information is reviewed to determine whether the estimated risks are unacceptable, taking into account any technical uncertainties.

The new Contaminated Land Exposure Assessment (CLEA) model for the derivation of guideline values for contaminants in soils is expected to be released by the DETR in 2001. The model uses human or animal health toxicity assessments for a number of exposure pathways to generate site-specific assessment criteria. The CLEA guideline values relate only to direct human health risks, so other receptors must be assessed using other appropriate criteria.

A number of other sets of generic guideline values and risk assessment models are available, which should be selected appropriately:

- **Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources, and CONSIM (EA framework)**
- **SNIFFER Framework**
- **RBCA (Risk Based Corrective Action)**
- **1992 Denmark Soil Target Values**
- **1993-1996 USA Screening levels**
- **2000 Revised Dutch Intervention Values**
- **1987 UK ICRL 59/83 (2nd Edition) 'Trigger Levels'**

When selecting soil/groundwater guideline values, care will be taken

to ensure that the set is both appropriate and relevant. Guideline values are usually based on a number of assumptions, which may or may not be relevant to any scenario the Authority is dealing with.

Advice will be sought from the Environment Agency on risk assessments where controlled waters, or potential Special Sites, are affected. It is expected that risk assessments and remediation of controlled waters will be carried out in accordance with the EA's *'Methodology for the derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources'* (EA R&D Publication 20, 1999). Advice will be sought from English Nature where a protected ecosystem is being considered as a receptor.

4.7 Interaction with other Regulatory Regimes

As indicated in Chapter 1, there are other regulatory regimes that may be used to address land contamination issues. Overlaps with Development Control, Water Pollution and IPPC legislation are considered here:

4.7.1 Development /Building Control

The vast majority of contaminated land issues are addressed through the planning regime, where contamination is a material consideration. Planning Policy Guidance 23 provides guidance to development control officers, whilst Document C of the Building Control Regulations deal with building-specific aspects of contamination.

The development control process is expected to remain the primary

mechanism for addressing contaminated land, and any remediation required as a planning condition will continue to be enforced under the planning regime.

New guidance for planners (PPG 26) is currently being drafted by the DETR and is expected to clarify when a site investigation is required, and how to address land contamination issues through the planning process.

Developers can expect to be asked to commission/carry out a phased risk assessment of any site they are proposing for redevelopment to determine whether land contamination ought to be a material planning consideration.

The Pollution Team and the Development Control Unit have recently tightened up the procedure for consultation between the teams. Planning application lists are released to the EPU on a weekly basis for consultation. The Scientific Officer is now the main point of contact for development control officers seeking advice on contaminated land issues.

4.7.2 Integrated Pollution Prevention and Control

Under the new IPPC legislation site operators are required to undertake a site condition survey as part of their application for a permit to operate a regulated industrial process.

Should a site condition survey identify areas of land that may be designated as contaminated under Part IIA, then the submission of a

site survey may trigger regulatory action under Part IIA.

Existing processes will be brought under the new IPPC legislation in stages over the next seven years, although it will apply to any new processes or any substantial change to an existing process.

4.7.3 Water Pollution Legislation

The Environment Agency has powers to take action to prevent or remedy the pollution of controlled waters, under section 161 of the Water Resources Act 1991. This will allow remediation to take place via the issue of a works notice. Part IIA does not revoke these powers, however the DETR have indicated that in future such problems should now be dealt with under Part IIA, unless the contaminant is wholly on or in the controlled water. Therefore, for issues of water pollution:

- The Council will consult with the EA before designating any contaminated land as a result of risk to controlled waters and will consider any comments made with respect to remediation.
- If the Agency identifies a risk to controlled waters from contaminated land, the Council will be notified to enable designation of the land and remedial action will be taken under Part IIA.

Chapter 5. General Communication and Liaison

Much of the work proposed in this Strategy that will take place under Part IIA will require effective communication and liaison with other individuals and organisations.

5.1 Statutory Consultees

Contact has been established with officers from all organisations acting as statutory consultees for the Inspection Strategy (see Appendix D):

- Environment Agency
- English Nature
- English Heritage
- Ministry of Agriculture, Fisheries and Food (MAFF)
- Yorkshire Forward
- Food Standards Agency (FSA)

The statutory consultees will be invited to comment on the consultation draft of the Strategy.

The Authority will also consult with:

English Nature - when considering land that may be Contaminated by virtue of an ecological system effect;

The Environment Agency - when considering land that may be contaminated by virtue of pollution of controlled waters;

English Heritage - when considering land that may include any features of historical and archaeological interest; and

MAFF and the FSA - when considering land that may be contaminated by virtue of damage to

property in the form of crops or livestock.

Environment Agency operational boundaries are defined by river catchment area. Agency offices at Trentside, Nottingham, and Waterside, Lincoln, cover areas of North Lincolnshire. Initial liaison will be carried out through the Waterside office, with the Trentside Liaison Officer for contaminated land being consulted as required.

5.2 Non-statutory Consultees

There is considerable scope for involvement of local business, the public and the wider community in addressing contaminated land issues in North Lincolnshire.

As described in Chapter 4, Town and Parish Councils, local history and civic societies, as well as local business and industry and the general public were encouraged to comment on the draft Strategy, and will be encouraged to participate in the general process of identifying and investigating potentially contaminated land. This approach is consistent with the Council's approved objectives for emphasising transparency and openness and encouraging the community to be involved.

Interested parties within North Lincolnshire Council were also able to comment on the draft Strategy, and will be able to assist in the inspection of North Lincolnshire, by the provision of information.

5.3 Communicating with Owners, Occupiers and Other Interested Parties

One of the Council's aims for contaminated land is to encourage and promote voluntary action, as the preferred alternative to enforcement action ('persuade and cajole', rather than 'command and control'). In many cases, an effective solution is more likely to be achieved by agreement.

The government believes that the clarity and consistency contained in Part IIA and the accompanying guidance lends itself towards the encouragement of voluntary action. Polluters will be able to act in advance of regulatory enforcement under Part IIA. Another incentive is the fact that materials requiring disposal through voluntary remediation only will be granted exemption from expensive landfill taxes. The service of remediation notices will be recorded on the statutory public register of Contaminated Land, and this could be avoided if voluntary action is undertaken.

Effective communication between polluters, owners, occupiers and other interested parties is required to effectively encourage and promote voluntary action. The Scientific Officer will be the main point of contact within the Council for contaminated land issues and will endeavour to keep polluters, owners, occupiers and interested parties fully informed about the progress of an investigation, whether or not the outcome will be a formal designation of land as Contaminated Land.

5.3.1 Definition of 'Appropriate Persons'

For the purposes of Part IIA, an 'appropriate person' is defined as:

Class A Person(s) = the original polluter(s) (persons causing or knowingly permitting the contaminants to be in, on or under the land); or

Class B Person(s) = the owner or occupier for the time being of the land in question.

5.4 Formally Designating an Area of Contaminated Land

Wherever there is a requirement to formally designate an area of land as Contaminated Land, the Authority will take the following actions:

- write to the owner and/or the occupier and any appropriate person(s), notifying them of the Authority's intention to designate the area, and summarising the basis for the determination. The letter will notify them of the capacity in which they are being informed, e.g. owner of the land. The Authority will also notify the Environment Agency Liaison Officer at this stage of its intention to designate the area of land. This will take place at least 5 working days prior to the designation. If the area of land is being considered as a potential Special Site, the Environment Agency will be notified as such at this stage;
- write to the owner and/or the occupier and any appropriate person(s), together with the EA Liaison Officer, informing them that the land has been designated as Contaminated

Land. This letter will seek to encourage remediation without the service of a remediation notice. This notification will also inform the recipient about tests for exclusion from, and apportionment of liability;

- dispatch a copy of any additional information required to facilitate consultation, requested by any persons notified, within 5 working days of receipt of the request;
- write to the owner and/or occupier of neighbouring properties within 5 working days of formally designating an area, notifying them of the designation.
- If any other person is identified at any stage as an appropriate person for the purposes of remediation, they will be notified in writing as soon as possible, and informed of progress to-date.

5.5 Formal Designation of Special Sites

If the Authority decides that an area of land might need to be designated as a Special Site it will write to the relevant EA Liaison Officer requesting their advice, prior to the formal designation of the land as Contaminated Land.

If the Authority decides, having regard to any advice, that the area of land will be designated as a Special Site, it will notify the owner and/or occupier, and any appropriate person(s), as well as the Environment Agency, in writing of the designation.

5.6 Service of a Remediation Notice

The Authority will observe the statutory three-month period between notification of appropriate persons of the designation of an area of Contaminated Land, and the service of a remediation notice.

An exception applies where the Secretary of State is asked to decide whether an area of land is to be designated as a Special Site. Where the Authority receives notification from the Secretary of State that the land is not to be designated as a Special Site, a period of three months will elapse from receipt of the notification before the service of a remediation notice.

Wherever the Authority considers that there are sufficient grounds for the service of a remediation notice, the following actions will be taken:

- a remediation notice will be served on all appropriate person(s), specifying the remediation action required;
- a copy of the remediation notice will be sent to the EA and the owner and/or occupier of the contaminated land; and
- the Authority will write to the owner/occupier of neighbouring land within 5 working days of the notice being served.

Should any urgent remediation of land be required, these steps will be observed as far as practicable, although some deviation from the timescales specified is to be expected. In particular, the Authority is exempted from prior consultation

before the service of a remediation notice, and observing the three month time elapse between the notification of designation of Contaminated Land and the service of a remediation notice.

5.7 Powers of Entry

The enforcing Authority is required to give at least seven days notice to the occupier where entry onto residential premises is proposed, or where mobilisation of heavy equipment is required, to carry out an inspection. If consent is not given, the authority may exercise statutory powers of entry conferred under Section 108(6) of the Environment Act 1995 in order to carry out an inspection.

Where the Environment Agency is to carry out an inspection using statutory powers of entry on behalf of the Authority, the Authority shall authorise a person nominated by the Agency to exercise S.108 powers of entry.

The seven-day notice period may be waived where the Authority considers that there is an immediate and serious risk to human health or the environment.

5.8 Enforcement Action

Contaminated land investigations and enforcement action will be carried out in accordance with the Council-wide Enforcement Concordat, which aims to ensure consistent, fair and transparent practices are used when taking enforcement action (see section 1.6).

5.9 Risk Communication

The Council recognises that contaminated land issues are often

complex, with a need to resolve conflicting views. The risk-based approach adopted by the new regime means that harm regarded as 'significant' under Part IIA may be viewed very differently by others. There are a number of factors that influence the perception of risk to the individual:

- Level of familiarity with the issue
- Level of personal control over the issue/event
- Proximity in space
- Proximity in time
- Scale of event
- Personal values
- Life experience
- Culture
- Background

Any of these factors may create barriers to effective communication. In addition, the views of any stakeholder may change with time, and ultimately, decisions on risk acceptability are personal and subjective.

The Council recognises that effective and efficient communication is a two-way process. When dealing with any site, the Council will aim to initiate communication with all interested parties at an early stage, and be open and inclusive. By providing clear information, the Council will try to share a good understanding of risks to allow interested parties to raise their concerns and hopefully participate in the process of managing contaminated land risks.

Any concerns raised by a stakeholder will be treated seriously and with respect, recognising the

importance of the issue to the individual or group. Anyone with concerns relating to contaminated land may contact the Scientific Officer to discuss their concerns.

Whilst community acceptance of decisions is considered important for the successful management of contaminated land issues, the local authority only has powers to address unacceptable and significant risks. In addition, remedial action is only required to eliminate unacceptable risks, and no more. It is anticipated that some members of the community may have difficulty accepting this.

The expectations of some members of the public will not be met by the powers of local authorities under Part IIA.

5.10 The Public Register

The Council is required to maintain a register of statutory Contaminated Land, for public inspection. The Environmental Protection Unit based at Church Square House in Scunthorpe will hold the register. It will be accessible on request during office hours, Monday to Friday.

The register is likely to be paper-based for the foreseeable future. The Contaminated Land (England) Regulations 2000 clearly prescribe the information to be held by the register, including:

- **Remediation notices, including appeals against notices;**
- **Remediation declarations and remediation statements;**

- **Notices of designation of special sites; and**
- **Convictions in relation to remediation notices.**

Information affecting national security and commercially confidential information is excluded from inclusion on the public register. It will not include land identified as potentially contaminated. Neither will it include research documents used to investigate a potentially contaminated site.

Written requests for information under the Environmental Information Regulations (1992) will be dealt with within the statutory timescale for response (currently 2 months).

5.11 Provision of Information to the Environment Agency

The Agency is required to prepare a State of Contaminated Land Report for the Secretary of State of the Environment, Transport and Regions either on request, or 'from time to time' (s.78U(1), EPA 1990). The report will include:

- **a summary of local authority Inspection Strategies, including progress made against the Strategy and its effectiveness;**
- **the amount of contaminated land in England and Wales and the nature of the contamination; and**
- **measures taken to remediate land;**

This national report will be based on information provided by local authorities. A memorandum of

understanding has been drawn up between the Environment Agency and the Local Government Association setting out how information is to be exchanged between the local authorities and The Agency. The Council will provide information to the Environment Agency following these agreed guidelines.

The Council will provide information to the Agency whenever a site is designated as Contaminated Land, and whenever a remediation notice, statement or declaration is issued or agreed, using standard forms provided by the Agency for this purpose.

Chapter 6. Mechanisms for Review

The Strategy describes the general approach that will be taken in inspecting the North Lincolnshire area for potentially contaminated land. This section will describe triggers for undertaking inspections outside of the general approach, triggers for reviewing inspection decisions, and a mechanism for reviewing the Strategy. The frequency of inspection of the area for the purpose of identifying contaminated land is also addressed in this section.

6.1 Triggers for Undertaking Inspection

As discussed in Chapter 3, there may be a need to carry out inspections outside of the general approach to inspection. Triggers for such inspections will include:

- **Unforeseen Events** – e.g. any contaminative incident like spillages, where consequences cannot be addressed through other relevant environmental protection legislation;
- **New receptors** – e.g. housing proposed for a potentially contaminated site;
- **Localised health effects** apparently relating to a particular area of land;
- **Responding to information** on particular areas of land.

Non-routine inspections must not be allowed to significantly interfere with the general approach to inspection, if the overall Strategy is to prove effective. This issue will be

considered before undertaking any non-routine inspection.

6.2 Triggers for Reviewing Inspection Decisions

There may be situations where changes in the condition or circumstances of the land or its surrounding environment prompts the Authority to review its inspection decision for a particular area of land, outside of the routine review cycle. Triggers for such a review may include:

- **Proposed changes in use of surrounding land;**
- **Unplanned changes in use of the land;**
- **Unforeseen events – where consequences cannot be addressed through other relevant environmental protection legislation;**
- **Localised health effects apparently relating to a particular area of land;**
- **Verifiable reports of unusual or abnormal site conditions;**
- **Responding to information from other statutory bodies, owners or occupiers, or other interested parties.**
- **Significant changes in legislation;**
- **Significant precedents set by case law decisions;**
- **Significant reviews in toxicological data upon which risk assessments based.**

Care will be taken to ensure that all decisions are made and recorded consistently and clearly for efficient review.

6.3 Review of the Strategy

As part of quality management practices, there will be a need to review the Strategy for inspection routinely to ensure that it represents an efficient use of resources and that it is effective in meeting the requirements of the Part IIA regime.

The strategy will be revised and finalised for publication in June 2001. The next stage will be implementation, in terms of the general inspection of North Lincolnshire for potentially contaminated land.

The strategy will therefore be reviewed in terms of the milestones set out in Chapter 3 after one full year of implementation (in July 2002). If the strategy is significantly changed, it will be reviewed annually in following years.

If the strategy is found to be operating satisfactorily, the next review will be in 2006, when the first inspection of the area has been completed and sites prioritised for remediation.

The authority has a duty to inspect its area 'from time to time' under the legislation. The frequency of inspection is not prescribed, however. The 2006 review will be used to consider the frequency of inspection, based on the results of the first inspection and local circumstances.

Whenever any amendments are made to the Inspection Strategy in the light of a review, an amended Strategy will be sent to the Environment Agency.

Chapter 7. Resource Requirements

In order to carry forward the proposed Strategy for inspection, certain manpower and financial resource needs to be made available. This section will briefly set out these resource implications.

7.1 Staffing Implications

The council has employed the Scientific Officer (Contaminated Land) on a 2 year fixed term contract, which is due to expire in April 2002.

However, a period of five years has been proposed for the initial inspection of North Lincolnshire, based on the size of the area and its rich industrial heritage.

Therefore, in order to implement the Inspection Strategy, and carry forward enforcement action in relation to Part IIA, the Council will need to ensure that sufficient manpower resource is made available from April 2002.

7.2 Financial Requirements

The Council will need to make financial resource available for the following purposes:

7.2.1 Site Investigations

There will be circumstances where the Council will have to pay for site investigations in order to verify pollutant linkages and designate sites as 'Contaminated'. A typical 'Phase 1' investigation tends to cost between £1K and £2K, whilst a more detailed 'Phase 2' investigation will cost in the region of £5-15k,

depending on the site itself. The Council is eligible to apply to the DETR for Supplementary Credit Approval (SCA) funding for intrusive site investigations.

7.2.2 Remediation

The Council may have to pay for remediation to make a site fit for use, either where it is the original polluter, or for 'orphan' sites. It may also have to pay for urgent work. Money needs to be available for this. The cost of remediation depends on a number of factors, including the sensitivity of the end-use. The Council is eligible to apply to the DETR for SCA funding for remediation projects.

7.2.3 Training

Training in the use of the SNIFFER risk assessment framework and MapInfo GIS has already been secured. However, further training may be required, particularly in the use of the CLEA guidelines when they are made available.

Appendix A Sources of Information for Part IIA

Resource	Information	Use
Historical Ordnance Survey Maps (25")	Digital mapping of North Lincolnshire obtained through Landmark (1880's-present)	To identify potential sources, pathways and receptors
Geological Maps	Digital solid and drift geology of North Lincolnshire obtained from BGS (1:50,000)	To identify potential receptors and pathways
Geochemical Mapping	Digital elemental and physicochemical data for North Lincolnshire soils, supplied by BGS, supplied as interpolated maps	To identify potential sources
Hydrogeological Maps	Groundwater Vulnerability maps produced by the former National Rivers Authority (NRA) (sheets 12, 13, 18 & 19), illustrating groundwater resources (1:100,000 series)	To identify potential receptors and pathways
Groundwater Source Protection Zones (SPZ's)	Areas defined by the EA for the purpose of protecting groundwater abstraction sources against pollution. Obtained from the EA website (www.environment-agency.gov.uk) for use on a GIS	To identify potential receptors and pathways
Aerial Photographs (Development Plans)	Digital aerial photography of present-day North Lincolnshire for use on GIS	To identify potential sources, pathways and receptors
Statutory Planning Register (Development Control)	Registers of planning permission maintained by local planning authority. May contain details of use	To identify potential sources and receptors. Note: consents may not have been implemented
North Lincolnshire Local Plan (Development Plans)	A new plan is currently on deposit draft and is a valuable source of up-to-date information on land use	To identify potential sources and receptors.
Discharge Consents to controlled Waters, issued by EA under Water Resources Act 1990	Details and conditions of discharge. Supplied by EA in general package of information relating to Part IIA	To identify potential sources and pathways
Discharge Consents to Sewers, issued by water company (Anglian or Severn Trent) under Water Industry Act 1991)	Details and conditions of discharge. Available from sewerage undertaker.	To identify potential sources and pathways
Dedicated Sludge Disposal Site Register maintained by local water companies	Information relating to sludge disposal. Sewage sludge has probably been disposed in the North Lincolnshire area as an agricultural conditioner/fertiliser.	To identify potential sources
Part A IPC (IPPC) Process Authorisations (EA)	Details of authorisations required for polluting industrial processes are available from the EA website, and were also supplied in the general package of information by the Agency for part IIA.	To identify potential sources
Part B IPC Process Authorisations (Environmental Protection Unit)	The Pollution Team of the Council maintains an up-to-date register of authorisations for polluting processes subject to Local Authority control, as well as information on revoked authorisations.	To identify potential sources
Waste Management Licences (EA)	The EA maintain a public register of sites licensed for waste management activities and have provided this information as part of the package of information for Part IIA	To identify potential sources
Sites and Monuments Records	The Authority collects, stores and makes available archaeological information for North Lincolnshire	To identify potential sources and receptors
Minerals Surveys	The Authority may still hold information relating to minerals workings in the area which may assist in identifying areas of waste disposal	To identify potential sources
Local Authority Nuisance Complaint Records	North Lincolnshire Council maintains records of nuisance complaints and investigations for the area	To identify potential sources / known information on contamination
National Land Use Database (NLUD) (Development Plans)	Information collated as part of an ongoing project to identify areas of land suitable for redevelopment in North Lincolnshire	To identify potential sources, and previous land-use

Appendix B Glossary of Terms

Abstraction	Removal of water from any source, either temporarily or permanently, usually by pumping.
Abstraction Licence	Statutory document issued by the Environment Agency to permit removal of water from a supply source. Can contain conditions e.g. limit daily quantity abstracted etc.
Alluvial deposits	Sedimentary deposits (usually clay, silt, sand & gravel) resulting from the action of a river or other body of flowing water. Typically fine-grained material carried by water and deposited in areas such as flood plains.
Aquifer	A permeable geological stratum or formation that is capable of both storing and transmitting water in significant amounts.
Aquifer, Major	Highly permeable rock formation. May be able to support large abstractions for public water supply.
Aquifer, Minor	Lower permeability rock formation. Unlikely to support major abstraction but important in terms of local water supply and supplying base flow to rivers.
Bioavailability	Availability of a substance (e.g. contaminant in soil) for uptake into a living organism.
Biodiversity	Diversity of biological life, the number of species present.
Borehole	Generally a small diameter bored hole used to exploit an aquifer. Synonymous with the term 'well'.
Brownfield site	A site that has been generally abandoned or underused that can be redeveloped through change in use. Redevelopment may be complicated by contamination. Only a small proportion of brownfield sites will meet the definition of 'contaminated land'.
Cadmium	Very toxic heavy metal with a wide variety of uses.
Catchment	Total area from which a single river system collects surface run-off.
Civic Amenity site	Facility provided by local authority for householders to take household wastes not normally collected on domestic waste collection rounds, and garden wastes.
Conservation Areas	Areas within which there is a duty to pay special attention to preserving or enhancing their character or appearance. There are 17 in North Lincolnshire.
Contaminated Land	Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that (a) Significant harm is being caused or there is a significant possibility of such harm being caused; or (b) Pollution of controlled waters is being, or is likely to be caused.
Controlled Waters	All rivers, canals, lakes, groundwaters, estuaries, and coastal waters to three nautical miles from the shore, including the bed and channel which, for the time being, may be dry.
Deposit Draft	The first formal stage of the Local Plan process. The local planning authority preparing the Plan must make it available 'on deposit' for a six week period to allow objections to be made. Objections made at the deposit stage entitle the objector to appear at any forthcoming public enquiry.
Derelict	Land damaged by industrial or other development. Often incapable of redevelopment for beneficial use without remedial treatment.
DETR	Department of the Environment, Transport and Regions
Discharge Consent	Statutory document issued by the Environment Agency. Can authorise entry and indicate any limits and conditions on the discharge of an effluent to a controlled water.
Drift Deposits	Includes all unconsolidated material superficial deposits (e.g. alluvium, etc.) overlying solid rocks.
EA	Environment Agency of England and Wales.

Appendix B Glossary of Terms

Ecology	Study of relationships between organisms and their environments.
Ecological System	(Ecosystem). A functioning, interacting system composed of one or more living organisms and their effective environment, in biological, chemical and physical sense.
Environmental Protection Act 1990	Main piece of UK legislation controlling the protection of the environmental media (air, land and water)
Flood Plain	Includes all land adjacent to a watercourse over which water flows or would flow but for flood defences in times of flood.
General Quality Assessment (Chemistry) (GQA)	Environment Agency national scheme for classification of rivers and (Chemistry) (GQA) canals. Quality is described in terms of the biochemical oxygen demand, ammonia and dissolved oxygen in the water samples, expressed as percentiles (see below for table of classifications)
Glacial deposits	Describes all unconsolidated superficial deposits overlying solid rock left by glacial activity.
Groundwater	All subsurface water as distinct from surface water. Generally groundwater is considered to be that water which is below the saturation zone and contained within porous SOil or rock (aquifer).
Hectare	Unit of area 100m x 100m, equal to 2.471 acres.
Hydrogeology	Study of the occurrence and movement of groundwater and the interaction with geology.
ICRCL	Interdepartmental Committee for the Redevelopment of Contaminated Land. Produced widely used 'trigger' values for contaminants in soils.
Integrated Pollution Control (IPC)	An approach to pollution control in the UK which recognises the need to look at the environment as a whole, so solutions to particular pollution problems take account of potential effects upon all environmental media.
Integrated Pollution Prevention and Control (IPPC)	Supersedes IPC. Aims to prevent, or where that is not practicable, to reduce emissions to environmental media including measures concerning waste, in order to achieve a high level of environmental protection as a whole.
Jurassic	Geological time period between approximately 135 and 195 million years ago (see Appendix C for Geological Timescale)
Landfill	The engineered deposit of waste into or onto land in such a way that pollution or harm to the environment is minimised or prevented and, through restoration, to provide land that may be used for another purpose.
Local Nature Reserve (LNR)	Nature reserves of local significance established and usually managed by local authorities, who are empowered to designate such sites under the National Parks and Access to the Countryside Act 1949.
National Nature Reserve	Area of national importance for nature conservation (NNR)
NLUD	National Land Use Database
PH	A measure of the acidity or alkalinity of a liquid; a pH less than 7 is acidic, greater than 7 is alkaline, and a pH of 7 is neutral.
Planning Policy Guidance (PPG)	A series of planning policy statements produced by the DETR to give guidance to local authorities, applicants, the public and consultees on a range of planning matters.
Pollution of Controlled Waters	Defined under Section 78A(9) as 'the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'.
PPG23	Planning and Pollution Control. Notes which set out the Government's policies towards planning and pollution control which must be taken into account by Planning Authorities.
RAMSAR	Wetland site of international importance that is designated under the RAMSAR convention agreed in Iran in 1975.
Risk Assessment	Study of the probability, or frequency, of a hazard occurring and the magnitude of the consequences.
Saturated Zone	Zone of an aquifer below the water table.
Scheduled Ancient Monument (SAM)	Key national archaeological sites, designated by the Secretary of State for National Heritage.
Site of Importance for Nature Conservation (SINC)	Sites of local importance for conservation of wildlife.

Appendix B Glossary of Terms

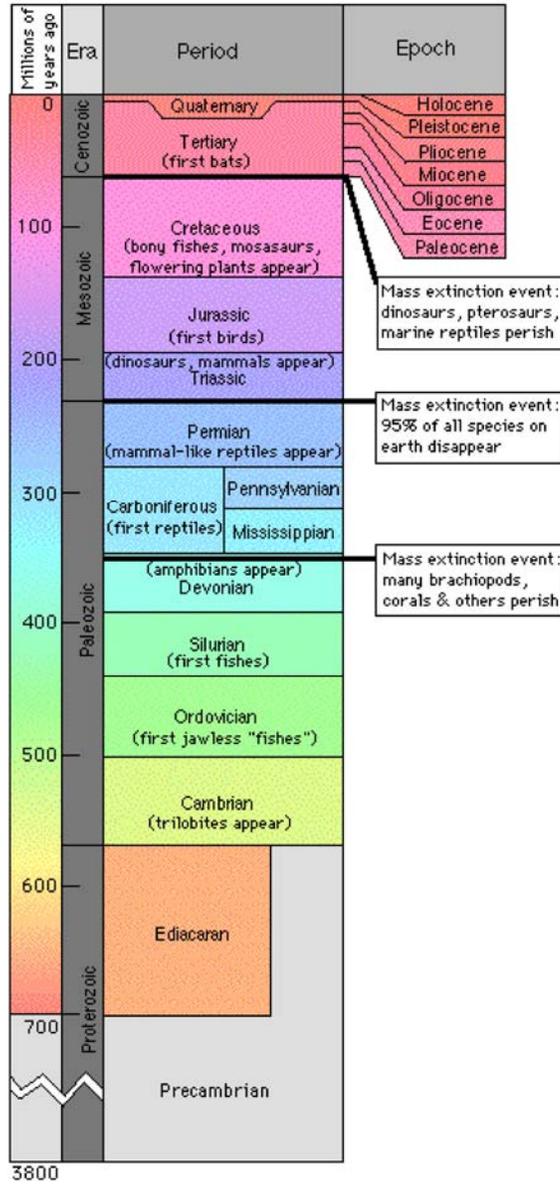
Site of Special Scientific Interest (SSSI)	Site statutorily designated by English Nature because of its nature conservation value.
Source Protection Zone (SPZ)	Area over which recharge is captured by an abstraction borehole. Designated by the Environment Agency to protect drinking water supplies against pollution.
Special Areas of Conservation (SAC)	Areas designated under the EC Habitats Directive
Special Protection Area (SPA)	Statutory protected habitats for wild birds under EC regulations.
Special Site	Land designated as contaminated and subject to regulation by the Environment Agency.
Strata	Rocks that form layers or beds.
Surface Water	Water collecting on and running off the surface of the ground.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Transfer Station	Place where refuse, collected from premises, is compacted into large containers and transported onwards for disposal.

Environment Agency Standards for the GQA (Chemistry)

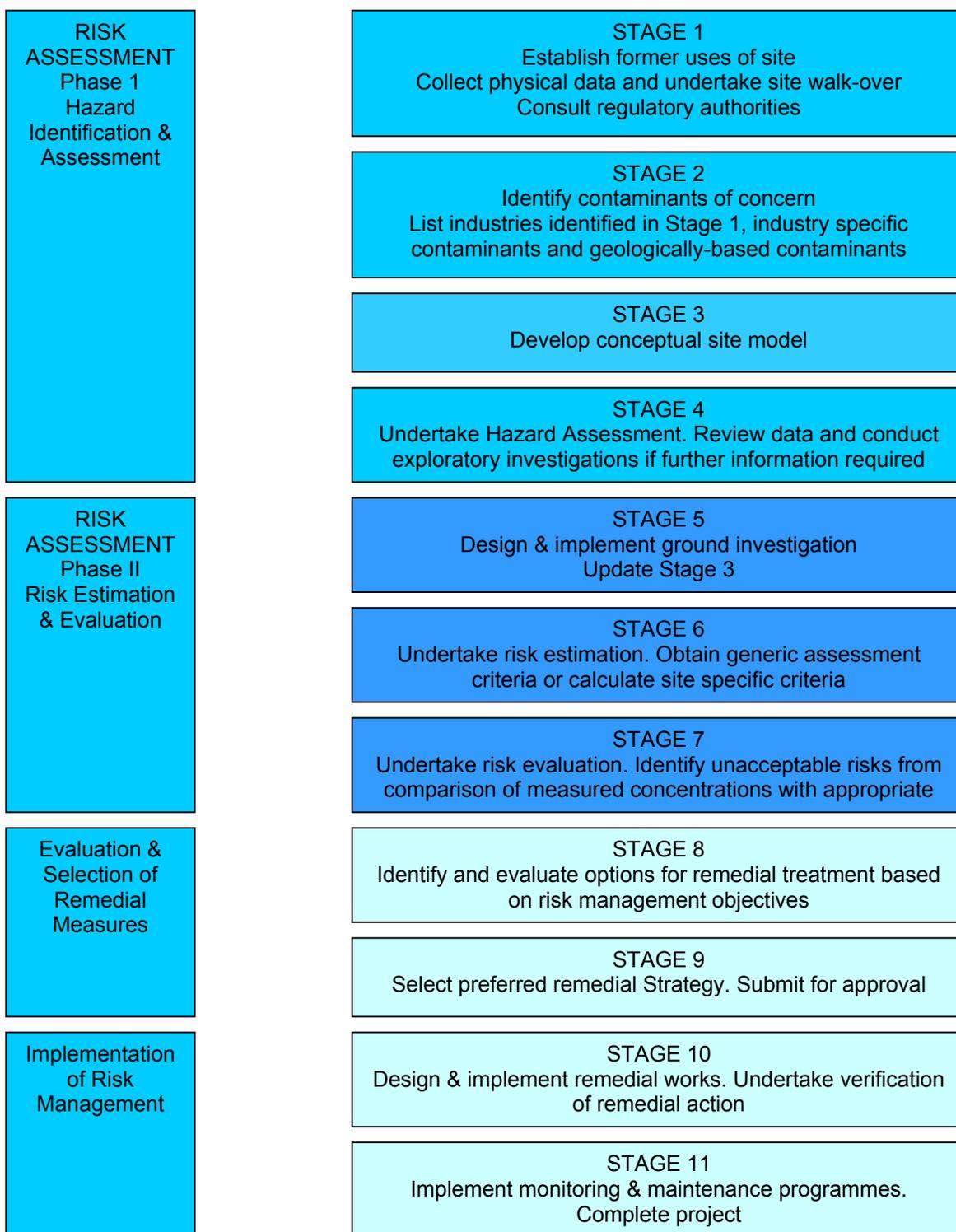
Quality Description	Dissolved oxygen (Percentage saturation 10-percentile)	Biochemical oxygen demand (mg/l) 90-percentile	Ammonia (mgN/l) 90-percentile
Very Good	80	2.5	0.25
Good	70	4	0.6
Fairly Good	60	6	1.3
Fair	50	8	2.5
Poor	20	15	9.0
Bad	<20	>15	>9.0

(source: <http://www.environment-agency.gov.uk>, 2001)

Appendix C Geological Timescale



Appendix D Schematic of Risk Assessment & Management – Main Stages



Source: Environment Agency, 2000

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[www.northlincs.gov.uk/
environmentalhealth/contamin.htm](http://www.northlincs.gov.uk/environmentalhealth/contamin.htm)

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