

Environmental Report

Attachment I1

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I1 INTRODUCTION

I1.1 INTRODUCTION

TechRec Ireland Limited (TechRec) is seeking permission to operate a facility for the recovery of Waste Electrical & Electronic Equipment (WEEE), at Unit 51 in the Parkwest Industrial Estate in Dublin, Ireland.

Following consultation with the Environmental Protection Agency and as required under Section 39 of the *Waste Management Acts (1996 to 2003)*, *TechRec* is applying for a Waste Licence for the operation of the facility.

At the time of the Licence Application, *TechRec* was operating under a valid Waste Permit (Ref: WP 98099 which expires: 13th February 2009) from *Dublin City Council*, to recover a maximum of 5,000 tonnes of WEEE per annum at the Site.

The Waste License is being sought in order to allow the Operator to:

- Increase the WEEE recovery and recycling capacity to a maximum of 30,000 tonnes per annum; and
- Act as a waste transfer location for a maximum of 8,000 tonnes per annum of chlorofluorocarbons, hydrochlorofluorocarbon (CFC/HCFC) containing equipment e.g. fridges and freezers.

This Environmental Report (ER) is submitted as *Attachment I* of the Licence Application. The ER provides an outline of the proposed development in the context of national, regional and local policy and undertakes a risk assessment of the potential environmental impacts associated with the activity. In preparing this ER, the EPA's guidance document *Waste Licensing: Application Guidance Notes* has been carefully reviewed and considered.

I1.2 BACKGROUND

WEEE recycling facilities are urgently required to be developed in Ireland, to ensure Ireland's ability to meet its recycling targets under the WEEE Directive (refer to *Section 2*). The Irish WEEE Taskforce highlighted a number of recycling infrastructure deficiencies in the State which require urgent attention.

In light of the Taskforce findings, *TechRec* propose to recycle up to 38,000 tonnes of WEEE per annum at Unit 51 in the Park West Industrial Estate, Dublin 12. The facility will be a "one stop shop", where by all types of WEEE as specified in the First Schedule of the *Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005*, will be accepted onto the Site.

However, WEEE containing PCB's (polychlorinated by-phenyls), asbestos or ODS (ozone-depleting substances) will not be processed, but will be held in quarantine for transfer to an appropriately licensed offsite facility for processing.

11.3 SCOPING

Scoping is the term used to describe the determination of which environmental topics are to be addressed in the ER. The EPA's guidance document and ERM's experience were the primary sources of information used in the scoping process. In addition, an internal scoping 'brainstorming' session was held to determine which environmental issues were to be considered.

The main focus of the ER is to comply with the requirements of *Section I of the Waste Licence Application form*. The purpose of a Waste Licence is

“to ensure that any waste management activity is operated in a manner which will not cause environmental pollution” (*Waste Licensing: Application Guidance Notes*; EPA).

In light of this, the main focus of the ER is the potential impacts arising from the operation of the facility under a Waste Licence.

The following highlights the environmental topics which are to be addressed in the Waste Licence Application and subsequently in the ER. The list also cross-references the specific topics in *Section I* of the Waste Licence Application Form, with their respective topic in the ER:

- Noise and vibration (addresses *Attachment I.6*);
- Air quality and climatic factors (addresses *Attachment I.1*);
- Hydrology (addresses *Attachment I.2, I.3, I.4 & I.5*);
- Ecology (addresses *Attachment I.7*);
- Landscape and visual; and
- Human Beings.

Cultural heritage was 'scoped out' of the ER on the basis that the Site is located within an already highly developed industrial area, and that no further development works were proposed. The Site was formerly occupied and operated as a depot for a department store (*Roches Stores*).

Traffic & transport was also scoped out, as the traffic loads arising from the proposed facility are comparable to those from the Site's previous use. In addition, the Site is located within a large industrial area, and the proportion of traffic from the development (approximately 21 two-way journeys i.e. 42 in total) is insignificant in comparison to the overall traffic load for the industrial estate site (approximately 2,100 incoming journeys in the morning alone).

The *Air Quality* chapter focuses on the quality and potential impacts of the facility on the external environment. There has been no assessment of internal air quality within the WEEE facility itself, as this is the subject of separate Health & Safety Legislation.

Soils and geology has been scoped out on the basis that no new sub-surface developments are proposed as part of the activity and thus there will be no impact on soils and geology.

11.4 ENVIRONMENTAL REPORT STRUCTURE

Chapter 2 Planning and Land-use Context

This chapter describes the past, present and proposed land-use of the Site. Strategic policies, development plans and other relevant information is reviewed in the context of this WEEE facility development.

Chapter 3 Consultation

This chapter presents a summary of all pre-application consultations undertaken during the preparation of the Waste License Application.

Chapter 4 Consideration of Alternatives

This chapter presents an overview of alternative locations considered for the WEEE facility in Ireland. It includes consideration of European and national law regarding the design and selection of development proposals and the reasons influencing the selection of the proposed scheme, including key environmental considerations.

Chapter 5 Description of Proposed Development & Process

Chapters 6 - 11 Environmental impacts

Chapters 6 - 11 describe the potential impacts of the proposed development, (as outlined in *Chapter 5*), upon various aspects of the environment. Each chapter will follow a common structure as set out below.

- *Methodology* – description of the sources of information and methods used to study the environmental impacts;
- *Receiving Environment* – description of the environment as it presently exists, using data that is reasonable and sufficient for decision-making purposes;
- *Predicted impacts* – identification of sources of potential impacts and the magnitude and significance of such potential impacts in the absence of any precautionary controls;
- *Mitigation Measures* – measures taken to avoid, reduce or minimise any impacts predicted in the previous chapter;

- *Residual Impacts* - magnitude and significance of impacts that may occur after mitigation measures have been applied; and
- *Monitoring requirements* – details of a monitoring programme established to monitor the predicted environmental impacts of the operation of the activity.

The contents of *Chapters 6 to 11* are as follows:

Chapter 6: Noise and Vibration (addresses *Attachment I.6*);

Chapter 7: Air Quality (addresses *Attachment I.1*);

Chapter 8: Hydrology (addresses *Attachment I.2, I.3, I.4 & I.5*);

Chapter 9: Ecology (addresses *Attachment I.7*);

Chapter 10: Landscape & Visual; and

Chapter 11: Human Beings.

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I2 BACKGROUND, PLANNING AND LAND-USE CONTEXT

I2.1 BACKGROUND

Waste management has become a critical issue for Irish businesses. Ireland's rapid economic growth over the last decade has placed an enormous strain on the country's waste management infrastructure. As a result, EU and Irish Government policy is focused on dramatically reducing the reliance on landfill, in favour of an integrated waste management approach which uses a range of waste treatment options to deliver ambitious recycling and recovery targets.

WEEE is one of the fastest growing areas of waste in Ireland. Because of its hazardous content, WEEE causes environmental problems during the waste management process if it is not properly pre-treated. It is estimated that between 44,000 and 115,000 tonnes of WEEE will arise in Ireland this year alone – and this figure continues to grow rapidly. At the present time, the vast majority of this waste is either, land-filled, recovered without any pre-treatment or exported from Ireland. However, the introduction of the EU Directive on WEEE will open up new opportunities for companies that can provide real alternative solutions to Ireland's WEEE problem.

I2.1.1 Legislation

The EU Directive on WEEE came into force on 13 February 2003 and was transposed into Irish law as the *Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005*. The aims of the Directive are to⁽¹⁾:

- Reduce WEEE disposal to landfill;
- Provide for a free producer take-back scheme for consumers of end-of-life equipment from 13 August 2005;
- Improve product design with a view to both preventing WEEE and to increase its recoverability, reusability and or recyclability;
- Achieve specified targets for recovery, reuse and recycling of different classes of WEEE;
- Provide for the establishment of collection facilities and separate collection systems for WEEE from private households; and
- Provide for the establishment and financing by producers of systems for the recovery and treatment of WEEE, including provisions for placing financial guarantees on new products placed on the market.

Under the Directive, Ireland must have a free system in place for the collection of all types of WEEE from private households by August 2005 and by the end of 2006 (or 2008 if an optional derogation available is taken up), a collection

(1) Department of the Environment Heritage and Local Government fact sheet on WEEE

rate of 4kg per inhabitant per year, or the equivalent of 15,200 tonnes of WEEE, must be achieved⁽¹⁾. In addition to this target, the Directive also stipulates that Member States must ensure that by 31 December 2006, producers provide for the recovery of WEEE collected separately and has set minimum recovery targets of between 70 and 80% for the different categories of WEEE.

The Directive is being implemented on the basis of the “producer pays principle”, whereby the EEE producers will be required to meet their obligations for the collection and recycling of EEE, either through the mechanism of a “collective” scheme, set up by the producers, or by self-compliance.

12.1.2 Existing WEEE Infrastructure Situation in Ireland

It is clear that Ireland’s existing waste management infrastructure will not be able to cope with the potential volumes arising, and without a local recycling facility, the vast majority of Ireland’s WEEE will continue to be exported abroad for treatment.

There are approximately 46 companies in Ireland and Northern Ireland that handle some, or all, types of WEEE. The market is dominated by companies that act primarily as waste brokers, facilitating the collection and export of WEEE for further processing, recycling and metal recovery.

In addition, there is a small number of scrap metal merchants whose processes include the shredding of equipment. These shredding operations, in their current form, will not be equipped to treat materials deemed hazardous by this Directive and are unlikely to have the processes in place for the appropriate pre-treatment and tracking of processed WEEE.

The recently published Government Taskforce draft report considered potential future options for the treatment of WEEE. While recognising the role that market forces are likely to play, the Taskforce concluded “that the establishment and support of recycling facilities in Ireland should be encouraged to the extent possible”⁽²⁾.

12.2 PLANNING AND LAND-USE CONTEXT

12.2.1 Methodology

An assessment of current national, regional and local planning policy was undertaken to determine the significance of the WEEE Directive in Ireland,

⁽¹⁾ Wilkinson S and Duffy N, WEEE Collection Trials in Ireland Final Report, The Environmental Protection Agency and the Clean Technology Centre at Cork Institute of Technology, November 2003.

⁽²⁾ Taskforce Report on Waste Electrical and Electronic Equipment, April 2004.

which requires that from 13 August 2005, all producers of electrical and electronic equipment finance the recovery and recycling of waste electrical and electronic household equipment. This is detailed below having regard to the National Spatial Strategy, the Regional Planning Guidelines for the Greater Dublin Area (GDA), the Dublin Waste Management Plan and the Dublin City Development Plan. However, it is important to note that many of the plans and guidelines discussed have yet to alter their plans to respond to the specific changes that are required as a consequence of the WEEE Directive.

12.2.2 National Spatial Strategy 2002-2020, Department of Environment, Heritage and Local Government.

The National Spatial Strategy (NSS) is a 20-year planning framework designed to deliver more balanced, social, economic and physical development between regions in Ireland. Within the NSS, areas are given specific designations. These are chosen with regard to the relative existing and future importance of that town/village in the area. Dublin has been designated as a Gateway, which is the highest designation an area can get. Gateways are defined as areas that have a "strategic location, nationally and relative to their surrounding areas, and provide national scale social, economic infrastructure and support services."

Within the NSS, waste management is dealt with in a national context and facilities are recognised as being important for both the regional and local area development. The NSS states that "Gateways and hub are good locations for city-scale water and waste management facilities" (P.40) and in terms of key infrastructure, waste management is stated as being a "particular current priority" for Ireland. It also states that with regard to private operators and provision of facilities, that 'efficient, effective and cost competitive waste management facilities are essential if industrial and enterprise activity is to thrive and develop in a balanced way across Ireland' (P.56).

The WEEE processing facility will be the first of its kind in Ireland and will play a role in reducing the 'critical' shortage of waste management facilities in Ireland. While also enhancing the innovation of waste management of WEEE products while also contributing to the recycling targets for Dublin and the surrounding areas.

12.2.3 Regional Planning Guidelines, Greater Dublin Area 2004

The Regional Planning Guidelines for the Dublin and Mid-East Region 2004 articulate the vision and long term strategic framework for the Greater Dublin Area (GDA). The Guidelines acknowledge that there is a lack of waste disposal infrastructure and that there is a need for integrated waste management facilities in the GDA. The facility will help to address the 'critical lack of waste disposal infrastructure in the Greater Dublin Area' by creating the first step in waste disposal of WEEE.

12.2.4 Waste Management Plan for the Dublin Region 2005-2010

The *Waste Management Plan for the Dublin Region 2005-2010* adopted in November 2005 by the four Dublin Local Authorities (Dublin City Council, South Dublin, Fingal and Dun Laoghaire-Rathdown County Councils), proposes a comprehensive new waste management system for the region involving 50% recycling, 25% energy recovery and 17% residual landfill. A review of the Plan undertaken by Dublin City Council recorded slippage in the provision of the built infrastructure required to deal with waste coming from the area. The document also states that “one of the objectives will be development of indigenous reprocessing capacity whereby less transport is required and more employment is retained in Ireland”.

It further notes that “Local Authorities will also need to support market development measures by taking a lead where possible in demonstration of opportunities and pilot schemes. Co-operation from the various industry sectors will also be required”.

TechRec's proposal complies with these objectives through the provision of indigenous WEEE reprocessing infrastructure which will have a direct impact on reducing transport of WEEE.

12.2.5 Dublin City Development Plan 2005-2011

Dublin City Development Plan 2005-2011 takes into consideration national, regional and local-level policy documents and sets the policy direction for the social, economic and physical development of Dublin city.

The Dublin City Development Plan has included the Waste Management Plan 2005 objectives within the plan and supports its implementation in Dublin. One policy objective included in the plan is ‘Policy U1’ which states that the Council should ‘*encourage and support the recycling and recovery of waste including green, organic and construction and demolition waste and the recovery of energy from waste and also to ensure that waste which cannot be prevented, recycled or recovered is disposed of without causing environmental pollution*’. The proposed facility will contribute to the development of facilities that will underpin implementation of this policy.

12.3 SITE CONTEXT AND DESCRIPTION

The subject Site is located within the established Park West Industrial Estate, located approximately 8.5 kilometres southwest of Dublin city centre and within 1.5 kilometres east of the M50/ Naas Road Interchange. This is illustrated in *Figure 2.1* (the orange coloured area represents the Park West Industrial Estate). The application Site is located in the eastern portion of the Industrial Estate.

Figure 2.1: Location of the Waste Licence Application Site.



Source: www.parkwest.ie

The Site is currently operational and is being used for waste processing purposes by *TechRec* since March 2006. Past activities on the Site were of similar nature (warehouse/industrial type activities), in keeping with the general industrial-uses of the surrounding area.

In the 1990's, the application was a part of a larger site area occupied by *Semperit*, which manufactured tyres. In 1999 *Airscape Ltd.* took over the *Semperit* site and developed new industrial/warehouse units on the Site. Redevelopment of the Park West site was carried out from 2000 to 2002 by *Harcourt Developments*. The most recent occupier of the single self-contained building on the application Site was *Roches Stores*, where they operated a warehouse storage depot.

As part of the planning application process for the redevelopment of the Parkwest Industrial Estate, a full environmental impact assessment (EIA) was undertaken. Prior to and during the development, investigations were carried out to establish if there was any soil contamination on site. No contamination was identified and therefore no remediation was deemed necessary. Further details on these findings can be found in the environmental impact statement (EIS) which summarises the findings of the EIA for the Redevelopment of the Park West site (Dublin City Council Ref: 2529/99).

The property comprises a detached hi-bay warehouse / industrial facility incorporating two storey office accommodation, with a profile onto both Henry Road and Park West Road. The building is of a steel portal frame construction finished externally with part rendered blockwork, part pre-coated insulated steel cladding to elevations and a power floated finished concrete floor. The roof is made up of a twin skin insulated metal deck with 20% Perspex roof panels. The building has an eaves height of approximately 10m (32ft). There are four dock level loading doors and three roller shutter

doors. The office accommodation / canteen area is finished with lino flooring, plastered and painted walls and lighting throughout. The estimated gross external floor area is as follows:

- Warehouse 3,551m²
- Two-storey offices 121m²
- Total 3,672m²

12.3.1 Land Use Zoning and surrounding Land Uses

The subject Site is zoned Z6 'To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.' The Development Plan states that in established areas of Z6 land uses may include light industry, which is consistent with the activities associated with this WEEE facility.

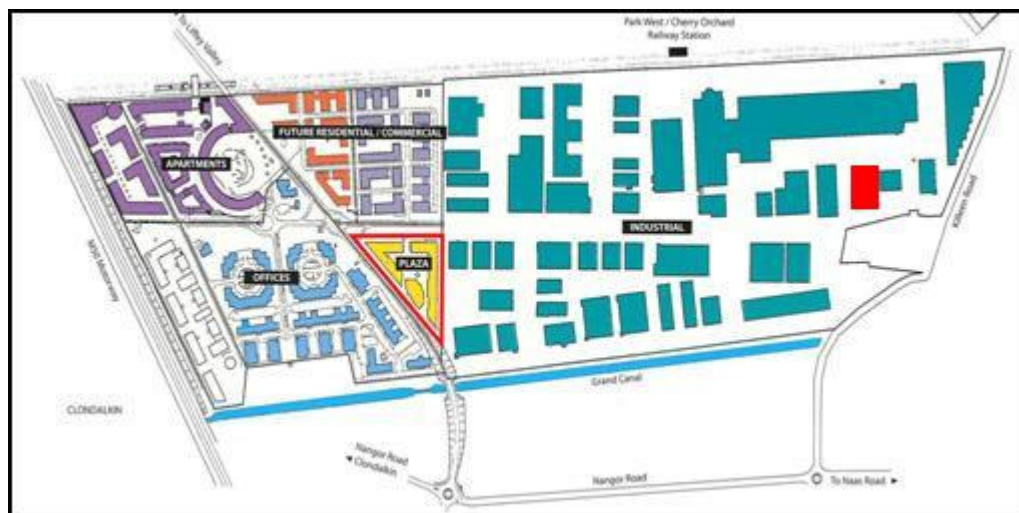
The subject Site forms part of a larger industrial area that is also zoned Z6 and the land uses are of the same industrial related nature. The Z6 zoning extends as far north as the Dublin – Portlaoise - Cork railway line (250m) and as far south as the Grand Canal (100m). The industrial zoning extends as far west as the M50 (1.5km) (including the award-winning *Park West Business Park*) and to the east the zoned area extends as far as Inchicore, to the railway works (2.2km) and the Jamestown Industrial Centre (1.8km).

The Site is bound directly to the north, east, and west by similar industrial related properties (refer to *Table 2.1* and *Figure 2.2*) and to the north by Henry Road, which is linked to Killeen Road to the east.

Table 2.1: Surrounding Land-use.

Area	Land Uses in Immediate Surroundings of Unit 51
North	<i>Europlan</i> (manufacturer of household furniture), <i>CPC</i> , <i>Powertech Engineering</i> (manufacturer and distributor of electrical panels), <i>O'Callaghan Engineering</i> (all located within 54 Le Brocquey Avenue).
South	<i>DTL</i> , (3D Logistics is one of Irelands leading suppliers of computer components), <i>Whelans Frozen Foods</i> (18 Park West Road, fresh & frozen foods distribution centre), <i>Alpi Ireland</i> (20 Park West Road, logistical freight distribution, nationally and Internationally).
East	<i>Carroll Joinery</i> (50 Park West Road, Sales and Head Office of leading manufacturer and supplier in Ireland of doors, windows and other joinery products), <i>Thorntons Recycling</i> , (Unit S3B Henry Road, Head offices) <i>Karting</i> , <i>AWT</i> (Unit 1B, Killeen Rd. haulage company), <i>Carroll Distribution Services</i> , <i>ACEC Quality Lighting</i> , <i>Wholefoods Ltd.</i> and <i>CP Supplies (IRE) Ltd.</i>
West	<i>Bunzl</i> (Unit 52, Henry Rd. a specialist distribution group), <i>Sile Store and Shred-it</i> (Unit 53 Park West Road, document storage and data management services), Unit 54, Henry Rd. Vacant, <i>Novar</i> (55 Park West Road, unknown operation), <i>John Player & Sons</i> (Unit 56 Park West Road, purpose built offices and warehouse).
Note : This is not an exhaustive list	

Figure 2.2: Surrounding Land-use



Source: www.parkwest.ie

12.3.2 Summary Planning Policy and Conclusion

The national, regional and local policy discussed above illustrates that waste management and indeed facilities such as this waste licence application are required and supported through national and local policy. This application also supports waste management policies for the region, and indeed Ireland, and will contribute to much sought-after waste management infrastructure, particularly, with regard to WEEE processing.

It has been shown that the Site is located within an established zoned industrial estate surrounded by similar warehouse/ distribution uses as shown from the table and maps. Therefore, from the above policy context analysis and established site location which the proposed Waste Licence Application refers contributes to national and local policy guidance with regard to specifically to waste management.

I3 CONSULTATION

Two pre-submission consultation meetings took place with the Environmental Protection Agency (EPA) during March to June 2006. The first of these meetings was to inform the EPA of the intention to submit a Waste License Application in relation to a WEEE facility.

The second meeting was to present the EPA with some details on the proposed facility. On both occasions, the EPA informed ERM Ireland that they will only comment on a Waste License Application when such an application has been received.

It is intended to hold a post-application submission with the EPA within a few weeks of submission.

No consultation has taken place with local residents or community groups as the surrounding area is industrial in character with the nearest residential receptors approximately 160m to the south-east.

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I4 CONSIDERATION OF ALTERNATIVES LOCATIONS

I4.1 INTRODUCTION

TechRec undertook a search for possible sites in the Greater Dublin area, in order to select a site which would best meet the company's requirements. A total of three sites were short-listed and subject to a more detailed appraisal, as outlined below.

I4.2 SITE REQUIREMENTS

I4.2.1 Adequate WEEE availability

The overall aim when choosing a site within Ireland was to ensure that the facility was located close to the source of a large volume of WEEE, thereby minimising transport costs, and also having access to a sea-port for the shipment of recovered materials and any residual waste. Dublin is the largest city in Ireland and thus generates the largest proportion of WEEE in the country, ensuring that a substantial volume of WEEE is available for processing.

I4.2.2 Sites within Dublin

Having decided to locate the WEEE recycling facility in the Dublin area, the next stage involved a search for potential sites. Given the nature of WEEE processing facilities, an industrial site was deemed to be the preferred type of site for the facility. The equipment involved in the recycling of WEEE requires a minimum of 9m of height within the production building. Following a search of available industrial sites within Dublin, three were identified which were of sufficient size and internal height to house the WEEE processing plant. These were:

1. Unit J, South City Business park, Tallaght, Co Dublin;
2. 18 Rosemount Business Park, Ballycoolin, Blanchardstown, Dublin 15; and
3. 51 Park West, Dublin 12.

A brief description of each alternative site is provided below.

1. Unit J, South City Business Park.

The South City Business Park is a brand new Business Park, located across the N81 motorway and opposite the Tallaght town centre.

Unit J within the Business Park has an internal floor area of approximately 3,298 m² including an office space of 511 m². This is adequate to house the plant itself (which has a footprint of about 1,672 m²). However, the lack of future available space would severely restrict the potential for the future expansion of the facility.

TechRec was also concerned that as the Business Park was quite small, the increase in local traffic associated with the proposed WEEE facility may be considered a detrimental impact on the local area.

There are also a number of existing houses located directly across the road from the proposed site, as well as an apartment block development under construction. *TechRec* was conscious that concerns, though unfounded, may be raised by local residents regarding the location of a waste processing facility in close proximity to their homes.

2. 18 Rosemount Business Park, Ballycoolin

This is a new building in a recently developed Rosemount Business Park, adjacent to the established Ballycoolin Industrial Estate. The building comprises a total of 3,484 m², including 279 m² of office space, and has adequate internal height to accommodate the plant.

The shape of the building is irregular and the operator was concerned that the layout of the internal columns may pose difficulties for the effective layout of the WEEE production equipment.

The building also needed a considerable amount of work to finish the facility to the standard required by *TechRec*.

3. 51 Park West, Dublin 12

The building is 3,670 m² including 186 m² of office space, which leaves 3,437 m² of rectangular shaped internal floor space.

The building has a total of seven hi-bay doors, including four dock levellers, for access, which was considered a highly positive feature.

The industrial park was designed to accommodate a high level of traffic to and from the area. Therefore, the increase in traffic flow associated with the WEEE facility was not considered to be a potential concern. Access to the main traffic routes to/from the Park West Estate was also considered to be good. In addition, there are no domestic residences in proximity to the proposed site.

The area also houses a number of existing waste treatment facilities including:

- Thornton's Recycling Centre for general waste, located directly across the road from Unit 51;

- Dublin City Council new WEEE Bring Centre located on Kylemore Road;
and
- The Rehab/Indaver pre-treatment facility also located on Kylemore Road.

Therefore, the proposed WEEE facility would be in keeping with the existing surrounding land-use.

For these reasons, the Board of *TechRec* approved the decision to select Unit 1 in the Park West Industrial Estate, to house the WEEE Processing Plant.

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TechRec is proposing to provide the first fully automated and comprehensive WEEE materials recovery and recycling facility in Ireland, with the aim of offering an environmentally sustainable and cost-effective solution to Ireland's growing waste problem and thereby providing a real alternative to the direct export of untreated WEEE.

Under the proposed business model, *TechRec* would charge a "gate fee" for receiving and recycling WEEE and in addition, would also achieve revenue from the sale of materials recovered from the recycling process. The main saving for the "customer" will be the difference between the cost of transporting the WEEE to a treatment facility based in Ireland and the cost of exporting it whole to Europe and the Far East. In addition, this proposed facility would also make it easier for customers to track and audit their WEEE to ensure that they are fully compliant with the EU Directive.

TechRec intend to recovery and recycle a maximum of 30,000 tonnes of WEEE per annum and also use the Site as a waste transfer station for up to 8,000 tonnes of CFC/HCFC containing equipment (e.g. fridges and freezers).

Under the EU Directive, Ireland has a target to collect the equivalent of 15,200 tonnes of WEEE by 2006. This compares with a figure of just 2,400 tonnes which was collected in 2001. However, a mid-range estimate of the total volume of WEEE arising is closer to 85,000 tonnes a year and once "historic" WEEE is factored in, then the volume of WEEE available for recovery and processing could be significantly greater. In addition, under the Directive, producers will have to achieve recovery rates of between 70 and 80% for all categories of WEEE.

15.1 PROPOSED PROCESS

15.1.1 Process Overview

The Site currently accepts all categories of WEEE as specified in the First Schedule of the *Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005*, S.I. No. 340 of 2005.

The process involves the manual sorting and dismantling of incoming WEEE and its subsequent automated and manual separation into its component fractions. The process is dry and does not involve the generation of any process effluent. However, it is noted that some items of WEEE may need to be drained of oil or water prior to processing.

There are two proposed point source air emissions, which potentially vent low levels of particulates from the associated abatement systems. There are also a number of equipment items which vent treated air emissions inside the building.

The process is divided into four modules which are summarised as follows:

- Module 1 – Goods receipt, sorting, dismantling and CRT processing;
- Module 2 – Preliminary breakdown and separation;
- Module 3 – Secondary breakdown and mechanical separation; and
- Module 4 – Fine separation.

Segregated recovery of up to 96% of WEEE that will be received at the Site is anticipated on commencement of the activity, and this percentage will increase as the process is refined. The final products from the process include:

- metallic material including iron (Fe) and aluminium (Al);
- non-metallic material (e.g. plastic and cathode ray tube (CRT) glass which will be separated into two streams);
- mixed precious metals (non-ferrous II) e.g. gold (Au), silver (Ag) and platinum (Pt); and
- other non-ferrous metals e.g. copper (Cu), zinc (Zn) and brass.

It is intended that all of the recovered metals will be sold back to processing facilities as raw feed stock and that the plastic will be recycled further at another facility.

As the WEEE arrives at the Site it will be weighed and entered into a purpose-designed computer system (referred to as WE³), which will track and verify the recycling of the individual components within the WEEE. This is a patented and auditable tracking system, which has been developed specifically to assist WEEE facilities to meet their reporting obligations under the WEEE Directive. The system will help provide assurance to clients and the public, by allowing certification of both the receipt of the WEEE items and the recycling of the individual components.

The plant to be used at the Site was originally installed at a similar facility in Spain where it operated for approximately three years. During this time, compliance monitoring was carried out on emissions from the process and the site is reported to have conformed to all relevant local and EU requirements. The results of these monitoring programs were not available at the time of this Waste Licence Application. However, *TechRec* commits to undertaking all monitoring which may be specified in the Waste Licence, as a matter of priority.

Ramping up of the process to its maximum capacity (approximately 30,000 tonnes per annum) is expected to take from late 2006 until the end of 2008. By the end of 2008, the Site is anticipated to be running on a 24-hour, three-shift basis over five and a half days from Monday to Saturday afternoon. Maintenance works, and internal sorting will be carried out on Saturdays and Sundays. On this basis, *TechRec* is applying for permission to operate the Site on a 7-day, 24-hour basis. The Site further requests to be able to accept waste between the hours of 07:00 – 20:00, Monday to Friday and 08:00 – 18:00 on

Saturdays. It is not anticipated that there will be a need to accept waste on Sundays or public holidays.

WEEE from all categories listed in Schedule 1 of the *Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005* will be accepted at the site. White goods potentially containing Ozone Depleting Substances (ODS) (e.g. the refrigerant gases in fridges and freezers), will not be processed onsite, but will be stored in a designated area, prior to being sent to a licensed ODS recovery facility in Northern Ireland. Current records indicate that up to 8,000 tonnes of fridges and freezers may be received per year, although not all of these units will contain ODS gases. Additionally, the site will not process WEEE that is known or suspected to contain PCBs or asbestos. Where possible, WEEE containing these materials will be directed to a specialist licensed waste contractor, prior to its receipt on site. Alternatively, it will be placed in the onsite quarantine area, prior to being transferred to an appropriately licensed waste contractor. *Table 5.1* below outlines the categories of WEEE to be potentially accepted at the Site and their respective EWC codes.

Table 5.1 Waste Categories and EWC Codes

Waste Category	EWC Code	Onsite Handling/Processing
Waste electrical and electronic equipment	16 02	
Transformers and capacitors containing PCBs	16 02 09*	Held in quarantine & transferred to licensed operator
Discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09	16 02 10*	Held in quarantine & transferred to licensed operator
Discarded equipment containing chlorofluorocarbons, HCFC, CFC	16 02 11*	Held in quarantine & transferred to licensed operator
Discarded equipment containing free asbestos	16 02 12*	Held in quarantine & transferred to licensed operator
Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	16 02 13*	Processed & recovered onsite
Discarded equipment other than those mentioned in 16 02 09 to 16 02 13	16 02 14	Processed & recovered onsite
Hazardous components removed from discarded equipment	16 02 15*	Held in quarantine & transferred to licensed operator
Components removed from discarded equipment other than those mentioned in 16 02 15	16 02 16	Processed & recovered onsite
Batteries and accumulators	16 06	
Lead batteries	16 06 01*	Collected for offsite recycling
Ni-Cd batteries	16 06 02*	Collected for offsite recycling
Mercury containing batteries	16 06 03*	Collected for offsite recycling
Alkaline batteries (except 16 06 03)	16 06 04	Collected for offsite recycling
Other batteries and accumulators	16 06 05	Collected for offsite recycling
Packaging	15 01	
Paper and cardboard packaging	15 01 01	Collected for offsite recycling
Plastic packaging	15 01 02	Collected for offsite recycling
Wooden packaging	15 01 03	Collected for offsite recycling
Metallic packaging	15 01 04	Collected for offsite recycling
Composite packaging	15 01 05	Collected for offsite disposal
Mixed packaging	15 01 06	Collected for offsite disposal

* Indicates a hazardous waste code

15.1.2 Process Description

Module 1 – Goods Receipt, Sorting and Manual Dismantling

WEEE will primarily arrive as bulk deliveries by road, in trucks or vans. It is anticipated that a high proportion of the WEEE arriving onto the site will be pre-sorted by the collection contractors. The Operator proposes to provide cages to producers/collectors delivering WEEE to the Site, to help facilitate it's pre-sorting prior to arrival. WEEE arriving from Business to Business (B2B) sources will typically arrive on pallets pre-sorted. The requirement to pre-sort WEEE items is being transposed as a condition of contract, with those producers and collectors of WEEE who intend to use the WEEE facility.

When a vehicle arrives at the Site, it will be weighed on an internal weighbridge and the details entered into the WE³ tracking system. The empty vehicle will also be weighed on exit and the total weight of the WEEE calculated.

Processing of the WEEE begins in Module 1, with the sorting of waste into different groups, depending on whether it requires manual or mechanical processing. The manual processing is to allow for the removal of specific recoverable items such as Cathode Ray Tubes (CRT's), batteries, wiring and washing machine blocks. It also allows for the removal of potentially hazardous items such mercury switches, oils and toner cartridges

CRT's will be collected and processed through a specialist CRT separation unit. This separates the two types of glass present in a CRT (funnel and plate) which allows for more efficient recycling of the component glass. *TechRec* also propose to install an additional component on the CRT separation equipment which will clean the glass and increase its re-use value. (It is noted that this unit was not present at the time of the Licence application).

Hazardous substances such as oil, toner cartridges and batteries/motors will be collected and transferred to appropriately licensed contractors for offsite processing.

Following from the manual dismantling stage (Module 1) and prior to entering Module 2, the majority of the iron sheeting, batteries, capacitors, glass, plastic, cables, toners, motors and deflector units (metal part of CRT) will have been removed from the WEEE. These items are also removed where observed, at dedicated manual picking stations in Modules 2, 3, and 4.

WEEE that does not require manual dismantling will be delivered directly to Module 2.

Module 2 – Preliminary Breakdown

A purpose designed process has been developed to separate the WEEE which uses using rotating chains, rather than blades, to shred it. The equipment used is referred to as the 'QZ Machine'.

This process helps to ensure that the end products are not contaminated with hazardous substances (such as may be released from batteries etc.) as these elements survive the process intact. The effect of the blows applied by the rotating chain mechanism and the items colliding together is that the individual components within the equipment break off at the weakest points. For example, steel shafts are bent/torn from their mountings and batteries and capacitors lose adhesion at the clamping/solder points. After separation, these smaller parts no longer absorb enough energy from the process and leave the QZ Machine relatively undamaged. Larger metal parts and components that cannot pass through the outlet to the next stage, (through the base of the QZ Machine), will be re-processed in the QZ Machine until they reach a suitable size.

WEEE that exits the QZ Machine passes through additional mechanical (e.g. sieving mechanisms) and manual separation stations, prior to advancing to Module 3. The outputs from this Module include some non-ferrous metals, batteries, capacitors, printed circuit boards and dusts.

Module 3 – Mechanical Separation

Once the material leaves Module 2, it is transferred on conveyor belts through several separation steps which include: magnetic separators; various grades of sieves; cyclone separators; and manual sorting stations.

Initially, the material passes over a fork-sieve that separates the components based on size (i.e. <100 and >100 mm fractions). The larger fraction is transferred to another sorting stage, including magnetic separation, and any residual material from this stage is reintroduced at the beginning of Module 2. Material from the smaller fraction is transferred through a series of magnetic separators, sieves, cyclones and manual sorting, to remove any remaining hazardous substances.

The outputs from this Module include some non-ferrous metals, iron, batteries, capacitors and motors.

Module 4 – Fine Separation

The residual material from Module 3 is further processed in an impact crusher, referred to as the 'Hammer Mill', to produce pellet sized material. The material is passed through the Hammer Mill at least three times, to ensure a consistent grade of material is delivered to the subsequent separation steps.

The residue from the Hammer Mill is sieved to create the necessary grade for the successful separation of metals and plastics (which is done on density

separation tables). The metal particles are separated further on density separation tables, whereby the heavier materials are transported upwards by the shaking action of the table, and the lighter materials (aluminium, copper and plastic) move downwards on a cushion of air.

The lighter materials are further separated using cyclone technology and electrostatic separators.

15.1.3 Ancillary operations

An electricity sub station has been installed on the Site which will feed into a switch/control room. This will regulate the electrical supply for the onsite equipment.

Building heating will be provided via domestic sized electrical heaters in the office and canteen areas. It is not anticipated that heating will be required in the main processing area, as treated air from the processes will be circulated back into the building. A maintenance room will be provided for the storage of spare parts, maintenance equipment and associated materials.

The office and meeting room facilities are located on the northern wall of the main building. The rooms are internal to the building and comprise two floors. A temporary office/porta-cabin unit is currently located in front (to the south) of this area. However, it is anticipated that an additional floor will be added on top of current two floor office structure to remove the need for the porta-cabin. Canteen and changing areas have been provided along the western side of the building. *Drawing 4* shows the location of the offices and canteen/changing area.

A weighbridge will be used to track the volume of WEEE being delivered to the site. The location of the Weighbridge is highlighted in *Drawing 4*.

16 NOISE & VIBRATION

16.1 METHODOLOGY

Prior to the activity starting, noise measurements were taken at several locations around the Site to establish baseline noise levels within the Industrial Estate. A review of relevant, available documentation was also carried out.

The Site is located in an established industrial estate and is surrounded by other industrial units. The closest noise sensitive receptors, such as residential/schools etc, are residential premises located approximately 160m to the south-east.

All noise measurements obtained are 'free field' and where possible, the monitoring locations were positioned to be representative of noise sensitive receptors (NSRs), which may potentially be affected by the operation of the WEEE facility, or at the Site boundary. All measurements were taken in accordance with accepted standards and due consideration was given to relevant guidance documents and standards, including *ISO 1996-2*⁽¹⁾.

Monitoring was carried out during the morning and night of Tuesday the 3rd January 2006. Day-time and night-time periods are defined as to run from 07:00 – 23:00 and 23:00 – 07:00 respectively. The results of the monitoring are presented in *Table 6.1*.

A noise assessment project⁽²⁾ was undertaken in the Ballyfermot area, which included the Park West Industrial Estate, in 2003/2004. The assessment concentrated on noise arising from traffic and provides a good baseline for the area. A copy of the noise contours diagram produced by the study is included in *Annex I-1*. The nearest noise sensitive location to the Site was included in the previous Ballyfermot Project and noise levels at that location were predicted to be between 65 -70 dB L_{A10} 18-hour due to traffic flow.

Once operation commenced onsite, the noise monitoring programme was repeated at the same locations. However, night-time monitoring was not repeated at this time, as the site is not currently operating at night. The results of the monitoring are presented in *Table 6.1a* and *b* below. It was noted during the monitoring, that a noise source originating from a unit opposite the Site, which was not in existence during the baseline monitoring, was clearly audible. The results suggest that this new noise source is influencing the noise levels in the area. Noise due to traffic was again noted to be the main source of noise in the area.

(1) ISO 1996-2: 1987 'Description and measurement of environmental noise. Part 2. Guide to the acquisition of data pertinent to land use'

(2) Ballyfermot Air Quality & Noise Assessment, October 2004, Traffic Noise and Air Quality Unit - Roads and Traffic Department, Dublin City Council.

Locations where monitoring was carried out are described below and are shown on *Figure 6.1*.

1. In front of the facility beside the footpath and weighbridge;
2. To the rear of the facility on the grass patch between units 51 and 52 and the footpath;
3. Opposite No.1 Killeen Road; and
4. Opposite the sub-station on Le Broc Quay Road.

Figure 6.1: Location of noise monitoring locations

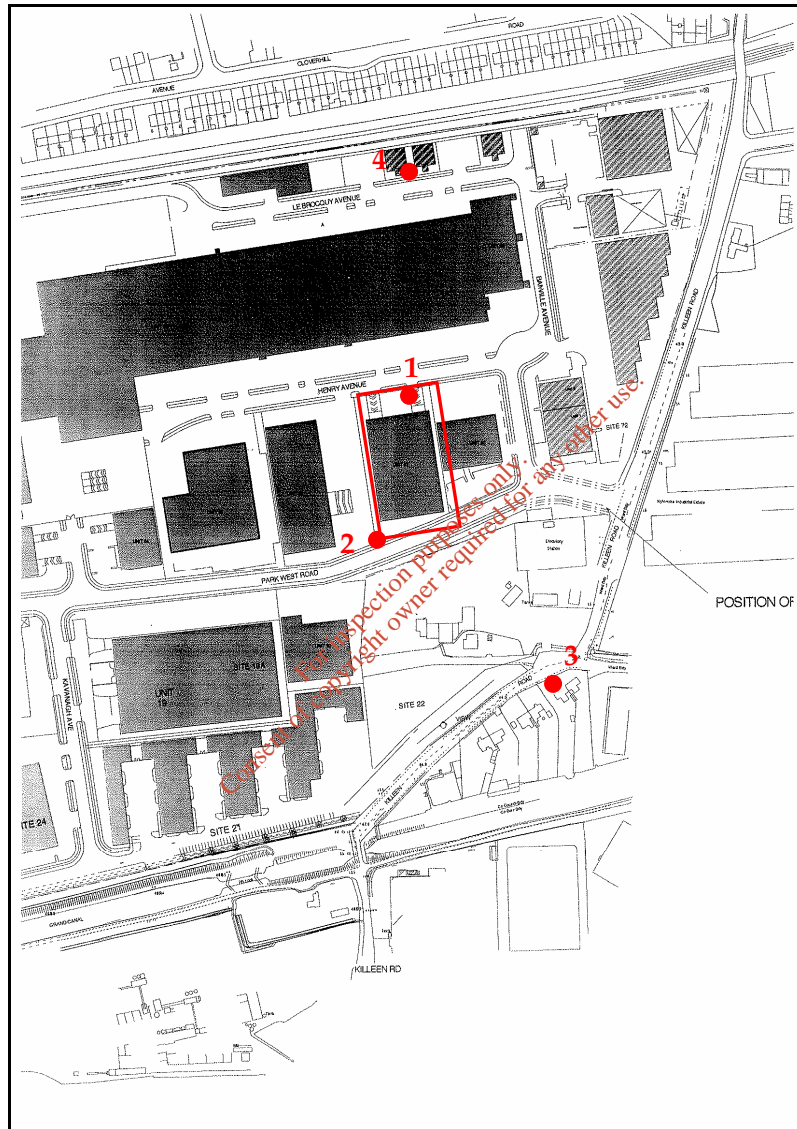


Table 6.1a *Baseline noise measurements*

Date	Time	Location	LAeq	LAF10	LAF90	LAFMax	LAFMin
03/01/2006	12:10:35	N1	59	61	<50	79	
			58	61	<50	79	
	12:44:01	N2	67	71	60	78	55
			68	71	60	81	55
	13:24:00	N3	63	66	57	75	53
			64	66	58	84	53
	14:10:00	N4	60	62	45	79	42
			61	62	50	81	47
	23:55:01	N1	51	54	48	73	46
04/01/2006	00:14:01	N2	56	54	49	76	48
	00:34:01	N3	54	56	48	72	47
	00:55:00	N4	47	48	45	65	43

Table 6.2b *Baseline noise measurements*

Date	Time	Location	LAeq	LAF10	LAF90	LAFMax	LAFMin
30/06/2006	11:02:56	N1	63	64	59	78	57
	11:29:12	N2	70	72	64	79	58
	12:11:44	N3	64	66	62	74	56
	11:50:28	N4	64	62	56	92	49

16.2 RECEIVING ENVIRONMENT

The facility is located in the Park West Industrial Estate and is surrounded by other industrial units. To the north there are industrial units of approximately 12m height which run in a continuous line for approximately 110m to the east and 140m to the west forming an effective noise barrier in that direction. The closest noise sensitive receptor in that direction is residential and is located approximately 200m to the north.

Directly to the east of the facility, is an industrial unit of similar height and construction. There is approximately 4m between the two buildings. The adjacent building runs from a point approximately 20m in front of Unit 51 to the north, south for approximately 70m leaving approximately 30m of Unit 51's eastern side visible from that direction. From this point it is approximately 140m across open ground to the edge of Killeen Road. Further industrial units are located on the opposite side of the road.

To the south of Unit 51 are additional industrial units. *Goode Concrete Ltd* is located directly opposite Unit 51 to the south and the closest residence is further to the south, approximately 160m from Unit 51. Industrial units are also to the west with no residences, schools etc. within 500m of the unit.

Traffic noise was noted as being the dominant noise source in the area. Park West Road which is directly to the south of Unit 51 is the main road through the industrial estate and runs from east to west from Kileen Road to Park West Avenue. Field notes taken during measurement periods also noted the PA from *Goode Concrete Ltd.* as being audible are locations 1, 2 and 3.

I6.3 POTENTIAL IMPACTS

The operation of the facility itself and the traffic generated through the delivery of WEEE and removal of recycled fractions to and from the site are the main potential sources of noise. Equipment that has the greatest potential to cause a noise impact are, the Hammer Mill and QZ Machine, along with the general noise from the moving and tipping of WEEE within the facility and associated conveyers and motors.

I6.4 MITIGATION MEASURES

Noise impacts from the transport of WEEE and recycled fractions to and from the site cannot be specifically-mitigated. However the location of the facility within a large industrial estate and away from residential areas removes the likelihood of significant potential impacts being experienced. Additionally, it is estimated that at the maximum operating capacity of the facility, an extra 42 truck movements would arise per day. The EIA for the development of the area (planning application 2529/99) predicted peak traffic flow rates for the year 2005 along the Kileen Road and Cloverhill Road of 2,450 to 2,550 (am peak) and 1,400 to 1,500 (pm peak) vehicles per hour. No deliveries or material removal will take place during the night-time period.

The Hammer Mill and QZ Machines both have specifically-engineered soundproof rooms and both will be constructed on isolated concrete slabs to reduce vibration. Ambient air extraction fans will be installed on the roof in six locations and will be fitted with noise attenuation baffles. Further details of the sound proofing are provided in *Attachment D.2* and *F.1* of this Waste Licence Application.

To prevent fugitive noise emissions from the site, all doors and shutters will be kept closed when materials are not being moved.

I6.5 RESIDUAL IMPACTS

Given the nature of the area and the noise levels already experienced it is anticipated that the operation of the site will not have a significant impact on the surrounding environment.

Given the distance between the site and the nearest noise sensitive receptor, any noise arising from the site is likely to be mitigated due to distance.

16.6 MONITORING REQUIREMENTS

Monitoring will be carried out as prescribed in the Waste Licence Conditions. Once night time operations begin, a survey will be carried out to assess any potential noise impacts from the Site's operation.

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17 AIR QUALITY

17.1 METHODOLOGY

17.1.1 Baseline

Baseline air quality was assessed using data available from the EPA, Dublin City Council and the Met Eireann. A review of available data did not highlight the need for any additional monitoring to be carried out. Air quality information is available from two main sources in Ireland, namely the EPA and the relevant Local Authorities. Both issue annual reports, with the EPA report presenting an amalgamation of all the local authority reports and monitoring undertaken by the EPA.

The reports used to outline the baseline air quality in the Park West Industrial Estate area include:

- *Ireland's Environment 2004*, EPA, 2004;
- *Air Quality and Emissions to Air Report 2004*, EPA, 2006;
- *Air Quality Monitoring and Noise Control Unit Annual Report 2004 – 05*, Dublin City Council, 2005; and
- *Ballyfermot Air Quality & Noise Assessment*, October 2004, Traffic noise and air quality unit, Dublin City Council, 2004.

17.1.2 Operational

Air emissions from the key equipment items were modelled using the H1 assessment tool which has been developed by the Environment Agency ⁽¹⁾ in the UK. This is a preliminary assessment tool, designed to determine whether an emission is considered to be 'significant' and hence, whether additional monitoring is required.

17.1.3 Technical limitations

Emissions from the plant are based upon information provided for a similar plant in operation in Switzerland. As noted in *Section 5.2.1*, the equipment being used at this facility was originally used in Spain, where compliance monitoring indicated that the equipment performance met all relevant local and EU requirements. However, the Spanish facility has since closed and the monitoring data was not available at the time of the Licence Application.

The Swiss monitoring results have been used for comparative purposes and demonstrated that particulate matter emission concentrations were below 1mg/m³. Under Swiss law, emission level of below 1mg/m³ do not require further analysis (e.g. metals analysis), and hence, this information is not

(1) Horizontal Guidance Note IPPC H1. Integrated Pollution Prevention and Control (IPPC). Environmental Assessment and Appraisal of BAT. Version 6, July 2003. Environment Agency et al, Bristol.

available for use. It is anticipated that the dust emissions from the subject Site will be directly comparable to those of the Swiss plant.

No site-specific air quality surveys were undertaken as part of this assessment. However, monitoring is carried out by both the EPA and Dublin City Council in the Ballyfermot area (where the Park West Industrial Estate is located) and at two other nearby locations, namely Crumlin and Clondalkin. These locations are highlighted on *Figure 7.1*.

Ballyfermot is the closest monitoring location to the Park West Industrial Estate and monitors for SO₂, NO_x and PM₁₀. The available results are summarised in *Tables 7.4 to 7.9*. There are no results available for the Clondalkin location, and discussions with the EPA (24th January 2006), indicated that the levels of the parameters measured at that site may have been so low as to have resulted in the equipment recording negative results.

The scope of this air quality assessment was focused on the external impacts on the environment and human health. No assessment was made of the air quality within the WEEE facility.

17.2 RECEIVING ENVIRONMENT

17.2.1 Assessment Criteria

The EC Air Quality Framework Directive (1996) identifies 12 pollutants for which limit or target values have or will be set, in subsequent Daughter Directives.

The first of these Daughter Directives ⁽¹⁾ relates to sulphur dioxide, fine particles, oxides of nitrogen and lead, and the second Daughter Directive ⁽²⁾ is concerned with carbon monoxide and benzene. Both directives came into force in Ireland on the 17th June 2002 and the details of the associated air emission limits are referenced in *Table 7.1* and *Table 7.2* below.

(1) Daughter Directive 1999/30/EC

(2) Daughter Directive 2000/59/EC

Table 7.1 Air Quality Target Values and Limit Values of Directive 1999/30/EC

Pollutant & Limit Value Objective	Averaging Period	Limit Value $\mu\text{g}/\text{m}^3$	Basis of Application of the Limit Value	Limit Value Attainment Date
SO ₂ *	1 hour	350	Not to be exceeded more than 24 times in a calendar year	1 Jan 2005
SO ₂ *	24 hours	125	Not to be exceeded more than 3 times on a calendar year	1 Jan 2005
SO ₂ **	Calendar year	20	Annual Mean	19 July 2001
SO ₂ **	1 Oct to 31 Mar	20	Winter Mean	19 July 2001
NO ₂ *	1 hour	200	Not to be exceeded more than 18 times in a calendar year	1 Jan 2010
NO ₂ *	Calendar year	40	Annual Mean	1 Jan 2010
NO + NO ₂ ***	Calendar year	30	Annual Mean	19 July 2001
PM10 Stage 1 *	24 hours	50	Not to be exceeded more than 35 times in a calendar year.	1 Jan 2005
PM10 Stage 1 *	Calendar year	40	Annual Mean	
PM10 Stage 2 *	24 hours	50	Not to be exceeded more than 7 times in a calendar year	1 Jan 2010
PM10 Stage 2 *	Calendar year	20	Annual Mean	1 Jan 2010
Lead *	Calendar year	0.5	Annual Mean	1 Jan 2005

* Protection of human health

** Protection of vegetation

*** Protection of ecosystems

Table 7.2 Limit Values of Directive 2000/59/EC

Pollutant & Limit Value Objective	Averaging Period	Limit Value $\mu\text{g}/\text{m}^3$	Limit Value Attainment Date
Carbon Monoxide*	8 hours	1000	1 Jan 2005
Benzene *	Calendar year	5	1 Jan 2010

* Protection of human health

17.2.2 Dublin City Air Quality Monitoring

This section draws on existing monitoring data in order to establish the background air quality in the study area. There are four air quality zones designated for Ireland, these are:

- Zone A - Dublin City and environs;

- Zone B - Cork City and environs;
- Zone C - 16 urban areas with populations greater than 15,000; and
- Zone D - remainder of the country.

These zones have been defined to meet the criteria for air quality monitoring, assessment and management described in the Framework Directive and Daughter Directives as detailed in *Table 7.1* and *Table 7.2* above. The zones were developed from an analysis of historical air quality data obtained from assessment measurements carried out by the EPA and other factors, including population ⁽¹⁾.

Ireland's small population and generally good standard of air quality mean that a small number of measurements stations are sufficient across the four zones. Local Authority continuous monitoring is largely confined to Dublin (Zone A) and Cork (Zone B). Those stations in the Dublin area are presented in *Table 7.3* below and are presented diagrammatically below. All stations within the Dublin area and those used within this report, fall within Zone A.

Table 7.3 *Parameters Measured at Continuous Air Quality Stations in Dublin in 2004*⁽²⁾

Station	Zone	SO ₂	PM ₁₀	NO _x	Lead	CO	Benzene	Ozone
Winetavern Street	A	✓	✓		✓	✓	✓	
Coleraine Street	A	✓	✓	✓	✓	✓		
Rathmines	A	✓		✓	✓		✓	✓
Phoenix Park	A		✓					
Marino	A		✓					
College Street	A		✓		✓			
Crumlin (Mobile Station)		✓						
Ballyfermot	A	✓	✓	✓				

For the baseline assessment and description it is considered inappropriate to assess specific-air quality around Unit 51 Park West Industrial Estate. It is considered that a general picture of air quality, based on the information from the stations listed above, will give a more realistic presentation of the situation in and around the Park West Industrial Estate. Results from all these locations will therefore be presented and discussed below under each parameter heading.

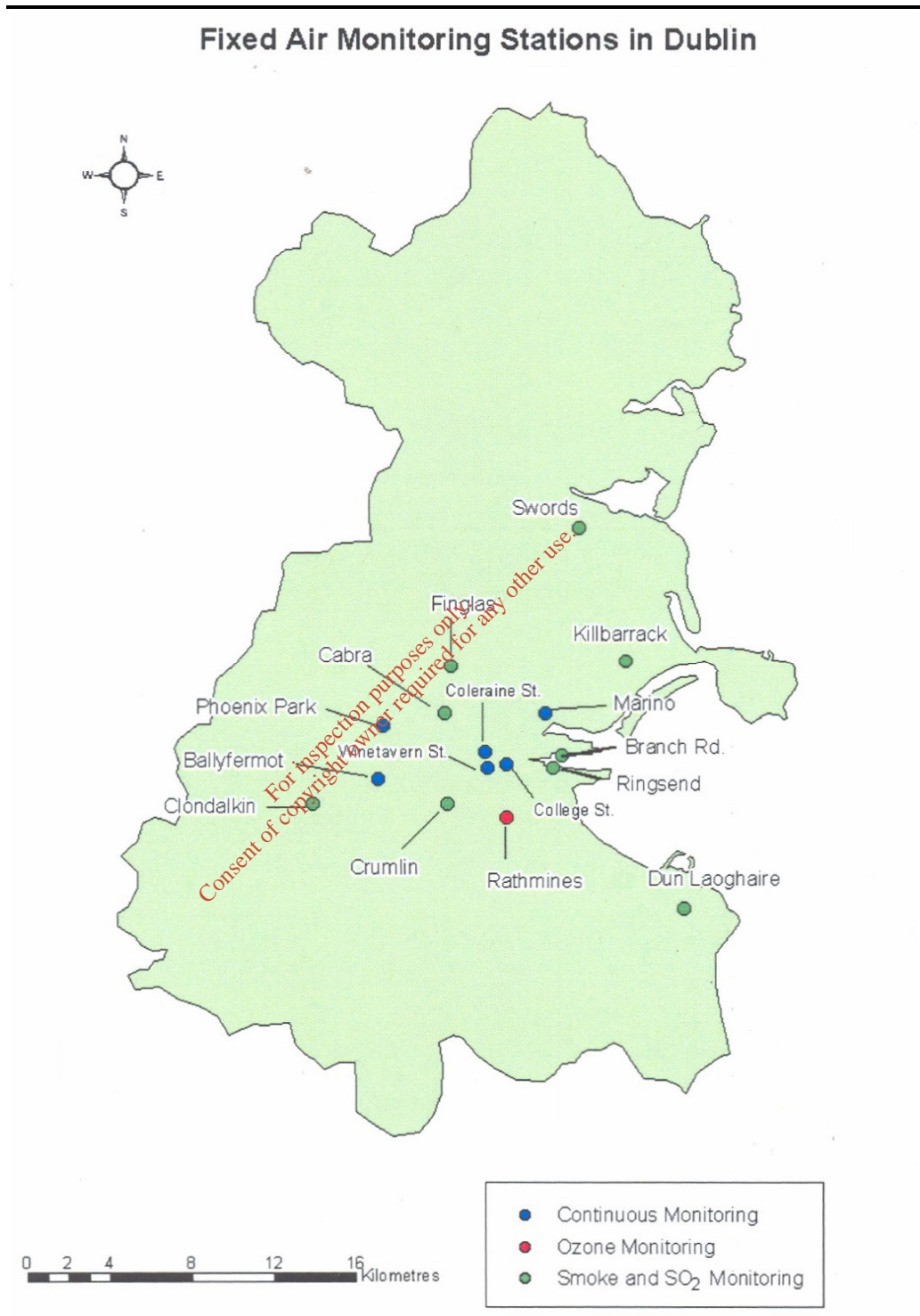
It is worth noting that in *Ireland's Environment 2004*, the EPA noted that "emissions from road traffic are now the primary threat to the quality of air in Ireland. The pollutants of most concern in this regards are nitrogen dioxide (NO₂) and fine particulate matter, expressed as PM₁₀." It is well recognised that the combustion of fossil fuels is the main source of the primary air pollutants such as PM, SO₂,

(1) McGettigan, M. 2001, Preliminary Assessment under Article 5 of Directive 96/62/EC, EPA.

(2) EPA Air Quality Report 2003

NOx and CO and that this would not only include cars, but also home heating systems and fires, both house and garden fires.

Figure 7.1 Location of air quality monitoring stations within the Dublin (Zone A)



Source: EPA

17.3 AIR QUALITY MONITORING RESULTS

17.3.1 Sulphur Dioxide and Smoke

As indicated in Table 7.4, SO₂ results are well within the limit values set for 2005. The highest maximum hourly and daily results were both recorded at Ballyfermot, however the average figure is the lowest.

Table 7.4 Monitoring results for SO₂ in Dublin 2004 (µg/m³)

Station	Annual Daily Mean (µg/m ³)	Hourly Mean (µg/m ³)	Daily Maximum (µg/m ³)	Hourly Maximum (µg/m ³)
Coleraine St	4.1	4.1	39.2	113.5
Winetavern St	3.2	3.3	20.2	53.1
Ballyfermot	3.2	3.3	89.0	190.8

Source: DCC and EPA

17.3.2 Nitrogen Oxides

Table 7.5 shows the results for 2004 for both the EPA and DCC. Results are all within the limits set out in the criteria above. Results from Ballyfermot indicate that the levels of NO₂ in the area are well within the limits.

Table 7.5 Summary statistics for hourly NO₂ values in 2004 (µg/m³)

Station	Winetavern St	Ballyfermot	Coleraine St
Mean	30	23	32
Median	27	17	28
Maximum hourly value	151	138	170
% data capture	71	53	99
Hours >200 µg/m ³	0	0	0
Hours >140 µg/m ³ (UAT)	1	0	3
Hours >100 µg/m ³ (LAT)	13	23	37

Source: DCC and EPA

200 µg/m³ is the hourly limit value from 2005 not to be exceeded more than 18 times

40 µg/m³ is the annual mean limit value applicable from 2010

17.3.3 Particulate Matter (PM₁₀)

Particulate monitoring results indicate that all locations in the Dublin region are within the limits values for that parameter (College St is not used for compliance assessment as the monitoring location does not meet sampling location requirements). In comparison with the results for 2003, the results for 2004 show an improvement in the levels recorded. There was a reduction in the annual mean at every site and in the overall number of days during which the levels exceeded 50µg/m³. Results from Ballyfermot indicate that it is well within the limits set for 2005, and the annual mean is currently inside the limit set for 2010.

Table 7.6 Summary statistics for PM₁₀ concentrations in 2004 (µg/m³)

PM ₁₀ based on daily mean concentrations	Stations College St*	Winetavern St	Coleraine St	Marino	Rathmines	Phoenix Park	Ballyfermot
Annual Mean	31	20	20	14	17	12	14
Annual Median	29	17	17	11	14	10	12
Maximum	95	77	88	93	73	71	112
% data capture	58	96	98	94	90	86	94
Values >50 µg/m ³	18	14	16	4	6	2	5
Values >55 µg/m ³	14	10	14	2	4	2	4

Source: DCC and EPA

* College St closed in August 2004 and did not conform to the criteria set down by the EU in terms of site selection

50 µg/m³ is the daily limit value from 2005 not to be exceeded more than 35 times in a year

17.3.4 Lead, Carbon Monoxide and Benzene

Table 7.7 to Table 7.9 summarise the monitoring results for the relevant parameters. Lead results are well below limit and guide values and have in general levelled off, reflecting the attainment of maximum lead level reductions due to the introduction of unleaded petrol. Carbon monoxide results were well below the limit value set for 2005 and indicate that this level should be easily achievable in the future. Benzene results were all below the Lower Assessment Threshold of 2 µg/m³.

Table 7.7 Summary lead concentration statistics in 2004 (µg/m³)

Station	Branch Rd	Coleraine St	Killbarrack	Rathmines	Winetavern St	College St*
Mean	0.06	0.01	0.01	0.00	0.01	0.02
% data capture	87	69	94	87	87	
Median	0.04	0.01	0.00	0.00	0.01	
Maximum	0.15	0.02	0.02	0.02	0.03	0.04

Source: DCC and EPA

* College St monitoring station closed in August 2004, results are up to that date

Table 7.8 Summary of statistics for 8-hour running average CO concentrations in 2004 (µg/m³)

Station	Winetavern St	Coleraine St
Mean	0.3	0.9
% data capture	87.7	98.9
Median	0.1	0.6
Values > 10	0.0	0.0
Maximum	4.2	6.1

Source: EPA

Table 7.9 Summary Benzene concentrations during 2004 ($\mu\text{g}/\text{m}^3$)

Station	Winetavern St
Mean	1.3
Median	0.9
Maximum	30.8
% data captured	64.5

Source: EPA

17.3.5 Summary

It is clear from the summarised information that the air quality in Dublin, and more specifically around the Ballyfermot and Park West Industrial Estate region, is well within the criteria limit values. Therefore it can be assumed that the air quality in the region is generally good. The dominating contributor to the air emissions in the area are road vehicles.

17.4 POTENTIAL IMPACTS

The operation of a WEEE recycling facility in the Ballyfermot area, presents two distinct sources of impact on air quality, namely emission points A1-1 and A2-1. The main pollutants associated with the Site will be dust (including the metal fraction therein) from the processing of the WEEE and combustion gases, from the operation of forklift trucks, including SO_x, NO_x and PM₁₀.

Additionally there is the potential for fugitive emissions from the facility. These will be of a similar nature as the emissions from the point sources and are associated with general ventilation and entrances to the building.

These emissions could potentially lead to an increase in ambient concentrations of SO_x, NO_x, PM₁₀ and metals.

17.5 MITIGATION MEASURES

There are several technical and procedural abatement systems in place to minimise the level of pollutants being emitted from the Site. There are seven dust collection and treatment systems associated with the process, as outlined in Table 7.10. To identify what stage of the process the abatement systems are located reference should be made to Drawings 12 – 19 of the Licence Application. Technical specifications and details for all the abatement equipment are contained in Attachment F1-2 of the Waste Licence application.

Treated emissions from Module 2 and 4 will be discharged through a combined stack (A1-1), while the treated emissions from the CRT cutting station will be emitted through stack (A2-1).

Table 7.10 Dust capture and treatment systems

Module	Process Description	Process Reference No.	Abatement Equipment	Description of treatment
1	CRT cutting machine	Z1.1 & F1.3	X1.1 Cyclone, X1.2 Filter and X1.3 Hoover Cyclone	A material filter removes particulate dust from the air stream. The cyclone removes particulates by physical forces. The treated air stream is discharged through emission point A2-1 . The dust is collected in sealed drums.
2	QZ and sifter box	Z2.1 & F2.1	F2.3 Multicone sifter and F2.5 High performance cyclone F2.6 Jet Filter	Mechanically extracted air from the QZ and sifter box enters the multicone sifter which removes fine and light material from the air stream. The treated air stream goes to F2.5 . The cyclone is designed to remove small particulate matter from the air stream. Dust removed at this stage is collected in sealed bags (waste stream 2.1). The treated air stream continues to F2.6 . The final treatment process is a Tube Jet Filter which consists of a polypropylene antistatic material that removes fine particulate dust from the air stream. The treated air stream is discharged through emission point A1-1 . The dust is collected in sealed bags.
3	Density Separator	F3.13	F3.14 Vibrating filter	Mechanically extracted air containing dust from the density separator is passed through a vibrating filter. The filter is an open housed tube filter and treated air is released back into the building. Dust is collected in a sealed bag.
4	Feeding Bin	B4.1	F4.8 Vibrating filter	Mechanically extracted air, containing dust from the feeding bin, is passed through a material filter. The filter is enclosed in a metal housing, captured dust is collected in a container under the filter and treated air is released back into the building.
	Hammer Mill, vibrating chute and zigzag sifter	Z4.1, H4.4 & F4.1	F4.2 Multicone sifter F4.3 High performance cyclone	Mechanically extracted air from the Hammer mill, vibrating discharge chute and zigzag sifter enters the multicone sifter which removes fine and light material from the air stream. The treated air stream goes to F2.5 . The cyclone is designed to remove small particulate matter from the air stream. Dust removed at this stage is collected in sealed bags (waste stream 2.1). The treated air stream continues to F2.6 .

Module	Process Description	Process Reference No.	Abatement Equipment	Description of treatment
			F4.4 Jet Filter	The final treatment process is a Tube Jet Filter which consists of a polypropylene antistatic material that removes fine particulate dust from the air stream. The treated air stream is discharged through emission point A1-1. The dust is collected in sealed bags.
	Air Jig	F5.1	F5.2 Vibrating Filter	Mechanically extracted air containing dust from the air jig is passed through a vibrating filter. The filter is an open housed tube filter and treated air is released back into the building. Dust is collected in a sealed bag.
	Electrostatic Separation	F6.1	F6.2 Vibrating Filter	Mechanically extracted air containing dust from the electrostatic separator is passed through a vibrating filter. The filter is an open housed tube filter and treated air is released back into the building. Dust is collected in a sealed bag.

As can be seen from *Table 7.10* the main emission point from the Ste is A1-1. Emissions from both Module 2 and 4 are discharged through this emission point. Extracted air from each Module goes through a three-step treatment process. The combined effect of the three units increases the designed efficiency of using any equipment item in isolation. The Jet Filters (F2.6 and F4.4) have a maximum designed particulate emission rate of 20 mg/m³, however, the three step treatment system has been shown to achieve consistently emission concentrations of 1 mg/m³ or less, at the Site's sister plant in Switzerland. A copy of the emission monitoring for the Swiss site is attached in both German and English in *Annex F1-2* ⁽¹⁾.

Screening modelling of the emissions from emission point A1-1 was carried out using the UK Environment Agency H1 ⁽²⁾ screening model. *Section 7.7* presents the findings.

Procedural mitigation measures will also be operated at the facility. These procedures will focus on reducing the likelihood of fugitive dust emissions from the site. A motorised industrial vacuum cleaner will be employed on site to clean all walkways and thoroughfares within the facility. Smaller vacuum cleaners will also be employed for maintenance work on the equipment. The use of vacuum technology rather than sweeping brushes will effectively capture settled dust and prevent it being made airborne during cleaning operations. Openings to the facility e.g. doors and loading bays, will be kept closed when not in use. Additionally, the roller doors can be lowered to the

(1) The formatting of the original German document was lost in the translation process. The original German document is the official Swiss monitoring report.

(2) Horizontal Guidance Note IPPC H1. Integrated Pollution Prevention and Control (IPPC). Environmental Assessment and Appraisal of BAT. Version 6, July 2003. Environment Agency et al, Bristol.

level of the trucks when loading and unloading is taking place. This will further reduce the potential for fugitive emissions.

Three diesel forklifts are to be used on site and will be appropriate for operation within buildings. The level of combustion gas emissions from these vehicles are considered to be insignificant given the volume of traffic currently experienced within the Industrial Estate.

17.6 PREDICTED IMPACTS

H1 ASSESSMENT

17.6.1 Introduction

This document provides a screening level assessment of the impact of emissions to air, from emission point A1-1, from the air abatement system located at the southern end of Unit 51, Park West Industrial Estate. Emissions from the abatement system are directed to air through one stack.

The assessment is consistent with the methodology for quantifying the impacts of emissions to air set out in UK guidance. (There is no similar such guidance for Ireland, hence reliance on UK guidance).

The methodology involves multiplying the emission rate in grams per second with a dispersion factor that is dependent on the height of the release, to give ground level concentrations of each pollutant. It should be noted that the dispersion factors assume worst case dispersion conditions, with no allowance made for thermal or momentum plume rise; the process contributions calculated are likely to be an overestimate of the actual concentrations.

The guidance provides a methodology for the screening out of those emissions that warrant further investigation, as replicated in *Box 7.1* below. The methodology has been followed for this assessment.

Box 7.1 H1 Methodology for the Screening Out of Insignificant Emissions to Air

-
1. Compare the short-term and long-term process contributions (PC) of substances emitted to air against the relevant short term and long term environmental benchmarks for emissions to air.
 2. Identify which emissions warrant further assessment by applying the criteria below:
PC long term >1% of the long term environmental benchmark
PC short term >10% of the short term environmental benchmark
 3. The calculations can be performed by the software tool and presented as a summary of the following information:
 - Short term and long-term benchmarks for each substance
 - Process contribution of short-term and long-term emissions
 - Process contribution as a percentage of the relevant benchmark
-

17.6.2 Input Data

Table 7.11 summarises the emissions data used in the assessment for emission point A1-1. The assessment was carried out using an emission rate of 1 mg/m³, assuming a continual maximum flow rate of 20,000m³/hr, operating over 24 hours for 5.5 days per week (Monday to Saturday afternoon, allowing a day and a half for maintenance), for 52 weeks of the year. These figures are an overestimate of the likely operation time of the facility, as Module 2 and 4 will not process WEEE continually, due to the nature of the process. In addition, no allowance has been made for breakdowns, holidays or special runs.

Lead is considered to be the most likely metal pollutant from the operation of the plant. It was assumed that the percentage of lead in the emission dust was 2%. (This assumption was based upon analysis of dust collected by the abatement system at the CRT cutting station, a copy of which is provided in Annex I-2).

Table 7.11 Emission Point A1-1 - Data Considered in the Screening Level Assessment

Variable	Abatement system stack
Release height above ground level (metres)	15 (a)
Normalised flow rate (Nm ³ s ⁻¹)	(b)
<i>Pollutant emission rates (g s⁻¹)</i>	
Dust	0.00556 (c)
Lead	0.00011 (c)
<i>Dispersion factors (µg m⁻³ g s⁻¹) (d)</i>	
Short term release (maximum one hour average)	370.5
Long term release (maximum annual average)	18.3
(a)	Provided by client
(b)	Not provided by client
(c)	Calculated by ERM from data provided by client
(d)	Assuming a 15 m release height, and based on the extrapolation of data points presented in H1 for a 10 metre and a 20 metre release height. This is as recommend in H1.

Emission point A2-1 is from the air abatement system of the CRT separating unit. This emission point was assessed using the same process as above assuming an emission rate of 20 mg/m³, and the same operational period. The results are presented in Table 7.12. This represents a significant overestimate of the potential emissions, as the equipment is reported to have an efficiency of >99.9% at >5µm and is likely only to be operated on a two-shift basis.

Table 7.12 Emission Point A2-1 - Data Considered in the Screening Level Assessment

Variable	Abatement system stack
Release height above ground level (metres)	15
Normalised flow rate (Nm ³ s ⁻¹)	
<i>Pollutant emission rates (g s⁻¹)</i>	
Dust	0.01111
Lead	0.00022
<i>Dispersion factors (µg m⁻³ g s⁻¹)^(d)</i>	
Short term release (maximum one hour average)	370.5
Long term release (maximum annual average)	18.3
(e)	Provided by client
(f)	Not provided by client
(g)	Calculated by ERM from data provided by client
(h)	Assuming a 15 m release height, and based on the extrapolation of data points presented in H1 for a 10 metre and a 20 metre release height. This is as recommend in H1.

17.6.3 Results

Tables 7.13 to 7.14 present the maximum incremental ground level concentrations for emission point A1-1, using an assumed particulate emission concentration rate of 1mg/m³ and 5mg/m³ respectively. As discussed previously, the abatement equipment comprises a Multiclone Sifter, a High Performance Cyclone and a Jet Tube Filter, operating in series. These units have been shown to give a particulate output of 1mg/m³ or less, when operated in combination. However, to ensure a realistic assessment, a range of emission rates was assessed to provide results based on the most likely, and potential worse case scenarios for the performance of the abatement equipment.

The results were predicted using the H1 screening methodology and are compared to Environmental Assessment Levels (EALs – Table 7.1) for the protection of human health, for different emission concentrations. Any significant results are highlighted in the Tables in bold.

Table 7.133 A1-1: Maximum Predicted Ground Level Concentrations (µg m⁻³) for 1 mg/m³ Emission Rate

Pollutant	Short term concentration	Short term EAL	Short term concentration as a % of EAL	Long term concentration	Long term EAL	Long term Concentration as a % of EAL
<i>Emissions Abatement Stack</i>						
Dust ^(a)	2.06	50	4.12	0.102	40	0.255
Lead ^(b)	0.0412			0.00204	0.5	0.407
(a) This assessment assumes all dust is PM ₁₀ ; the EAL presented is for PM ₁₀						
(b) This assessment assumes that lead makes up 2% of the dust emissions						

Table 7.144 A1-1: Maximum Predicted Ground Level Concentrations ($\mu\text{g m}^{-3}$) for 5 mg/m^3 Emission Rate

Pollutant	Short term concentration	Short term EAL	Short term concentration as a % of EAL	Long term concentration	Long term EAL	Long term Concentration as a % of EAL
<i>Emissions Abatement Stack</i>						
Dust (a)	10.3	50	20.58	0.51	40	1.27
Lead(b)	0.206			0.0102	0.5	2.03

(a) This assessment assumes all dust is PM_{10} ; the EAL presented is for PM_{10}
 (b) This assessment assumes that lead makes up 2% of the dust emissions

Table 7.15 presents the results for the emission point A2-1 and indicates that the assessment criteria would not be exceeded, even at the over-conservative emission levels used for the assessment (i.e. 20mg/m^3).

Table 7.155 A2-1 Maximum Predicted Ground Level Concentrations ($\mu\text{g m}^{-3}$) for 20 mg/m^3 Emission Rate

Pollutant	Short term concentration	Short term EAL	Short term concentration as a % of EAL	Long term concentration	Long term EAL	Long term Concentration as a % of EAL
<i>Emissions Abatement Stack</i>						
Dust (a)	4.12	50	8.23	0.204	40	0.509
Lead(b)	0.0824	-	-	0.00407	0.5	0.814

(a) This assessment assumes all dust is PM_{10} ; the EAL presented is for PM_{10}
 (b) This assessment assumes that lead makes up 2% of the dust emissions

17.6.4 Discussion

The results in Table 7.13 show that both the short and long-term ground level concentrations of PM_{10} and Lead, as a result of air emissions from point A1-1 (at a rate of 1 mg/m^3), are below the criteria for significance (as outlined in Box 7.1).

However, the results in Table 7.14 are based on an emission rate of 5 mg/m^3 . These show higher ground level concentrations and the short-term particulate result is double that of the relevant assessment criterion. In addition, the long-term results for both the lead and particulates are above the assessment criterion. As a potential worst case scenario, these results suggest that emission point A1-1 should be classed as a ‘major’ emission point under the Waste Licence.

Table 7.16 provides the ground level concentration results for emission point A2-1 and indicates that the estimated emissions of 20 mg/m^3 will not exceed

any of the relevant assessment criteria. Therefore, the emissions from A2-1 are considered to represent a 'minor' emission point under the Waste Licence.

It is noted that the H1 assessment tool is highly conservative and is likely to overestimate the ground level concentrations, as it assumes the worst-case meteorological conditions and overestimates the emission rates, it is considered highly unlikely that the emissions from the Site will cause any harm to the health of the people living and working in the vicinity of the site.

Based on the results of the H1 assessment process and the guidance given in the BREF ⁽¹⁾ for the Waste Treatments Industry, the facility wishes to apply for emission limit values of 5 mg/m³ for both emission point A1-1 and A2-1.

17.6.5 Fugitive Emissions

Through good housekeeping and procedural control, it is anticipated that the level of fugitive dust emissions can be successfully minimised. An industrial sweeper is used on site to clean general areas and smaller hoovers are used to keep work stations clean during maintenance of equipment. Fugitive emission locations are identified in *Attachment E1* of the application.

17.7 MONITORING REQUIREMENTS

It is anticipated that the Licence will require regular monitoring of emission point A1-1, to confirm that the abatement system is operating satisfactorily and that the emissions are within prescribed limits. Parameters to be monitored will include particulates and metals. A fugitive emission study will be carried out, as required.

The Site also commits to carry out any necessary monitoring on emission point A2-1.

(1) Under the Directive 96/61/EEC, licence conditions must be based on Best Available Technology (BAT) as defined in Article 2.11. In the absence of national BAT Guidance Documents reference should be made to the BAT reference documents (BREF) organised by the European IPPC Bureau.

18 HYDROLOGY

18.1 METHODOLOGY

A review of available data in relation to hydrology and hydrogeology was carried out for the area. This included:

- Geological Survey of Ireland's (GSI) database (website: http://193.178.1.182/website/gwps_multi/viewer.htm)
- Several EIA's have been carried out for this, and surrounding sites, which help characterise the soils and bedrock in the area. The EIA's are associated with the following planning applications or IPPC Licence applications:
 1. 2529/99 Development of industrial/warehouse units plus offices at the former *Semperit* factory, Killeen Road, Dublin 10;
 2. 0954/96 Industrial warehouse development at Park West Gallanstown;
 3. 3291/97 Circa 104,225 sq.m contained in 27 No. buildings, of mix use development.
 4. 2504/96 Expansion and upgrading of recycling facility and temporary retention and continuance of use of part of open area for material recovery and recycling of building works wastes and perimeter dust barrier and porta-cabin.

Given that the unit is in existence, that no additional construction is to take place on the Site and that there have been several EIA's for the area, no further Site-specific investigations were deemed necessary.

18.1.1 Technical limitations

Given that no site investigations were carried out for this ER, the geological and potential contamination information is based on previous studies and the EIA for the Planning Application 2529/99.

18.2 RECEIVING ENVIRONMENT

Soil and Bedrock

During the original redevelopment (*Harcourt Development Ltd.* 1999 - 2001), the area of the Site was subject to significant landscaping and local materials were used to level the site. Therefore the upper layers (0.5 – 2m) of soil are characterised by gravely clay fill due to the demolition of the previous buildings and earth works that have been carried out to the area. Stiff grey/brown boulder clay lies beneath the fill and the area is generally dominated by natural boulder clays. Characteristically, boulder clays have a low permeability rate (10^{-7} to 10^{-10} m/s) and would act as a natural barrier to

the migration of water from the surface to the lower strata/bedrock. Historical maps indicated that the area was poorly drained, and in some cases marshy. A rough field permeability test carried out on a site 200m east of Killeen Road, indicated that the fill material had a high clay content and low permeability.

The site is situated at the centre of a Carboniferous basin referred to as the 'Dublin Basin'. The underlying rocks form part of the Calp Formation, which is predominately comprised of "Dinantian Upper Impure Limestone". Boreholes undertaken on the former *Semperit* site, located the rock head some 3 to 4m below the average site ground level, at the western end of the Site. The depth to bedrock in the area is generally reported to be between 5-10m below ground level. Faults in the bedrock are not recorded within 2 km of the site.

The *Geological Survey of Ireland* (GSI) has classified the Calp Limestone bedrock as a 'locally important aquifer and generally moderately productive'. Groundwater flow direction has not been definitively established, however, the most likely scenario is that it flows north-easterly towards the River Liffey. Abstraction rates from formations classified as 'moderately productive' are capable of well yields in the range of 100m³/day to 400m³/day. Wells in the area have yielded 500 m³/day to 2,000m³/day, although it is noted that there are no wells reported within 500 m of the Site.

Surface water

Surface water information for the area was obtained from a review of the previously mentioned EIA's and the EPA website (<http://www.epa.ie/rivermap/data/rivmaptop.html>).

The natural characteristics of the local surface water flow have been significantly altered during redevelopment of the area. The Site is located within a newly renovated industrial park, where surface and foul water is collected and directed towards segregated dedicated drainage systems.

Surface water from the roof and surrounding sealed areas is directed by a series of closed and open gullies along the southern, western and northern sides of the Site, to the Park West Industrial Park's main storm water drainage system, located to the north of the Site on the main road (within 3-4m of the site boundary). Currently there are five independent connect points from the Site to the Industrial Park's drainage system.

The Estate is served by internal surface water drains system that is directed to the eastern portion of the site, where it is directed through a 225mm surface water drain and eventually discharges to Gallanstown stream, approximately 200m east of the Site. There are no abatement measures (e.g. oil/water interceptors) on the Site, or in the wider Industrial Estate.

All sanitary wastewater emissions from the Site discharges to the main Local Authority sewer on Killeen Road and is eventually treated in the Ringsend Wastewater Treatment facility.

Prior to the redevelopment, the majority of the surface water flow would have been in the general direction of the River Camac, approximately 800m south-east of the Site, which flows east and then north to join the River Liffey at Heuston Station (4km east), from where it flows into the Irish Sea.

The monitoring station at Kylemore Road is situated on the Camac. The surface catchment of the Hydrometric Area is drained by the River Liffey and by all streams entering tidal water between Sea Mount and Sorrento Point, Co. Dublin. The biological data at the Kylemore Road monitoring station shows that in 1998, the water quality was moderately polluted with a Q-value of 3 and from 1989-1996, the water quality was seriously polluted with a Q-value of 1. The chemical data for the same location shows that between 1998-2000, there were problems with the quality in the water in relation to Dissolved Oxygen, Ortho-Phosphate, pH, Temperature, Total Ammonia, Un-Ionised Ammonia.

Foul Sewer

Sanitary wastewater is collected from the Site's sanitary facilities and canteen area and discharges to the Industrial Park's main foul sewer in the south-east corner of the Site. There are no other discharge points to the foul sewer from the Site.

Drawing 08 and 09 give details of the Surface Water and Foul Sewer collection system within the applicants site boundary.

18.3 POTENTIAL IMPACTS

The installation of the facility in Park West will not have any impact on the geology or hydrogeology of the area. However, there is the potential for operational activities to impact on the area through spills of oils or diesel. To address this risk, mitigation measures have been proposed and are discussed in *Section 8.4* below.

18.4 MITIGATION MEASURES

There are no chemicals used in the process, and the entire Site is provided with good quality hardstanding areas (either concrete or tarmacadam).

Any chemicals that are used or stored onsite will be limited to small quantities (e.g. maintenance oils). All chemical storage areas will be provided with sufficient and appropriate storage facilities which will incorporate secondary containment, fire extinguishers and spill kits.

There is a single above-ground tank for the refuelling of the diesel forklifts. The tank (1,200 litres) is located inside the building and is provided with

integral secondary containment, with a capacity to hold 110% of the tank's contents. The tank is also provided with an interstitial leak detection system, level gauge and high level alarm. Additional details of the refuelling facility are provided in *Attachment D.1*.

There is also the potential for oil-containing WEEE to arrive onsite. Providing the oil is not suspected to contain PCBs (e.g. an older transformer), it will be drained in a dedicated area, (provided with secondary containment) prior to processing the WEEE item. The oil will be stored in drums in a contained area and will be disposed off site with an appropriately licensed waste contractor.

Any suspected PCB containing equipment will be stored in the *Waste Quarantine Area* and will be disposed with an appropriately licensed waste contractor.

18.5 PREDICTED IMPACTS

Given the nature of the operation, the volume of chemicals stored onsite and the provision of secondary containment and spill kits, it is considered unlikely that the operation of a WEEE recycling facility would have an impact on the hydrogeology of the area.

18.6 MONITORING REQUIREMENTS

In light of the fact that no disturbance of the ground will take place, the nature of the facility and the relatively small quantities of oils/fuels to be stored onsite, along with the provision of appropriate secondary containment, it is not considered necessary to carry out groundwater monitoring.

It is anticipated that monitoring requirements in relation to surface water discharges will be incorporated under the Waste Licence. However, it is considered that this will be limited to regular visual monitoring of the upstream and downstream surface water discharge points.

I9 ECOLOGY

I9.1 METHODOLOGY

An ecological survey was undertaken on the area surrounding the Site. The overall objective was to identify the key ecological resources, if any, that the Site supports, to establish a baseline condition prior to the commencement of the activity.

Species and habitat surveys were undertaken in February 2006, using the Heritage Council's *Guide to Habitat Classification* (Heritage Council 2000).

The methodology employed in the preparation of this survey follows three distinct phases:

- Desktop Research;
- Phase 1 Habitats Surveys; and
- Consultations.

Additional baseline data on conservation sites and the presences of flora and fauna species was sought from the *National Parks and Wildlife Service* (NPWS) of the *Department of Environment, Heritage and Local Government*. The Site synopses for designated sites, including 'proposed Natural Heritage Area' (pNHA), 'candidate Special Area for Conservation' (cSAC) and 'Special Protection Area' (SPA) were downloaded from the NPWS website (www.heritagedata.ie).

The results of the habitat survey are discussed below.

I9.2 THE RECEIVING ENVIRONMENT

The Site is situated in an urban setting surrounded by an industrial estate which is characterised by built land and disturbed ground.

I9.2.1 Designated Sites

Designated sites within 10km of the site were recorded as part of the baseline assessment. Information on designated sites was obtained from NPWS.

Grand Canal pNHA (02104)

The Grand Canal is designated as a proposed Natural Heritage Area (pNHA) Site Code 02104. The pNHA is located approximately 200m to the south of the Park West Industrial Estate and represents the principal ecological resource within a one kilometre radius of the Site.

The Canal is a man-made waterway linking the River Liffey at Dublin with the Shannon at Shannon Harbour and the Barrow at Athy. The proposed Natural Heritage Area (NHA) comprises the canal channel and the banks on either side of it. A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland. The hedgerow, although diverse, is dominated by Hawthorn (*Crataegus monogyna*).

A towpath runs parallel to the Canal to the south of the Site. The vegetation of the towpath is dominated by grass species. Where the canal was built through a bog, soil (usually calcareous) was brought in to make the banks. The contrast between the calcicolous species of the towpath and the calcifuge species of the bog is very striking. The diversity of the water channel is particularly high between Lowtown and Inchicore, the section of the Canal to the south of the proposed Site. Arrowhead (*Sagittaria sagittifolia*) and Watercress (*Nasturtium officinale*) are more common in this stretch than on the rest of the system. All sites for Hemlock Water-dropwort (*Oenanthe crocata*) on the Grand Canal system are within this stretch.

Otter (*Lutra lutra*) sightings have been recorded along the towpath adjacent to the canal, particularly where the canal passes over a river or stream. Evidence of otters along the canal to the south of the Industrial Estate has been recorded in recent times. Otters are afforded strict protection in Ireland under both the Irish wildlife Amendment Act and the EU Habitats Directive, where it is listed as an *Annex II* species. A retention pond is located adjacent to the Canal. While the filter beds have been filled in the retention pond has been colonised by various flora species which has resulted in habitat creation for insects, fish, birds and otters.

The presence of bat species along the Grand Canal was also confirmed by the NPWS Dublin City Ranger during consultations. However, particular species identification for bats along stretches of the Grand Canal between Inchicore and the M50 have not been recorded.

The Rare and legally protected Opposite-leaved Pondweed (*Groenlandia densa*) (Flora Protection Order, 1987) is present at a number of sites in the eastern section of the Main Line, between Lowtown and Ringsend Basin in Dublin.

The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by modern farming methods.

River Liffey pNHA (000128)

The Liffey Valley site is situated along the River Liffey between Leixlip Bridge on the Kildare-Dublin border and downstream of the weir at Glenaulin, Palmerstown, Co. Dublin. It is located approximately 1.7km from the Site at

the closest point. The River Liffey and the associated freshwater habitats and riparian corridor form the focus of this designated site. The Mill Race between Palmerstown and the weir at the Wren's Nest Public House is also included.

The river is a 'Salmon river' and there are a series of weirs along the river between Palmerstown and Leixlip. The main terrestrial habitat included within the site is mixed deciduous woodland on fertile, limey alluvium and boulder clay, in which Beech (*Fagus sylvatica*) is dominant in some areas. Elsewhere Ash (*Fraxinus excelsior*) and Willow species (*Salix* spp.) are common and there are also some stands of Larch (*Larix*) and Scot's Pine (*Pinus sylvestris*). Toothwort (*Lathraea squamaria*) has been recorded on a number of tree species.

The ground flora commonly includes Ivy (*Hedera helix*), Primrose (*Primula vulgaris*), Violet species (*Viola* spp.), Lords-and-ladies (*Arum maculatum*) and Hart's-Tongue Fern (*Phyllitis scolopendrium*). These woodlands occur on both sides of the river and normally consist of old estate woodlands.

A wet marsh occurs on the strip of land between the Mill Race and the river east of the metal bridge and west of the paint factory. This marsh is fed by seepage from the Mill Race and plant species such as Bulrush (*Typha latifolia*), Marsh-marigold (*Caltha palustris*) and Sweet-grass (*Glyceria* spp.) occur here. This strip of land also has rough grassland which is not regularly grazed. Much of the river bank and the banks of the Mill Race are fringed with Willow (*Salix* spp.) and Alder (*Alnus glutinosa*).

The threatened Green Figwort (*Scrophularia umbrosa*), a species listed in the Irish Red Data Book, is recorded from a number of stations along the river. This stretch of the river Liffey has the greatest number of recently recorded populations of this species in Ireland. The Rare and legally protected Hairy St. John's-Wort (*Hypericum hirsutum*) (Flora Protection Order 1987) has been recorded from woodlands along this part of the River Liffey. This species has only been recorded in Kildare and Dublin, at sites on the river Liffey, since 1970. The threatened Yellow Archangel (*Lamiastrum galeobdolon*), listed in the Irish Red Data Book, is also recorded from these woodlands.

The section of river within the site is used by canoeists. The West Link Bridge spans the valley west of Palmerstown. Recent management of woodlands at Brooklawn and Quarryvale has cleared a lot of Laurel and undergrowth. Some mature Beech have been removed in this area.

This site is part of the Liffey Valley Special Amenity Areas Order 1990. The site is important because of the diversity of the habitats within the site, ranging from aquatic to terrestrial. A number of rare and threatened plant species have been recorded from the site.

19.2.2 Recorded Habitats

The subject Site is exclusively characterised by built land. Due to the absence of any ecological features within the Site boundary a wider appraisal of the ecological status of the Industrial Estate is given below. Other habitats recorded within the Industrial Estate include disturbed ground, amenity grassland, hedgerows and treelines. The ecological value of these habitats both within the site boundary and the industrial estate boundary is low due to the artificial and urban nature of the site.

Built Land

The Built Land habitat identified onsite is classified as:

- *BL 3 Buildings and Artificial Surfaces*

The built and artificial structures include the access road and the paved area on which the WEEE facility is situated.

A summary of the habitat classifications recorded within the built land areas is provided in *Box 9.1*.

Box 9.1 Summary of Built Land Classification

BL3: Buildings and Artificial Surfaces

This category incorporates areas of built land that do not fit elsewhere in the classification. It includes all building (domestic, agricultural, industrial and community) other than derelict stone buildings and ruins. Vegetation cover should not be greater than 50%.

Source: Heritage Council (2000) Guide to Habitat Classification

Woodland

The woodland habitat within the Site have been classified as:

- *WL 1 Hedgerow*
- *WL 2 Treelines*

The hedgerow forming the southern boundary of the industrial estate represents the key ecological resource within the estate. This is a mature hedgerow, supporting a variety of species. Tree and shrub species associated with the hedgerow include ash (*Fraxinus excelsior*), willow (*Salix ssp.*), hawthorn (*Crataegus monogyna*) and bramble (*Rubus fruticosus agg.*). A thick cover of ivy (*Helix Hedera*) covers many of the trees within the hedgerow.

Established treelines (**WL2**) act as a wildlife corridor and refuge to birds and other fauna and can connect larger more established habitats. However the

treelines recorded on site consist of single lines of immature species planted for landscaping purposes and are of limited conservation value.

A summary of the habitat classifications recorded within the woodland areas is provided in *Box 9.2*.

Box 9.2 Summary of Woodland Classifications

WL 1: Hedgerows

Linear strips of shrubs frequently with occasional trees that usually enclose fields or property boundaries. Most hedgerows were planted and often occur on raised earth banks, a consequence of excavation of drainage ditches. Hedgerow dimensions vary greatly and can be gappy or overgrown if neglected. Commonly hedgerows support a high proportion of spinose plants such as hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), gorse (*Ulex europaeus*) in addition to trees and shrubs such as ash (*Fraxinus excelsior*) and beech (*Fagus sylvatica*). Climbing plants such as ivy (*Hedera helix*) and tall grasses, herbs and ferns can also be supported in hedgerow habitats.

WL2: Treelines

A treeline is a narrow row or single line of trees that is greater than 5 m in height and typically occurs along field or property boundaries. This category includes tree-lined roads or avenues, narrow shelter belts with no more than a single line of trees, and overgrown hedgerows that are dominated by trees.

Source: Heritage Council (2000) Guide to Habitat Classification

Grassland habitats

The grassland habitat within the Industrial Estate is characterised by a sward of grassland, which consists of a variety of grasses. Broadleaved herbs include daisy (*Bellis perennis*), dandelion (*Taraxacum spp.*) and clovers (*Trifolium spp.*).

A summary of the habitat classifications recorded within the grassland areas is provided in *Box 9.3*.

Box 9.3 Summary of Grassland Classification

GA 1: Improved agricultural grassland

This type of grassland is improved, or species-poor, and is managed for purposes other than grass production. It includes amenity, recreational or landscaped grasslands, but excludes farmland. Most areas of amenity grassland have been reseeded and are regularly mown to maintain very short swards. Fertilisers and herbicides are often applied but there is rarely any grazing by livestock. The sward may comprise a variety of grasses, including some that also occur in improved agricultural grassland – GA1, but rye-grasses (*Lolium spp.*) are rarely abundant. Broadleaved herbs such as daisy (*Bellis perennis*), Dandelion (*Taraxacum spp.*), clover (*Trifolium spp.*) and plantains (*Plantago spp.*) are common.

Source: Heritage Council (2000) Guide to Habitat Classification

19.2.3 Fauna

A walk-over survey for fauna with emphasis on mammals was undertaken during the Phase 1 Habitat Assessment. The presence of protected fauna on-

site will significantly increase the ecological value of a habitat area, thus it is necessary to combine faunal surveys with the Phase 1 Habitat Assessments.

Mammals

A field survey, supplemented by a desktop review and consultation with both the National Parks and Wildlife Service and Site Management, has indicated that no records are available for the presence of mammal species within the Site boundary.

As mentioned above in *Section 9.1.1*, Otters (*Lutra lutra*) have been recorded along the Grand Canal to the south of the Site. However activities associated with the Site are not expected to impact upon this species or any other species associated with the Grand Canal.

Birds

While no birds were recorded within the site boundary, the hedgerows forming the southern boundary of the industrial estate provide habitats for a range of typical bird species. While a survey on bird species has not been undertaken, a number of species are expected to be present around the Site.

Birds likely to be associated with hedgerows (but not recorded during the Site Survey) include willow warblers (*Phylloscopus trochilus*), bullfinches (*Pyrrhula pyrrhula*) and chaffinches (*Fringilla coelebs*), blue tits (*Parus caeruleus*), robin (*Erithacus rubecula*), greenfinch (*Carduelis chloris*) and Blackbird (*Turdus merula*)⁽¹⁾. It is not expected that the activities associated with the Site will have any deleterious impact upon avian fauna.

19.3 POTENTIAL IMPACTS

No impacts on the above baseline ecological environmental are anticipated. All activities will take place within the enclosed building. No emissions will impact on the ecological resources surrounding the Site.

19.4 MITIGATION MEASURES

No mitigation measures are required.

19.5 PREDICTED IMPACTS

No impacts are predicted to arise as a result of the WEEE processing activities associated with the operation of the Site.

19.6 RESIDUAL IMPACTS

No residual impacts are predicted and no monitoring measures are required.

(1) Dempsey & O'Leary (1995) Pocket Guide to the Common Birds of Ireland,

I10 LANDSCAPE & VISUAL

I10.1 METHODOLOGY

This landscape and visual assessment has been undertaken with reference to the 'Guidelines for Landscape and Visual Impact Assessment' (2002), published by the Landscape Institute and the Institute of Environmental Management & Assessment.

Potential landscape and visual impacts will apply in respect of external works associated with the redevelopment of this industrial unit. Specifically these external works comprise the following:

- Installation of an air emissions stack, to be mounted on the roof near to the southern elevation of the building; and
- Replacement of the existing access on the north east corner of the building with weighbridge facilities constructed with finished levels to coincide with existing ground levels.

I10.2 RECEIVING ENVIRONMENT: BASELINE LANDSCAPE AND VISUAL AMENITY

The Site is located within the Dublin City Area and reference is made to the Dublin City Development Plan 2005-2011.

I10.2.1 Landscape Designations and Policy

The Site and its immediate environs is zoned for industrial use in the current City Plan. Near to the Site, a small pocket of zoned residential area is located on Killeen Road and comprises approximately 6-8 residential dwellings and a public house. There is no landscape or amenity related zonings in the wider Industrial Estate and therefore no landscape related policy objectives apply to the Site.

There are no landscape elements, features or views in this Site that carry a statutory protection although, further south, outside the immediate industrial area, the Grand Canal and footpath is located in an east-west orientation. This is a designated Landscape Conservation Area.

I10.2.2 Character

The Park West industrial site (in which Unit 51 is located) is a relatively flat and exposed industrial landscape. A rail line runs in an east west direction and forms a natural boundary to the north, whilst the Grand Canal Corridor, also with an east west orientation, is located further south. The Site contains purpose built factory units which contribute little positive aesthetic character to the area. An extensive distributor road system permeates the Site. The overall condition of the Site is variable, being particularly poor in the north-

west corner owing to the poor condition of the roads and the presence of litter and waste throughout. Unit S6 on Banville Avenue is currently stripped of its exterior cladding materials and in its degraded condition contributes to the poor quality of this area. An electricity pylon and overhead power-line cross the southern part of the Industrial Estate.

I10.3 POTENTIAL IMPACTS

The landscape and visual impacts that will apply as a result of the proposals are minor and indeed largely insignificant. These are outlined below.

I10.3.1 Landscape Impacts

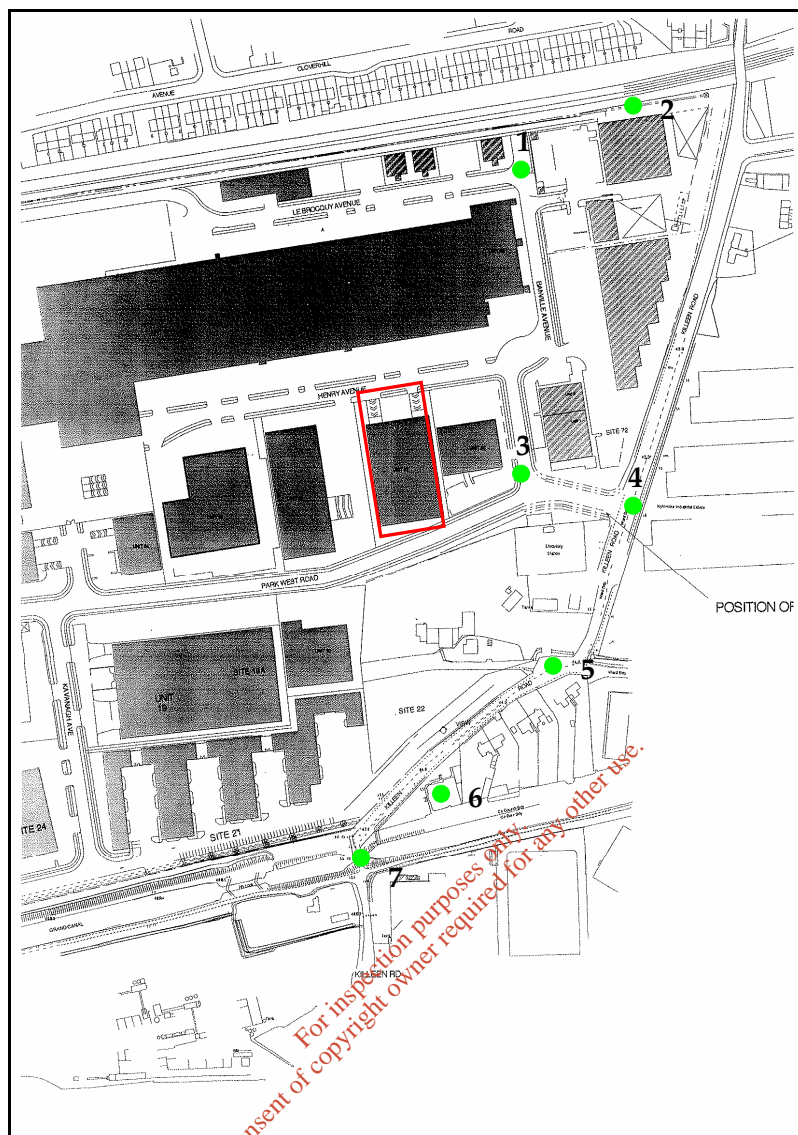
These relate to material changes to landscape character and landscape elements that will result from the proposals. Unit 51 is an existing industrial facility, for which the modifications will apply to the building structure, therefore no direct impacts on landscape elements will apply. In terms of landscape character, the introduction of the emissions tower and weighbridge represent elements that would be associated with an industrial landscape and hence impacts in terms of changes to the baseline character of this industrial landscape do not apply.

I10.3.2 Visual Impacts

Visual impacts will apply in respect of the tower which is expected to be approximately 3m tall, and is likely to be visible from selected locations owing to its presence, on the roof of Unit 51. These are outlined as follows:

Seven viewpoint locations have been selected and represent categories of viewers who may experience changes to their existing views as a result of the proposals. Photographs are included at the end of this report which capture, approximately the existing views from the nominated viewpoint locations. These locations are indicated on the sitemap *Figure 10.1*.

Figure 10.1: Viewpoint locations



The categories of viewers that apply include primarily *residents of dwellings* and *individuals located in places of work*. Each viewpoint is described below in terms of the viewer type, description of existing views gained and description of the predicted change in view as a result of the proposals.

Viewpoint 1 from Cloverhill Road

The viewer type is predominantly the residents of dwellings who currently gain views of the boundary fence and scrub planting associated with the railway line in the foreground. In the background, views are gained of the wider industrial landscape associated with Park West Industrial Park, in particular the *Thorntons Recycling Facility* and the run down unit S6 together with the poorly surfaced roadways and general littered open spaces.

Views of the proposals are likely to be screened by intervening industrial units and a deterioration in the existing view will not be experienced as a result of the proposal.

Viewpoint 2 from Cloverhill Road.

Residents of dwellings will gain views from second storey windows of a large area of open space given over to rough grass and containing one mature cherry tree. The run down unit S6 is clearly visible along with part of Unit 51. Views of the proposals are likely to be screened by intervening buildings.

Viewpoint 3 from Unit 50

Individuals located at a place of work (Unit 50 – *Carrols Joinery*) currently gain short range uninterrupted views of Unit 51. Views of the proposed tower structure will be clearly gained from this location.

Viewpoint 4 from Kylemore Industrial Estate, opposite Park West Road.

Individuals located at a place of work in the industrial estate currently gain medium range views of the entrance to Park West industrial park with clear views of unit 51. Views of the proposed tower structure will be clearly gained from this location in the short to medium range.

Viewpoint 5 from the south east corner of Killeen Road

Residents of dwellings currently gain views of the boundary wall associated with Killeen Road in the near distance. In the background, views are gained of both Unit 51, together with power lines, an electrical pylon and lighting columns associated with the streetscape generally. Residents of dwellings located further west along Killeen Road currently gain views of a mature conifer hedge in the foreground.

Views will be gained of the tower structure proposed from the pair of dwellings on the south east corner of Killeen Road. Residents of dwellings located further west on Killeen Road are likely to be screened from views of the tower by the intervening conifer hedge.

Viewpoint 6 from Killeen Public House

Individuals located at a place of work (*Killeen Public House*) currently gain views of Killeen Road and a seeded embankment in the foreground. Clear views are gained of Unit 51 together with the electricity pylon in the foreground. Clear views will be gained, in the background of the proposed tower, located on the roof of Unit 51.

Viewpoint 7 from the bridge crossing over the Grand Canal

Views from this location will be experienced by individuals crossing the pedestrian canal bridge. Views in the foreground are currently gained of the canal waterway and grass banks. In the background, views are gained of Killeen Public House and the road embankment (grassed). Unit 51 can be seen clearly further in the distance with an electrical pylon in the foreground.

Clear views will be gained, albeit at a distance, of the proposed tower, located on the roof of Unit 51.

Visual Impacts Summary

Visual impacts will apply to viewpoints 3, 4, 5, 6 and 7 as a result of the proposals to construct an air emissions tower. Significant visual impacts will not apply in respect of the proposed weighbridge.

The quality of the existing views from all of these locations is judged to be poor owing to the presence of large scale industrial and electrical structures. The proposed tower represents a relatively small component which will be introduced and will affect small changes to the existing views gained. Overall it is therefore judged that the proposals will not result in a significant deterioration of the quality of the existing views.

I10.4 MITIGATION MEASURES

In terms of minimising the small scale visual impacts, it is recommended that the cladding materials and colour finish of the emissions tower be designed to match that of the main structure of Unit 51. These mitigation measures will be of particular benefit to viewers located at or near viewpoint 3 as well as enhancing the predicted view from the other viewpoint locations.

Opportunities could also be taken to introduce boundary planting to the Park West Estate as a mitigation measure for this industrial area generally.

I10.5 RESIDUAL IMPACTS

Provided the mitigation measures outlined in *Section I10.4* are followed, no significant landscape and visual impacts are anticipated.

I10.6 MONITORING MEASURES

No monitoring measures are required.

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Viewpoint 1



Viewpoint 2



Viewpoint 3



Viewpoint 4



Viewpoint 5



Viewpoint 6



Viewpoint 7

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I11 HUMAN BEINGS

I11.1 METHODOLOGY

The human beings component of this environmental report is concerned with impacts of the proposed activity on the community working or residing in the area within a 1km radius from the Site. (The 1km radius has been established as the zone of influence due to the built up industrial/ urban nature of the area).

A brief baseline has been established based predominantly on desk based research, including an examination of land uses and identification of potential sensitive receptors located within the 1km zone. Consultation was made with the Park West Estate Management Company with regard to transportation and security issues for employees entering the site.

Potential impacts for human beings may arise from the external operational impacts of the facility. These are assessed as follows:

- Traffic;
- Employment and transportation;
- Noise to residential areas; and
- Air quality.

No consultation was made with any of the surrounding communities with regard to the Waste Licence Application.

I11.2 RECEIVING ENVIRONMENT

The Site is located within the Park West Industrial Estate surrounded on all sides by industrial related activities. The Site is currently operational and is being used by *TechRec*. The 1km 'zone of influence' takes in many industrial, businesses, commercial facilities; to the south, east and west of the Site. To the north is mainly residential, with scattered housing and other housing developments included to the south of the site. *Table 11.1* lists some of the areas located within this zone of influence.

Table11.1 Key land uses around the site

Zone of Influences Land Uses within 1km from Site	
North	Residential areas along Kylemore Rd. and other estates associated with Ballyfermot and Cherry Orchard. More specifically, <i>Ballyfermot College of Further Education</i> and library are located along Ballyfermot Road (approx. 800m), with <i>Ballyfermot Shopping Centre</i> beyond this (approx 1km).
South	<i>J.F.K Industrial Estate, Bluebell</i> , parts of Drimmagh and residential area to south-east.
East	<i>Kylemore Industrial Park, Allied Industrial Estate, Westlink Industrial Estate. Riverside industrial Estate, Bluebell.</i>
West	<i>Park West Business Park, Plaza</i> (Restaurants, services, etc. approximately 800m from the site), Park West Residential components and the larger Park West Framework Development Area 6 (Designated in the Dublin City Development Plan 2005), these areas will be locations where one of the guiding principles are to "to create a vibrant and sustainable new urban area with work, living and recreational opportunities, based around high quality public transport nodes". Also to the West are residential estates in Ballyfermot and Cherry Orchard to include <i>Cherry Orchard Park</i> and also areas that are included in the designated 'Framework Development Area 6' Park West within the Dublin City Development Plan 2005-2011.

I11.3 POTENTIAL IMPACTS

The potential impacts relate solely to the effects that operations may have on the surrounding community and are not assessed for personnel working within the facility. This would be undertaken as a separate assessment in accordance with Health and Safety legislation. As shown from the receiving environment *Section I11.3* there is mainly industrial, commercial and residential areas in the general vicinity. The assessment of potential impacts will include the following topics:

- Traffic
- Employment and transportation
- Noise
- Air

I11.3.1 Traffic

There is no specific traffic section within this report as it has been scoped out of the study. The original EIA submitted with Planning Application 2529/99 predicted peak traffic flow rates for the year 2005 along the Killeen Road and Cloverhill Road of 2450 – 2550 and 1400 – 1500 vehicles per hour respectively.

The traffic to be generated as a result of the activities proposed for this activity is approximately 21 two-way journeys i.e. 42 in total. WEEE acceptance and removal will be between the hours of 07.00 to 20.00 Monday to Friday and 08-00 to 18.00 Saturdays. No waste will be accepted/ removed on Sundays or Bank holidays. Therefore the figure is comparable to that of the previous use on this Site and is considered that the WEEE facility will not result in any significant effects on traffic loads entering the area.

There are three vehicular entrances to the Industrial Estate, the main entrance being from the Nangor Road (south of the Site), which adjoins the Naas Road/N7 and M50 orbital motorway. To the north is the Cloverhill Road, which links to the N4 / Galway Road & M50 via Liffey Valley. The Killeen Road entrance, at the eastern side of the site offers access via Ballyfermot / Kylemore Industrial Estate.

Transportation and Access to and from the site.

As discussed in the land use and zoning chapter (Section 2.2.6), it has been established that the area is within a Z6 zoned area "To provide for the creation and protection of enterprise and facilitate opportunities for employment creation". The Dublin City Development Plan 2005 also states that these 'Z6 zoned areas are likely to generate a considerable amount of traffic by both employees and service traffic and that sites should therefore have good vehicular and public transport access'.

In addition, as this area is part of the Park West Framework Development Area 6 (Designated in the Dublin City Development Plan 2005), these areas will be locations where one of the guiding principles are to "to create a vibrant and sustainable new urban area with work, living and recreational opportunities, based around high quality public transport nodes".

The Estate has a high quality road infrastructure which is continually being improved, traffic movements associated with this waste license application are estimated to be a total of 42 movements on and off the site. This is not likely to have any significant effects on the communities within the area as movements are within a permissible working hour between the hours of 07.00 to 20.00 Monday to Friday and 08-00 to 18.00 Saturdays. These movements are not out of character for these areas and therefore it does not constitute significant adverse impacts on the surrounding areas.

Park West Estate has excellent transportation links and multi-modal public transportation links which are available to all employees. With this in mind, there is limited car parking provided onsite for TechRec employees. Table 11.2 lists the forms of public transport available to employees and provides a number of alternatives to car-based transportation for the Park West Estate.

Table 11.2 Public transport options for the site

Mode of Transport	Transport Details
Rail	<p>It has its an on-site Arrow line railway station, Park West/Cherry Orchard, which is one stop from Heuston Station - Dublin's main rail terminus. The current Cherry Orchard stop is due to be relocated in an western direction along the railline, closer to the residential elements of the Park West development.</p> <p>Heuston station links a number of regional rail lines and connects to the DART network via the LUAS Red Line approximately 800m south-east from the site.</p>
LUAS	<p>The LUAS stops near Park West at Kylemore Road (approximately 800m) and Park West provides a feeder bus service to and from the Kylemore stop on the Naas Road.</p> <p>LUAS Monday – Friday from Tallaght to Connolly Start from 05.30 to 00.30 from both directions at varying times and frequencies.</p> <p>Saturdays from Tallaght 06.30 and from Connolly 07.00 to 00.30 at varying times and frequencies.</p>
Bus Services	<p>Several private & public bus services operate from Park West to the city centre, utilising the available QBCs (Quality Bus Corridors: bus lanes). Work is currently in progress on a QBC along the Nangor Rd., which will allow for travel to the city centre on a virtually uninterrupted QBC.</p> <p>A private shuttle bus offers access from St. Stephens Green in the city centre from 06.30 to 22.30, with an hourly service (on the half-hour); and returns from Park West to the city centre from 07.00 to 23.00. Regarding Saturday & Sunday, the private shuttle bus departs the city centre at 14:15 and 15:15 and returns from Park West at 14:40 and 15:40.</p>
Bicycle	<p>An extensive network of cycle lanes exists in Park West and the surrounding areas. Bike racks are provided on campus and on the subject site.</p>
Footpaths	<p>There is an extensive footpath network around the entire Estate allowing employees to walk to their chose destination.</p>

Given the above public transport options, it is predicted that the employees of the facility will not impact on traffic in the area. In addition, limited onsite parking is provided for employees.

In summation, traffic movements associated with the WEEE facility are considered to be less than, or comparable, to those described in the EIS for the redevelopment of the overall Park West Industrial Estate.

I11.3.2 Employment

The WEEE facility will provide both skilled and unskilled employment opportunities for people in the area , and when fully operational will provide employment for up to 50 people.

TechRec are currently operating with 19 staff with the current waste permit allowing 5,000 tonnes to be processed per year. The proposed 30,000 tonne waste license application, is expected to employ 40-50 people (including the 19

currently employed) when fully operational. The facility will operate 24-hours, 7 days a week with 3 shifts per day. These will be:

- A) 7.00-15.30
- B) 15.00 to 23.30
- C) 23.00 to 07.30

This provides opportunities to a number of people within the area and has the potential to contribute positively to the employment and economic aspects of the area. It is important to note also that the Park West Estate has a 24-hour security system in operation within the estate. It also has a number of services available to all employees located in the Plaza section of the estate, approximately 800m from the site.

The facility is likely to create 21 additional unskilled employment opportunities for the area, which will have small but positive impact on the area's economic performance. There are no negative impacts predicted with regard to employment.

I11.3.3 Noise

Chapter 6 addressed the noise levels coming from the WEEE facility at present. This section deals with the noise levels that may impact on the surrounding communities and does not include predicting impacts to human beings within the facility.

The closest residential dwellings/ sensitive receptor to the Site is located on Killeen Road, approximately 160m from the site, which consists of 6-8 dwelling houses and 1 vacant public house and is zoned accordingly in the Dublin City Development Plan as Z1 'to protect, provide and improve residential amenities'. The public house premise has received planning permission to be redeveloped, as 31 no. apartments which will be 3-storey and 6-storey in height.

The dominant noise source in the area has been identified as being that related to traffic. However due to the restriction in times with regard WEEE acceptance and removal from site, noise from this source is limited to between the hours of 07:00 to 20:00 hours Monday to Friday and 08:00 to 18:00 Saturdays and no waste accepted/removed on Sundays or Public Holidays. These are considered to be within permissible time periods for these types of movements within this area and it is not considered there will be a significant additional noise nuisance to communities as a result of the operations of this facility.

I11.3.4 Air

Monitoring results from a similar *TechRec* facility in Switzerland has shown the overall operation of the facility not to be of environmental significance. Preliminary screening assessments of emissions at a higher-level (worst-case)

than those being emitted from the facility, are below the assessment criteria to affect human beings.

It is considered unlikely that there will be significant environmental affects as a result of the air emissions. However, due to source of the data, it is recommended that air emissions should be monitored for this Site so as to ensure that emissions are not of any environmental concern to surrounding communities and that the facility complies with the controls and requirements as set out in the Waste License.

I11.4 MITIGATION MEASURES

In general mitigation measures should comply fully with the controls and requirements as set out in the Waste License application. However in general, it is essential with regard to traffic that speed limits are adhered to, deliveries and removals are made only within the specified times and days and that during deliveries and removals that safety considerations on site for people outside are taken into consideration. All plans and programmes with regard to the safe transportation and removal of WEEE should be strictly adhered to. Employees who start work at the WEEE facility will be made aware of the transportation options available to them and services within the general area.

Noise emissions should comply with all monitoring and controls as set out in the requirements of the Waste License. Mitigation measures with regard to preventing fugitive emissions include; good housekeeping procedures within the facility (i.e. doors closed) at all times, sweeping of surfaces and floors and shutters closed, etc. Preventative maintenance will also be established so that all abatement equipment will be maintained in an operational state on site. A monitoring station will be established at the closest sensitive receptor to the site (namely the closest residential area) so that noise coming from the WEEE facility does not cause an annoyance to surrounding communities, this should be done on working day for a 24-hour period due to the operational hours of the facility.

Air emissions should be monitored and controlled as per the waste license requirements and should be monitored so as to protect the communities from any possible harmful particulates coming from the facility.

I11.5 RESIDUAL IMPACTS

Provided all monitoring and controls as set out in the requirements of the Waste License are adhered to and the mitigation measures followed, it is not considered that there will be any significant impacts on the human beings within the area.

I11.6 MONITORING REQUIREMENTS

Monitoring will be carried out as prescribed in the Waste Licence conditions. Once night-time operations begin at the Site, a survey will be carried out to assess any potential noise impacts from the site's operation. In addition, air emissions monitoring will be undertaken to ascertain levels of particulates leaving the site and within the area.

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