ENVIRONMENTAL IMPACT STATEMENT

FOR

INCREASE IN WASTE CAPACITY

AT

TED O' DONOGHUE & SONS WASTE DISPOSAL FACILITY

KNOCKPOGE, WATERFALL,

CO. CORK

VOLUME 2 OF 3

Main Report

Prepared by:

Glenside Environmental
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1. INTRODUCTION

1.1. Overview of the Proposed Development

Ted O' Donoghue & Sons Ltd currently operates a waste management and recycling centre at Knockpoge, Waterfall, Co Cork. The company has provided a dedicated waste management service to the Cork region for almost 20 years. The facility currently processes dry non-hazardous waste. The waste is delivered to the facility where recyclables such as paper, steel, wood, plastics, cardboard, glass, green waste and construction and demolition (C&D) waste are segregated, with the residual non-recyclable waste being transferred to landfill.

The facility serves the greater Cork region and is primarily used as a recycling centre for commercial, industrial, household and construction and demolition material. The management propose to increase the waste handling capacity onsite in order to meet the increase need for recycling infrastructure in the Cork region. 31,027 tonnes of waste was accepted at the facility in 2007. A total of 9,374 tonnes of waste was sent to Youghal Landfill for disposal in 2007. **This equates to a recovery rate in the Ted O Donoghue facility of 68.8%.**

There is no proposal in this application to construct any new infrastructure on the existing facility. The application refers only to an increase in tonnages and to apply to the EPA for use of the facility to accept private vehicles.

A review of the current waste licence (W0147-01) is required to allow the expansion of the waste management centre and this environmental impact statement (EIS) will accompany the applications for both Planning Permission and a Waste Licence.

Ted O' Donoghue & Sons Ltd. is seeking a **review of their Waste Licence** (WL0147-01) the EPA. The application for the review of the waste licence is to seek approval from the EPA for the following:

- **Increase the annual tonnages from current licensed figure of 23,000 tonnes to 60,000 tonnes per annum;**

- **Use of the facility as a civic amenity centre to cater for the needs of private vehicles**

The Company is optimistic that it can expand its business and operations and is now applying to Cork County Council for Planning Permission and to the Environmental Protection Agency (EPA) for a review of the current waste licence to process 60,000 tonnes of waste at the facility. This volume is required to cater for the existing and future needs of the business looking ahead to ten years hence.

This Environmental Impact Statement (EIS) examines the potential impacts and significant effects on the environment of the existing waste recycling station at Knockpoge and the predicted impacts, proposed mitigation measures and significant effects of any proposed

extension/upgrading to the facility. The EIS has been prepared in accordance with the European Communities (Environmental Impact Assessment) Regulations (S.I. No. 349 of 1989 amended by S.I. No. 84 of 1994, S.I. 351 of 1998 and S.I 93 of 1999).

1.2. Requirements for an EIS

This Environmental Impact Statement has been carried out in accordance with Part II of the First Schedule of the European Communities (Environmental Impact Assessment Regulations 1989) and the Planning & Development Act, 2000 as amended by the Planning & Development Regulations, 2001, (S.I. 600 of 2001).

The Planning & Development Regulations 2001 indicate when an EIS is required. In this regard *Schedule 5* of the Planning & Development Regulations indicate "*Other Projects: installation for the disposal of waste with an annual intake greater than 25 000 tonnes not included in Part 1 of the Schedule*" also require an EIS (Schedule 5 Part 11(b).

This Environmental Impact Statement has been prepared to accompany an application for Planning Permission and to the EPA for a Waste Licence in accordance with the Waste Management Act, 1996. The EIS has been prepared in accordance with the requirements of the following statutory documents:

a) The European Community Directive on Environmental Impact Assessment (No. 85/337/EEC), as amended by Directive 97/11/EC.
b) The European Communities (Environmental Impact Assessment) Regulations, 1989 to 1999.
c) The Local Government (Planning & Development) Regulations, 1994 (S. I. No. 86/1994), as amended.
d) The Local Government (Planning & Development) Regulations, 1999 (S. I. No. 92/1999).
e) (The Local Government (Planning & Development) Regulations, 1999 (S. I. No. 600/2001).

1.3. Structure of the EIS

The EIS is presented in the "Direct Format Structure" as set down in the Draft Guidelines produced by the Environmental Protection Agency (EPA-1997). In general, it follows the framework presented in the EPA Advice Notes on Current Practice in the Preparation of Environmental Impact Statements. The structure employed allows individual examination of the main components of the EIS, namely:

a) The receiving (existing) environment
b) The proposed development
c) Environmental impacts and mitigation measures

1.4. Scoping

An Environmental Impact Statement assesses the impacts of any development upon the surrounding environment. It assesses the present environment and predicts the likely impacts of the scheme on that environment during construction and operation of the scheme through detailed desk studies and field trips. The scope of this Environmental Impact study follows the guidelines as laid down by the EPA regarding information to be contained in an EIS and is tailored uniquely to this scheme and the surrounding environment.

- The contents and scoping of the EIS were determined following consideration of:
- Detailed consultation with Ted O' Donoghue & Sons Ltd staff.
- Knowledge of the area gained through previous work and site visits.
- The content of Annex III of Directive EC 85/337/EEC; and
- EPA draft guidelines on the *Information to be Contained in Environmental Impact Statements* (2002).

Further to this a number of statutory and non-statutory groups were contacted during the scoping process and invited to make submissions or raise comments, which would aid with the information gathering process. These included;

- Cork County Council Waste Management Section
- Cork County Council Area Engineer
- Section Southern Fisheries Board National
- Parks & Wildlife Service (NPWS)

1.5. Content of EIS

The scope and content of this Environmental Impact Statement has been prepared having regard to the information requirements specified in the Second Schedule of the 1989 E.U. Regulations, i.e., effects on human beings, plants, animals, soils, water, air, climate, landscape, the interaction of these elements of the environment, material assets and cultural heritage. The document "Guidelines *on the information to be contained in Environmental Impact Statements*" as published by the EPA (2002) was used as a guide document in the preparation of this EIS.

Obligations on the Planning Authority in the Assessment of Planning Applications

In relation to Part X, Sections 172-177 inclusive of the Planning and Development Act 2000 and Part X, Articles 92-132 of the Planning & Development Regulations 2001 (including Schedule 6 *Information to be Contained in an EIS*), all the relevant requirements have been met within the scope of this report.

1.6. Location and Setting

Ted O' Donoghue & Sons Ltd Waste Disposal premises is situated approximately 6.5km from Bishopstown, south-west of Cork City in a rural setting. The facility is approximately 3 miles from Crossbarry. The site is located behind the family residence.

Waste Management facilities such as the Ted O Donoghue & Sons Waste Disposal at Knockpoge, Waterfall form an important part of the overall waste management process in Cork. Such facilities have two roles to play. The main function is to remove recyclable materials from the main waste stream as the first step in the recycling process, resulting in a product which can pass the quality requirements of reprocessing facilities. The second function is to bulk up non-recyclable waste onto large bulk haulage trailers to reduce the number of vehicles travelling to off-site recovery facilities or landfill.

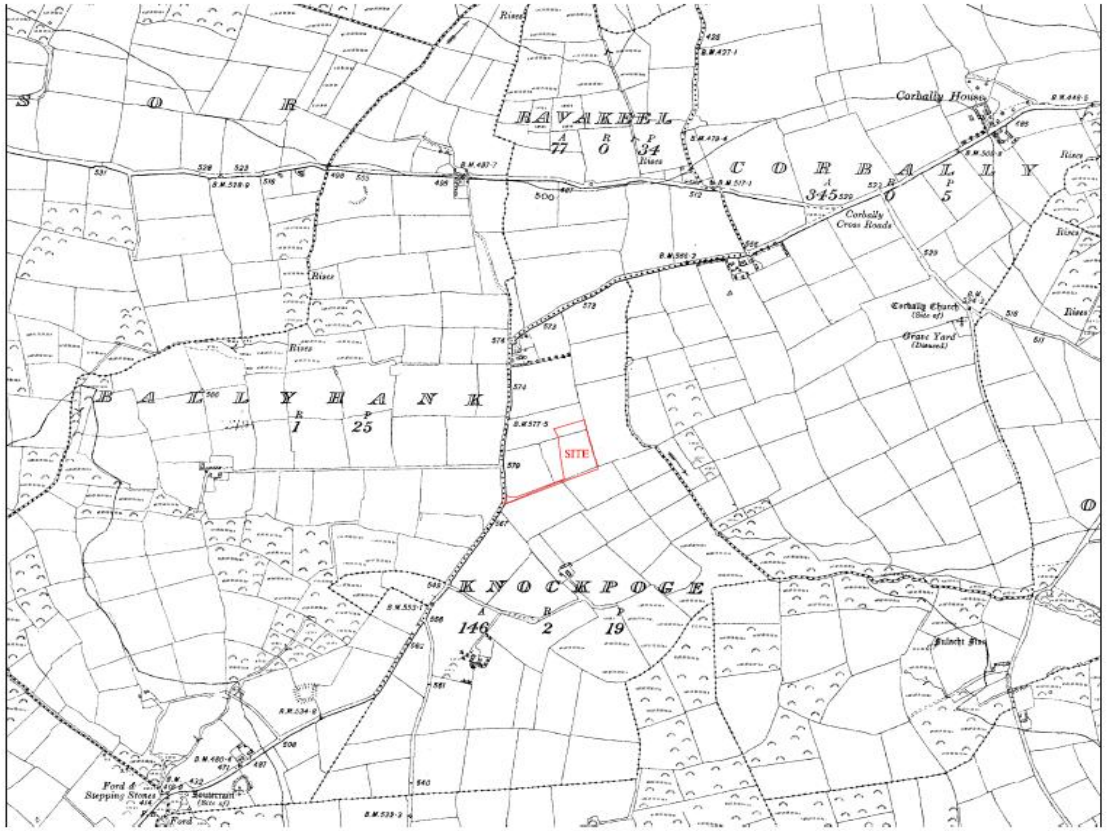
1.7. Site Facilities

The main features of the existing development are as follows:

- Waste recycling and transfer building
- Administrative office building
- Canteen
- Skip storage areas
- Truck parking area
- Ancillary features including roads, sewerage and surface water drainage
- Bale storage area
- Improved site entrance
- Landscaping measures

The primary function of new recycling and transfer building will be to segregate greater quantities of waste for recycling purposes. The building will also be used to bulk up the residual waste that is unsuitable (either technically or economically) for recycling. The company intends to take advantage of any new technology that will emerge which could increase recycling and recovery of waste materials. Planning permission has been sought and obtained for the extension of the existing building for the storage of recyclables on 30th March 2007. Details of the planning permission are contained in Appendix 1, Volume 3 of the EIS.

The site location is shown in Figures 1.1 and 1.2.



REV.	AMENDMENT	BY	DATE
A	ISSUE FOR EIS	J.O'D	18/09/2008

Client: Ted O'Donoghue & Sons Waste Disposal Ltd.

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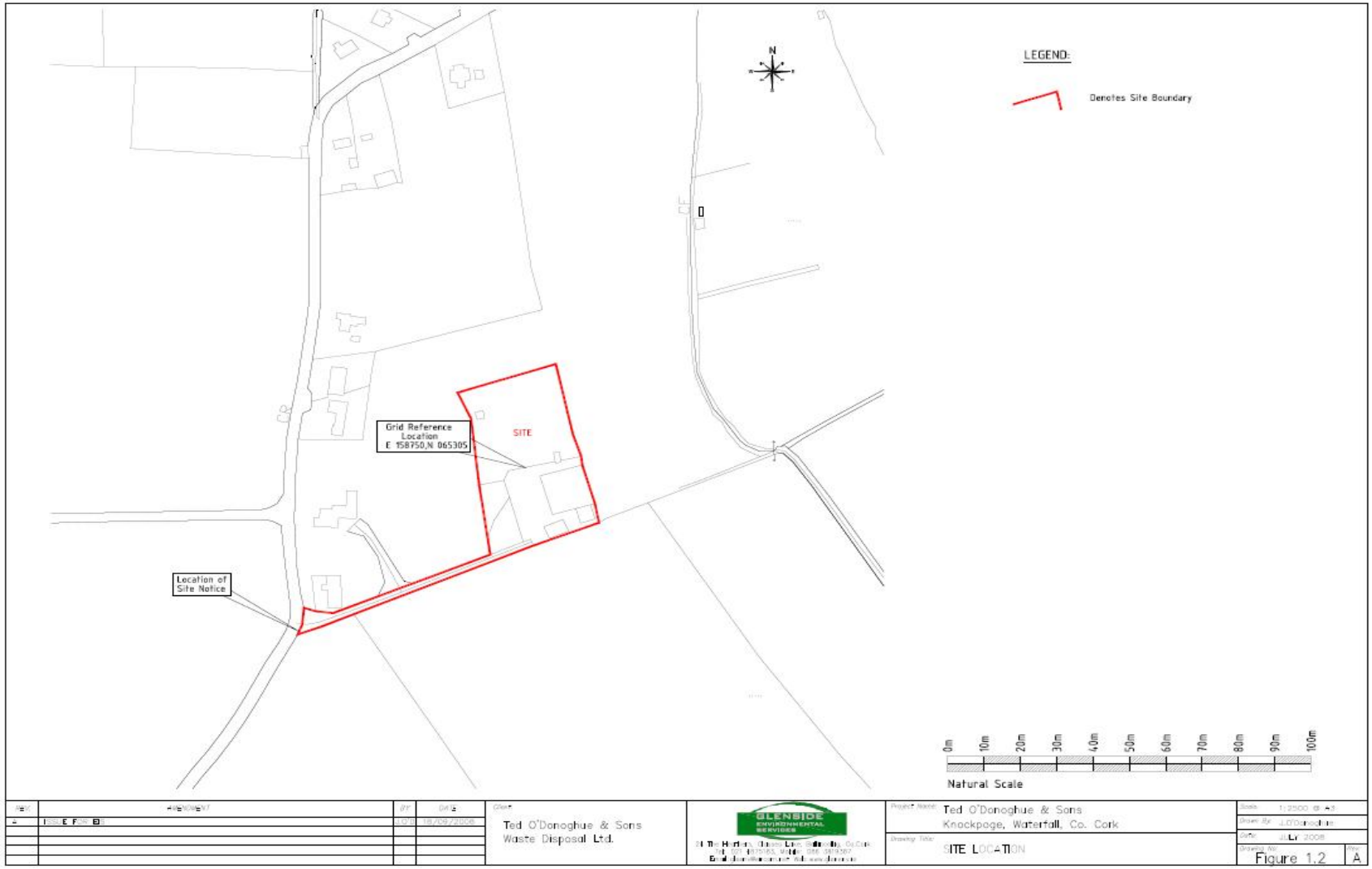
Project Name: Ted O'Donoghue & Sons
Knockpoge, Waterfall, Co. Cork

Drawing Title: SITE LOCATION MAP

Scale: N.T.S.
Drawn By: J.O'Donoghue
Date: JULY 2008
Drawing No: Figure 1.1
Rev: A


LEGEND:
Denotes Site Boundary
N
SITE
Grid Reference
Location
E 158750,N 065305
Location of
Site Notice
0m
10m
20m
30m
40m
50m
60m
70m
80m
90m
100m
Natural Scale
Ted O'Donoghue & Sons
Waste Disposal Ltd.
GLENSIDE
ENVIRONMENTAL
SERVICES
Ted O'Donoghue & Sons
Knockpoge, Waterfall, Co. Cork
SITE LOCATION
Figure 1.2
A

1.8. Infrastructure

There is no proposal to include any extra machinery or infrastructure to the site. Service infrastructure, which currently serve the site, include the following:

- Telecommunications infrastructure;
- Bored well water supply;
- Stormwater drains; and
- Foul sewerage, septic tank.

The existing facility contains the following infrastructure:

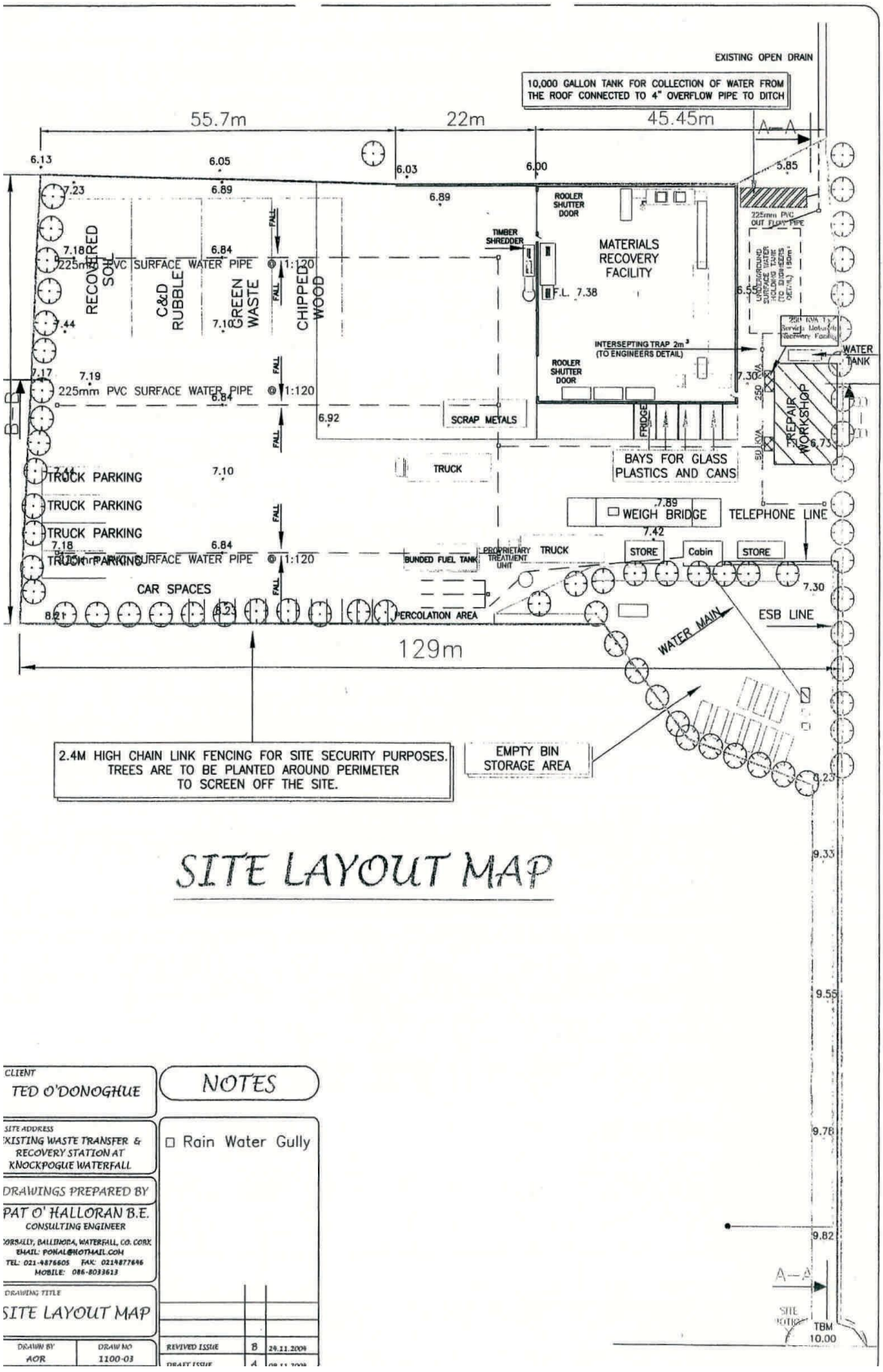
- office building and maintenance garage,
- recycling building
- concrete yard,
- bunded fuel storage area,
- car parking area
- weighbridge

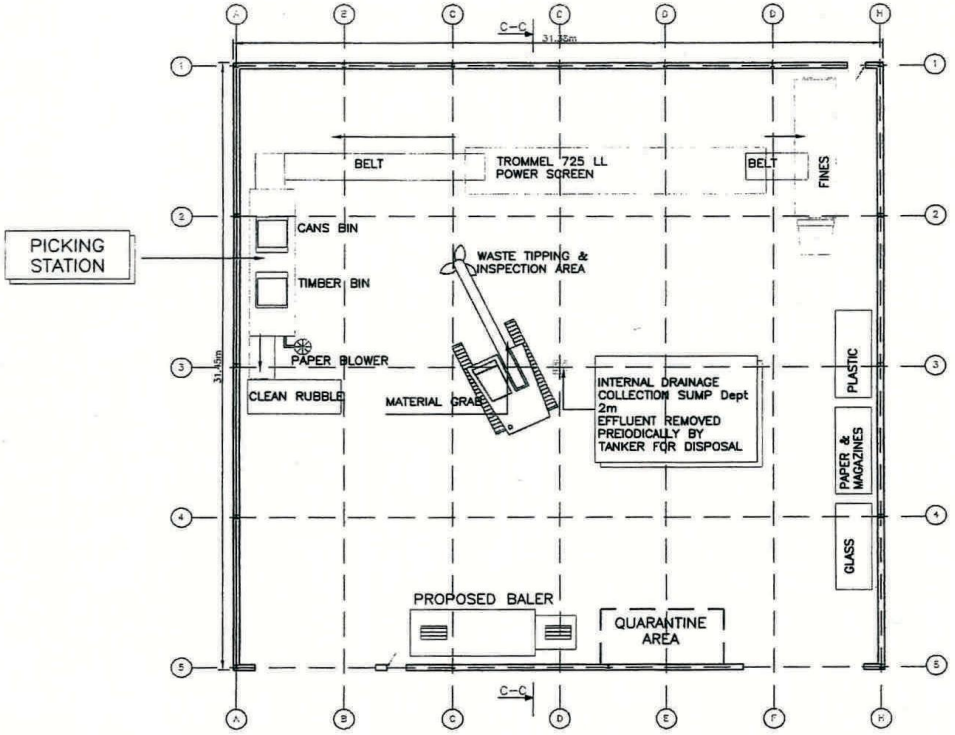
The existing facility building is fully contained with concrete floor and lower walls and cladded upper walls and roof.

Site operations are primarily concerned with segregation of materials for recycling. Cardboard and plastics are segregated by hand and baled prior to transfer to reprocessing facilities.

Recyclables are mechanically and manually removed from commercial, industrial, institutional and skip waste and the residual fraction sent for further treatment.

Drawing 1, 2, 3 and 4 in the following pages show the site layout, infrastructure and site cross sections of the facility.


EXISTING OPEN DRAIN
10,000 GALLON TANK FOR COLLECTION OF WATER FROM THE ROOF CONNECTED TO 4" OVERFLOW PIPE TO DITCH
55.7m
22m
45.45m
A–A
B–B
RECOVERED SOIL
C&D RUBBLE
GREEN WASTE
CHIPPED WOOD
225mm PVC SURFACE WATER PIPE @ 1:120
ROOLER SHUTTER DOOR
TIMBER SHREDDER
MATERIALS RECOVERY FACILITY
F.L. 7.38
INTERSEPTING TRAP 2m³ (TO ENGINEERS DETAIL)
WATER TANK
REPAIR WORKSHOP
SCRAP METALS
FRIDGE
BAYS FOR GLASS PLASTICS AND CANS
TRUCK
TRUCK PARKING
TRUCK PARKING
TRUCK PARKING
TRUCK PARKING
WEIGH BRIDGE
TELEPHONE LINE
BUNDED FUEL TANK
PROPRIETARY TREATMENT UNIT
TRUCK
STORE
Cabin
STORE
CAR SPACES
PERCOLATION AREA
ESB LINE
WATER MAIN
129m
2.4M HIGH CHAIN LINK FENCING FOR SITE SECURITY PURPOSES. TREES ARE TO BE PLANTED AROUND PERIMETER TO SCREEN OFF THE SITE.
EMPTY BIN STORAGE AREA
SITE LAYOUT MAP
NOTES
Rain Water Gully
CLIENT
TED O'DONOGHUE
SITE ADDRESS
EXISTING WASTE TRANSFER & RECOVERY STATION AT KNOCKPOGUE WATERFALL
DRAWINGS PREPARED BY
PAT O' HALLORAN B.E.
CONSULTING ENGINEER
DRAWING TITLE
SITE LAYOUT MAP
DRAWN BY AOR
DRAW NO 1100-03
REVISED ISSUE B 29.11.2009
DRAFT ISSUE A
TBM 10.00



EXISTING FLOOR LAYOUT OF MATERIALS RECOVERY FACILITY

DESCRIPTION	REV	DATE
REVIVED ISSUE	B	30.11.2004
DRAFT ISSUE	A	09.11.2004

CLIENT
TED O'DONOGHUE

SITE ADDRESS
EXISTING WASTE TRANSFER & RECOVERY STATION AT KNOCKPOGUE WATERFALL

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DRAWING TITLE
FLOOR PLANS

DRAWN BY	DRAWING NO
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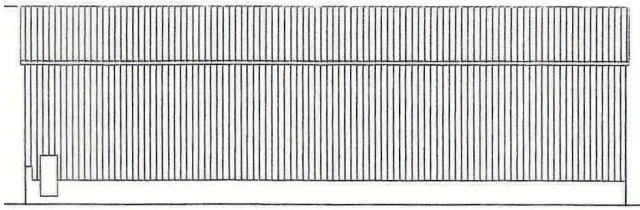
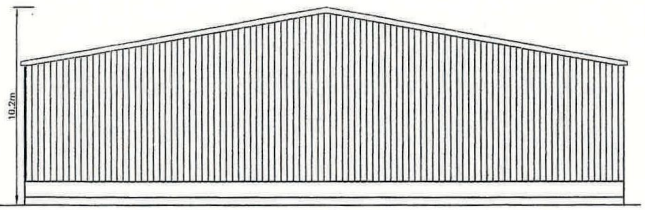
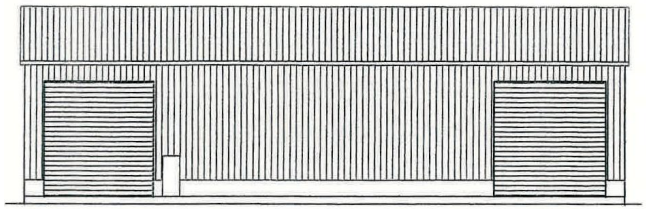
SCALE	DATE
1:200	23.01.02



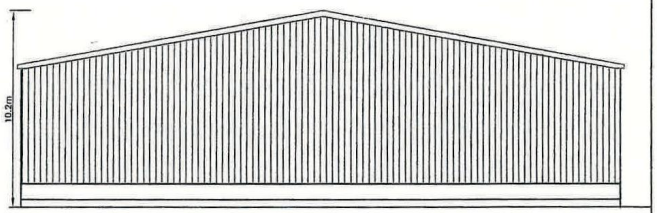
SIDE ELEVATION



REAR ELEVATION

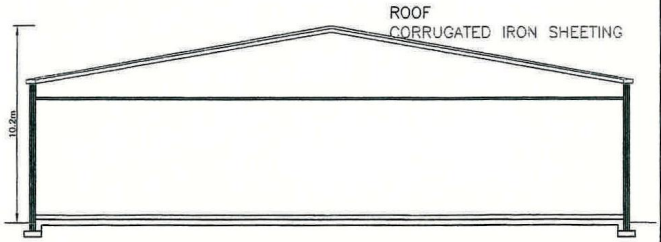


SIDE ELEVATION



FRONT ELEVATION

MATERIALS RECOVERY FACILITY



300mm R.C. FLOOR ON 300mm COMPACTED HARDCORE

SECTION C–C

DRAFT ISSUE	A	09.11.2006
DESCRIPTION	REV	DATE

CLIENT
TED O'DONOGHUE

SITE ADDRESS
EXISTING WASTE TRANSFER & RECOVERY STATION AT KNOCKPOGUE WATERFALL

DRAWINGS PREPARED BY

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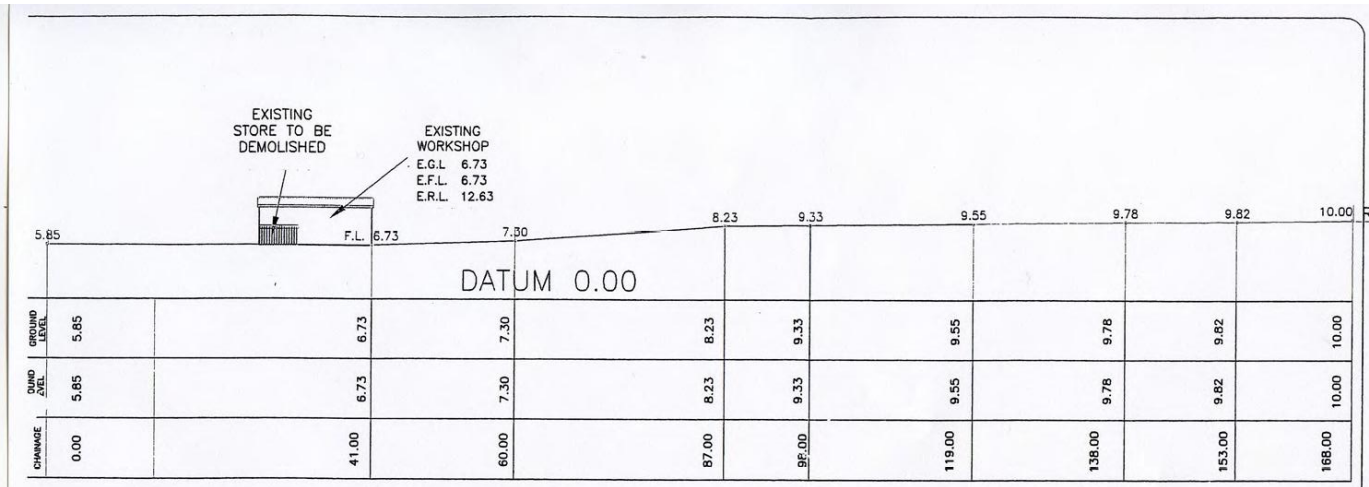
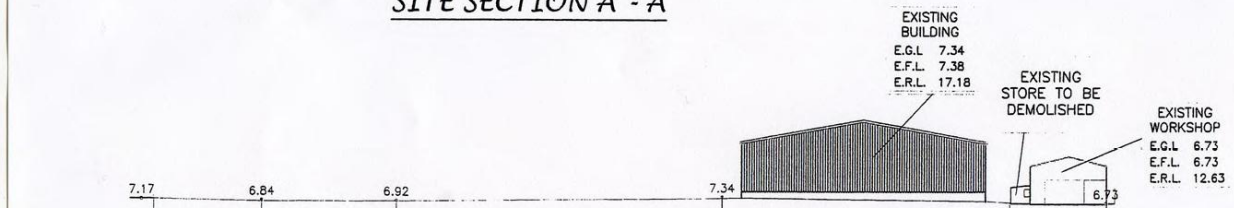
DRAWING TITLE
SIDE ELEVATIONS

DRAWN BY	DRAW NO
AOR	1100-02
SCALE	DATE
1/500	30.08.2003



GROUND LEVEL	5.85	6.73	7.30	8.23	9.33	9.55	9.78	9.82	10.00	
GUND LVEL	5.85	6.73	7.30	8.23	9.33	9.55	9.78	9.82	10.00	
CHAINAGE	0.00	41.00	60.00	87.00	99.00	119.00	138.00	153.00	168.00	

SITE SECTION A - A



EXISTING GROUND LEVEL	7.17	6.84	6.92	7.34	6.85	6.73
PROPOSED GROUND LEVEL	7.17	6.84	6.92	7.34	6.85	6.73
CHAINAGE	0.00	14.00	31.00	73.50	110.00	122.30

SITE SECTION B - B

DRAFT ISSUE	A	09.11.2009	
DESCRIPTION	REV	DATE	

CLIENT
TED O'DONOGHUE

SITE ADDRESS
EXISTING WASTE TRANSFER & RECOVERY STATION AT KNOCKPOGUE WATERFALL

DRAWINGS PREPARED BY
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DRAWING TITLE
SITE SECTION

DRAWN BY: AOR	DRAW NO: 1100-08
SCALE: 1/500	DATE: 30.08.2003

2. PLANNING POLICY & CONTEXT

2.1. Introduction

Ted O' Donoghue & Sons Ltd are proposing to apply to Cork County Council and the EPA for an increase in existing tonnages from the current licensed limit of 23,000 to 60,000 tonnes per annum at their waste transfer facility at Knockpoge, Waterfall, Cork.

The continued operation of the facility will assist in achieving both regional and national packaging waste recycling/recovery targets. The following sections provide a review of the national, regional and local waste management policy in place and how the future development fits into these established strategies and policies.

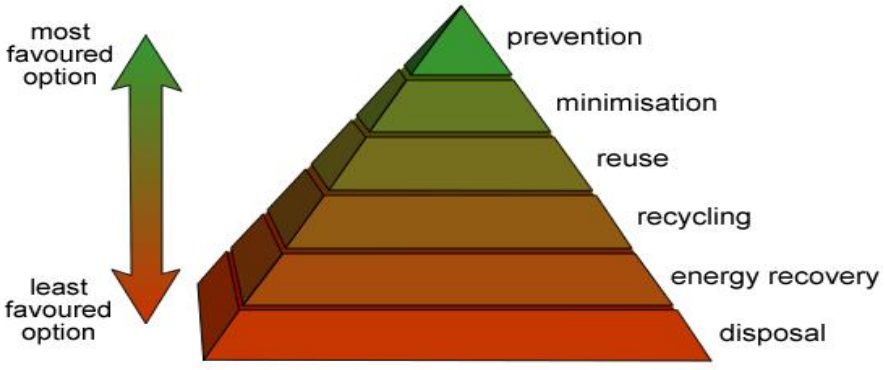
2.2. National Waste Management Policy

National Policy with regard to waste management has been outlined by the Department of Environment and Local Government in two statement documents. The first entitled 'Changing Our Ways' was launched in October 1998 with the second policy statement, 'Delivering Change: Preventing and Recycling Waste', launched in March 2002.

2.2.1. Changing Our Ways

This policy seeks to guide the direction of waste management in Ireland away from the current reliance on landfill towards a combination of recycling, energy recovery and residual waste disposal. The policy document is firmly based on the internationally recognised hierarchy of waste management options stating that meeting this goal is a 'challenge for modern waste management and society as a whole'.

Figure 2.1: Waste Management Hierarchy



2.2.2. National Waste Management Targets

The policy document set down a series of national targets to stem the growth in waste arising over a 15 year timescale up to 2013. The following summarises the key points:

- Diversion of 50% of overall household waste away from landfill.
- Minimum of 65% reduction in biodegradable waste consigned to landfill.
- Development of waste recovery facilities employing environmentally beneficial technologies, as an alternative to landfill.
- Recycling of 35% of municipal waste.
- Recycling of at least 50% of C & D waste within a 5 year period with a progressive increase to at least 85% over 15 years.

2.2.3. Delivering Change: Preventing and Recycling Waste

In March 2002 the Government advanced a specific policy on waste reduction and recycling entitled 'Delivering Change'. This discusses the responsibilities and recommended actions for preventing and minimizing waste production. It also recommends a framework for increasing recycling levels and expanding the markets for recyclable wastes. In particular the increased diversion of biodegradable waste such as paper and food waste from landfill is a key target. The proposed increase in capacity at the Ted O' Donoghue & Sons facility will provide substantial capacity and the scope to do more source separation.

2.2.4. Packaging Waste Directive

This EU Packaging Waste Directive came into force 1994 and was implemented into Irish law by the Waste Management (Packaging) Regulations 1997. The Directive set recovery and recycling targets for Member States and aimed to prevent the production of packaging waste by:

• Reduction;
• Reuse; and
• Recycling and other forms of recovery.

Under the Packaging Directive Ireland's targets were initially set lower than other EU member states (25% recycling by the Year 2001) to allow time for the development of our waste management infrastructure. In order to successfully achieve this target, REPAK, a voluntary packaging compliance scheme was established by Industry with the approval of the Department of the Environment and Local Government. Ireland successfully exceeded these targets in 2001. Since 2001 Ireland has been working towards a EU target for 2005 of 50% recovery. It is proposed that this figure will increase to 70% by 2009. Other Member States are currently recovering and recycling up to and above 50% of packaging waste.

2.2.5. New Legislative Developments

In March 2003 the new Waste Management (Packaging) Regulations 2003 came into effect and superseded the 1997 Waste Management (Packaging) Regulations. These new Regulations came into effect following a review of the effectiveness of the 1997 Regulations in achieving the EU Targets. An overview on the main impacts of the new regulations on major packaging producers is given below:

- Specified Packaging i.e. glass, aluminium, steel, paper, fibreboard, wood and plastic sheeting must be segregated into waste type and sent for recovery or returned to supplier by all Producers. This means that producers can no longer dispose of these materials.
- Other Packaging i.e. other plastics and composites can be disposed of through landfilling.
- There is also a stipulation that will ensure that deliberate contamination of the specified packaging waste is not permitted.

2.3. Regional Policy

Cork City and County Council's Waste Management Plan 2004-2009 lays out in detail how the city will deliver on waste reduction and recycling initiatives over the five year period. The plan is the second of its kind for the city and was initially developed out of the joint city and county Waste Management Strategy formulated in 1995.The Cork County Waste Management Plan was adopted in December 1998. The Plan laid the foundation for the future sustainable management of solid wastes throughout the Region. The Waste Management Acts 1996 to 2003, impose an obligation on County Councils and City Councils to collect, or arrange the collection of household waste under specific conditions. Household waste in the county is currently collected via a mix of public and private collection services.

The plan states that Cork County Council is committed to a system of waste management that will see the least possible amount of waste going to modern engineered landfills. This will be achieved through the use of bring sites, civic amenity sites and material recovery and treatment plants. New and emerging technologies will also play a part in overall waste management.

One of the principal goals of the Waste Management Strategy adopted by Cork County Council and Cork City Council in 1995 is the realisation of these recycling targets and this is reflected in this Plan.

Other waste recovery targets which will affect Cork County are those set in the EU Landfill Directive which sets the following requirements:

1. Not later than 2006, biodegradable waste going to landfills must be reduced to 75% of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardized Eurostat data is available;

2. Not later than 2009, biodegradable waste going to landfills must be reduced to 50% of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardized Eurostat data is available;

3. Not later than 2016, biodegradable waste going to landfills must be reduced to 35% of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardized Eurostat data is available;

2.4. County Development Plan

One of the principal goals of the Waste Management Strategy adopted by Cork County Council and Cork City Council in 1995 is the realisation of these recycling targets and this is reflected in this Plan.

The current County Development Plan states that it is the *policy of the Council to promote the increased re-use and recycling of materials from all waste streams.* Furthermore the Plan states that the Council *will co-operate with other relevant agencies, both public and private, and local community interests as appropriate, in following the hierarchy of waste management.*

The key function of the continued operation of the facility and increased waste volume is to separate out recyclable materials from the general waste stream and make it available for re-use/recycling.

2.5. Summary

To summarise the proposed development fulfils the objectives of local, Regional, National and EU Policy in relation to waste management and in particular the provision of waste infrastructure in achieving waste recycling/recovery targets.

3. ALTERNATIVES

3.1. Introduction

The nature of the proposed facility can be termed as “light industry” and therefore should ideally be located in an accommodating setting that will reflect this. The most important criteria in locating the waste management centre were:

• Proximity to waste arising;
• Good access;
• Good separation from residential areas;
• Scope for further expansion/development;
• Access to recycling markets, and disposal facilities.

3.2. Alternatives Examined

The existing waste transfer station primarily serves commerce and industry in the Cork region. Its location on the edge of the city is well positioned for this purpose.

Since commencement of the operations there have been no complaints or grievances from any members of the public in relation to any on-site operations. The existing location of the waste transfer station is considered to be situated in a highly suitable location, both commercially and environmentally. Consequently, the re-locating of the facility to a new alternative site would not be deemed suitable.

The facility is industrial by nature and ideally should be located in an industrial estate. The three most important criteria in locating a waste management centre such as this are :

- proximity to waste arising,
- access to recycling markets, and
- access to disposal facilities.

The waste management centre primarily serves commerce, industry and households in the greater southern Cork area. Its location in an industrial estate on the edge of the city is well positioned for this purpose.

The location of recycling markets is varied and dynamic and siting a waste management centre based on markets alone is not feasible.

Disposal facilities for residual waste from waste management centres in the Greater Cork Region include the following:

- Cork City Landfill
- Youghal Landfill
- East Cork Landfill (Rossmore)

The Ted O' Donoghue & Sons facility site is deemed favourable as it had a number of favourable attributes, including:

- Close to N22/N25 and N7, as well as direct access to city centre;
- Good separation from residential areas (approximately 400m);
- Site does not interfere on encroach on any scientific or archaeological designations e.g. NHA's, SPA's etc.;
- Proximity to city and main road and transport networks ;
- Existing services and infrastructure which could be retained;
- Good entrance to the site;
- Extensive site with the possibility to expand.

In summary, the siting of the Ted O' Donoghue & Sons facility in an area with good access to the greater Cork Region is considered a very favourable location for a waste management centre.

3.2.1. The Do-Nothing Alternative

If the expansion to the waste management facility centre does not take place, waste will continue to be transported directly to landfill in refuse collection vehicles, skip lorries, commercial vans and trailers. This has an impact in terms of traffic on the roads between Cork City and the various landfills in the region and consequently has an impact in terms of the use of fossil fuels by these vehicles.

A second consequence of the extension to the facility not being commissioned would be the loss of an opportunity to recycle an significant quantity of waste material. This would hinder the national and regional strategies which promote recycling.

Current waste management policy aims to diverge away from traditional landfill towards more sustainable waste management practices. Without the continued operation of sorting and recovery facilities such as the Ted O' Donoghue facility, it is impossible to make progress in this regard and to meet recycling targets.

4. SITE DESCRIPTION & WASTE QUANTITIES

4.1. Location & Character of the Site

Ted O' Donoghue & Sons Ltd Waste Disposal premises is situated approximately 6.5km from Bishopstown, south-west of Cork City in a rural setting. The facility is approximately 3 miles from Crossbarry. The site is located approximately 150m east of the family residence.

4.2. Waste Quantities

In 2006, the total estimated generation of waste in Ireland, excluding agricultural waste, was 30,704,149 tonnes, an increase of 23% since 2004.

The construction and demolition sector is the predominant waste generator followed by the mining and quarrying sector. Municipal waste accounts for 11% of total waste generated and hazardous waste accounts for 1%.

Construction and demolition waste now accounts for over half of all waste generated, up from 45% in 2004. The generation of manufacturing waste decreased and now contributes just over 12% of all waste, compared to 20% in 2004. A large increase in the generation of end-of-life vehicles and scrap metal waste is reported as being largely due to an increase in market value for scrap metal.

Table 4.1: Total waste generation in 2006

Waste category	2006	
	Tonnes	%
Construction and demolition waste	16,819,904	54.8
Mining and quarrying waste	4,782,614	15.6
Manufacturing waste	3,818,711	12.4
Municipal waste	3,384,606	11.0
End-of-life vehicles and scrap metal	744,136	2.4
Contaminated soil	406,904	1.3
Energy, gas and water supply waste	333,341	1.1
Hazardous waste	314,072	1.0
Urban wastewater sludges	59,827	0.2
Drinking water sludges (wet weight)	30,047	0.1
Drinking water sludges (dry solids)	9,987	0.0
Dredge spoils	0	0.0
Total	**30,704,149**	**100.0**

The recycling of waste in Ireland more than doubled in 2006. However, there remains a strong reliance on material recycling facilities abroad. As shown in Table 4.2, 530,590 tonnes of waste was recycled in Ireland, representing 25% of all waste recycling in 2006. A large increase in the recycling of glass into aggregate (a construction material) in Ireland in 2006 is noted, due principally to activities at one facility.

Table 4.2: Waste recycled in Ireland in 2005 and 2006, including municipal waste (not including imports)

Material	2005		2006	
	Tonnes recycled in Ireland	% recycled in Ireland (compared to total recycling of each material)	Tonnes recycled in Ireland	% recycled in Ireland (compared to total recycling of each material)
Wood	182,495	91.3	230,592	92.9
Aluminium	3,530	32.2	3,761	13.8
Other Metals	3,730	16.5	3,470	13.7
Textiles	1,660	14.9	3,106	31.5
Plastic	7,828	13.3	8,409	12.3
Glass	3,736	3.9	13,492	12.6
Paper and Cardboard	152,354	0.5	4,324	0.7
Ferrous Metals	3,260	0.7	1,713	0.2
Organic Waste			214,484	100.0
Other	16,755	50.9	47,239	74.1
Total	**225,360**	**16.4**	**530,590**	**25.0**

The recovery of household waste continues to increase. In 2006, an additional 49,031 tonnes (an increase of 14%) of household waste was recovered. However the amount of household waste going to landfill also increased, by 180,742 tonnes (15%), a reversal of the downward trend of recent years. An estimated 22% of household waste was recycled in 2006, as shown in Table 9. It remains a significant challenge to achieve the national target of 50% diversion of household waste from landfill by 2013. This challenge will remain particularly difficult in the face of the recent decline in landfill gate fees and the issue of biodegradable and untreated waste in landfills.

The EPA National Waste Database Report 2006 states that some 36% of **municipal waste** is now recycled and this exceeds for the first time the 2013 national target of 35% recycling. While the actual quantity of municipal waste recycled increased by 18%, the quantity landfilled increased by 8%. This means that the recovery rate for municipal waste only increased marginally from 34% in 2005 to 36% in 2006. It is clear that continuing strong increases in recycling and recovery remain overshadowed by increased waste generation and landfill.

The management of the Ted O' Donoghue & Sons facility plans to accept up to 60,000 of waste per annum.

4.3. Waste Quantities and Recovery at Facility

Waste records are available for the facility since 2003 and have been illustrated below in Figure 4.1 below. The chart shows that waste volumes have increased significantly since 2003 from a figure of 9,318 tonnes to 29,911 tonnes in 2007. Figure 4.2 details the breakdown of material accepted at the facility in 2007.

A total of 29,911 tonnes of waste was accepted at the facility in 2007 with 31,027 tonnes being removed. The difference in tonnages is explained by the removal of soil from the site. Tables in Volume 3, Section 4 of the EIS show the waste inloads and loads to and from the facility. A total of 9,374 tonnes of waste was sent to Youghal Landfill for disposal in 2007. This equates to a recovery rate in the Ted O Donoghue facility of 68.8%.

Figure 4.1 Waste Quantities accepted at Facility 2003 to 2007

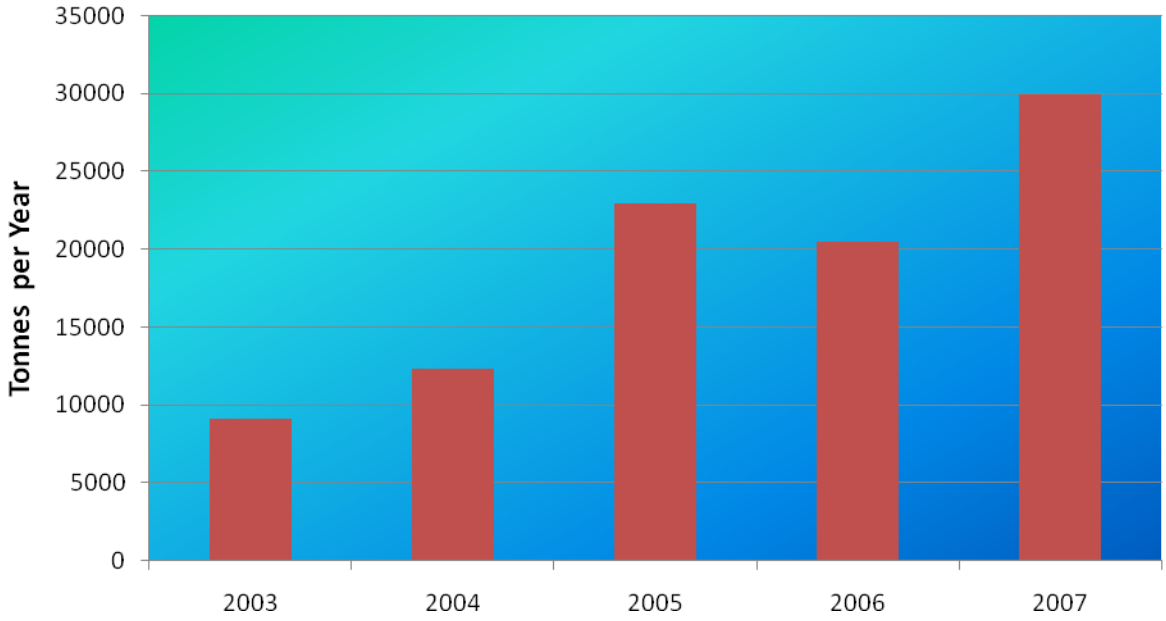
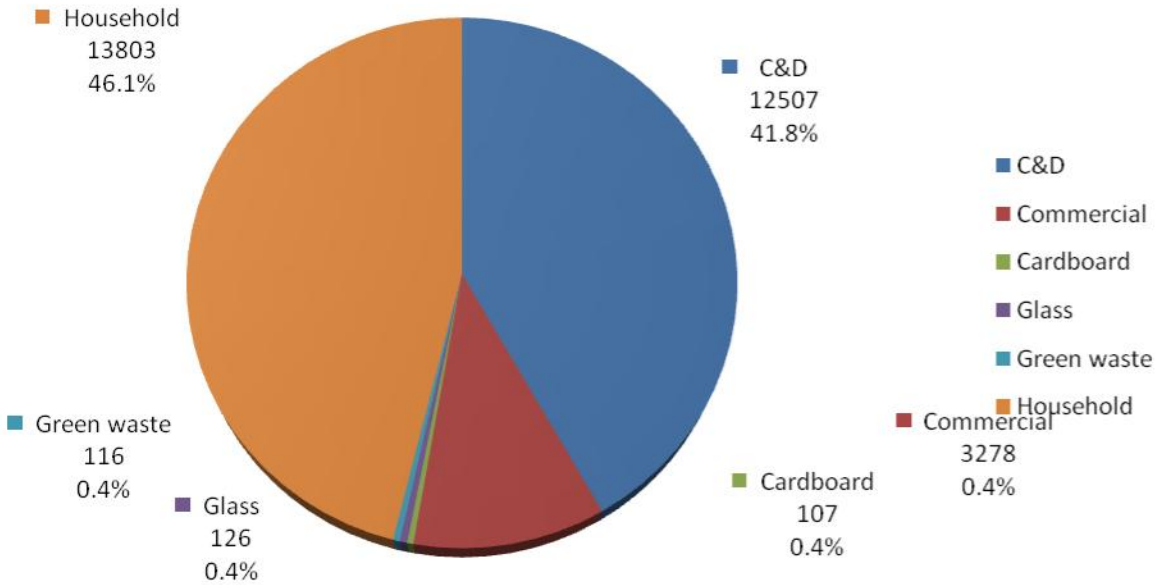


Figure 4.1: Breakdown of Waste Quantities accepted at Facility in 2007



The following table provides an outline of the expected types and quantities of waste to be accepted at the site:

Table 4.3: Proposed Waste Types and Quantities to be accepted at Facility (2015)

WASTE TYPE	2007 TONNES PER ANNUM (as per EPA Licence)	PROPOSED TONNES PER ANNUM
Household	12,880	30,000
Commercial	1,840	6,600
Construction and Demolition (C&D)	7,514	19,602
Industrial Non-Hazardous Solids	766	3,798
Total	**23,000**	**60,000**

The above figures have been estimated from a breakdown of the typical waste quantities accepted at the facility in 2007 and projected growth. It is not currently possible to accurately predict the future waste qualities to be accepted at the facility. Figure 4.1 indicates that C&D waste accounts for 41% of the total waste accepted in 2007. A downturn in construction related

activity would significantly impact on the future projections of this waste type. It is therefore difficult to accurately predict future trends in waste acceptance at the facility.

To allow for the facility to operate within the scope of any future licence granted by the Agency for 7 years, it is considered appropriate to apply for an increase in tonnages up to 60,000 tonnes per annum.

Reprocessing facilities used by Ted O' Donoghue & Sons facility include in Table 4.4:

Table 4.4: List of Reprocessing facilities used by Ted O' Donoghue & Sons

Description of waste	Destination of waste (name and location of facility)
Mixed MSW	Mulleadys Ltd. Cloonaugh, Co Longford and Youghal Landfill.
Scrap Metal	Cork Metal Dublin Hill, National Recycling
Plastic	Glyntown Recycling, Glanmire, Cork Recycling
Cardboard	Cork Recycling/Veolia/Glyntown Recycling Glanmire
Paper	Glyntown Recycling Glanmire/Veolia
Soil & Stone	Con Cronin, Tom Hicky, Aherla, Kevin McCarthy, Jeremy Lynch, John A Wood, Ballygarvan
Commercial	Cork Mini Skips
Wood Chip	Grangers Sawmills, Enniskeane.
Plasterboard	Gypsum Recycling
Glass	Jackie Whelan Quarries, Tullagower Co Clare
Hard Plastic	Clearpoint, Bernard O Brien Waterfall
Greens	CTO Kinsale Rd, Finsa Forrest Products
Timber	Ashgrove Recycling, Cork Recycling, CTO Kinsale Rd
Recycables	ReGen

4.4. Waste Acceptance

Staff members operating in the weighbridge office will log all waste loads arriving at the site. The following information will be recorded for the site records:

- Description of the waste including waste types, composition, form and relevant EWC codes etc.;
- The origin of the waste including all customer details;
- The weight of the waste load;

This information will be collated and inputted into a site database which will be relevant for environmental reporting and inspections by the EPA etc.

All waste loads arriving to the site will be tipped out inside the main facility building and inspected prior to processing is undertaken. If staff members are satisfied that the load is not contaminated

the material will be processed as required. Any loads considered to be suspect will be removed to a quarantine bay for further inspection by staff and will arrange for the load to be returned to the customer if they are not satisfied. Similar controls will be put on all recyclables/residues leaving the site.

4.5. Waste Handling

The main function of the recycling facility is to sort, separate and process all of the waste arriving to the site. The warehouse building will house all of the waste operations and processes on site with various waste stream processed in different parts of the building. All of the waste streams will be handled inside the facility to eliminate the potential of nuisances on-site such as odour, windblown litter, birds, vermin and leachate generation. Waste loads delivered to the facility will be tipped onto a main tipping floor area and separated manually.

It should be noted that all additional waste streams will be handled internally within the main facility thus eliminating the possibility of windblown litter, vermin and leachate generation.

Types of Waste Accepted:

The following are the main types of waste accepted at the facility in Knockpoge:

1. Mixed Construction & Demolition Waste
2. Mixed Municipal Waste (Household and Commercial Wheeled Bins).
3. Commercial & Industrial Waste (Skips), and.
4. Domestic Waste (Household Skips)

1. Mixed Construction & Demolition Waste Processing:

When the Mixed Construction & Demolition Waste arrives on site in skips it is weighed in over the weighbridge and the information is recorded on a software package known as Industrial Weighbridge Waste Management Software. The waste is then tipped onto the floor of the transfer station where large pieces of timber, green waste, metal, cardboard and plastics are removed manually by hand or using the grab on the 360' Rubber Tyre Excavator.

The timber and green waste is placed outside the building next to the TIM Shredder and is shredded and stored on site. When there is sufficient volume available they are loaded into a 30 foot articulated tipper trailer and is transported to Finsa Forest Products in Scariff or CT0 Environmental in Cork for recovery.

The metal removed from the tipped construction & demolition waste is either placed into a thirty foot articulated trailer stored outside the waste transfer station building or else stored in the scrap metal bay at the western end of the facility. When there is sufficient volume of metal in the 30 foot articulated trailer or the scrap metal storage bay is full. Arrangements are made to have the metal transported to Cork Metal, Dublin Hill, Cork or to National Recycling in Cork City for recycling.

The cardboard removed is placed next to the horizontal baler and baled. The plastic is stored in a skip located in the waste transfer station building and when it is full it is baled. Any paper and newsprint removed from the tipped waste is stored in a skip located in the waste transfer station building and when this is filled it is baled in the horizontal baler. All bales are stored in a forty foot curtain side trailer and when full they are transferred to Glyntown Enterprises Ltd, Sarsfield Court Industrial Estate, Glanmire, Co. Cork for recycling.

The remaining material, after manual and mechanical segregation on the floor of the transfer station building, is loaded into a Powerscreen trommel with a 25mm diameter screen, using the 360' Rubber Tyre Excavator. The trommel screen separates out the soil, sand and small stones i.e. the fines material, from the oversize material i.e. blocks, large stones, tiles, cardboard, glass, timber, metal, light paper and plastic.

The fines fall through the trommel screen and onto a conveyor belt which transfers the fines into a six cubic yard skip on the DAF 2500 skip truck. When this is full it is tipped outside and stored until there are sufficient quantities available to fill a thirty foot tipper trailer. The fines are then transported to permitted land reclamation activities in the Cork region for recovery.

The oversize continues on from the trommel onto a three bay picking station where cardboard, plastics, glass and timber are manually picked out from the oversize material and dropped into bays below. The cardboard and plastics are baled and the timber is shredded in the TIM shredder. Glass removed from the manual picking i.e. plate glass, is stored in a skip inside the transfer station and when till it is transported to Cork Mini Skips for recycling. Glass bottles picked from the picking station are stored in external bays and when the bays are full the glass is loaded into skips and transported to Jackie Whelan Quarries, County Clare for recycling. A magnet removes any metal content from the oversize material and this falls into a skip below the belt. The metal is either tipped into the thirty foot trailer or stored in the scrap metal storage bay. The remaining materials, mainly blocks, large stones and tiles, are then subjected to a blowing process which removes any remaining light paper and plastic from the remaining stone and blocks.

The small paper and plastic blown from the stone and blocks is loaded into a forty foot ejector trailer bound for Mulleadys Recycling in Drumlish, Co. Longford or Youghal Landfill, Co. Cork. The stones, blocks and tiles are stored externally until there are sufficient quantities available to fill a thirty foot tipper trailer. The stones, blocks and tiles are then transported to permitted land reclamation activities for recovery. Concrete bays will be constructed externally to store this oversize material and it is planned to crush this material on site for resale as fill material for roads.

2. **Mixed Municipal Waste (Household & Commercial Wheeled Bins) Processing**:

The Mixed Municipal Waste arrives on site in Refuse Collection Vehicles (RCV's) and they are weighed over the weighbridge. The RCV's reverse into the transfer station building and tip the contents of their load onto the floor of the transfer station building.

Any large items of metal, timber, green waste, cardboard and plastic are extracted from the tipped waste and processed as per the construction & demolition waste outlined previously. The remaining residual material is loaded directly into a forty foot ejector trailer using the 360' Rubber

Tyre Excavator and grab and when full it is transported to Mulleadys in Longford for further processing or to Youghal Landfill for disposal.

3. Commercial & Industrial Waste (Skips) Processing:

Commercial & Industrial Skip Waste arrives on site in skips or in Rear End Loader Skip Eater Vehicles and is weighed over the weighbridge. The vehicles reverse into the transfer station building and the contents are tipped out onto the floor of the transfer station and all recyclables are removed i.e. timber, green waste, metal, glass, plastic, cardboard, either manually or mechanically. These recyclable waste streams are then processed as outlined in the paragraph for the construction and demolition wastes.

The remaining residual waste is mixed with the tipped household waste and loaded into the forty foot ejector trailers using the 360' Excavator before being transferred to Youghal Landfill for further processing.

4. Domestic Waste (Household Skips) Processing:

Domestic Skip Waste arrives on site in skips and are weighed over the weighbridge. The waste material is processed as per the commercial and industrial skip waste outlined in the preceding paragraph number three.

Increased waste recovery at the facility will occur through the refining of the segregation process on site and through implementation of segregation of waste streams at source where possible. Other waste operators delivering household waste to the facility will be audited to ensure that they are introducing waste segregation for households in line with the conditions of their waste collection permits.

Waste Quarantine Process

Hazardous waste materials such as batteries, paints, fluorescent tubes, oil, fridges, freezers, washing machines, tyres and gas bottles which cannot be identified on visual inspection in the skips or wheeled bins when collecting them at the customers premises and as a result are tipped onto the floor of the transfer station, are all segregated and Quarantined on site. The batteries, paints, fluorescent tubes and oil are stored in receptacles located in the waste quarantine area within the waste transfer station building.

Fridges, freezers, washing machines and tyres are stored in external storage bays at the western end of the waste transfer station building. Gas Bottles are housed in a twenty foot container next to the weighbridge. These materials are temporarily stored and transferred back to the original waste generator or else transferred to authorised facilities for recycling or disposal.

5. TRAFFIC

5.1. Introduction

Roadplan Consulting were commissioned by Glenside Environmental to prepare a Traffic Impact Assessment of the proposed increase in waste tonnages to the existing waste transfer facility at Waterfall, Co. Cork. In preparing this report, Roadplan Consultancy has made reference to:

- The 'Cork County Development Plan 2003',
- 'The Institute of Highways and Transportation Guidelines on the Preparation of Traffic Impact Assessments',
- NRA "Future Traffic Forecasts 2002 to 2040"
- NRA "Transport Assessment Guidelines".

The full Traffic Impact Assessment Report and appendices are contained in Volume 3, Section 7 of the EIS.

5.2. Objective

The objective of this report is to examine the traffic implications associated with the proposed extension to the existing waste transfer facility in terms of how it can integrate with existing traffic in the area. The report will determine and quantify the extent of the additional trips generated by the extension, and the impact on operational performance of such trips on the local road network, in particular the existing development access onto the local road.

5.3. Study Methodology

The methodology adopted for this report is summarised as follows:

- A scoping document was provided to the Roads Department of Cork County Council. This is contained in Appendix A.
- Manual Classified Traffic Counts were undertaken on the 5th of August 2008, during the a.m. and p.m. peak periods at the existing development access.
- Existing Traffic Assessment – A spreadsheet model was created which contains the base year DO-NOTHING traffic count data described above. The traffic count data was used to develop a PICADY model of the existing access to the waste transfer station.
- Future Year Assessment – The estimated future year traffic volumes on the study area road network, as a result of the increase in background traffic and the additional development related traffic, was used to assess the future operational performance of the junction both at the year of opening of the development, 5 years and 15 years after opening.

5.4. Existing and Proposed Traffic Conditions

5.4.1. Existing Traffic Flows

As part of the Traffic Impact Assessment, traffic flows have been collected for the base year scenario. Manual Classified Traffic Counts were undertaken in the a.m. and p.m. peak periods on the 5th of August 2008 at the existing access to the waste transfer station. The counts show that in the a.m. and p.m. peak the principal turning flows to and from the existing development are to and from Waterfall direction. A summary of the count data is contained in Appendix C – Traffic Flow Sheets.

5.4.2. Existing Road Network

The local road at the existing access to the proposed development it is governed by an 80 Kph speed limit. The carriageway at this location has a road width of 4.5m. From the traffic surveys its can be seen that the principal flows to and from the site are from the Waterfall direction.

The local road network between the existing site and Cork City / Ballincollig generally consists of a 5.5/6.0m wide carriageway. The junctions at Jimmy's Crossroads and Waterfall have adequate capacity to cater for the level of traffic at these junctions.

5.4.3. Queue Length Surveys

As part of the traffic count surveys, queue lengths were noted. No queues were observed during the a.m. and p.m. peak period at the access to the waste transfer station

5.5. Trip Distribution and Traffic Generation

5.5.1. Traffic Surveys

Full turning movement traffic surveys were carried out the 5th of August 2008 at the existing access to the waste transfer station covering the peak traffic periods (07:30 to 09:30 and 16:30 to 18:30). These flows are summarised for the peak periods in the following tables with the traffic flow diagrams included in Appendix D.

2008 AM Existing

From \ To	Waterfall	Dev. Access	Killeady	**Totals**
Waterfall	0	6	7	**13**
Dev. Access	9	0	1	**10**
Killeady	15	1	0	**16**
Totals	**24**	**7**	**8**	**39**

2008 PM Existing

From \ To	Waterfall	Dev. Access	Killeady	**Totals**
Waterfall	0	6	17	**23**
Dev. Access	10	0	1	**11**
Killeady	10	1	0	**11**
Totals	**20**	**7**	**18**	**45**

The counts at the existing development access show that the principal flows are towards Waterfall in the a.m. peak and from Waterfall in the p.m. peak. The p.m. peak hour flow is slightly higher than the a.m. peak hour flows. The counts show that in the a.m. and p.m. peak the principal turning flows to and from the existing development are to and from Waterfall. Full details of existing and predicted traffic flows are provided in Appendix C – Traffic Flow Sheets and Appendix D – Traffic Flow Diagrams.

5.5.2. *Trip Distribution*

It is proposed that the additional generated traffic will distribute in a similar pattern to the exiting flows at the existing access. These distribution percentages are shown in the tables below. These proportions will be used throughout this report for the junction assessment.

2008 AM peak hour - 08:00-09:00 – Trips Distribution

From \ To	Waterfall	Dev. Access	Killeady	**Totals**
Waterfall	0	85%	0	
Dev. Access	90%	0	10%	**100%**
Killeady	0	15%	0	
Totals		**100%**		

2008 PM peak hour - 16:45-17:45 – Trips Distribution

From \ To	Waterfall	Dev. Access	Killeady	**Totals**
Waterfall	0	85%	0	
Dev. Access	90%	0	10%	**100%**
Killeady	0	15%	0	
Totals		**100%**		

5.5.3. *Total Development Trip Generation Summary*

To summarise, the combined trips that are predicted to be generated to and from the proposed development onto the Local Road are shown in the table below:

Predicted Turning Flows to the Development

	Left turn from Local Road	Right turn from Local Road	**Totals**
AM Peak	21	4	**25**
PM Peak	21	4	**25**

Predicted Turning Flows from the Development

	Left turn onto Local Road	Right turn onto Local Road	**Totals**
AM Peak	3	26	**29**
PM Peak	3	28	**31**

Full details of the TRICS information used for the assessments are provided in Appendix E - TRICS information. Diagrams showing the predicted distribution and development flows for the peak-hour periods are shown in Appendix D – Traffic Flow Diagrams

5.5.4. Future Year Traffic Growth

The latest NRA Future Traffic Forecasts 2002-2040 have been used to apply growth factors to the existing flows for the future year junction assessments. Factors for Non - National Roads were used. The factors applied are as follows:

Road	**2008 Existing**	**2008 to 2013 5 years after dev. extension**	**2008 to 2023 15 years after dev. extension**
Local Road	1.00	+0.07%	+17.7%

Full summary tables and predicted future traffic flows for 2013 and 2023 for the critical peak periods are included in Appendix C – Traffic Flows Sheets.

5.6. Operational Assessments

Capacity assessments have been undertaken for the existing priority junction of the Local Road / Development Access in the a.m. and p.m. peak hours using the computer program PICADY. The following tables summarise the impact of the development in 2013 and 2023, five and fifteen years after the extension of the development.

5.6.1. 2008 Existing Situation

The following tables show the predicted RFC values, average queue lengths, average vehicle delay and total delays for the existing development access using the existing traffic flows for 2008. Full PICADY printouts are provided in Appendix F – PICADY Results.

AM Peak – 2008 Existing

Approach	**Predicted RFC value**	**Average queue (vehicles)**	**Queue delay (secs./veh.)**	**Total Delay (veh. Hrs)**
Waterfall	-	-	-	0.05
Dev. Access	0.04	0	13	
Killeady	0.01	0	11	

PM Peak – 2008 Existing

Approach	Predicted RFC value	Average queue (vehicles)	Queue delay (secs./veh.)	Total Delay (veh. Hrs)
Waterfall	-	-	-	0.04
Dev. Access	0.03	0	10	
Killeady	0.01	0	11	

The summary predictions shown in the tables above indicate that there are no queues and minimal delays at the existing access during the busiest peak hours.

5.6.2. 2013 With Proposed Extension

The following tables show the predicted RFC values (Ratio of Flow to Capacity), average queue lengths, average vehicle delay and total delays for the existing development access using the predicted traffic flows for 2013 with the proposed extension to the development.

AM Peak – 2013 with Extension

Approach	Predicted RFC value	Average queue (vehicles)	Queue delay (secs./veh.)	Total Delay (veh. Hrs)
Waterfall	-	-	-	0.25
Dev. Access	0.16	0	15	
Killeady	0.02	0	12	

PM Peak – 2013 with Extension

Approach	Predicted RFC value	Average queue (vehicles)	Queue delay (secs./veh.)	Total Delay (veh. Hrs)
Waterfall	-	-	-	0.16
Dev. Access	0.13	0	10	
Killeady	0.02	0	12	

The summary predictions shown in the tables above indicate that there will be no queues and minimal delays at this junction during the busiest peak hours in 2013 with the proposed extension to the development.

5.6.3. 2023 With Proposed Extension

The following tables show the predicted RFC values (Ratio of Flow to Capacity), average queue lengths, average vehicle delay and total delays for the existing development access using the predicted traffic flows for 2023 with the proposed extension to the development.

AM Peak – 2023 with Extension

Approach	Predicted RFC value	Average queue (vehicles)	Queue delay (secs./veh.)	Total Delay (veh. Hrs)
Waterfall	-	-	-	0.26
Dev. Access	0.17	0	15	
Killeady	0.02	0	12	

PM Peak – 2023 with Extension

Approach	Predicted RFC value	Average queue (vehicles)	Queue delay (secs./veh.)	Total Delay (veh. Hrs)
Waterfall	-	-	-	0.20
Dev. Access	0.13	0	10	
Killeady	0.02	0	12	

The summary predictions shown in the tables above indicate that there will be no queues and minimal delays at this junction during the busiest peak hours in 2023 with the proposed extension to the development.

5.7. CONCLUSIONS

Junction analyses to assess the effects of traffic generated by the proposed extension to the development have been undertaken for the existing development access. The analyses show that the existing development access will be able to operate with no queues and minimal delays with the proposed extension to the development in 2013 and 2023.

6. GEOLOGY & HYDROGEOLOGY

6.1. Introduction

The scope of this section includes:

1) an assessment of the existing surface water and groundwater conditions at and close to the site;
2) an assessment of the impact of the development on surface water and groundwater conditions;
3) a recommendation of mitigation measures to reduce or eliminate any potential impacts;

6.2. Information Sources

As part of the study process, information provided by the organisations shown on Table 1 was obtained.

Table 6.1: List of Organisations Providing Information

Geological Survey of Ireland	Beggars Bush, Haddington Rd, Dublin 4.
Met Eireann	Glasnevin, Dublin 9.
Environmental Protection Agency	Headquarters, PO Box 3000, Johnstown Castle Estate, Co Wexford.
Teagasc	Oak Park, Carlow
OPW	51 St. Stephen's Green, Dublin 2

6.3. Methodology

The methodology used in the investigation follows the guidelines and advice notes provided by the Environmental Protection Agency on environmental impact assessments and the Institute of Geologists of Ireland's (IGI) guide on Geology in Environmental Impact Statements.

The methodology involved in the assessment of the hydrogeology and hydrology at the site can be summarised as follows:

- A desk study, in which existing data, and relevant regional data sources for the area were examined.
- Field visits, in which aspects of the sites hydrology and hydrogeology were assessed.
- Analysis of the information gathered and assessment of the potential impacts of the development.

The desk study involved the examination of several datasets to determine the geological and hydrogeological setting of the area, as detailed in Table 2 below.

Table 6.2 Regional Data Consultation

Data Theme	Dataset	Scale/ Resolution
Agricultural Soils	An Foras Taluntais Mapping	1:126,720
Subsoil Geology	Teagasc Database	1:35,000
Solid Geology	GSI Bedrock Geology	1:100,000
Aquifer Classification	GSI Draft bedrock and gravel aquifer maps	N/A
Topography	OSI Discovery Mapping	1:50,000

Field visits were made to the site on occasions between March and April 2008.
The fieldwork undertaken as part of the hydrogeological characterisation included:

- a walkover survey of the site and surrounding area
- sampling of groundwater and surface water for laboratory analyses

6.4. Description of the Environment

6.4.1. Topography, Physical Features and Landuse

The site is located in rural hinterland south of Cork city. The site is relatively elevated, lying on one of the westerly-running line of hills that frame the Lee valley. The site itself is relatively flat and at an elevation of about 170 mOD.

There are no streams within the site area. A small stream forming part of the headwaters of the Curraheen River flows approximately 100 m east of the site. Land use within the application area is generally agricultural.

There are a number of residences around the development. A well survey was formerly undertaken of residences within 500 m of the site, and has been found not to have changed, other than the addition of one well. Foul waste from local residences is treated in septic tanks and percolation areas.

6.4.2. Climate

Rainfall values from Cork Airport, located approximately 8 km to the east of the site at an elevation of 140 mOD, indicate an average annual rainfall of 1207 mm/yr (1961 – 1990). Details are shown on Table 6.3.

Table 6.3 Monthly and annual average rainfall (mm) at Cork Airport, for the period 1961-1990 *(Met Eireann, 1996)*.

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Year
148.3	115.9	97.1	70.2	84.1	67.7	65.4	89.9	97.4	125.8	108.7	136.5	1206.9

The estimated Potential Evapotranspiration (PE) is of the order of 450 mm/yr. Therefore, potential recharge will be about 756 mm/yr.

6.4.3. Local Quaternary and Bedrock Geology

The bedrock geology is discussed in Section 3 of the EIS. Published 1:100,000 scale bedrock geology mapping indicate that the site is underlain by rocks of the Ballytrasna Formation, a mix of mudstones and sandstones.

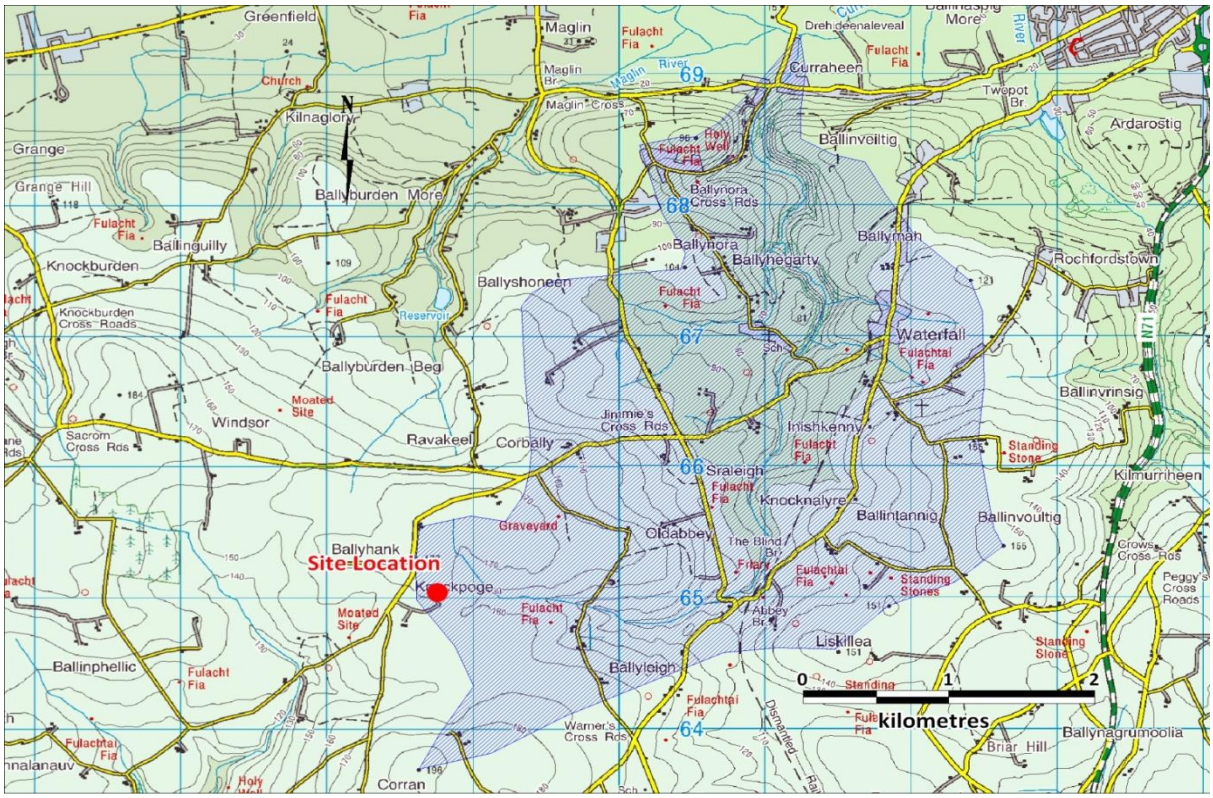
Teagasc subsoil mapping describes the subsoil as a till and being generally derived from Devonian sandstones and shales.

6.5. Surface Water – Hydrology

6.5.1. Background

As previously stated, the closest hydrological feature is a stream approximately 100 m east of the site boundary. This stream forms part of the headwaters of the Curraheen River. A land drain, which periodically receives small quantities of runoff from the development, lies to the east of the site. The catchment area for the Curraheen River is shown in the Figure below.

Figure 6.1: Surface Water Catchment for the Curraheen River



6.5.2. Surface Water Quality

The surface water quality is assessed by analysis of grab water samples from the land drain (SW1), and a point upstream (SW2) and downstream (SW3) of where the land drain discharges into the Curraheen stream.

The results of monitoring are shown in Volume 3, Appendix 6. In general, they indicate that the water quality of the land drain is slightly impacted, but this impact is diluted to normal levels upon entry into the Curraheen River.

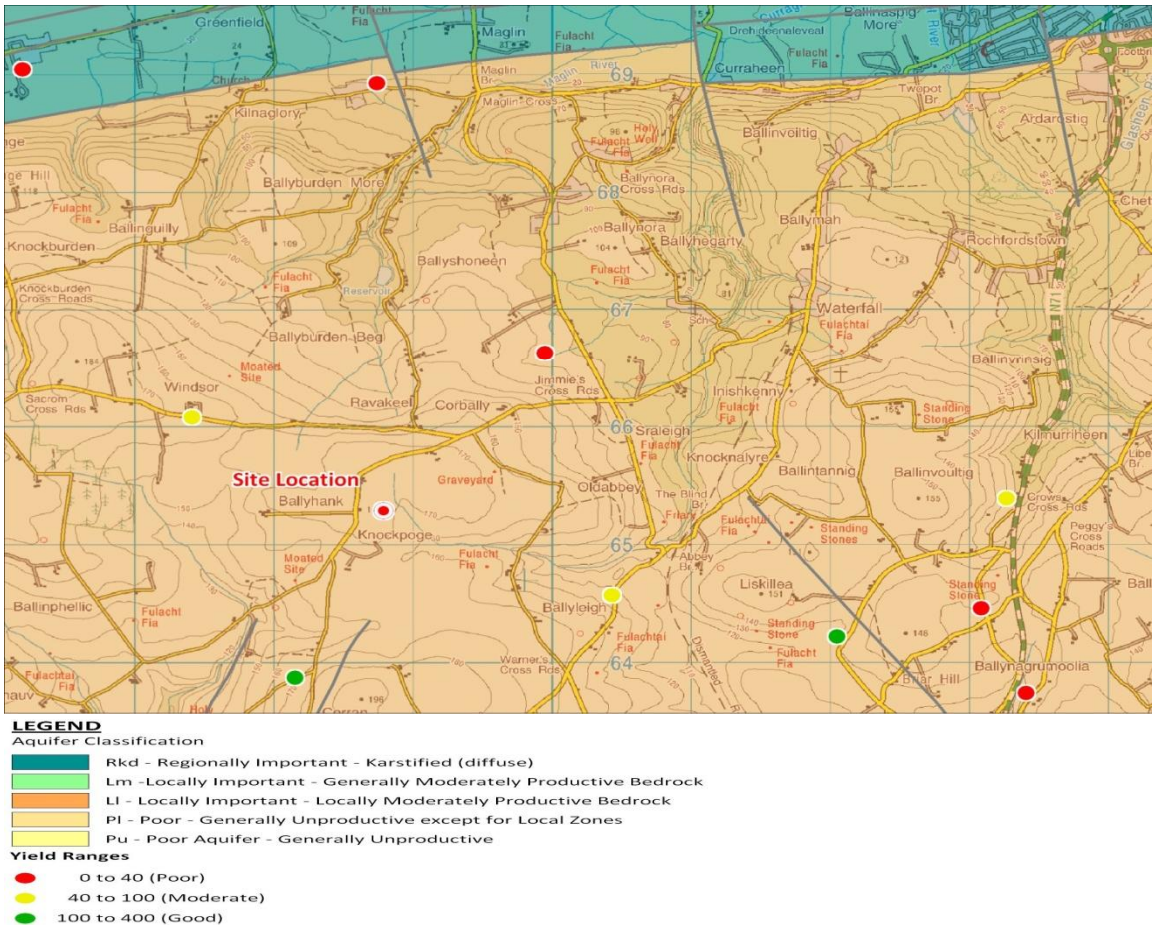
6.6. Ground Water – Hydrogeology

6.7. Local Hydrogeology

6.7.1. Bedrock Aquifer

The area is underlain at depth by the Ballytrasna Formation, (Refer to Section 3.3), which is classified as a locally important aquifer with locally important zones of flow (Ll) by the GSI (1994). The extent of the aquifer is shown on Figure 6.2 below.

Figure 6.2 Local Aquifer Classification



LEGEND

Aquifer Classification

- Rkd - Regionally Important - Karstified (diffuse)
- Lm -Locally Important - Generally Moderately Productive Bedrock
- Ll - Locally Important - Locally Moderately Productive Bedrock
- Pl - Poor - Generally Unproductive except for Local Zones
- Pu - Poor Aquifer - Generally Unproductive

Yield Ranges

- 0 to 40 (Poor)
- 40 to 100 (Moderate)
- 100 to 400 (Good)

6.7.2. Quaternary Aquifer

The thin nature of the soil and subsoil cover in upland areas such as at this site would not be sufficient to constitute a Quaternary aquifer.

6.7.3. Groundwater Levels

Groundwater level monitoring was carried out on two wells near and within the development area using a standard battery powered dip meter on 2nd April 2008, the results of which are presented in Table 6.4.

Table 6.4: Groundwater Levels

Parameter	GW01	GW02
Water Level (mbTOC)	4.55	7.1
Total Depth (m)	24	42

6.7.4. Hydraulic Conditions

Groundwater discharge at the site is presumed to be eastwards towards the land drain. It is likely that groundwater flows at a shallow level (the interface between the bedrock and the overburden) and at depth within the bedrock.

6.7.5. Groundwater Quality

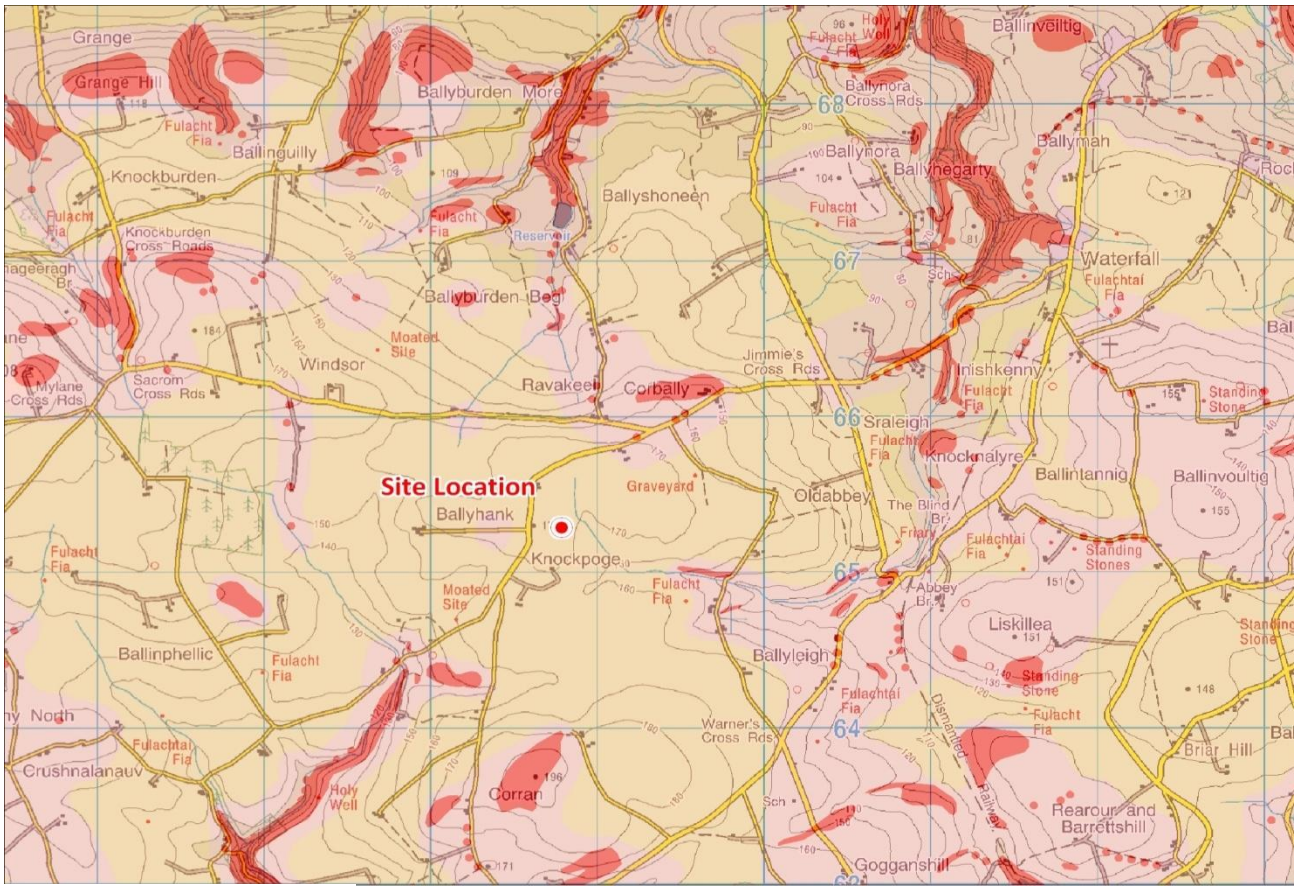
A groundwater sample was collected from the on-site well on 02 April 2008, to determine the local groundwater quality. The results of this monitoring are shown in Volume 3, Appendix 6..

The groundwater is typical of a soft groundwater hosted in a sandstone/shale bedrock. The results indicate a slightly elevated nitrate levels at the groundwater well, and this is attributable to agricultural activities in the general area. There is no indication of contamination emanating from the waste transfer station.

6.7.6. Aquifer Vulnerability

A groundwater protection plan has been prepared for south County Cork, and indicates that the vulnerability of the site may be classified as **high**. An extremely vulnerable area lies immediately to the west of the site.

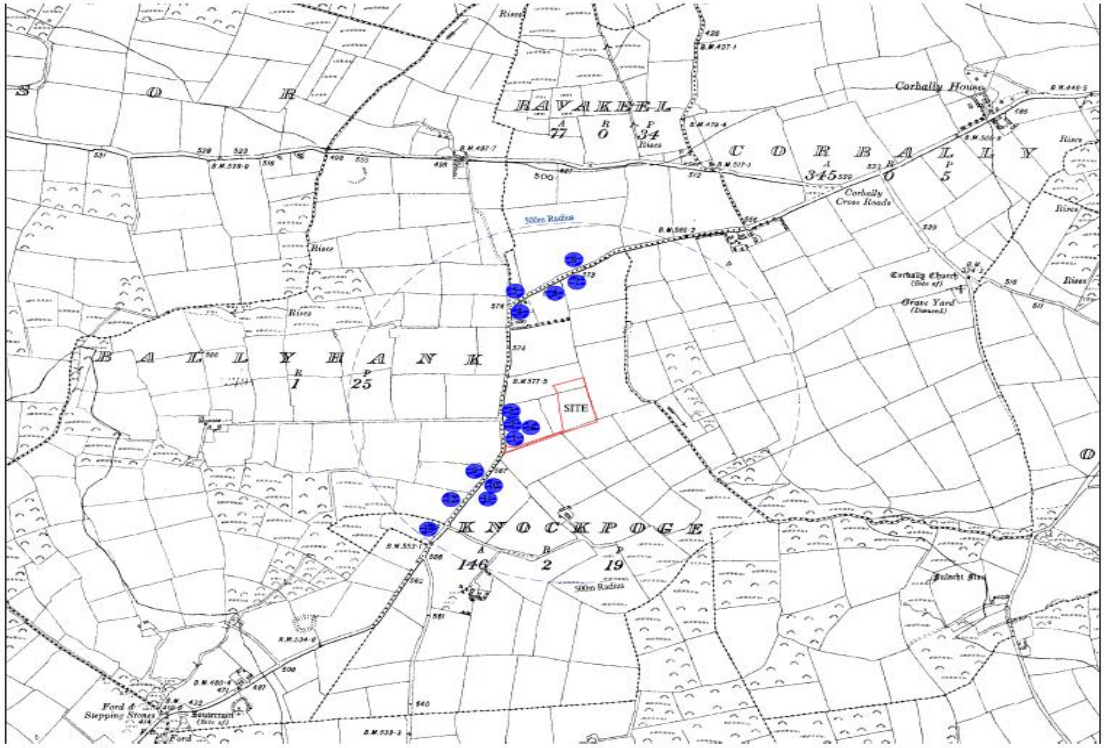
Figure 6.3: Vulnerability ratings in the Knockpoge Area



6.7.7. Well Survey

As part of the initial development of the project, a well survey for houses within 500 m of the application boundary was undertaken, and identified 13 wells. Since then, one well, GW02 is known to have been added to the number of local wells. These wells are shown on Figure 6.5.

Figure 6.5: Location of Wells within 500m of Facility



REV.	AMENDMENT	BY	DATE
A	ISSUE FOR EIS	J.O'D	18/09/2008

Client: Ted O'Donoghue & Sons Waste Disposal Ltd.

GLENSIDE ENVIRONMENTAL SERVICES
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Project Name: Ted O'Donoghue & Sons
Knockpoge, Waterfall, Co. Cork

Drawing Title: Private Wells within 500m of the Waste Management Site

Scale: N.T.S.
Drawn By: J.O'Donoghue
Date: JULY 2008
Drawing No: Figure 6.5
Rev: A

6.8. Water Management

6.8.1. Infrastructure Drainage

The yard surface water is collected in gullies and box gully drains and passes into a $2m^3$ intercepting tank before passing through a $180m^3$ holding tank and onto a local land drain which connects into the Curraheen River. The interceptor tank and holding tank are located at the southern end of the waste transfer building.

6.8.2. Site Water Supply

At present, there is one water supply well for the site (GW01), the details of which are given above. The water quality of the well is satisfactory.

6.9. Wastewater Management

Wastewater generated from the Office and Toilets passes through a proprietary treatment unit before passing onto percolation. Water runoff from the waste transfer building is collected in an underground storage tank beneath the floor of the waste transfer building. This tank consists of 4300 gallon concrete tank which has been tested and certified by a chartered engineer.

Roof water from the facility building is diverted into a 10,000 gallon holding tank at the south eastern end of the facility. The water is used for washing plant and equipment on the site as well as for use for fire fighting purposes. An overflow pipe is attached to the storage tank to drain off excess water. This will be diverted onto a local land drain which connects to the Curraheen River at the South-eastern end of the facility.

Fuel/Chemical Storage

A secure Fuel Storage Area is located on the north western boundary of the site, It is bounded in a concrete area and has a capacity of more than 110% of the volume of the largest storage tank. The bund capacity is approximately 19,000 gallons and the largest tank capacity is 5,000 gallons.

6.10. Assessment of Impacts

The main potential direct impact of the facility is the release of leachate from waste-bearing areas to the local aquatic environment.

6.10.1. Surface Water

Surface water generated within the site is controlled according to the level of risk it poses, as discussed. Measures are in place to remove leachate-impacted water from an underground storage tank by tankering. Rainwater incident on the shed roof is diverted via a holding tank to the local land drain. Appropriate management of storage tanks should therefore result in a low risk to the aquatic environment.

6.10.2. Groundwater

A similar risk is posed to groundwater as that posed to surface water, i.e. the risk of accidental release of leachate to groundwater. The appropriate construction and maintenance of the underground storage tank will ensure a continued low risk to groundwater.

Risks from fuel/hydrocarbon spillage can be minimised by use of dedicated hardstanding areas for refuelling/repairs, and the bunding and maintenance of fuel tanks.

6.11. Mitigation

The following measures are proposed to prevent any reduction in the quality of the aquatic environment.

6.11.1. Water management system

The water management system shall continue as it currently operates, and the following measures will also be implemented.

Operational Phase:

- All chemicals and petroleum-based products and chemicals are to be stored on spill pallets or similar.
- No mechanical repairs shall take place outside of paved areas.
- An Emergency Response Kit shall be kept on site to prevent any leaks of petroleum-based products from reaching the watercourse.

Restoration / After-use:

- After closure, all chemicals, petroleum based products, mechanical and electrical equipment shall be removed prior to closure of the site.

Monitoring

The following water monitoring programme will be implemented as part of the revised development proposal.

Water quality testing:

- The on-site water supply borehole will be monitored for water quality on an annual basis. Parameters for analysis include:
    - Electrical Conductivity
    - pH
    - Total Hardness
    - Total Alkalinity
    - TOC
    - Nitrate
    - Ammonia
    - Chloride
    - Potassium
    - Mineral Oils and DRO

Surface water monitoring will continue at the specified locations for the current parameters monitored.

REFERENCES AND SOURCES OF INFORMATION

AGMET group, 1996. ***Agroclimatic Atlas of Ireland***, James F. Collins & Thomas Cummins Editors, Dublin.

Fitzgerald, D. and Forrestal, F. **Monthly and Annual Averages of Rainfall for Ireland 1961-1990**. Met Eireann.

Gardiner, M. J., and T. Radford, 1980. ***Soil Associations of Ireland and Their Land Use Potential.*** Explanatory Bulletin to Soil Map of Ireland. An Foras Taluntais, Dublin.

Gardiner, M. J., 1980. Ireland, ***General Soil Map***. Scale 1:750,000. An Foras Taluntais, Dublin.

EPA/Teagasc EPA Soil and Subsoil Mapping Project, 2005

7. AIR QUALITY & CLIMATE

7.1. Introduction

Glenside Environmental carried out an Air Quality Impact Assessment of the existing waste facility. The study was undertaken in April to May 2008 and the finds of the study are summarised in this chapter.

A copy of the full report can be found in **Volume 3**, **Appendix 4** of this report.

7.2. Baseline Air Quality

The assessment included undertaking baseline air quality monitoring to determine the existing air quality in the vicinity of the proposed development, predication of future noise levels associated with the operational of the facility and the recommendation of suitable mitigation measures.

The baseline monitoring survey was carried out at the site of the proposed development using a range of air monitoring techniques. A total of four sample locations were chosen to represent the baseline air quality in the vicinity of the proposed development. These locations are presented in Table 7.1.

Table 7.1: Baseline Air Quality Monitoring Locations

Reference	Description
A1	In waste yard
A2	Adjacent to site access road
A3	300m south of facility entrance on Crossbarry Road
A4	100m north of facility entrance

The location of the air quality monitoring locations listed above are shown in Figure 7.1.

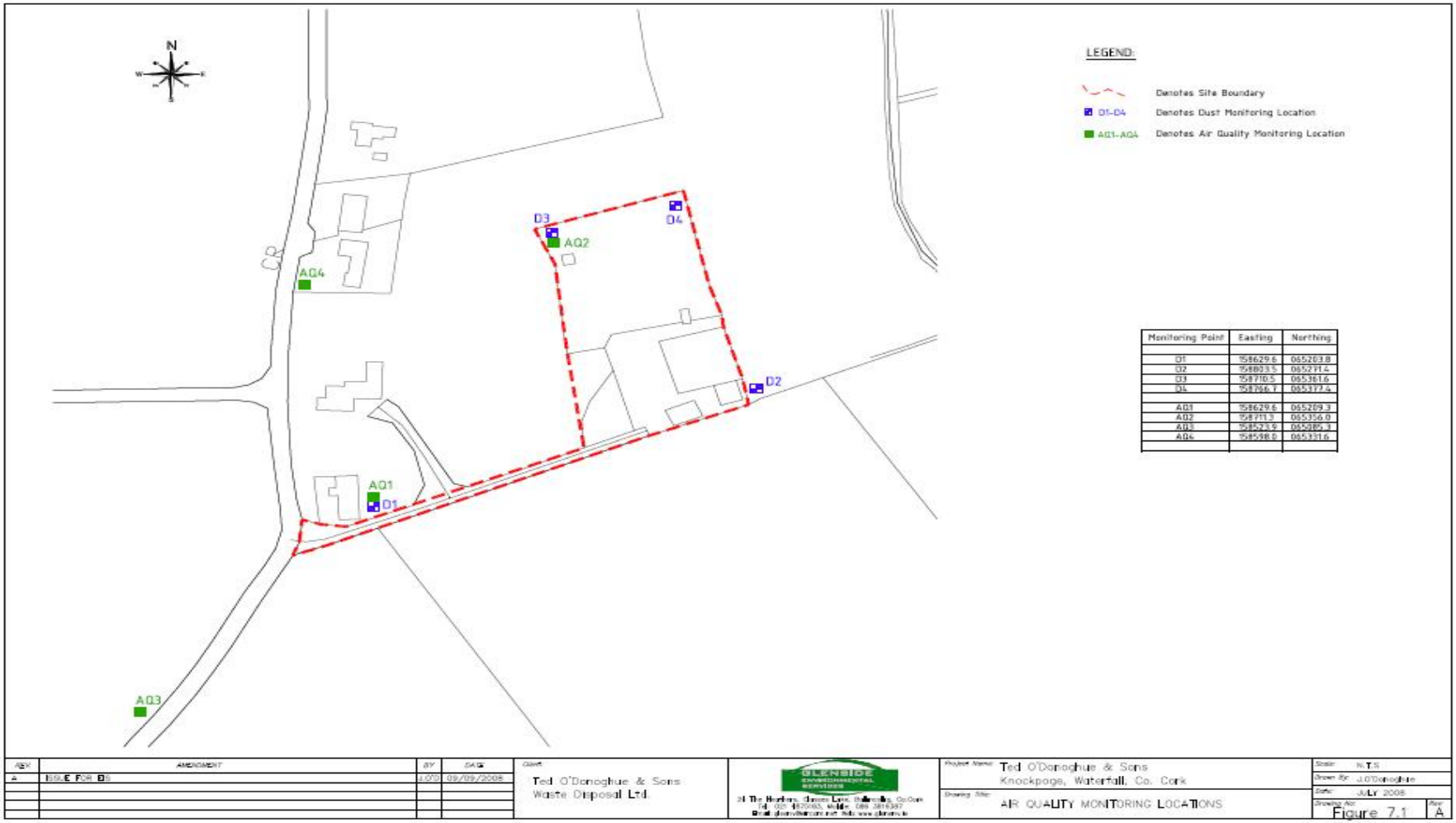


FIGURE 7.1: AIR QUALITY MONITORING LOCATIONS

As a result of the existing site conditions and the potential for traffic derived pollution, the following parameters were monitored;

7.2.1. Benzene

The sources associated with individual volatile organic compounds (VOCs) tend to be dependent on the nature of industries in the sample region. Methane is a naturally occurring VOC from plants and animals but is also generated as a by-product of certain industries. Benzene and other aromatic compounds and alkanes are most likely derived from petrol driven vehicle exhausts. Heavier semi volatile organic compounds are frequently derived from diesel-powered engines. Benzene is a known carcinogen, poisonous by inhalation and a severe eye and moderate skin irritant.

At four of the locations (A1 – A4) the air was monitored for benzene, over a 14-day period, using benzene diffusion tubes. The sample tubes were analysed for benzene at a UKAS accredited laboratory (Gradko International, Winchester).

7.2.2. NO_2 (Nitrogen Dioxide)

Nitrogen dioxide is classed as both a primary pollutant and a secondary pollutant. As a primary pollutant NO_2 is emitted from all combustion processes (such as a gas/oil fired boiler or a car engine). Potentially the main sources of primary NO_2 for the proposed development will be from domestic heating emissions and vehicle exhausts.

As a secondary pollutant NO_2 is derived from atmospheric reactions of pollutants that are themselves, derived mainly from traffic sources (e.g. volatile organic compounds). Secondary pollution is usually derived from regional sources and may be used as an indicator of general air quality in the region. Nitrogen Dioxide has been shown to reduce the pulmonary function of the lungs. Long term exposure to high concentrations of NO_2 can cause a range of effects, primarily in the lungs, but also in the liver and blood.

At all of the locations (AQ1- AQ4), levels of NO_2 were measured using diffusion tubes, which were left on site for a 14-day period. The tubes were then analysed using UV spectrophotometry, at a UKAS accredited laboratory (Gradko International, Winchester), giving an average concentration over the period.

7.2.3. SO_2 (Sulphur Dioxide)

Sulphur dioxide is classed as a primary pollutant principally emitted from the combustion of fossil fuels (diesel, coal, oil, etc.) and in the case of the proposed development the main source of SO_2 would be from burning fuel and traffic related sources (in particular diesel engines). As a traffic based pollutant, SO^2 is mainly emitted from vehicles running on diesel fuel, which will include

most light goods vehicles (LGVs) and heavy goods vehicles (HGVs). SO_2 emissions from domestic heating may be significant as SO_2 is a major constituent of sulphurous smog. However, in recent years the government has significantly reduced the importance of SO_2 as an air pollutant with the introduction of smokeless fuel.

Consequently, concentrations of SO_2 in major urban areas are typically low and this is likely to decrease in future years with the broadening of the ban on non-smokeless fuels. Sulphur Dioxide is a known contributor to respiratory illness and respiratory symptoms. People with asthma are the most susceptible in the community to elevated SO_2 levels.

At six of the locations (A1 – A4), the air was monitored for sulphur dioxide over a 14-day period, using SO_2 diffusion tubes. The sample tubes were analysed for SO_2 at a UKAS accredited laboratory (Gradko International, Winchester).

7.3. Existing Air Quality Environment

A baseline air quality survey was carried out in June/July 2008 to establish the existing air quality conditions. The results of this survey are presented in the tables below. An interpretation of the results is also included.

7.4. Baseline Monitoring Results

The results from the baseline monitoring for benzene, nitrogen dioxide and sulphur dioxide are presented in Tables 7.2 to 7.4 respectively.

Table 7.2: Average Benzene concentrations at each location

Location	Sampling Period	Average Benzene (µg/m3)
A1	02/05/08-16/05/08	0.48
A2	02/05/08-16/05/08	0.68
A3	02/05/08-16/05/08	0.72
A4	02/05/08-16/05/08	1.70
Limit Value	-	- 5(1)

Note: (1) EU Directive 2000/69/EC

The results above in Table 7.2 for benzene show typical levels of pollutants at all locations. The level of benzene at location AQ4 is highest possibly due to proximity to the local road. All results are in compliance with the EU limit value which is 5µg/m^3.

Table 7.3: Average Nitrogen Dioxide concentrations at each location

Location	Sampling Period	Average NO2 (µg/m3)
A1	02/05/08-16/05/08	18.24
A2	02/05/08-16/05/08	8.62
A3	02/05/08-16/05/08	4.54
A4	02/05/08-16/05/08	5.86
Limit Value	**-**	**40**

Note: (1) EU Ambient Air Standard (1999/30/EC) (as an annual average)

The dominant source of $N0_2$ in the area appears to be from motor vehicle exhausts. The higher level of 18.24µg/m^3 recorded at location AQ1 was recorded inside the site. The slightly elevated level is likely to have resulted from vehicle movements entering the site at low speeds. The recorded levels at locations AQ2, AQ3 and AQ4 range from 4.54 to 8.62µg/m^3. However, all locations measured are within the EU annual limit (EC Directive 2000/30/EC).

Table 7.4: Average Sulphur Dioxide concentrations at each location

Location	Sampling Period	Average Sulphur Dioxide (µg/m3)
A1	02/05/08-16/05/08	1.78
A2	02/05/08-16/05/08	3.50
A3	02/05/08-16/05/08	2.73
A4	02/05/08-16/05/08	5.17
Limit Value	-	**20**

Note: (1) EU Ambient Air Standard (1999/30/EC) (as an annual average)

The domestic source of SO2 in the area would appear to occur from fuel burning in domestic houses close to the facility. This is suggested by the higher levels to the west of the site at A4. The numbers of heavy goods vehicles entering and leaving the facility may also contribute to diesel generated SO2 as well as local traffic.

All locations indicate typical rural concentrations of sulphur dioxide with compliance of the annual limit (EC Directive 1999/30/EC)

Table 7.5: Dust Monitoring Results 2007

Location	Total Dust mg/m^2/day	
	9th July – 3rd August	3rd August – 7th September
D1	205	149
D2	109	68
D3	161	125
D4	218	178

The levels at the 4 locations are within the conditions stated in the EPA licence for the facility for both dust deposition surveys carried out in during June to September 2007.

The occurrence of odour and litter nuisances have not been observed at the facility. This will be maintained by ensuring that biodegradable waste is transferred off site within 48 hours of arriving on site and that good housekeeping practices are ongoing.

The operation of the existing facility does not have a negative impact on local environment in terms dust, noise, litter or odour at present. Given that the scale of the activities will not be increased substantially, atmospheric emissions from the facility are not likely to impair the environment.

7.5. Predicted Impacts on Air Quality

The continued use of the facility at Knockpoge will involve the transfer, sorting bailing and recycling of waste products, all of which will be housed within the existing purpose built facility.

The potential impacts to air quality as a result of the proposed development are addressed in terms of scheduled emissions (i.e. stacks & vents) and traffic impacts.

7.5.1. Scheduled Emissions

Regarding operations at the proposed development, the activities to be located in the development are planned for transfer, sorting, baling and recycling. As a result, there are no major scheduled emissions (i.e. through stacks, vents, etc.) planned for the development and sites activities are unlikely to cause any deterioration in local air quality.

There may be an impact from unscheduled emissions of dust from HGV movements on the site. This impact will be directly related to the working practices on the site. If a satisfactory dust

minimisation plan is implemented (i.e. truck washes, road sweepers, etc), the potential impacts of fugitive dust are expected to be minimal.

As there is no waste deposited on the site, there is no potential for the build up of methane and landfill gas. Consequently, the odours and emissions from a landfill gas flare unit will not be generated at the proposed development.

Odours are a potential nuisance from any facility that involves waste storage or transfer. Fugitive odours (i.e. not through stacks or vents) from landfills, waste transfer stations, baling stations, etc. arise mainly from the uncontrolled anaerobic biodegradation of waste to produce unstable intermediates. Odours are generated by a number of different components, the most significant being the sulphur containing compounds (thiols, mercaptans, hydrogen sulphide), volatile fatty acids (butyric acid. Valeric acid), amines (methlamine, Dimethylamine), phenols (4-methyphenol), chlorinated hydrocarbons (tichlorethylene, tetrachloride). Most of these compounds have been in very low concentrations. Different concentrations and mixtures of these compounds can intensify or reduce odour threshold concentration, determined as synergism and antagonism respectively.

The operators of the existing facility operate under a waste licence issued by the EPA. Consequently the EPA will require a level of operation that will not impinge on the surrounding environment and decide on the extent and nature of any environmental monitoring (e.g. dust or odours) to be carried out. Any complaints arising during the operation of the facility regarding an environmental nuisance will be logged by the EPA who will require corrective action to remove the source of that nuisance.

7.5.2. Road Traffic

Emissions of pollutants from road traffic can be minimised by either controlling the number of road users or by controlling the flow of traffic. For the majority of vehicle-generated pollutants, emissions rise as speed drops, although the opposite is true for oxides of nitrogen. Emissions are also higher under stop-start conditions when compared with steady speed driving. The free flow of the traffic as a result of the scheme is desirable in order to minimise the generation of traffic-generated pollutants.

7.5.3. Mitigation Measures

7.5.3.1. Road Traffic

Emissions of pollutants from road traffic can be controlled by either controlling the number of road users or by controlling the flow of traffic. For the majority of vehicle-generated pollutants, emissions rise as speed drops, although the opposite is true for oxides of nitrogen. Emissions are also higher under stop-start conditions when compared with steady speed driving. The free flow of the traffic as a result of the scheme is essential in order to minimise the generation of traffic related pollutants.

7.5.3.2. Odours

The potential for odour emissions may be minimised by a series of design features, work practices and mitigation measures. Each of these measures is outlined briefly below:

- All in-house operations where residual waste is processed is to be housed indoor.
- Use of shutter doors to minimise exposure to outside environment.
- Site layout has been designed to ensure any outdoor operations are as far as possible from the nearest sensitive receptors.
- Regular cleaning of all work surfaces and floors.
- Residence time for waste, including non-odorous is, and will be kept to a minimum before transfer.

7.6. Residual Impact

The increase in traffic volumes as a result of the increase in waste tonnages is not expected to have any adverse impact on air quality in the vicinity of the development. Once traffic volumes remain low and traffic speed is not significantly altered then it is not anticipated that there will be residual impacts on air quality.

7.7. Climate

7.7.1. Introduction

Climate can refer to both the long-term weather (macro-climate) patterns in an area and also to the more localised atmospheric conditions, referred to as the microclimate. Climate has implications for many aspects of the environment from soils to biodiversity and landuse practices. This section deals with the existing climate in the area and how the proposed development may impact on the microclimate.

7.7.2. Description of Existing Environment

The nearest meteorological station to Waterfall is at Cork Airport (approximately 5 km to southwest) and long-term measurements of wind speed/direction and air temperature for this location are representative of prevailing conditions experienced at the proposed development.

Table 7.6: Total rainfall in millimetres for Cork Airport

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	89.4	141.9	89.3	27	64.6	155.7	117.5	80.2	36.3	64	56.8	134.7
2008	193.1	51.8	113.2	54	75.6	128.9	24.4	--	--	--	--	--
mean	148.3	115.9	97.1	70.2	84.1	67.7	65.4	89.9	97.4	125.8	108.7	136.5

Table 7.7: Mean temperature in degrees C. for Cork Airport

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2008	6.4	6.3	6.2	7.8	12.1	13.4	13.6	--	--	--	--	--	8.8
2007	6.4	6.3	6.7	11	11.7	13.7	14.3	14.8	13.9	11.8	8.6	7.3	10.6

7.7.2.1. Wind

The windfield characteristics of the area are important climatological elements in examining the potential for the generation of fugitive dust emissions from the site. Fugitive dust emissions from a surface occur if the winds are sufficiently strong and turbulent and the surface is dry and loose, together causing re-suspension of particulate matter from the ground. A wind speed at ground level in excess of about 5 m/s is considered to be the threshold above which re-suspension of fine sized material from an exposed surface may occur. The mean annual wind speed in the Cork area is approximately 5.5 m/s. The surface needs to have relatively low moisture content for this type of dust emission to take place and any wetting either by rainfall or sprayers, will greatly reduce the potential of fugitive dust emissions. Mitigation measures such as the use of sprinklers will ensure that re-suspension of dust will not be a major impact.

Long-term wind observations over the period 1968-1996 indicate that the prevailing wind direction, in the Cork area, is from the SW and blows NE across the existing site.

7.7.2.2. Rainfall

Precipitation data from the Cork Airport meteorological station for the 2007 indicate an annual total of about 1052mm.

7.7.2.3. Temperature

The annual mean temperature at Cork Airport (1961 – 1990) is 9^0C with a mean maximum of 10^0C and a mean minimum of 5^0C. Given the relative close proximity of this meteorological station to the facility, similar conditions would be observed.

7.7.3. Impact on Macro Climate

Greenhouse gases occur naturally in the atmosphere (e.g. carbon dioxide, water vapour, methane, nitrous oxide and ozone) and in the correct balance, are responsible for keeping the lower part of the atmosphere warmer than it would otherwise be. These gases permit incoming solar radiation to pass through the Earth's atmosphere, but prevent most of the outgoing infrared radiation from escaping from the surface and lower atmosphere into the upper levels. However, human activities are now contributing to an upward trend in the levels of these gases, along with other pollutants with the net result of an increase in temperature near the surface.

Motor vehicles are a major source of atmospheric emissions thought to contribute to climate change. A concern would be the additional emissions generated from vehicles that will be attracted to this proposed development and the potential for increases in air pollutants, which may contribute to climate change. During site visits it was observed that there was already a high number of Heavy Goods Vehicles (HGVs) in the vicinity of the proposed development. Smooth inflow and outflow of traffic incorporated into the site design and future improvements to existing road will result in free flowing traffic which will reduce the impact arising from vehicle emissions, compared to the emission pattern associated with congested driving conditions.

7.7.4. Impact on Micro Climate

The physical structure of the transfer station building will produce slight changes in shelter, microclimate: the spatial distribution of temperature, light, shade and rainwater runoff. There are no plants on the site of the facility that will be affected by this slight change in the microclimate. There are also no particularly sensitive life forms that will suffer. The continued operation of the facility will not have a significant effect on shading or temperature profiles at the nearest residential properties.

7.7.5. Mitigation Measures

The continued operation of the facility will have no impact on the climate or microclimate at the site and therefore no mitigation measures are proposed.

8. NOISE

8.1. Introduction

This Section of the Environmental Impact Statement assesses the Noise Impact associated with the proposed development.

This study identifies, describes and assesses the impact of the development in terms of its impact on noise and vibration. Particular attention is focused on sensitive receptors, such as residential areas in the vicinity of the site, and to the extent of the exposure of these receptors to noise and vibration generated in association with the proposed development.

This assessment has been prepared in accordance with the recommendations of the Environmental Protection Agency's (EPA) Guidelines on the Information to be Contained in Environmental Impact Statements (EPA, 2002) and Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (EPA, 2003). The report adopts the following general format:

Glenside Environmental carried out a Noise Impact Assessment of the facility at Knockpoge, Waterfall, Cork. The study was undertaken in April 2008. This chapter summarises the main report and identifies, describes and assesses the impact of the proposed increase in tonnages in terms of its impact on noise on the surrounding environment particularly at residential areas adjacent to the site. The full report can be found in **Volume 3, Appendix 6** of this report.

The assessment was carried out with reference to the following documentation and methodologies:

- A baseline survey at the nearest noise sensitive locations surrounding the proposed development site has been carried out to establish baseline noise levels. The survey was carried out in accordance with ISO 1996 Acoustics: *"Description and measurement of environmental noise"*
- An assessment of increased traffic noise has been made with reference to the Department of Transport (Welsh Office) Document "Calculation of Road Traffic Noise" (CRTN) 1998 The potential impact of the site has been assessed with reference to BS4142 1997 *"Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas"*
- Noise from construction activities has been considered with reference to BS5228: *"Noise and Vibration Control on Construction and Open Sites"*

8.2. Existing Environment

The location of the facility is generally within a rural environment with a number of residences located within 150m close to the access road. Local traffic is considered to be the main source noise source.

A baseline noise survey was carried out on the 24th April 2008 to establish the existing noise climate throughout the daytime periods within and surrounding the site boundary. Details of baseline noise survey are given in **Table 8.1.**

8.3. Methodology

8.3.1. Noise Measurement Parameters

During the baseline noise survey the following noise parameters were measured. Theses are defined below:

$\mathbf{L_{Aeq}}$ is the A-weighted equivalent continuous steady sound level during the sample period and effectively represents an "average" value.

$\mathbf{L_{A10}}$ is the A-weighted sound level that is exceeded for 10% of the sample period; this parameter is typically used to quantify traffic noise.

$\mathbf{L_{A90}}$ is the A-weighted sound level that is exceeded for 90% of the sample period; this parameter is typically used to quantify background noise.

A-weighting is the process by which noise levels are corrected to account for the non-linear frequency response of the human ear. All noise levels are quoted in dB(A) relative to a sound pressure of 20µPa.

8.3.2. 10.3.2 Noise Measurement Locations

Noise measurements locations are described in Table 10.1 and illustrated in Figure 10.1.

Table 8.1: Noise Measurement Locations

Location	Description
N1	Adjacent O' Donoghue family residence
N2	South east corner of site adjacent transfer station and workshop
N3	North west corner of site, close to trailer parking area
N4	North east corner of site, close to timber shredder
N5	At sensitive dwelling, north east of site

Measurements were made during the day time period at the five monitoring locations on 24th April 2008. For the purpose of this assessment Day time is defined as 08:00 hours to 22:00 hours. Night-time measurements were not carried out as the facility does not operate outside of daytime hours. Noise level measurements were performed over sampling periods of 30 minutes during the day. The results were noted onto survey sheets following each period and all measurements

were carried out in general accordance with ISO1996 "*Acoustics; Description and measurement of environmental noise" and the EPA Noise Survey Guidance Document.*

Weather conditions were noted to be dry and relatively still. Wind speeds ranged between 0-3m/s. Cloud cover was typically 40% and temperatures were nominally in the range of 10-14 degrees Celsius.

The results of the noise monitoring at locations N1-N5 is presented in Table 3.1.

Table 8.2 Ambient Measurements (Locations N1-N5)

Monitoring Location	Time and Date	L_{Aeq}, dB(A)	L_{A90}, dB(A)	L_{A10}, dB(A)	Main Noise Sources
N1	24/04/08 10:18	55.7	41.4	51.4	Trucks entering facility, local traffic.
N2	24/04/08 11:23	55.2	40.4	49.8	Vehicle movements. Noise from transfer building.
N3	24/04/08 12:25	62.7	50.0	64.0	Noise from transfer building, site truck movements
N4	24/04/08 14:31	61.9	45.4	65.6	Traffic on local road, no site noise
N5	24/04/08 15:35	66.4	49.6	65.2	Traffic on local road, no site noise

Measurements at location N1 were recorded adjacent to the O' Donoghue family residence adjacent to the entrance to the facility. Intermittent traffic noise from the adjacent public road contributed to the ambient levels. Two trucks entered the facility during the 30-minute monitoring period. Noise from the workshop was audible at this monitoring location. The L_{Aeq} average noise level was recorded at 55.7dB(A).

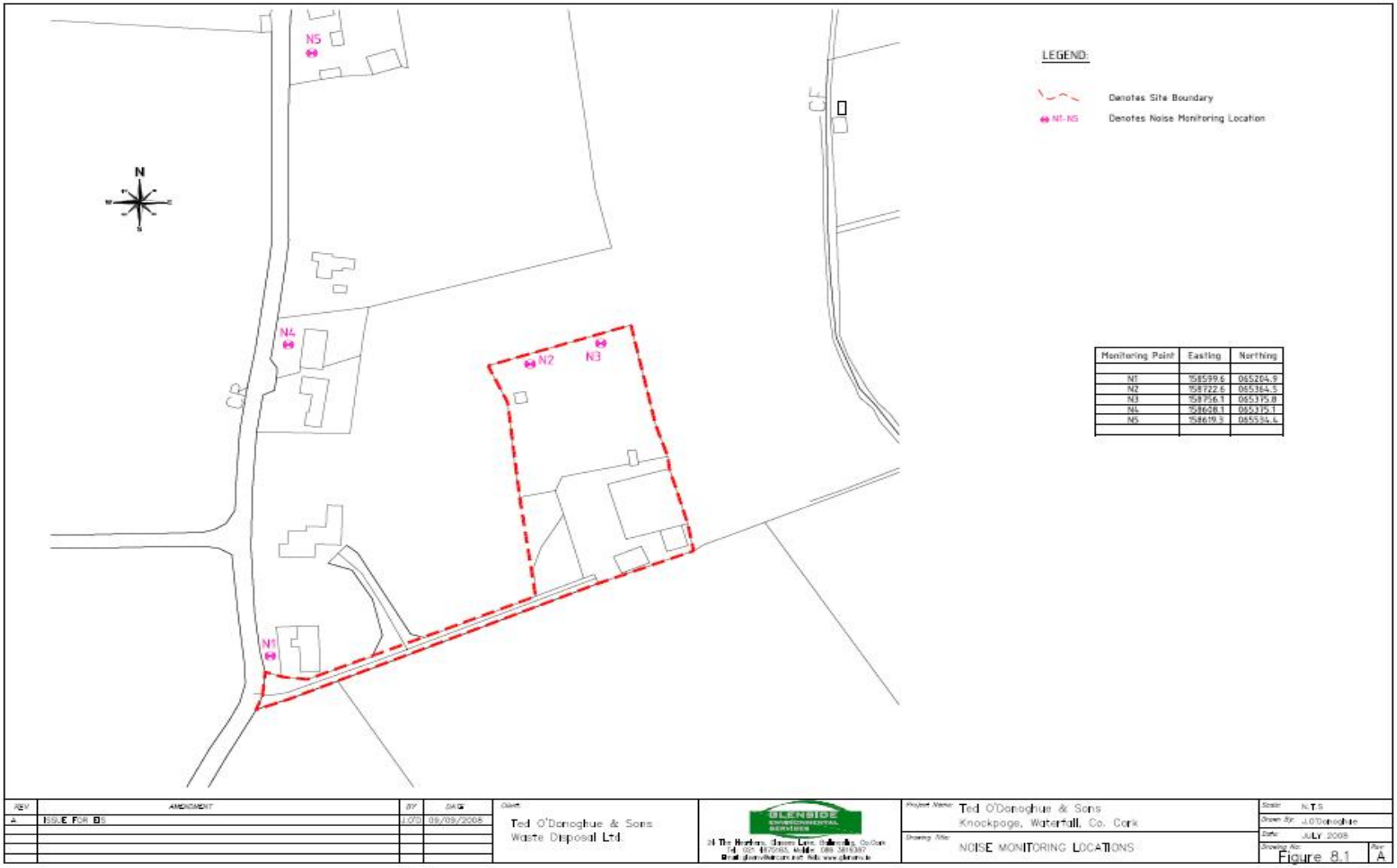
Noise measurements at N2 and N3 were recorded at the north-western and north-eastern corners of the site respectively. Site vehicle movements and the mechanical grab within the transfer station building contributed to the annual were the main noise sources. The average noise levels were recorded at N2 and N3 were 55.2dB(A) and 62.7dB(A) respectively. The level at N3 was influences by a truck idling close to the monitoring position.

The earthen mound at the western and northern boundary provides significant landscape and acoustic screening of the activities in the facility. Tree cover also alleviates the noise impact to the west.

The noise from the facility was not considered a major source at locations N4 and N5. Intermittent traffic movements were the main noise source. There was no activity audible from the waste facility at locations N4 and N5.

From the above it can be concluded that the O' Donoghue waste transfer facility is in compliance with the requirements of the waste licence for the facility. The facility is not a source of nuisance to surrounding sensitive areas. All waste segregation activity takes place within the waste transfer building. Truck movements are the main noise associated with the operation of the business.

FIGURE 8.1: NOISE MONITORING LOCATIONS (N1 TO N5)



8.4. Potential Impacts

When considering a development of this nature, the potential noise impacts on the surrounding environment must be considered for the operational phase. There is no construction phase associated with this application.

8.4.1. Operational Noise

Noise monitoring is undertaken annually at local noise sensitive locations The operational sources of noise impact associated with the development will be additional vehicles on the existing road system, vehicle movements within the site and noise from the operation if the site.

8.4.1.1. Road Traffic

Increased traffic, particularly from heavy goods vehicles (HGV) during the operational phase has the potential to increase noise levels at noise sensitive locations along the routes surrounding the site. The nearest residential estates which would potentially be affected by operational traffic are those areas along the haul road from Cork City to the facility.

A traffic assessment has been carried out by *RoadPlan* of current and predicated flows at the site assuming a worse case scenario of the site operating at full capacity. As a worst case scenario it could be assumed that if the existing tonnages will double from circa. 30,000 tonnes to 60,000 tonnes there would be a corresponding increase in traffic volumes. A doubling in traffic results in a 3dB increase in noise level. Table 8.3 below classes such an increase as not significant/minor.

Table 8.3: Classification of predicated noise impacts (EPA & DMRB)

Change in sound level	Subjective reaction	Impact
<3	Imperceptible	Not significant/Imperceptible
3-5	Perceptible	Minor/Slight
6-10	Up to a doubling of loudness	Moderate/Significant (Minor)
11-15	Over a doubling of loudness	Major/Significant (Major)
>15	-	Severe/Profound

With reference to **Tables 8.2** and **8.3** above, traffic noise levels on surrounding routes during the maximum acceptance of waste tonnages are predicted to increase by a maximum of 3dB during AM peak hour flows. In subjective terms, this increase is not considered to be significant.

8.4.1.2. Waste Transfer Facility

The operation of the waste transfer facility will involve the delivery, sorting, bailing and storing of waste materials. Each on-site process has the potential for noise generation.

In order to ensure that noise levels from the operation of the facility do not significantly impact the nearest residential properties, reference has been made to BS4142 1997 '*Method for rating industrial noise affecting mixed residential and industrial areas'.* It is proposed that the specific noise from combined operating equipment do not increase existing background noise levels at the nearest noise sensitive locations by more than 5dB(A). The lowest background day time noise level was 49dB L_{A90} measured at location N4. Location N5 recorded the lowest night time background level of 43dB L_{A90}.

Noise monitoring carried out at locations N1, N4, and N5 over the past 3 years indicate there is no site noise audible from the transfer station building.

The building structure therefore if constructed of similar form to the type above will achieve the attenuation required. Modern building designs however are likely to exceed these specifications.

8.4.1.3. Predicted Noise from Traffic

There are no legal limits for road traffic noise in Ireland at present. In the absence of such guidelines, it is typical to use the Control of Road Traffic Noise document as published by the Department of Transport, Welsh office 1998 to predict the likely noise level due to road traffic movements. The relevant noise level in this document is expressed in terms of the L10 hourly or L,,,(l8-hour) dB(A). The value of the L10 hourly dB(A) is the noise level exceeded for just 10% of the time over a period of one hour. The CRTN guidelines and the traffic flow data were used to calculate a predicted noise level due to traffic movements to and from the site. Typically, a doubling in traffic numbers (100 % increase) would result in a 3 dB(A) increase in noise level.

8.5. Mitigation

Of the likely impacts described above, the greatest potential impact will be from increased traffic flows.

The results of the on-going monitoring at the facility indicate that noise within the area is resulting from predominantly traffic noise. The levels of noise coming from the facility at the noise sensitive receptor were insignificant in comparison to traffic noise and these locations. It is therefore concluded that the any noise generated at the facility will not have any undesirable impacts on the existing neighbouring noise environment.

Notwithstanding that, good operational practices at the facility will be maintained to ensure no noise nuisances are caused as a result of the workings of the facility.

8.6. Residual Impact

8.6.1. Operational Phase

8.6.1.1. Screening and Landscaping

Large fir trees on the earth berm form the existing western boundary of the site providing excellent visual screening of the facility and marginal acoustic attenuation to residential locations to the west.

In general terms vegetation will have minimal effect on noise abatement however, it will have an aesthetic effect for local residents in that part of the site building and activities are screened. The natural topography of the site acts as a natural screen for both visual purposes and for the attenuation of likely noise sources.

It is generally accepted that if there is a barrier or other topographic feature between the source and the noise sensitive receptor that an approximate attenuation of 5 dB can be assumed when the top of the plant is just visible to the receptor over the noise barrier. A reduction of 10 dB or greater can be achieved when the noise screen completely hides the noise sources from the receiver.

8.6.1.2. Best Practice and Plant Operation

The best practicable means will be used to minimise noise produced by operations associated with the site and the facility shall comply with the recommendations in British Standard 5228, Noise Control on Construction and Open Sites - 1997. The following parts of this British Standard are applicable;

- Part 1: Code of practice for basic information and procedures for noise and vibration control.
- Part 2: Guide to noise and vibration control legislation for construction and demolition, including road construction and maintenance.

The site operator shall comply in particular with the following requirements for control of noise from plant;

- All vehicles and mechanical plant used for the purpose of works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient order as per EC regulations. Also, all plant used during excavation and remediation must comply with the noise levels set down in SI No 320 of 1988 European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988.
- Machines in intermittent use shall be shut down in the intervening period between work or throttled down to a minimum.

- All pumps and compressors shall be sound reduced models fitted with properly lined and sealed acoustic covers and shall be kept closed whenever the machines are in use. Such items shall be maintained in good and efficient working order.

9. ECOLOGY

9.1. Introduction

This section provides an assessment of the likely impact on the ecological environment; i.e. habitats, flora and fauna, of an existing waste transfer station, in Waterfall, Co. Cork. It should be noted that the site boundary will not extend and that there will be no additional construction associated with the increased tonnage.

The purpose of this report is to assess the impacts of current and future works on the surrounding ecology and to identify appropriate mitigation measures and any further studies that may be required.

9.2. Methodology

Best ecological guidelines were adhered to during the preparation of this section of the EIS and the following methodology was employed:

- Initially, a desktop study was carried-out in order to identify any legally protected species or habitats that may be present within or close to the proposed development site, and to locate any designated nature conservation sites, such as proposed Natural Heritage Areas (pNHAs) candidate Special Areas of Conservation (cSACs), or Special Protection Areas for birds (SPAs), in the vicinity, that could potentially be negatively impacted by the continued operation of the waste transfer station.
- A field survey of the site was conducted on the 17th of April 2008 to examine the habitats, flora and fauna at the site; to evaluate their ecological importance; and to assess the potential ecological impacts of the continued operation of the quarry. This included a Phase 1 Habitat Survey of the site, which followed the methodology of JNCC (1993). Habitats within and adjacent to the proposed development site were examined and were classified according to *A Guide to Habitats in Ireland* (Fossitt, 2000), published by the Heritage Council.
- A mammal survey of the site was carried out on the 17th of April 2008, which concentrated on protected species such as badger, otter and red squirrel. The site was searched for tracks and signs of mammals according to methodology described in *Animal Tracks and Signs* (Bang and Dahlstrom, 2001); and *The Mammal Detective* (Strachan, 1995). Likely impacts of the proposed development upon mammals were identified and assessed.
- Where appropriate, mitigation measures are proposed in order to minimise ecological impacts of the proposed development.

9.3. Criteria for Identification of Ecological Significance

The results of the baseline surveys were evaluated to determine the significance of the features located within the site boundary on an importance scale ranging from:

- International
- National
- County
- High Local Importance
- Local Importance
- Local Value
- No significant Value

For an explanation of the criteria used in this assessment see Volume 3, Section 7. The significance of impacts was assessed on a combined basis of the value of the feature being affected and the magnitude of the impact. Impacts on features of less than local value are not considered to be potentially significant.

9.4. Existing Environment

This Section provides a description of the existing habitats, flora and fauna of the proposed development site.

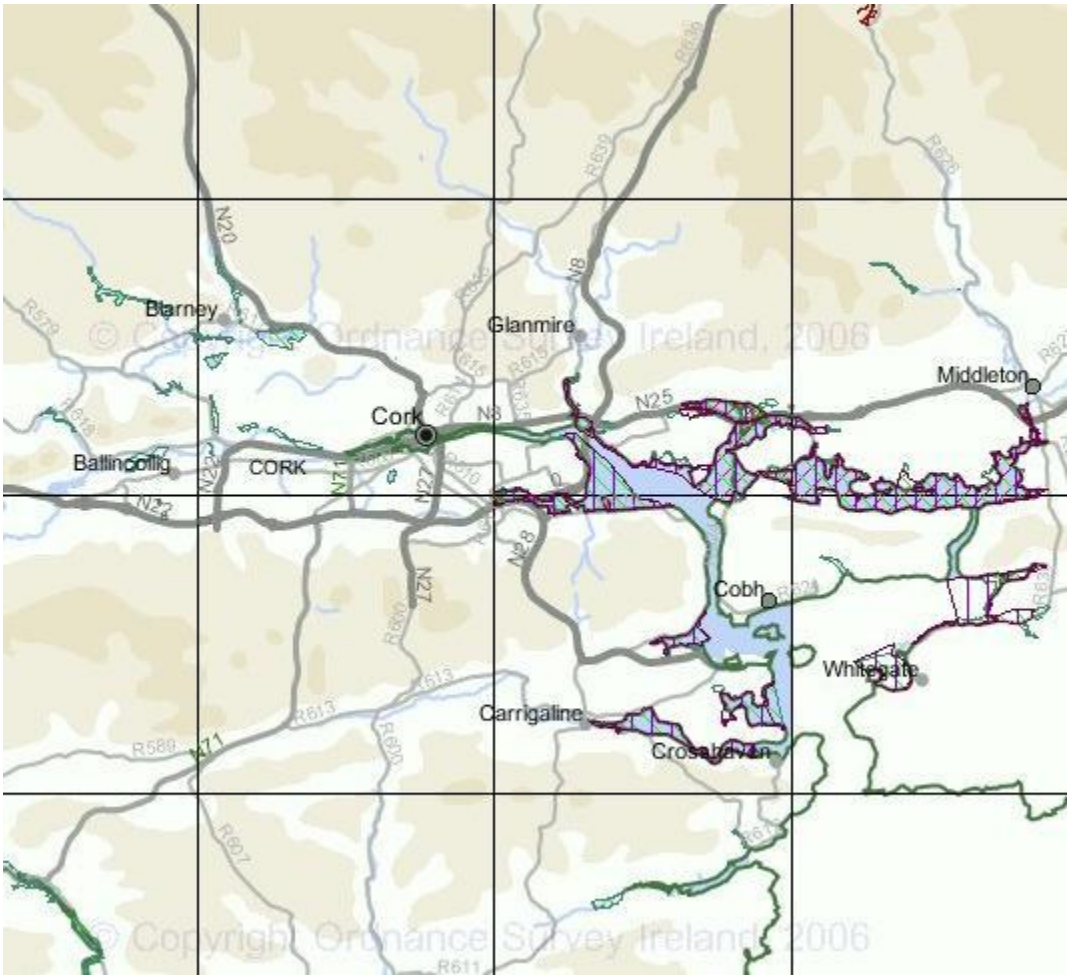
9.4.1. Designated Sites

A review of all designated sites within 5km of the proposed development site was carried out. This allowed for an assessment of any potential direct or indirect impacts on these sites of conservation importance that may result from the proposed development. The boundaries of these sites were downloaded from the National Parks and Wildlife Service website (http://www.heritagedata.ie) in April 2008. This approach (i.e. to consider potential impacts on all designated sites within 5km of a proposed development) has been prescribed by National Parks and Wildlife in previous correspondence as an appropriate mechanism for determining potential, likely and significant impacts on designated sites.

Candidate Special Areas of Conservation (cSAC) are protected under the European Union (EU) Habitats Directive (92/43/EEC), as implemented in Ireland by the European Communities (Natural Habitats) Regulations, 1997. Special Protection Areas (SPA's) are protected under the EU Habitats Directive, which complements EU Directive 79/409/EEC, The Directive on the Conservation of Wild Birds ('The Birds Directive'), under which the SPA's were initially established. Whilst the Wildlife (Amendment) Act 2000, under which proposed Natural Heritage Areas (pNHAs) are protected has been transmitted into law, they will not have statutory recognition until the consultative process with landowners has been completed; this process is currently underway.

The waste transfer station is not situated within any designated sites or within 3km of any designated sites. There are no cSACs or SPAs within 5km of the site. There is one pNHA within 5km of the site, this is described below and depicted on Figure 9.1.

Figure 9.1 Designated Sites Within 5km of the Site.



9.4.2. pNHAs within 5km of the Site

Ballincollig Cave pNHA (001249)- This site is the only designated site within 5km of the sie, situated 3.5km north of the site. This site is relatively species rich, even for limestone, with some uncommon native and introduced plants. It is an example of natural habitat in and an area of intensive agriculture and also rapid urbanisation. The cave deposits are interesting from a geological viewpoint.

9.4.3. Other pNHAs within 10km of the Site

There are four pNHAs within 10km of the site, these comprise:

Blarney Lake pNHA (0 01857) is situated over 9km north of the site. It is located a half km west of Blarney Town and 4.5 km northwest of Cork City. The main habitats of the area are lowland wet grassland, both grazed and un-grazed and freshwater marsh/fen. The area as whole is used by a variety of bird species, birds noted to be breeding in the site include: the Sedge and Grasshopper Warblers, Reed Bunting, Meadow Pipit, Snipe and Mallard. Hen Harriers, a species listed in Annex 1 of the EU Bird's Directive and also a Red Data Book species whose status is threatened in Ireland, are regularly seen in this area, hunting over the wetter ground and sometimes nesting in the reed beds.

Cork Lough pNHA (001081)- This small lake is situated in the north-west of Cork City, 1km north of the River Lee and over 7km from the site. In 1972 An Foras Forbartha noted it as an important place to observe wildfowl and gulls due to its close proximity to a large human population. The lake regularly holds over 100 Mute Seans, a feral flock of over 30 Canada Geese and small numbers (usually under 50) of Mallard, Teal, Tufted Duck and Coot. An increasing flock of wintering Lesser Black-backed Gulls also occurs (460+ in January 1995). The site is a pNHA. of local important for its bird community.

Lee Valley pNHA (000094)- The site occupies five separate sections of the valley of the River Lee, situated immediately to the west of Cork City over 7km from the site. The diverse range of intact semi natural habitats in the Lee Valley makes this a site of regional conservation importance. Land use largely comprises of cattle grazing and hay making in the grasslands. A number of wetland bird species breed here, including Mallard, Heron, Sedge and Grasshopper Warblers and Reed Bunting.

Shournagh Valley pNHA (000103)- The section of the Shournagh Valley is situated 6.5km north of the site and comprises areas of wet woodland, scrub and old estate mixed woodland. This old estate mixed woodland, referred to as Cloghphilip Wood is co dominated by Beech and Oak with Hazel in the clearings and is considered of regional importance.

9.4.3.1. Habitats

The study area largely comprises Buildings and Artificial Surfaces BL3. There are some treelines WL2 and Hedgerows WL1 situated along the site boundaries,which were recently planted to screen the site from surrounding receptors. The surrounding landuse largely comprises agricultural fields including improved agricultural grassland and arable crops.

Semi-natural habitats are defined as habitats that have been modified by human activity from their original state but with vegetation composed of native species, similar in structure to natural types and with native animal communities (JNCC, 1995). A Phase 1 Habitat Survey following the classifications given in Fossitt (2000) was carried out for the study area on in April 2008. Figure 9.2 illustrates potential sensitive habitats/fauna situated along or within close proximity to the pipeline route. Details of each habitat type are given below. Figures given in brackets, such as ‘GA1’ refer to habitat codes given in ‘A Guide to Habitats in Ireland’ (Fossitt, 2000). Habitats recorded within the development site and within close proximity to the development site comprise:

- Treelines WL2;
- Buildings and Artificial Surfaces BL3;
- Hedgerows WL1;
- Improved Agricultural Grassland GA1;
- Arable Crops BC1;
- Amenity Grassland GA2
- Depositing Lowland River FW2; and
- Wet Grassland GS4.

A habitat map of the site and surrounding area is shown on Figure 9.2.

9.4.3.2. Habitats Within the Site

Treelines WL2

A four -metre soil burm fringes the northern and western site boundaries. This soil burm has recently been planted with Griselinia (Raoul raoul). This will act as a visual screen from local residences once mature.

A cluster of conifers, Scots Pine (Pinus sylvestris) with intermittent Laurel trees is situated at the site entrance along the western site boundary. This extends from the site entrance to the Burm.

These treelines are not considered significant or mature enough to act as a biological corridor linking favourable habitats or as offering potential breeding and foraging habitat for birds and bats. The treelines do however act as an important screening measure for the site and are therefore considered as being of Local Value.

Hedgerows WL1

Hedgerows (linear strips of low scrub) are present along the southern boundary of the entrance track to the site. Species recorded amongst these hedgerows include Bramble (Rubus fructicosus agg), Common Nettle (Utricaria), Thistle, Gorse (Ulex europaeus), Blackthorn (Prunus spinosa) Common Ivy (Hedera helix) and scrub.

The hedgerows are of poor quality and are therefore only considered as being of Local Value.

Buildings and Artificial Surfaces BL3

The site largely comprises hard standing areas (300mm layer of compacted hardcore with a 300mm concrete covering), buildings including plant shed, garages and equipment compound (See Figure 9.2 Habitat Map). Fuel is stored in a bunded concrete area with a capacity of 110% of the volume of the largest storage tank.

The buildings on the site do not have the potential to contain bats or roosting sites for bats and therefore considered of No Significant Ecological Value.

9.4.3.3. Surrounding Habitats

Depositing Lowland River FW2

There is a narrow, shallow stream which forms a tributary to the Curaheen River running 100m from the eastern site boundary through a field of improved agricultural grassland with some wet grassland situated in patches closer to the edge of the drainage ditch.

At the time of the survey however the drainage ditch was mostly dry but supported some wet grassland species including Marsh Thistle (Cirsium Palustre), Common Toadflax (Linaria vulgaris) and spreading rushes. The edge of the channel was however dominated by Gorse (Ulex europaeus).

It recognised that the drainage ditch is a tributary of the Curaheen River which is known to have a population of brown trout, sea trout and salmon and serves as a nursery and spawning area for the River Lee (M Mc Partland, South Western Regional Fisheries Board, pers.com Feb, 1999), it is also noted that the drainage ditch would not support fish species. However this drainage ditch is of some local ecological value as it adds diversity to the hedgerows/treelines growing alongside it and together they provide an ecological corridor for wildlife and therefore has been classified as of being of Local Value.

Improved Agricultural Grassland GA1

The majority of the habitats surrounding the site are classified as Improved Agricultural Grassland (GA1). All fields are similar in character with the fields in close proximity to the drainage ditch hosting species more typical of poorly drained fields for example rushes and irises. These fields are separated primarily by hedgerows of scrub, gorse and bramble.

Typical grasses found throughout the fields include; Perennial rye Grass, Meadow grasses, Festuca sp, Timothy and Lolium sp. Among the more frequently occurring agricultural herbs are included Creeping Buttercup, Common Nettle, Spear Thistle, Broad-leaved Docks, Common Ragwort, Herb Robert, White Clover, Silverweed and Plantains.

This habitat is widespread throughout Cork and Ireland and is of No Significant Ecological Value. It has potential however for foraging areas for badgers (See Section below on Fauna).

Arable Crops BC1

One field to the west of the site comprises an arable field. At the time of the survey the field had been recently ploughed and will most likely be used for barley. The edges of this filed hold Bramble, Common Nettle and Gorse and a soil burm along the eastern site boundary.

This habitat is widespread throughout Cork and Ireland and is of No Significant Ecological Value. It has potential however for foraging areas for mammals and birds (See Section below on Fauna).

Wet Grassland GS4

The habitat on the banks of the stream 100 m to the east of the site is classified as Wet Grassland GS 4. Tall herbs such as Spear Thistle and Common Nettle are dominant in some sections, whilst the drainage ditch margins hold clusters of rushes, gorse and other wetland species.

These habitats are classified as being of Local Importance due to their diversity of flora and their importance to protected fauna for foraging and shelter.

Amenity Grassland GA2

There are some areas of grassland in the gardens of houses situated surrounding the site. This grassland is species poor and comprises landscaped grassland. Broadleaved herbs such as Daisy (Bellis perennis), Dandelion (Taraxacum spp), clovers (Trifolium spp)and plantains (Plantago spp) are widespread.

This habitat is species poor, managed and widespread throughout Cork and Ireland and is therefore of No Significant Ecological Value.

Flora

Common plant species recorded during the field survey undertaken on the 17th of April 2008, are detailed in the habitat descriptions above. During the survey, the habitats were also assessed as to their potential suitability for rare plants. The site lies within Ordnance Survey National Grid 10km square W65and is adjacent to grid square W66. No protected plant species were recorded within grid square W65 or W66 from the NPWS rare plant database in April 2008 (accessed April 2008, www.npws.ie).

Fauna

Mammals

Hayden and Harrington (2000) give the distribution of mammal species in Ireland by 20km squares, each of which is composed of four National Grid 10km squares. The subject lands lie within the 20km square comprising National Grid 10km squares, W65 and in the vicinity of W66, W76, and W77. Table 9.1 shows the protected mammal species recorded in this 20km square by Hayden and Harrington (2000).

REV.	AMENDMENT	BY	DATE
A	ISSUE FOR EIS	J.O'D	09/09/2008

Client: Ted O'Donoghue & Sons Waste Disposal Ltd.

GLENSIDE ENVIRONMENTAL SERVICES
24 The Heathers, Glasses Lane, Ballincollig, Co.Cork
Tel: 021 4875183, Mobile: 086 3819387
Email: glenv@eircom.net Web: www.glenside.ie

Project Name: Ted O'Donoghue & Sons Knockpoge, Waterfall, Co. Cork

Drawing Title: LOCAL HABITATS

Scale: N.T.S
Drawn By: J.O'Donoghue
Date: JULY 2008
Drawing No: Figure 9.1
Rev: A

Table 9.1: Protected mammal species recorded from the 20km square within which the proposed development site is located, comprising OS 10km grid squares W65, W66, W76, and W77. Information from Hayden and Harrington (2000).

Species	Indication of population	Level of Protection
Badger	Found throughout Ireland	Wildlife Act, though exceptions are written into the Act for road building
Bank vole	Found throughout the south west of Ireland	The bank vole is not mentioned in either domestic or international conservation legislation in Ireland.
Brown long-eared bat	Found throughout Ireland	Protected through Wildlife (Amendment) Act 2000. Appendix II of the Bern Convention. Bonn Convention. Annex IV of the EU Habitats Directive. Red Data Book 'Internationally Important'.
Whiskered bat	Distributed widely through Ireland	Protected through Wildlife (Amendment) Act 2000. Appendix II of the Bern Convention. Bonn Convention. Annex IV of the EU Habitats Directive. Red Data Book 'Indeterminate'.
Common / soprano pipistrelle*	Found throughout Ireland	Both species* are protected through Wildlife (Amendment) Act 2000; Appendix III of the Bern Convention; Bonn Convention. Habitats Directive Annex IV.
Leisler's Bat	Found throughout Ireland	Protected through Wildlife (Amendment) Annex IV of the Habitats Directive, Appendix II of the Bern Convention
Brown Long-eared Bat	Found throughout Ireland	Protected through Wildlife (Amendment) Annex IV of the Habitats Directive, Appendix II of the Bern Convention
Hedgehog	Found throughout Ireland	Appendix III of the Bern Convention
Irish stoat	Found throughout Ireland.	Appendix III of the Bern Convention
Pygmy shrew	Found throughout Ireland	Appendix III of the Bern Convention
Otter	Found throughout Ireland	Annex II and IV of Habitats Directive Appendix II of the Bern Convention.
Irish (mountain) hare	Found throughout Ireland	Irish Red Data Book 'Internationally important'. Annex V of the Habitats Directive. Appendix III Bern Convention.
Red squirrel	Distributed widely through Ireland	Protected under the Wildlife Act; classified as near threatened in a global context in the 2000 IUCN Red List of Threatened Species

A review of the NPWS rare database in March 2008 showed records of Hedgehog, Otter and Stoat from Grid Square W66 in the townland of Ballyheada from 1990. There was no records for grid square W65.

Badger

Badger activity was not recorded within the site boundary. However there was evidence of badger activity in the surrounding fields in the form of badger paths and latrines. No badger sets were evident during the site walkover of adjoining habitats.

While no badgers or signs of badger activity were found within the site the presence of badger signs in close proximity to the site the study area is classified as being of Local Importance for badgers.

Bats

No evidence of bat activity was recorded during survey however no survey was carried out at night when bats are active. However the trees and buildings situated within the site boundary were not considered suitable to support bats and therefore the site has been classified as being of Local Value due to the potential for roosting sites offered to bats in surrounding hedgerows.

Otters

No evidence of otter activity was noted within or along the banks of the Drainage Ditch in the adjoining field during the field survey and given the distance of the site to the nearest rivers the study area was evaluated as being of Local Value for otters.

Other Mammals

A number of common, unprotected mammal species undoubtedly use the area, these include rabbit, Irish Hare, brown rat, house mouse and wood mouse. In addition suitable habitat exists for Irish Stoat and Pygmy Shrew within the Hedgerows (WL1) and Treelines (WL2). The study area was evaluated as being of Local Value for other mammals.

Birds

Bird species recorded during the survey on the 17th of April 2008 include Blackbird, Swallow, Swift, Hooded Crow, Wren, Robin, Blue Tit, Woodpigeon, Pied Wagtail, Great Tit and Pheasant. Other common species likely to be recorded within the study area include Coal Tit, Long-tailed Tit, Chaffinch and Kestrel. Surrounding agricultural land and farm holdings will also support the resident populations of the above species together with Meadow Pipit, Starling, House Sparrow, Jackdaw, while Redwing, Fieldfare, Snipe, Lapwing, and Golden Plover may use agricultural lands during the winter months. Numbers of the latter will vary from year to year according to factors such as prevailing weather conditions throughout their western European wintering ranges and available food resources.

Table 9.2: Bird Species of High Conservation Concern Recorded in OS 10km Square W65 and W66 by Gibbons et. al. (1993)

Species	Breeding Status within 10km square W65 and W66	Conservation Status
Yellowhammer	Breeding	Annex I Birds Directive and Red List Birdwatch Ireland
Kingfisher	Possibly breeding	Annex I Birds Directive Amber List Birdwatch Ireland

Yellowhammer or Kingfisher were not observed during the field survey undertaken on the 17th of April 2008. While Yellowhammer was recorded breeding in 10 km square W65 there does not appear to be suitable habitat for this species within the study area. In a study by Gillmor, Yellowhammers were found to have disappeared from agricultural areas in which tillage comprises the lowest proportion (<10%) of agricultural land use (see Gibbons et al., 1993). As agricultural land use within the study area is predominantly pastureland Yellowhammer is not likely to be common within the study area.

Kingfisher require relatively shallow and slow moving freshwater, with thriving populations of small fish on which to feed, and vertical banks of fairly soft material where they can excavate their nesting burrows and therefore there is slight potential for them to utilise both rivers. The drainage ditch adjacent to the site is unlikely to hold significant water to support Kingfishers and therefore the study area is evaluated as being of Local Value for bird.

Other Fauna

No special survey methods (e.g. pitfall trapping, moth trapping etc.) were used to sample for invertebrates during the site visit, as this was considered beyond the scope of the assessment.

No reptiles or amphibians were recorded during the site visit. The drainage ditch running parallel to the eastern site boundary may provide potential habitat for the common frog, a species listed in the Irish Red Data Book as having an Internationally Important population in Ireland.

There are records of the Freshwater Pearl Mussel (Margaritifera margaritifera) from 10km square V 65 and V66 (Moorkens, 1999), however the drainage ditch does not contain suitable habitat to support the specie.

The Kerry Slug (Geomalacus maculocus) is also known to occur within the 10km Grid Square V65 and V66, a legally protected species listed on Annex II of the EU Habitats Directive. The Kerry Slug is known to live among rocks in heather mooreland or rough pasture from sea level to 300m. In dry weather it hides in crevices or under carpets of moss and may be difficult to find, even in places where it is common. Most of its habitats are on acid Devonian Sandstone on which it is associated with few other molluscs apart from slugs (Kerney, 1999: Asher et. al., 2000). This species was not found during the site visit in April 2008 and the site does not contain suitable habitat to support the species.

No suitable habitat is present for any of the vertigo snail species (V. geyeri, V. angustior and V.moulinsiana) all of which are listed under Annex I of the EU Habitats Directive. None of these species are known from 10km square V65 or V66 (Kerney, 1999; Asher et. al., 2000)

9.5. Potential Impacts of Proposed Development

9.5.1. Designated Sites

The waste transfer station is not situated within any designated sites or within 3km of any designated sites. There are no cSACs or SPAs within 5km of the site. There is one pNHA within 5km of the site, namely Ballincollig Cave pNHA (001249). Due to nature of operations and the distance from designated sites there is no potential for direct impacts to designated sites.

Similarly due to the distance from designated sites, the nature of operations and provided the limits of the license in relation to groundwater and surface water are adhered to there are is no potential for indirect impacts to watercourses of designated sites.

Therefore impacts to designated sites is expected to be No Change.

9.5.1.1. Habitats

At present the majority of the site comprises BL3 Artificial Buildings and Surfaces, with the exception of recently planted treelines along the northern and western boundary. There will be no impact to the Treelines as all treelines will be retained. Therefore impacts to treelines are predicted as No Change.

With the current management practices employed at the site, it can be predicted that there will be little overall change and that biodiversity levels will remain relatively low for the foreseeable future.

There will be no loss of habitats outside the site boundary.

Potential impacts to water are discussed in **Chapter 6**.

9.5.1.2. Flora and Fauna

There was no evidence of protected mammals on site therefore impacts of the proposed works on terrestrial mammals is considered to have No Change to mammals.

Impacts on birds are generally associated with land take, loss of trees and habitat fragmentation of their breeding, feeding and nesting habitat. There will be no loss of any such habitats as no additional land is required.

In addition no highly suitable breeding habitat is present within the study area for any species of high conservation concern and no trees will be lost as part of the proposed scope of works. Therefore the proposed development is considered to have a slight indirect impact on birds.

No impacts are predicted to bats from the proposed development as no trees will be lost and no buildings will be demolished.

No protected flora species were recorded on site during the survey in April 2008 and provided there will be no direct loss of any habitats, therefore the overall impact to flora is considered as No Change.

9.5.1.3. Other Potential Impacts

There is the potential for indirect impacts to surface waters of the Curaheen river through runoff to the stream to the east of the site which is connected to the river. However the main channel of the Curaheen River is situated over 3km from the site. In addition wash water and domestic effluent generated from the offices and toilets pass through a proprietary unit before passing onto percolation.

Again impacts to surface water is discussed in **Chapter 6**.

9.6. Mitigation Measures and Recommendations

The following mitigation measures are proposed to prevent any potential impacts to the environment.

9.6.1. Avoidance of Hydrocarbon Pollution

Fuel tanks with bunding should be maintained and used on the site. Diesel fuel required for the operation of the various plant and processing equipment on-site should be stored in tanks in a bunded area. No pipes should pass through the bund wall, which will further reduce the potential for leakage.

Any construction machinery should be maintained in good operational order while on-site, minimising the risk of any pollution incidences arising from leaking vehicles or machinery, and/or emissions to the atmosphere.

No mechanical repairs should take place outside paved areas.

Chemicals should be stored on spill pallets or in chemical storage units.

An emergency response kit should be kept on site to prevent any leaks of petroleum based products entering watercourses.

9.6.2. Replanting

All trees situated along the boundaries of the site should be retained and should not be damaged during future operations of the waste transfer station. It is recommended that tree species similar to those planted along the northern and western site boundary are sown along the southern and eastern site boundary to screen off the site and prevent noise and dust emissions.

It is also recommended that prior to decommissioning that the site is subject to a restoration plan in conjunction with Cork County Council where the main aim should be to seek to re-establish natural flora and fauna as widely as possible.

Avoidance of disturbance to habitats outside the site. It is recommended that the boundaries of the WTS do not extend beyond its exiting limits to avoid impacts to adjoining habitats.

9.6.3. Surface Water

Specific mitigation measures to protect surface water are detailed in Chapter 6.

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10. LANDSCAPE & VISUAL IMPACT

10.1. Site Description/Landscape Character

The site is located in rural hinterland south of Cork city. The site is relatively elevated, lying on one of the westerly-running line of hills that frame the Lee valley. The site itself is relatively flat and at an elevation of about 170mOD.

There are no streams within the site area. A small stream forming part of the headwaters of the Curraheen River flows approximately 150 m east of the site. Land use within the application area is generally agricultural.

The site is situated within an agricultural area with the nearest residential area located approximately 150m west of the facility. Additional screening is afforded by an established berm on the western boundary.

The area in general is dominated by a general increase in elevation from townlands Ravankeel (140m) 1km south, Oldabbey (130m) 1.5km east, and from Ballinphellic (140m) 1km west of the site. Surface water drainage in the area appears to be dominated by a minor tributary of the Curraheen River.

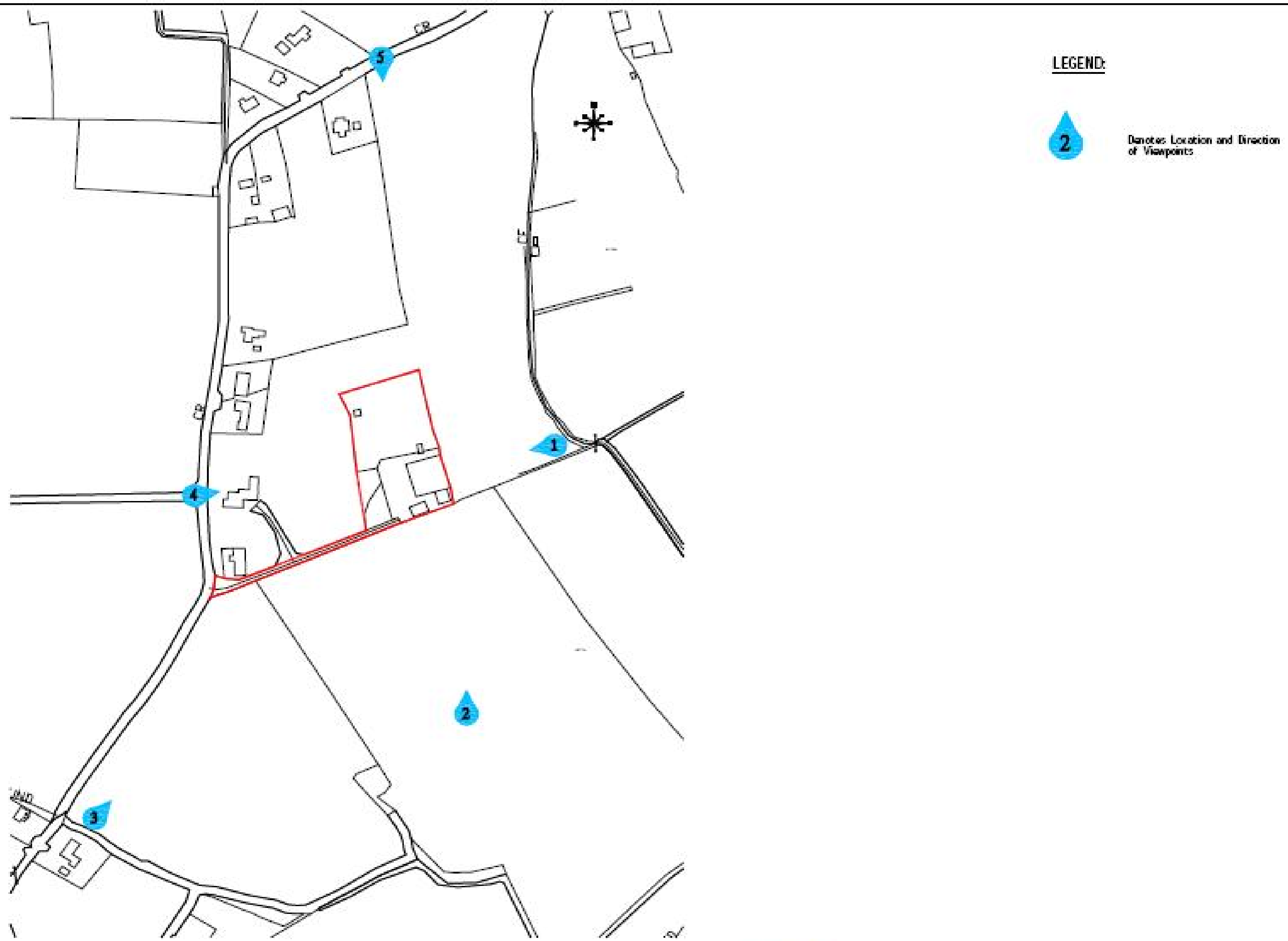
10.1.1. Significance Assessment Criteria

The significance criteria are based on the impact levels given the EPA Guidelines on the information to be contained in Environmental Impact Statements (March 2002).

Table 11.1: Impact Significance Criteria

Level of Impact	**Definition**
Imperceptible Impact	An impact capable of measurement but without noticeable consequences
Slight Impact	An impact which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate Impact	An impact that alters the character of the environment in a manner that is consistent with the existing and emerging trends
Significant Impact	An impact which, by its character, magnitude, duration or intensity alters a sensitive aspects if the environment
Profound Impact	An impact which obliterates sensitive characteristics

A number of photographs were taken to indicate the location of the facility at from local areas. Figure 10.1 details the location of viewpoints and photographs are also shown below.



REV.	AMENDMENT	BY	DATE
A	ISSUE FOR EIS	J.O'D	18/09/2008

Client: Ted O'Donoghue & Sons Waste Disposal Ltd.

Project Name: Ted O'Donoghue & Sons Knockpoge, Waterfall, Co. Cork

Drawing Title: VIEWPOINT LOCATIONS

Scale: N.T.S

Drawn By: J.O'Donoghue

Date: JULY 2008

Drawing No: Figure 10.1

Rev: A

Viewpoint 1: View from South of site

Viewpoint 2:

Viewpoint 3:

Viewpoint 4:

Viewpoint 5:

10.2. Impacts

It is considered that the site does not significantly impact visually on residential areas to the west and north of the site. The site boundaries of the facility are made up continue fencing with hedgerow and shrubs.

It is considered that no significant amenity value may be attached to the existing site or surrounding environs (site does not infringe on Views and Prospects to be Protected, Areas of High Natural Beauty and High Amenity or Areas of Scientific Interest, as detailed and illustrated in the County Development Plan).

11. IMPACT ON HUMAN BEINGS

11.1. Introduction

Human beings are one of the most important elements of the environment to be considered. One of the principal concerns in the execution of a development is that the local population experience no diminution in the quality of life as a result of the development on either a temporary or permanent basis. All the effects of a development on the environment impinge upon human beings. Any significant impact on the status of humans that may be potentially caused by a development proposal must, therefore, be comprehensively addressed. Air quality, water quality, noise and landscape impact directly while flora, fauna and road traffic impact more indirectly.

This chapter of the Environmental Impact Statement deals with the potential impact of the continued operation of the Facility on Human Beings. This chapter is divided into:

- **Social & Economic Activity** including residential, recreational and commercial properties

- **Nuisance Control** including pests, litter, odours, dust, noise, traffic and impacts on health and safety.

Glenside Environmental carried out a study of the potential impacts associated with the proposed increase in waste tonnages on social and economic activity in the area. The study identifies the likely significant impacts to affect the social and economic functioning of the study area as a result of the proposed development Impacts are assessed and mitigation measures proposed. The social and economic aspects of the study have been appraised with particular attention given at a local level, but also on regional and sub-regional levels.

11.1.1. Methodology

The assessment of the socio-economic impact of the proposed development was carried out broadly in accordance with the EPA publications giving *Advice Notes on Current Practice* and *Guidelines on Information to be Contained in Environmental Impact Statements (EIS)* (2002). Government strategies relating to land use and economic development for the area were consulted, including the Cork County Development Plan. Demographic characteristics of the area were ascertained from the results of the 2006 Census of Population published by the Central Statistics Office.

11.2. Description of the Existing Environment

In this section, the existing (receiving) environment is described at a regional, sub regional and local level. The study area encompasses a radius of 0.5km of the proposed development. The sub regional describes the existing environment between 0.5km and 3km of the development.

11.2.1. Regional

According to the Waste Management Plan for the Cork Region (2004-2009) there would be 1.27 million tonnes of waste arising in the Region in 2003. Approximately 39% of this waste is of construction/demolition origin, some 43% is industrial in origin while household and commercial sectors each contribute about 17% of the waste stream handled. To meet EU and national legislation, alternatives to landfill must be found. The proposed development will sort, bale and recycle packaging and other commercial waste and thereby divert waste material away from landfills.

11.2.2. Sub-Regional

All residential dwellings within 500metres of the waste management site

Fig 11.1 Ref. No.	Residence name	Distance from site (metres)
1	O'Donoghue	100
2	McCarthy	103
3	O'Connor	88
4	Ford	188
5	Rodgers	355
6	Quaid	366
7	Cussen	345
8	Walsh	411
9	Downey	230
10	Murphy (Senior)	263
11	Murphy (Esquire)	288
12	Conway	300
13	O' Mahoney	477
14	O'Donoghue	100

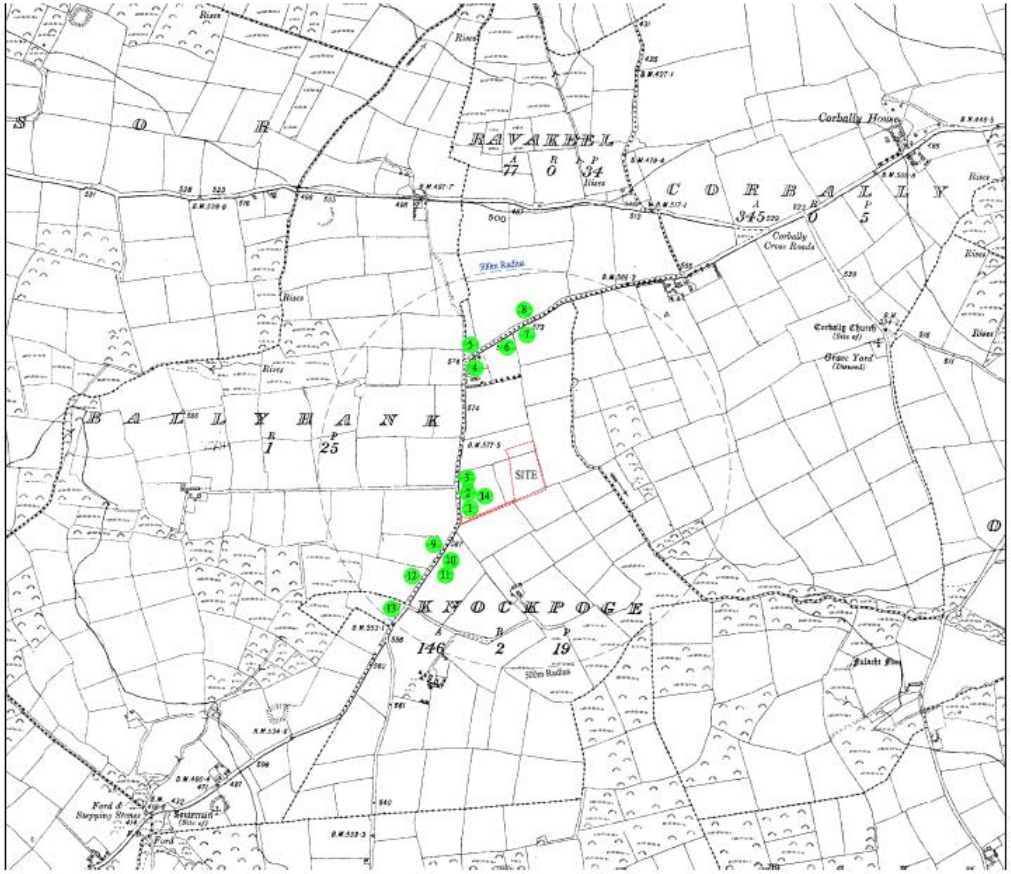
Recreational/Community Facilities

The immediate area surrounding Ted O' Donoghue and Sons Ltd Waste Disposal site is not used for recreation or amenity. There are no sensitive buildings e.g. school, hospitals etc in the immediate vicinity of the site; the closest school is a national school located approx. 3km from the site.

Effective site management should ensure that the waste transfer and recycling facility does not have a negative impact on the local residents.

Current traffic movements to and from the site do not have a negative impact on the traffic volumes and traffic impacts in the area. The vast majority of vehicles entering and exiting the Ted O'Donoghue and Sons Ltd Waste Disposal site are in the direction of Cork City to the north east. The waste management site also accepts waste from other operators who mostly travel to the site from Cork City direction.

Dwelling Owners	House No.
O'Donoghue	1
Mc Carthy	2
O'Connor	3
Ford	4
Rodgers	5
Quaid	6
Cussen	7
Walsh	8
Downey	9
Murphy	10
Murphy	11
Conway	12
O'Mahoney	13
O'Donoghue	14



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Client: Ted O'Donoghue & Sons Waste Disposal Ltd.

GLENSIDE ENVIRONMENTAL SERVICES
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Project Name: Ted O'Donoghue & Sons Knockpoge, Waterfall, Co. Cork

Drawing Title: Private Dwellings within 500m of the Waste Management Site

Scale: N.T.S
Drawn By: J.O'Donoghue
Date: JULY 2008
Drawing No: Figure 11.1
Rev: A

Population

According to the Central Statistics Office information, 324,767 people were living in Cork County (excluding Cork City) in 2002 (293,323 in 1996 and 283,116 in 1991). Interestingly, the population of the County of Cork grew by 10.7% from 1996 to 2002, whereas the population of Cork City fell by 3.2% over the same period giving an overall increase of 6.5% in the Cork Region.

The Cork County Development Plan 2003 predicts an overall growth in population over the coming years which by 2011 is expected to grow to approximately 365,300. During the same time, the number of households is expected to grow to 132,550. This projected growth, should it take place, is planned to take place based on the Cork Area Strategic Plan and the North and West Cork Strategic Plan.

Table 11.1: Population of Cork County 2002 & 2006 Census

Area	2002	2006	% Change
Cork City	**123,062**	**119,416**	**-3%**
Cork County	**321,767**	**361,877**	**+11%**

11.2.3. Transportation Network

The main access road to the site from the City is from the N25 South Link Road accessed from the Bishopstown and passing through Waterfall, while from the Ballincollig area access is via Maglin Cross and Jimmy's Cross Roads. A detailed description of any traffic imp[acts is shown in Section 5 and the full traffic report is contained in Volume 3, Appendix 5.

11.2.4. Local

A description of the existing environment within a radius of 0.5km of the proposed development is described under the headings:

- Land Use
- Transportation
- Population
- Community/Amenity Facilities
- Economic Functions

Land Use

The local land use in the area of the facility is primarily for agricultural purposes.

Current Traffic

According to a recent traffic assessment undertaken in the area of the proposed development, local traffic has an AM peak at 07:30 to 09:30 of 39 vehicles and 45 in the PM peak of and 16:30 to 18:30.

Community/Amenity Facilities

Community Facilities

There are no medical centres or churches within 500m of the proposed development. Ballinora National School is located 4km from the site.

Amenities

A local soccer playing pitch is located approximately 500m from the site entrance. The pitch is mainly in use during weekends and some evenings.

11.3. Potential Impacts

The potential impacts of the operation and construction of the proposed development are presented in this section.

11.3.1. Operational Impact

This section addresses the regional, sub-regional and local socio-economic impacts of the proposed development when it is operational. The impacts are examined under the headings:

- Regional impact;
- Sub-Regional impact;
- Local impact on communities;
- Impact on local community/amenity facilities;
- Impact on the local economy;
- Local impact on road users;
- Local impact on traffic volumes;

Regional Level

At a regional level, the proposed development will have a beneficial impact on industrial and commercial facilities in the Cork Region by recycling waste that previously would have been sent to the landfill.

Sub-Regional Level

The existing Waste Transfer Facility at Knockpoge employs approximately 22 people. It is expected that the continued operation will create employment on a sub regional level by employing an additional 5-10 people on a phased basis as the business develops.

Local Level

Local impacts particularly associated with nuisance of noise, dust, pests, health and safety are discussed under the sections 11.6 to 11.12

Communities

The values of houses in the vicinity are unlikely to be impacted as a result of the continued development and increased waste acceptance tonnages.

Community/Amenity Facilities

Impacts of the proposed development on Community and Amenity facilities within 500m of the site are discussed below.

Drainage from the hardstanding areas pass through an oil interceptor and flow to a land drain which meets the Curraheen River. Continued monitoring of the site run-off drainage and the Curraheen River will ensure

No significant impacts are anticipated.

Changes in Traffic Patterns

The traffic generated by the proposed development and the directions of approach and departure are described in more detail in **Chapter 5 Traffic Impact Assessment**.

Cyclists and Pedestrians

Traffic flow will not increase to a level that will significantly reduce journey amenity for pedestrians or cyclists.

11.4. Residual Impacts

The reduction of waste going to landfill brought about by the completion of the proposed development will have a positive impact at national, regional, sub-regional and local level. With the implementation of the mitigation measures suggested in this report, the socio-economic advantages of the proposed facility will outnumber the disadvantages. No residual impacts on socio-economic functioning are anticipated once all suggested mitigation measures are put in place.

11.5. Nuisance Control

11.5.1. Introduction

This section of the Environmental Impact Statement also deals with potential impacts on human beings examining the likely impacts of the proposed new development associated with nuisance. The EPA waste licence covers issues such as pests, litter, odours, dust, noise, traffic and health and safety. A waste licence is a single integrated licence, which deals with emissions to all environmental media, in addition to the environmental management of the facility. Ted O' Donoghue & Sons will be submitting a separate application to the EPA for a waste licence, which will deal with the above listed environmental issues in more detail, while the following section of the EIS will deal with these issues in more general terms.

11.5.2. Pests

Pests, which are normally associated with more disposal sites and landfills include rodents, scavenging birds and insects. However, specific attention should be given at the design and operation stages to reduce the potential nuisance of pests. The Waste Licence will have stipulations and will require programmes to prevent with the nuisance of pests.

11.5.3. Mitigation Measures

The following mitigation measures should be taken into account:

1. The removal all waste delivered to the proposed facility by the end of the each day.
2. Washing the tipping floor and picking up litter on a daily basis.
3. Ensuring all operations, including waste handing, is performed inside the enclosed facility.
4. Installing bird-deterrent measures including fixing wire mess to horizontal surfaces where birds can gather.
5. Ensuring all vehicles, especially refuse collection vehicles to and from the facility are covered.
6. Eliminating or screening any cracks or openings to prevent entry of pests.

7. Routinely visually inspecting the facility for potential pest habitats, and taking corrective action when needed.
8. Hiring a professional licensed pest control specialists with expertise in controlling specific pest populations, when needed, and using rodent baits/ poison and insect sprays.
9. As the site will be unsuitable for rodents and given the mitigation measures mentioned above, it is unlikely that this will be an issue of likely concern.

11.6. Litter

Windblown litter either from the facility, or from vehicles travelling to and from the site, may become unpleasant and classified as a nuisance. Dry, light waste material can be blown from trucks or from the tipping area of the facility. Waste is baled, wrapped securely and placed in enclosed articulated lorries before exiting the facility, which will help reduce the impact of litter.

11.6.1. Mitigation Measures

Implementation of some of the following control measures will minimise the potential of litter problems:

- Carrying out all waste handing and processing in the enclosed facility only.
- Ensuring that all incoming and outgoing vehicles are covered.
- Collection of litter on site, around the perimeter, on immediately adjacent properties and on approaching routes.
- Regular tipping floor cleaning and practicing good housekeeping measures will minimise the amount of loose waste blown outside.
- The EPA Waste Licence sets down conditions for litter control and it is a requirement of the licence that these conditions are adhered to. It is envisaged that there will be no significant impact associated with litter from the continued operation of the facility with increased waste tonnages.

11.7. Noise

Elevated noise levels associated with day-to-day operations of the facility, especially due to vehicles and machinery in the unloading area would be expected. Vehicles to and from the proposed development will also be a source of noise (see also **Chapter 8**).

11.7.1. Mitigation Measures

- Some of the following can be used to combat the effects of noise:
- All operations will be carried out indoors.
- All equipment and vehicles to be regularly cleaned and inspected.
- All noise generating process will be carried out in an insulated area.
- Locating administration area between noise source and the local community to minimise noise levels experienced by owners of neighbouring sensitive residential properties.
- Placing doors and opening in the proposed building away from sensitive receptors.
- Compliance with the EPA waste licence will ensure that noise restrictions are enforced and that impact of noise is reduced.

11.8. Dust

Dry periods of weather can lead to the generation of dust. Dust is expected to be generated during the construction phase of the proposed development. During the operation phase waste deliveries will mainly consist of dry solid material, packaging etc. However the facility will also accept quantities of Construction and Demolition waste which has the potential to generate dust.

11.8.1. Mitigation Measures

The following measures are currently used to mitigate against the impact of dust:

- Cleaning facility roads regularly with street-sweeping equipment.
- Washing waste delivery vehicles before they leave the proposed facility to remove dust-generating dirt.
- Ensuring all waste is removed at end of each day and washing of tipping area to minimise the impact of odour.
- Organic material will be separated from the mixed waste and then tipped into an enclosed lorry in an enclosed section of the facility. Automated doors and curtain skin metal to separate processes in the proposed facility will prevent dust escaping to the outside.

11.9. Traffic

The following measures can be used to mitigate against the impact of traffic.

Future improvements of roads may facilitate ease of traffic congestion.

- Ensuring the free flow of traffic into and out of the facility by widening the entrance road,
- Separating entrances and exits to the site, one-way traffic flow, clear sign posting and
- markings.

- Ensuring that there are adequate parking spaces on the site of the proposed development, when the tipping area is full, to prevent vehicles queuing on access roads causing congestion and safety concerns.
- Positioning buildings and roads to reduce intersection, the need to reverse vehicles and sharp turns.
- Ensuring that the fleet is flexible to respond to the requirements of the local traffic network.
- Maintain a clean and well serviced fleet.

11.10. Odours

The potential for odour emissions are currently minimised by a series of design features, work practices and mitigation measures. Each of these measures is outlined briefly below:

- All waste handling operations are currently housed indoor.
- Site layout has been designed to ensure any outdoor operations are as far as possible from the nearest sensitive receptors.
- Regular cleaning of all work surfaces and floors.
- Residence time for waste, including non-odorous is kept to a minimum before transfer.
- As all waste process operations will be carried out indoors and given that the nearest sensitive receptor identified approximately 150m away from the site it is not anticipated that there will be a significant impact as a result of fugitive odour emissions.

11.11. Health & Safety

Health and safety issues will be covered by the Health and Safety plan for the facility.

11.12. Residual Impacts

No residual impacts on socio-economic functioning are anticipated once all suggested mitigation measures are put in place.

References

USEPA (2002) Waste transfer Stations: A manual for decision-making .
EPA (1995) Advice Notes on Current Practice in the Preparation of Environmental Impact Statements.
EPA (2002) Guidelines on Information to be contained in Environmental Impact Statements.
Waste Management Plan for the Cork Region.
Cork County Development Plan.

12. ARCHAEOLOGY & CULTURAL HERITAGE

12.1. Introduction

Glenside Environmental carried out a desktop study of the site and immediate area in June 2003. The assessment was also complimented by a site visit and walkover visual inspection in June 2003. The walkover of the site of the existing facility sought to inspect areas of cultural heritage potential e.g. water-bodies, land features etc. The Heritage Service and the Record of Monuments and Places (RMP) were consulted.

12.2. Site Description

Almost the entire existing surface of the site is covered in concrete. There are no recorded structures within the boundary of the existing site or on existing adjacent sites.

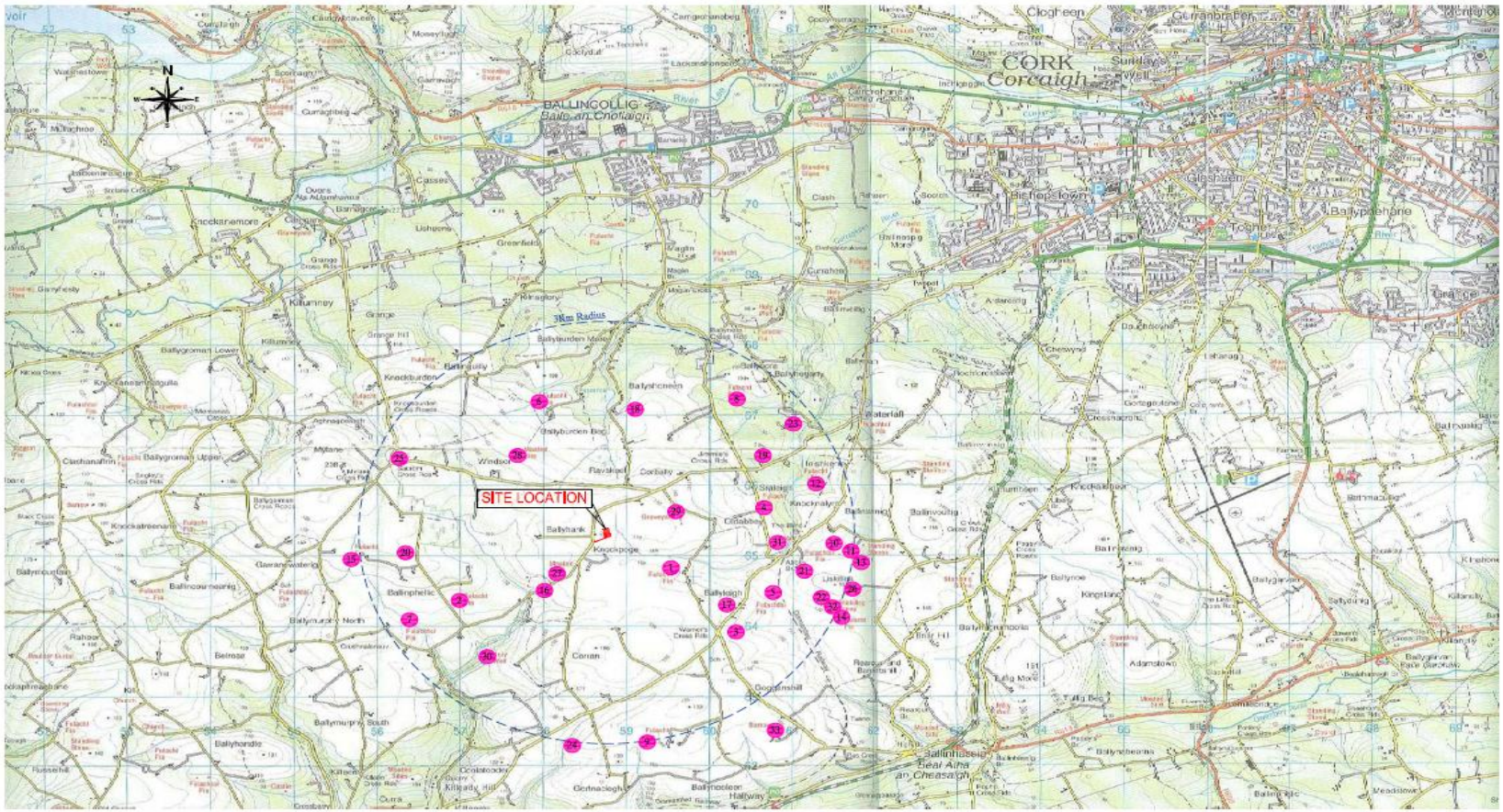
Figure 12.1 and Table 12.1 shows all the recorded sites and monuments in the vicinity of the proposed development. It can be seen that there are no recorded sites and monuments within 3 km of the existing site at Knockpoge, Waterfall.

12.3. Potential Impacts

As no recorded items of archaeology or cultural heritage have been recorded on the site or in the immediate vicinity it is not anticipated that any significant impacts will occur during the construction or operation of the proposed development. Areas that traditionally have archaeology potential such as bogs, drains/streams and larger watercourses are absent from the site of the proposed development. Given the location and nature of the site, and the fact that very little excavation is envisaged apart from laying of drains and services and in the area of the new waste building, it is not envisaged that the proposed development will impact on items of historical, archaeological or architectural significance or interest.

12.4. Mitigation Measures

No mitigation measures are required for the continued operation of the facility.



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Client: Ted O'Donoghue & Sons Waste Disposal Ltd.

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Project Name: Ted O'Donoghue & Sons
Knockpoge, Waterfall, Co. Cork

Drawing Title: Features of Archaeological Significance Within 3Km Radius of Site.

Scale: N.T.S
Drawn By: J.O'Donoghue
Date: JULY 2008
Drawing No: Figure 12.1
Rev: A

Table 12.1: Structures of Archaeological Interest within 3km of Ted O' Donoghue and Sons Ltd. Site

Structure	Location	Approx. Distance from Ted O' Donoghue and Sons Ltd.	Map Ref. No.
Fulacht Fia	596 648	0.85km	1
Fulacht Fia	570 644	1.85km	2
Fulacht Fia	604 639	1.9km	3
Fulacht Fia	606 657	2.05km	4
Fulacht Fia	607 645	2.1km	5
Fulacht Fia	579 673	2.35km	6
Fulacht Fia	564 641	2.55km	7
Fulacht Fia	604 674	2.7km	8
Fulacht Fia	593 624	2.7km	9
Fulacht Fia	614 652	2.7km	10
Fulacht Fia	615 651	2.75km	11
Fulacht Fia	614 660	2.75km	12
Fulacht Fia	616 650	2.85km	13
Fulacht Fia	616 642	3.0km	14
Fulacht Fia	557 649	3.05km	15
Ring Fort	580 645	0.9km	16
Ring Fort	603 643	1.65km	17
Ring Fort	591 671	2.1km	18
Ring Fort	606 665	2.35km	19
Ring Fort	564 651	2.4km	20
Ring Fort	612 648	<2.5km	21
Ring Fort	614 644	2.7km	22
Ring Fort	609 668	2.75km	23
Ring Fort	584 623	2.75km	24
Ring Fort	563 664	2.8km	25
Ring Fort	617 645	3.05km	26
Moated Site	582 647	0.65km	27
Moated Site	577 664	1.75km	28
Graveyard	596 656	1.05km	29
Holy Well	573 636	2.05km	30
Friary	608 653	2.1km	31
Standing Stone	615 643	2.85km	32
Barrow	608 625	3.25km	33

13. NATURAL RESOURCES

13.1. Introduction

This section of the EIS deals with the impact of the proposed development on Natural Resources. Natural Resources include excavatable materials as well as considering energy requirements for the new development.

13.2. Energy Usage

It is estimated that 10,000 kilowatts of electricity are currently required to provide energy for the facility.

13.3. Water Demand and Usage

Water supply to the site is currently supplied from a groundwater well on-site.

Expected demand was computed based on the following:-

- 20 employees with a per capita consumption of 150l/h/d
- Truck washing – 15m³/d (assuming no rainwater)
- Miscellaneous usage – 15m³/d
- It is estimated that daily demand will be between $35m^3$ and $45m^3$ of water per day.

13.4. Rainwater Collection and Reuse

Rainwater is currently collected from the main transfer building and stored in a rainwater collection vessel. This water is currently used for washing purposes on site.

13.5. Vehicle Fuels

All waste collection vehicles operated by the facility are run on bio-diesel.

13.6. Residual Impacts

As a result of the features listed above and given the anticipated energy consumption requirements, it is not expected that the increase in waste tonnages atthe facility will have a significant negative impact on natural resources. The recovery and recycling of materials and subsequent diversion from landfill compensates for the consumption of energy for processing, lighting and heating purposes.

14. OTHER IMPACTS AND INTERACTIONS

14.1. INTRODUCTION

In addition to the assessment of impacts on human beings, flora, fauna, soils, the landscape, water quality, air quality, climate, material assets, including architecture, archaeology and cultural heritage, the inter-relationship between these factors was also taken into account as part of the scoping and assessment process. Where the potential exists for interaction between two or more environmental topics the relevant specialists have taken the potential interactions into account when making their assessment. **Table 14.1** below shows a matrix of significant interactions likely to occur as a result of the proposed increase in waste tonnages at the Ted O' Donoghue & Sons facility. The level of interaction likely between the various topics will greatly vary but the table allows the interactions to be recognised and further developed where necessary.

14.2. SIGNIFICANCE OF PREDICTED IMPACTS

Table 14.2 summarises the environmental impacts, outlines measures that will be used in their amelioration and highlights the significance of residual effects i.e. the impact remaining after mitigation. The structure used for assessing the significance of effects of the development is based on specialist sub-consultants reports and the following criterion taken from the EPA "*Draft Guidelines on the information to be contained in Environmental Impact Statements*" (EPA 2002).

Table 14.1: EPA Classification Criteria

Impact	Description
Negative	A change which reduces the quality of the environment
Positive	A change which improves the quality of the environment
Neutral	A change which does not affect the quality of the environment
Temporary	Impact lasting for one year or less
Short-term	Impact lasting one to seven years
Medium-term	Impact lasting seven to fifteen years
Long-term	Impact lasting fifteen to sixty years
Permanent	Impact lasting over sixty years
Slight	An impact which causes changes in the character of the environment which are not significant or profound
Significant	An impact which by its magnitude, duration or intensity alters an important aspect of the environment

Table 14.2a: Summary of Potential Environmental Effects

CATEGORY	POTENTIAL ENVIRONMENTAL ISSUES/EFFECTS	POTENTIAL IMPACT	DURATION	MITIGATION	RESIDUAL IMPACT
Noise	Operational activities	Negative	Long term	Regular monitoring. Restriction on working hours. Use of plant with inherent potential for generation of noise and/or vibration. Sitting of noisy/vibratory plant as far away from sensitive properties as permitted by site constraints. Major processing operations to be carried out indoors. Regular noise monitoring.	Neutral
Air Quality	Dust & Aerosol emissions	Negative	Medium / long term	Regular cleaning & maintenance of site roads. Regular watering of dry/dusty roads. Speed restrictions. Bi-annual dust monitoring.	Slight
Flora & Fauna	Contamination of watercourses/ Loss of habitat	Negative	Short-term	Use of oil interceptor. Collection of rainwater from transfer building roof Immediate collection of any on-site spillages.	Neutral
	Increase in opportunistic species of flora & fauna Overall ecological value of site	Negative Positive	Short-term Short-term	Vermin control, Bird control, and Weed Spraying.	No impact

Table 14.2a: Summary of Potential Environmental Effects (cont'd)

CATEGORY	POTENTIAL ENVIRONMENTAL ISSUES/EFFECTS	POTENTIAL IMPACT	DURATION	MITIGATION	RESIDUAL IMPACT
Freshwater/ Groundwater	Risk of Contamination	Negative	Short-term	Handling of any wet waste on impermeable surfaces only. Good vehicle fleet management. Use of interceptor for surface water drainage. Monthly monitoring of surface water discharge.	Neutral
LANDSCAPE	Visual Impact on local Community	Positive	Short-term	No change in existing landscape	No impact
ARCHAEOLOGY/ CULTURAL HERITAGE	Disturbance of Archaeological Finds	Negative	Long-term	No mitigation required.	No impact
CLIMATE	Contribution of greenhouse gases	Negative	Long-term		No Impact
COMMUNITY	Fire Hazards	Negative	Short term	Inspection of all materials	No impact
	Spread of Litter	Negative	Short term	Covering of vehicles with suitable covers. Processing of materials carried out indoors. High compacting of materials. Daily cleaning of working area.	No impact
	Scavenging birds	Negative	Short term	The working area will be indoors and fully covered. Regular cleaning and good housekeeping measures to ensure a well kept and clean site	No Impact
	Vermin & Pest infection	Negative	Medium term	The working area will be indoors and fully enclosed. Regular cleaning of working and tipping areas. Good housekeeping practices. Daily removal of organic wastes or waste for disposal elsewhere. Installing bird deterrent measures.	No impact

Table 14.2a: Summary of Potential Environmental Effects (cont'd)

CATEGORY	POTENTIAL ENVIRONMENTAL ISSUES/EFFECTS	POTENTIAL IMPACT	DURATION	MITIGATION	RESIDUAL IMPACT
HUMAN BEINGS COMMUNITY (Cont)	Odours	Negative	Long term	All processing of waste material to be carried out indoors. 24 hour turnover of waste indoors. Regular cleaning of work surfaces and floors. Minimum residence time for waste material prior to transfer off site.	No Impact
	The creation of employment Provision of a recovery facility and recycling facility for public use.	Positive Positive	Medium term Medium term	 The facility will benefit the environment generally by diverting materials away from landfill.	Positive Positive
TRAFFIC	Increase in traffic	Negative	Long term	Maintain low speeds on local roads Courteous to other drivers.	Slight
ENERGY& NATURAL RESOURCES	Use of electricity /water consumption	Negative	Short term	Use of collection and water reuse system will help reduce the water requirement.Use of bio-fuels will result in reduced CO2 emissions.	Positive

14.3. INTERACTION OF PREDICTED RESIDUAL IMPACTS

It is necessary that the interactions between environmental factors in this report be considered to ensure that potential interactive affects of the project can be identified. Interactions are usually very complex. A change to any one of the environmental factors could affect one or all of the other related factors. The potential interactions between identified socio/environmental issues/effects and the proposed development are assessed to determine potential effects. Table 14.3 below illustrates the direct impacts of the development that may result in relevant interactions between receptors associated with the facility. A receptor is defined as a factor of the natural or manmade environment such as water, air or a plant that is potentially affected by an impact. Potential interactions identified mainly relate to a reduction in residential quality. Therefore, human beings are the impacted receptor. However, as suitable mitigation measures will eliminated/reduce the possibility of potential effects, the above interactions will be avoided.

As the potential negative interactions between factors associated with the increase in waste tonnages will be mitigated appropriately, it is anticipated the continued operation with increased volume waste tonnages will result in a net slight positive impact to the local environment.

Table 14.3: Summary of Potential Interactions

RECEPTOR	POTENTIAL EFFECT	IMPACTED RECEPTOR	POTENTIAL IMPACT
NATURAL ENVIRONMENT			
Water Quality	Contamination of waters	Flora & Fauna	Loss of habitat
		Human Beings	Reduced recreational amenity & residential quality
HUMAN BEINGS			
Flora & Fauna	Improvement in ecological value of the site once fully landscaped		
Community	Job creation, facility for public use, increased recycling rates.	Human Beings	Positive financial impact on local economy due to creation of employment
Traffic	Increase in traffic	Human Beings	Reduced recreational amenity & residential quality
Air	Increase in dust/ aerosol/ emissions	Human Beings	Reduced recreational amenity & residential quality

15. CONCLUSION

This EIS has examined in detail the impacts, both positive and negative, that the proposed increase in waste tonnages will have on the environment. A number of potential impacts on both the natural and socio-economic environments have been identified and where necessary suitable mitigation measures to reduce negative impacts have been recommended. The principal conclusions and recommendations presented within this Environmental Impact Statement for the proposed development are summarised below.

Community Effects

The continued proper management of the facility and the implementation of suitable mitigation measures to control vermin, odours, litter, etc. will greatly reduce the level of concern for the population in the surrounding area of the development. It is anticipated that the increase in waste tonnages will give rise to the creation of additional jobs in the area. These are likely to include technical, administrative and non-skilled workers.

Traffic

It is clear from the analysis that the proposed increase in waste tonnages can be introduced into the area will little disruption to the existing levels of traffic. No queues are expected at local junctions.

Air Quality

The increase in traffic volumes as a result of the proposed development is not expected to have any adverse impact on air quality or climate. Once traffic speed is not significantly altered then it is not anticipated that there will be residual impact.

Noise & Vibration

Baseline noise monitoring carried out shows a typical background noise environment associated with a rural environment with intermittent local traffic volumes and associated transportation infrastructure. The impact of the proposed development on the existing noise environment in the area will be negligible/insignificant. No vibration impacts expected from continued use of facility.

Land-use

Proper management and operational practices in accordance with strict EPA Guidelines will ensure that the proposed increase in waste tonnages will have no adverse impact on the surrounding lands.

Water Quality

Mitigation measures will minimise negative impacts to surface water and groundwater. The capture of rainwater for reuse will have a beneficial impact on surface waters. An oil interceptor is already in place prior to discharge of surface water to land drain..

Terrestrial Flora & Fauna

Due to the hard standing nature and ecological value of the existing site no special measures are required on ecological grounds.

Archaeology

No special measures are required on archaeological, architectural or cultural heritage grounds.

Landscape

The existing facility is well shielded from residential areas to the west. The berm and tree lline along the western boundary provides cover to the residential areas to the west.

Energy & Natural Resources

Containment of roof water for further use in the facility and the use of bio-deisel in site vehicles has a positive impact on energy saving.

15.1. OVERALL CONCLUSION

Having regard to National Waste Policies, the Cork City and County Waste Management Plan, the Cork County Development Plan and the details outlined within this EIS, it can be concluded that the proposal to increase the tonnages to 60,000 tonnes by year 2015 will not have an adverse impact on the environment.

In terms of impacting on the local community, potential effects have been examined and mitigation measures advised to eliminate any potential serious environmental risks. Once regard is given to the EPA's Waste Licence for the proposed facility, negative environmental impacts will be minimised.

The facility has reclaimed 68% of the waste fraction received at the facility in 2007 from a total input of 29,991 tonnes. This reclaimed volume of 20,393 tonnes would have otherwise have ended up being disposed in landfill.

The ultimate result of the operation of this proposed development would be the diversion of waste material from landfill, which is no longer a viable and sustainable option, while helping Cork City and County achieve its recycling targets. The use of the facility for use by private vehicles will further increase recycling rates in the locality.