APPENDIX 4: ENVIRONMENTAL ISSUES

4.1 Noise

4.1.1 Background

Noise can have a significant effect on the environment and quality of life enjoyed by individuals and communities. The World Health Organisation definition of noise nuisance is "A feeling of displeasure invoked by noise". The perception of noise is influenced by many factors, but in general the impact in response to a noise depends on the level of noise, the margin by which it exceeds the background level, its spectral character and temporal variation. In some cases, other factors such as time of day, day of the week, duration and other acoustic features such as tonality and impulsiveness will be important. Potential impacts due to noise can include annoyance, interference with communication, fatigue, increased heart rate, reduced sleep quality and a reduced sense of well being.

In response to significant levels of complaint with respect to noise nuisance, the Noise Regulations 1994 were enacted through the Environmental Protection Agency Act 1992 (EPA Act). These Regulations brought into effect Sections 106, 107 and 108 of the EPA Act, giving the Environmental Protection Agency powers to control noise nuisance associated with large scale (mainly industrial) operations and Local Authorities the ability to control noise nuisances caused by all other types of activities. The Regulations also enable individuals to make complaints with respect to noise nuisance problems. Noise from the movement of aircraft in and around airports and airfields is exempt from the provisions of the EPA Act, and this type of noise is currently controlled through international conventions on the control of aircraft noise. However, the implementation of the proposed EU Directive[1] relating to the assessment and management of environmental noise will establish a framework for the monitoring and control of noise sources such as airports and major highways. The Irish Government is committed to its implementation, where the member state requirements include:

- indication of limit values in force or under preparation (in terms of day and night);
- designation of competent authorities (which is understood to be the local authorities such as Fingal County Council);
- preparation and approval of noise maps; and
- preparation and approval of action plans.

Member States are to collect the Strategic Noise Maps and the Action Plans and to forward to the Commission the information contained in the Strategic Noise Maps and the summaries of the Action Plans **within 6 months of the dates stated below** for the preparation of Maps and Plans. Information to be sent includes, inter alia:

- **For** agglomerations: The estimated number of people (in hundreds) living in dwellings that are exposed to each of the following bands of values of Lden in dB 4 m above the ground on the most exposed façade: 55-59, 60-64, 65-69, 70-74, >75. Figures to be rounded to the nearest hundred.

[1] Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002, Official Journal L 189, 18/07/2003 P. 0012-0026

- For agglomerations: The estimated number of people (in hundreds) living in dwellings that are exposed to each of the following bands of values of Lnight in dB 4 m above the ground on the most exposed façade: 50-54, 55-59, 60-64, 65-69, >70. Figures to be rounded to the nearest hundred.
- In case of graphical presentation, strategic maps must at least show the 60, 65, 70 and 75 dB contours.
- **For major roads, major railways or airports**: The estimated number of people (in hundreds) living outside agglomerations in dwellings that are exposed to each of the following bands of values of Lden in dB 4 m above the ground on the most exposed façade: 55-59, 60-64, 65-69, 70-74, >75.
- The estimated number of people (in hundreds) living outside agglomerations in dwellings that are exposed to each of the following bands of values of Lnight in dB 4 m above the ground on the most exposed façade: 50-54, 55-59, 60-64, 65-69, >70.
- The total **area** in km^2 exposed to values of Lden higher than 55, 65 and 75 dB respectively.
- The 55 and 65 dB contours must also be shown on one or more maps that give information on the location of villages, towns and agglomerations within those contours.

Every 5 years the Commission is to publish a summary report on the data contained in the noise Maps and Action Plans. The first report will be submitted by **18 July 2009**.

Table 1: EU Directive Deadlines

Deadline	Action
18 July 2004	Implementation of the Directive in Member States
18 July 2005	Submission of **LIMIT VALUES** in force or under preparation in Member States' territories (expressed in terms of Lden and Lnight and where appropriate, Lday and Levening (Article 5(4)) Member States ► Commission
18 July 2005	*Information* made available to the Commission and the public on designated competent Authorities for making and, where necessary, approving **Strategic Noise Maps** and on the Authorities and bodies responsible for drawing up and, where relevant, approving **Action Plans** Member States ► Commission & public
30 June 2005 (thereafter every 5 years)	*Information* given to the Commission of major roads (more than 6 million vehicle passages a year), railways with more than 60 000 train passages per year), major airports and the agglomerations with more than 250 000 inhabitants within the Member States territories Member States ► Commission
30 June 2007 (reviewed and revised, if necessary, every 5 years)	**Strategic Noise Maps** showing the situation during the preceding year in the vicinity of the infrastructures and in the agglomeration referred to above (more than **250 000**) must have been made and, where relevant, approved
18 July 2008 (reviewed at least every five years and when a major development occurs)	**Action Plans** must be drawn up for major roads with more than 6 million vehicle passages a year, railways which have more than 60 000 train passages per year, major airports and agglomerations (more than **250 000** inhabitants)
31 December 2008 (thereafter every 5 years)	*Information* given to the Commission of agglomerations with more than 100 000 inhabitants within the Member States territories, and of major roads and major railways Member States ► Commission
30 June 2012 (reviewed and revised, if necessary, every 5 years)	**Strategic Noise Maps** showing the situation during the preceding year in the vicinity of the infrastructures and in the agglomeration referred to above (more than **100 000**) must have been made and, where relevant, approved for those agglomerations, roads and railways
18 July 2013 (reviewed at least every five years and when a major development occurs)	**Action Plans** must be drawn up for all major agglomerations (more than **100 000** inhabitants), major airports, major roads and major railways

4.1.2 Noise Exposure Categories

Table 2: NEC noise levels

NEC	Advice	Noise Levels due to aircraft noise (LAeqTdB) Daytime	Noise Levels due to aircraft noise (LAeqTdB) Night-time
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level	<57	<48
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise	57 - 66	48 - 57
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise	66 - 72	57 - 66
D	Planning permission should normally be refused	>72	>66

The noise contours in the Hyder consulting study 2000 (see Main Report, 8.1.3) were modelled using the noise model 'Integrated Noise Model' (INM, Version 5.1) produced by the United States Federal Aviation Administration.

Contours were generated for the five scenarios for both daytime and night-time. Impact analysis of the generated contours was not required as part of Hyder's brief, however it can be seen that the greatest impact occurs in Scenario 5 due to the greater number of aircraft movements. The potential land affected by the various noise contours for each scenario are summarised below (tables taken from the Hyder report):

Table 2a: Contour noise levels daytime

	Land affected (square miles)		
Contour Noise Level Laeq (daytime 16-hrs)	57 dB	66 dB	72 dB
Scenario 1 daytime	35	8	3
Scenario 2 daytime	35	8	3
Scenario 3 daytime	40	8	3
Scenario 4 daytime	44	9	3
Scenario 5 daytime	46	11	4

Table 2b: Contour noise levels night-time

	Land affected (square miles)	
Contour Noise Level LAeq (night-time 8-hrs)	48 dB	57 dB
Scenario 1 night-time	25	5
Scenario 2 night-time	23	5
Scenario 3 night-time	25	5
Scenario 4 night-time	27	5
Scenario 5 night-time	30	6

4.2 Air Quality

4.2.1 Background

Historical air quality problems in Ireland principally related to coal burning, however these problems (largely due to smoke and sulphur dioxide) have been virtually eliminated, with road traffic now becoming the greatest threat to regional and national air quality in Ireland. The adoption of the EU Framework Directive on air quality assessment and management, as well as the implementation of the associated series of daughter Directives has led to a current restructuring and expansion of air quality monitoring networks in Ireland.

These issues are addressed in the first national air quality monitoring programme (Environmental Protection Agency, National Air Quality Monitoring Programme: A Discussion Document, M McGettigam et al, August 2000) and more locally in the Dublin Regional Air Quality Management Plan (DRAQMP). The vision statement of the DRAQMP is, "To improve the health and quality of life of the citizens of Dublin and protect the environment by the provision of a co-ordinated approach to the control of air pollution and to the sustainable development of the built environment and transportation within the region."

The plan is based on four phases of work. Phase 1 established the legislative limits and guide values, with Phases 2, 3 and 4 establishing the current baseline situation in relation to air quality, evaluated trends and considered control and air quality management strategies.

4.3 Ground Conditions

A conceptual ground model of the existing environmental setting with respect to geology & hydrogeology is detailed below and outlines the sources of information and assumptions made in its construction.

4.3.1 Geology

Generally underlying the study area are three units of geology:

- Glacial and post glacial 'drift' (variable thickness up to 10m)
- Carboniferous sedimentary rocks (shales, mudstones and limestones)
- Underlying basement rock of the 'Leinster massif' (at considerable depth)

The nature of the 'bedrock' carboniferous rocks and overlying layer of 'drift' is important to determine; the hydrogeological regime and groundwater sensitivity, the mineral resource potential and ground stability within the study area. Such work to define the ground conditions throughout the study area contribute to any hydrological model and are used in the assessment and consideration of any contamination.

4.3.2 Carboniferous sediments

The lithostratigraphic units of the carboniferous sediments reflect the development in the upper palaeozoic of the fault-bounded Dublin Basin. These are broadly grouped parallel-bedded sediments that have been moderately deformed and faulted.

Table 3: Carboniferous strategraphic succession

Source		**Sheet 16, Kildare-Wicklow map**	**Sheet 13, Meath map**
Area of succession		**Southern part of study area**	**Northern part of study area**
Carboni-Ferous	Namorian (upper carboniferous)	Not seen in study area	Not seen in study area
	Chadian - Arundian /Asbian (lower carboniferous)	'calp'	Lucan fm
		Tober colleen fm	Tober colleen fm
	Courceyan (lower carboniferous)	Waulsortion lstn	Waulsortion fm
		Boston Hill fm	Malahide fm
Devonian (old red sandstone)		Not seen in study area	Not seen in study area.

The Devonian ('old red sandstone') sediments at the bottom of the basinal sequence are rarely exposed and probably consist of less than 50m of sandstones, shales and conglomerates seen only in drill cores and scattered outcrops away from the study area.

The Devonian sediments are overlain by the lower limestone shales; a thin transitional unit of mixed clastics and carbonates. The main carbonate sequence follows on top of this and varies in lithology along the axis and towards the margins of the basin so that lateral facies changes are significant. A distinctive and widespread subdivision is the Courceyan reef limestone formation known as the Waulsortion limestone formation as it outcrops within the study area. The limestones may be crudely grouped as the 'sub-reef bioclastic limestone formation' which is represented by the Malahide formation in the north and the Boston Hill formation in the south of the study area. During the Tournasian period, the Leinster massif was high if not emergent. Thick Arundian accumulation of conglomerates - the rush conglomerates - near the faulted margins of the basin is reflected south-westwards by turbidite influxes of arenaceous limestones.

The Tober Colleen formation, a calcareous shale, limestone conglomerate forms the lower unit of the calp limestones. The old term 'calp' is used to refer generally to the various units of basinal limestone and shale in the map area. The calp ranges in age from Chadian to Brigantian. Several formations have been differentiated in the Dublin Basin area; the Tober Colleen formation is the lowest calp formation and it typically consists of very gradationally interbedded calcareous mudstone and very argillaceous micrite and is usually burrowed. The formation overlies Waulsortian reef mounds and in its lower levels commonly includes graded beds of reef-derived debris and in some areas also large slumped reef blocks. The thickness of the formation is very variable, partly because it drapes mounds and fills depressions between them.

Other calp units ('calp' and Meath formation) typically consist of dark grey, fine grained, graded limestone with interbedded black, poorly fossiliferous shales. Limestone bed

thickness, grain size, colour, and proportion of shale vary widely. Chert is common locally. Various sedimentary structures, slumps and burrows may be present. Although brachiopods, corals and other fossils may be common locally, they are generally scarce or absent. The basinal rock may be interbedded with tongues of shelf-derived debris, such as reworked oolites or graded crinoidal calcarenites, which become proportionately more important near the basin margin.

4.3.3 Glacial and post glacial deposits

County Dublin and the adjacent parts of counties Meath, Kildare and Wicklow have an extensive cover of glacial deposits of various types. These are overlain in places by post glacial sediments such as alluvium and peat.

Ice movement from three provenances affected the Dublin region, all within the last cold stage was responsible for the deposition of thickness of boulder clay or till, with generally a high limestone content (derived from the carboniferous bedrock) with some marked contrast between tills of different origins. The pre-glacial Liffey Valley topography broadly resembled that of the present day although the drainage pattern was considerably different.

Glacial till has an extensive distribution about the area. It is derived from two main sources, an Irish sea glacier moving southwest and onshore and an island ice-sheet moving southeast across County Dublin. The tills in the study area have a dominant limestone lithology and wide textural composition.

4.3.4 Dublin lowlands north of the Liffey Valley

Southwards on to the carboniferous limestone plain, the frequency of bedrock outcrop decreases considerably as there is a fairly continuous cover of glacial till reaching thickness in excess of 20m in places.

Across the study area the extent of the continuous thicker till is much reduced, with a greater frequency of rock outcrop and associated thinner glacial till cover. The overburden is seen to thicken eastwards, but outcrop and thin cover is found about Feltrim Hill, Dublin airport and south of Malahide. There is little or no outcrop about parts of the suburban area of Dublin. The predominance of a thinner drift cover towards the west is accompanied by sand and gravel deposits in the form of isolated mounds. These can be linked to form a series of linear morainic ridges which generally trend west to east across this part of the wider study area and particularly about Dublin airport. These moraine deposits show a wide textural range, and are usually poorly sorted.

Southwards from the study area, as the River Liffey is approached, the overburden thickens considerably. The river is deeply incised out to the county boundary with a gorge of thick infill of unconsolidated sediments which have been subsequently eroded.

4.3.5 Available site investigations

A site investigation obtained for a development of part of Dublin airport confirmed the presence of ‘black lodgement till’ (stiff to very stiff grey-black, very silty, very stony clay with cobbles and boulders) up to 7m in thickness below ground level.

Similar conditions were noted in another site investigation for a new hotel at Collinstown, both made available by the GSI.

4.3.6 Hydrogeology

This section broadly describes the nature and sensitivity of groundwater resources likely to be found in the study area, based on the relevant groundwater protection policy. This section has been compiled with some of the information referred to in the previous section on geology as well as from 'The Geology & Hydrology of County Dublin, with particular reference to the location of waste disposal sites', GSI, 1979.

The glacial and postglacial deposits ('drift'), which themselves are highly variable, cover the bedrock geology in thicknesses in excess of 10m. The variability of the thickness of drift and local variations in the bedrock geology serve to dictate the nature of the potential aquifers.

In this area all but the quarternary sediments are indurated and hence dominated by fissure permeability (e.g. cracks, joints and faults). The water table is generally within 10m of the surface with an annual fluctuation of less than 5m except for the more elevated parts of the limestone and sand and gravel aquifers.

Aquifer strata which cover quite a significant part of the area can be developed to provide reasonably large water supplies (Table 2) from either springs or boreholes (50-100m deep). Well yields in most of the remaining aquitard (unproductive) rocks are generally only sufficient for domestic or farm supplies and range from 20-50m3/d (wells 30-60m deep) except along faults where they may be in excess of 200m3/d.

Table 4: Hydrogeological characteristics of the aquifer strata found in the study area

Geological strata	Aquifer formation	Distribution	Principal lithologies	Approximate range in thickness (m)	Range of well yield (m^3/d)	Range of specific capacity (m^3/d/d)
Glacial and post glacial drift		Variability within the study area	Sands and gravels interbedded with clays and tills	10 - 100	100 - 2000	10 - 1000
Lower carboniferous	Calp	Under much of drift	Certain clean limestones and higher permeability horizons	Likely to be less than 50m	40 - 1000	2 - 30
	Dolomitised limestones (waulsortion)	Across the western part of the site	Mainly clean, shelf limestones that have been dolomitiesd.	The individual permeable units are likely to be less than 150	300 -1500	15 - 100

The rainfall varies from 700-950mm pa along the coast, to over 2000mm/y in the Dublin/Wicklow mountains, 750-900mm pa over the limestone plain and 900-1100mm/y in the Castlecomer plateau. Potential recharge to the aquifers ranges from 325mm/y (to the west of the study area) - 500mm/y depending on the elevation and location. The bulk of this recharge occurs between late October and early March.

4.3.7 Hydrogeology of lower carboniferous strata

These strata cover most of the study area. Permeability in these strata is a function of the lithology, extent of dolomitization, faulting/fracturing and degree of karstification.

Impermeable limestones and shales occur regularly throughout. The succession below the Waulsortian thereby restricting the movement of groundwater. Much of the Waulsortian and parts of the overlying and underlying strata are extensively dolomitized, and classified as a major aquifer.

The calp represents the basinal facies of the post Waulsortian/Boston Hill succession within the study area. This is a very variable unit dominated by low permeability, fine grained and argillaceous limestone and shales. It is generally unproductive. There are however more permeable strata within this unit that are thought to be responsible for the higher than expected well yields that are encountered in different parts of the outcrop area. These strata are the unconformities and boulder beds which occur at a number of horizons in the calp and reflect periods of faulting, uplift and erosion.

In the Dublin area many of the high yielding wells appear to have penetrated substantial faults, fractures and fissures. A contributory factors to the higher permeability of the calp in this area is that it could have been karstified to deeper drainage levels in the past owing to its proximity to the coast and former major water courses.

4.3.8 Hydrogeology of drift

Much of the study area is covered by drift of variable thickness and lithology. These strata play an important role in the groundwater flow regime of this region. Their hydrogeological significance is variable and is largely a function of their permeability, thickness and extent. The low permeability material (clays and tills) protects underlying bedrock aquifers, restricts recharge and where sufficiently thick may confine them. The high permeability material (sands and gravel) allows a high level of recharge, provides additional storage to the underlying bedrock aquifers and where sufficiently thick can be an aquifer in its own right.

There are a number of thick deposits, mainly of sands and gravels interbedded with less permeable material, in this region.

4.3.9 Hydrochemistry and groundwater quality

These aquifers contain mainly calcium magnesium bicarbonate type waters with total dissolved solids of less than 500 mg/l. The total hardness of limestone, dolomite and sand and gravel waters (where derived from limestone) generally range from 300mg/l (as calcium carbonate to over 400mg/l (as calcium carbonate). As a comparison the hardness of groundwaters, from those sand and gravel aquifers derived from non-calcareous material and the volcanics, range from 100-300mg/l (as calcium carbonate). The chemistry of the aquitard groundwaters will generally be similar, depending on rock type, except for those waters on very high ground which have hardness levels below 100mg/l (as calcium carbonate``). The groundwaters in both bedrock and quaternary deposits along the coast in Dublin City are brackish with total dissolved solids and chloride concentrations ranging from 900-33000mg/l and 242-9000mg/l, respectively. Two of the warm springs have unusual chemistry which suggests they are ancient groundwaters.

Many of the groundwaters in Dublin City are of poor quality as a result of the numerous activities associated with urban centres. Throughout the remaining area the groundwaters are normally of potable quality except for very small local areas where they have been contaminated by the effluent from mainly organic wastes (e.g. urban areas, farmyards, septic tanks). It is thought that groundwater within the study area will be of an similar character.

4.3.10 Protection of groundwater resources and sources

Protection of groundwater is necessary for the following reasons:

- Groundwater is an important resource. Although in the Dublin area, groundwater is used to a lesser degree than some parts of Ireland, it is used by many industries and farms and households in areas not served by mains water.
- Although surface water is and will remain the main source of water supply in the Dublin area, it is conceptually unacceptable to pollute a resource that may be required by future generations. Development pressure and population growth may increase water consumption and the need to turn to the relatively inexpensive groundwater supply.
- In most rivers, greater than 50% of the annual flow is groundwater, and more significantly in low flow periods greater than 90% is groundwater, which enters the rivers as baseflow. Therefore, if groundwater is polluted, it will pollute the river, and reduce its ability to dilute other discharges.
- The consequences of groundwater pollution last far longer - years, decades and centuries - than those of surface water pollution because of the time required to flush the contaminated groundwater from the aquifer. Once the pollution has occurred it is difficult and usually economically unfeasible to reclaim the aquifer even when the source of pollution has been removed.

4.3.11 Outline of policy and sensitivity of waters within the study area

The ground water classification within the study area is shown in the below table;

Table 5: Zonation of formations in the study area from the aquifer protection map

Quaternary	**Rock type / formation**	**Zone**
Carboniferous	Sands and gravels	Zone 3 (a)
	'calp'/Lucan formation	Zone 3 (b)
	Tober Colleen formation	Zone 3 (b)
	Rush conglomerate	Zone 3 (a)
	Waulsortian limestone	Zone 3 (a)
	Sub reef limestone (Boston Hill or Malahide formation)	Zone 3 (b)

The groundwater protection policy is based on the division of the country into three zones based on the ability of the underlying rocks to yield water, with an additional safety zone designated around each public supply source. Within each zone, activities which should not be allowed are defined.

The policy is continually revised as geological and hydrogeological knowledge improves. The lack of data for certain areas creates problems in delineating major and minor aquifers. An aquifer is defined as a saturated bed, formation, or group of formations which is capable of yielding water from wells or springs in sufficient quantity to be of consequence as a source of supply. The sufficiency of the yield of a well or spring depends on the needs of the user. In Ireland, there are few rock types which are not capable of giving sufficient water for domestic supply i.e. greater than 100 gls/day, so almost all the country would be regarded as underlain by an aquifer. However, in policy, greatest protection is given to the major aquifers. Major aquifers are arbitrarily defined as those that consistently yield greater than 250m3/d (2,300 gph). Minor aquifers are those that yield between 50-250m³/d. As can be seen most of the sites fall within Zone 3.

Zone 3 aquifers

Zone 3 comprises the minor resource aquifers, but excludes both Zone 1 and areas where minor aquifers are overlain by thick drift or impermeable confining strata. These aquifers may yield locally important quantities of water, but have not the same potential as Zone 2 aquifers. The degree of protection will depend on local conditions. A balancing of interests between the need to protect groundwater resources and the need to find waste disposal sites may often be necessary. However, pollution of any existing source should not be allowed unless an alternative water supply is provided.

Zone 3 has been divided into Zone 3(a) and 3(b) based on aquifer vulnerability to pollution. The formation in Zone 3(a) are considered to be more vulnerable to pollution that 3(b).

Development constraints

The above classification of the study area means that there are not significant constraints (with regards to groundwaters) to the type of development allowed within the study area, this may be the case with a Zone 1 classification.

It is noted that the classification of the underlying aquifer may change in the case that it was developed as a groundwater resource. There is some scope for such resource development, especially if there is limited capacity in the local water supply that would benefit from augmentation.

FIGURE 1 GROUND CONDITIONS

4.4 Landfill Database

The environmental division of Fingal County Council provided records made in 1988 of 'Survey of Waste Contaminated Lands in County Dublin'. The following extract from the survey is a list of sites in or within the vicinity of the study area and are discussed in Chapter 8:

Category 'a' sites

- None in the study area

Category 'b' sites

- Dunsoghley Quarry, Newtown, Finglas map ref. 307

A quarry of about two acres adjoining the public road some 800m south of St. Margaret's. It is now partly filled, and is believed to contain some commercial/industrial waste. The operation is unauthorised and the fill may contain foodstuffs or other contaminants.

- Rockmount, Balseskin, Finglas map ref. 306

A quarry located 70m west of the St. Margaret's Road, used by commercial operators. The operation was unauthorised and unsupervised and thus the quarry may contain foodstuffs or other contaminants. Aerial photography of 1978 reveals that the quarry was full by that time.

- Dardistown, Santry map ref. 310

Located east of the airport road, at the rear of Collin's caravan park/mini skip hire. The fill consists mostly of builder's rubble, but could contain foodstuffs or other contaminants.

- Sandyhills, St. Margaret's map ref. 308

A small tip located some 200m south of the R. C. Church in St. Margaret's, on a laneway on the eastern side of the main road. The tip is unauthorised and could contain foodstuffs and other contaminated materials.

- St. Doolagh's quarries, Balgriffin map ref. 312

The quarries are located on the western side of St. Doolagh's churchyard, about 3km west of Portmarnock. Dublin County Council's roads department tipped waste road material here until about 1983. There are indications that commercial operators were also drawn to this study area - probably subsequent to 1983 - and this material could contain contaminants.

- Kileek, St. Margaret's map ref. 322

Some low lying parts of a farm, which lies 2.2 km to the north of st. Margaret's have been filled. The fill material, while thought to consist mostly of clay and rubble was dumped unchecked and could contain contaminants.

- Finglas map ref. 305

Burial of commercial/industrial and possibly other types of wastes, which may contain contaminants, has taken place in the grounds of the Unidare factory about

1½ km north of Finglas village. The extent of this operation is difficult to determine at present.

- Belcamp Lane map ref. 311

A substantial unauthorised tip which extends for some 400m eastwards of Clonshaugh bridge, along the northern side of Belcamp lane. Examination of 1978 and 1985 aerial photographs reveals a considerable growth in the size of the tip between those dates. The tip was reputedly used by commercial operators and could contain foodstuffs and other contaminants.

Category 'c' sites

- Ballymun – Lirs site map ref. 309

Waste of unknown quality spread over an area adjacent to the Lirs building. The waste is visible on the '78 and '85 aerial photographs. The tip is not authorised and may contain contaminants.

Figure 2 Survey of waste and contaminated sites