ENVIRONMENTAL IMPACT STATEMENT

FOR INTENSIFICATION OF WASTE INTAKE AT KNOCKHARLEY LANDFILL, Co. MEATH

Non Technical Summary
Volume 1

greenstar

Prepared for:
Greenstar Holdings Limited
Ballyogan Business Park
Sandyford
Dublin 18

FEHILY TIMONEY & COMPANY

November 2008

NON-TECHNICAL SUMMARY

OF ENVIRONMENTAL IMPACT STATEMENT FOR INTENSIFICATION OF WASTE INTAKE AT KNOCKHARLEY LANDFILL, CO. MEATH

VOLUME 1 of 3

Prepared for:

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VOLUME 1 of 3

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Client: Greenstar Ltd

Keywords: Knockharley, landfill, revised EIS, intensification of waste intake, 400,000 t/a

Abstract: Greenstar is applying to An Bord Pleanala under the Strategic Infrastructure Act for planning permission to increase waste intake at Knockharley Landfill to 400,000 tonnes per annum and to alter the phase filling sequence. This EIS outlines the current situation, potential impact of the proposed changes to the landfill operation and outlines mitigation measures where necessary. This document fulfils the requirement for the non-technical summary of the EIS.

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PREAMBLE

The Environmental Impact Statement (EIS) for the intensification to the waste intake at Knockharley landfill, Co. Meath comprises the following volumes:

- Volume 1 Non-Technical Summary
- Volume 2 Environmental Impact Statement
- Volume 3 Environmental Impact Statement Appendices

This document is Volume 1, the non-technical summary of the EIS.

The full EIS is available for inspection and can be purchased at the offices of

- An Bord Pleanála, 64, Marlborough Street, Dublin 1.
- The Offices of Meath County Council, County Hall, Navan, Co. Meath.

The full EIS can also be viewed at the following locations;

- Knockharley Landfill, Co. Meath
- www.knockharleyplanning.ie

1. BACKGROUND

1.1. Introduction

Greenstar Holdings Limited (hereinafter 'Greenstar') is the applicant company for the proposed development Greenstar operates the Knockharley Residual Landfill since its opening in December 2004.

The landfill is located 7 km south of Slane Co. Meath, just off the N2 national primary road. The location of the Knockharley landfill is shown in Figure 1.1.

The landfill accepts residual household, commercial and industrial wastes together with construction and demolition wastes. The permitted layout of the site is shown in Figure 1.2.

The property is bounded to the east by the National Primary Road (N2) and is generally enclosed to the north and west by county road CR384 and to the south by regional road R150. The landfill is connected to the N2 by a dedicated access road.

1.2. Description of Existing Operation

The facility is located on a 135.2 hectare (333 acre site) as presented in Figure 1.2. The permitted landfill footprint is positioned approximately in the centre of the landholding and the current planning permission permits the development of approximately 25 ha of landfill footprint.

The facility was designed, constructed and is being operated in accordance with the EU Landfill Directive, the EPA Waste Licence and its current planning permission.

The landfill facility operates from 07:30 to 18:30 hours Monday to Saturday inclusive and accepts waste from between 08:00 and 18:00 hours Monday to Saturday. (excluding public holidays).

Knockharley Residual Landfill Project
Site Location Plan

Figure No. 1.1 | Job No. CE07123 | Date. Nov. 2008
Finalised By - D McD

White Young Green

For Illustrative purposes only.

JF(8)

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PROPOSED ACTIVE CELLS
ACTIVE CELLS
CONSTRUCTED CELLS
HOUSE LOCATION
LAND UNDER APPLICANTS CONTROL
APPLICATION SITE
DENOTED NATIONAL PRIMARY ROAD
DENOTES REGIONAL ROAD
DENOTES COUNTY ROAD
DENOTES RIVER / STREAM
DENOTES WAYLEAVE

N

PHASE 7
PHASE 6
PHASE 5
PHASE 4
PHASE 3
PHASE 2
PHASE 1
CELL 9
CELL 10
CELL 8
CELL 7
CELL 6
CELL 5
CELL 4
CELL 3
CELL 2
CELL 1

EXISTING OVERHEAD POWER LINES 20kV
EXISTING OVERHEAD POWER LINES 20kV
AREA RESERVED FOR FUTURE BIOLOGICAL WASTE TREATMENT SINCE 2001 EIS
PROPOSED WHEELWASH
ADMINISTRATION BUILDING
WEATHER STATION
WASTE RECEPTION AREA
EXISTING WHEELWASH
LEACHATE LAGOON
AVIARY
CUT-OFF DRAIN
TOP SOIL STOCKPILE
SUB SOIL STOCKPILE
GAS FLARE COMPOUND
AREA PERMITTED FOR GAS UTILISATION PLANT
SCREENING BERMS
SCREENING BERMS
SCREENING BERMS
GROUNDWATER CONTROL DRAIN
STORMWATER ATTENUATION POND
CONSTRUCTED WETLAND
SURFACE WATER DISCHARGE TO EXISTING STREAM
EXISTING GAS MAIN
EXISTING GAS MAIN
CR384
TO SLANE
NATIONAL PRIMARY ROUTE - N2
TO ASHBOURNE

Rev.	Drawn	Chk'd	App'd	Date	Description
B	JC	SMcA	D.O'SDO'S	11.11.08	ISSUE FOR PLANNING
A	CS	SMcA	D.O'SDO'S	14.02.08	For Information Only, Not For E.I.S. or Construction Purposes

Name of Client
greenstar

Name of Job
KNOCKHARLEY RESIDUAL LANDFILL SITE

Title of Drawing
PROPOSED SITE LAYOUT

Scales Used
A3 1:7500 / A4 1:15,000

Dwg. No. 2007-172-02-Fig 1.2 — **Rev.** B

O:\ACAD\2007\172\02\CAD\72202_Fig 1.2

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1.2.1. Site Access

Waste arriving at the facility enters the site via a private dedicated access road that connects the landfill with the National Primary N2 road. Generally, waste delivered to the Knockharley facility arrives in ca. 20 tonne capacity covered heavy goods vehicles (HGVs). Waste is firstly weighed before proceeding to the waste disposal area. HGVs leaving the site pass through a wheel wash before exiting onto the N2 via the private site access road. There are two concrete bays near reception to facilitate waste inspection/quarantine.

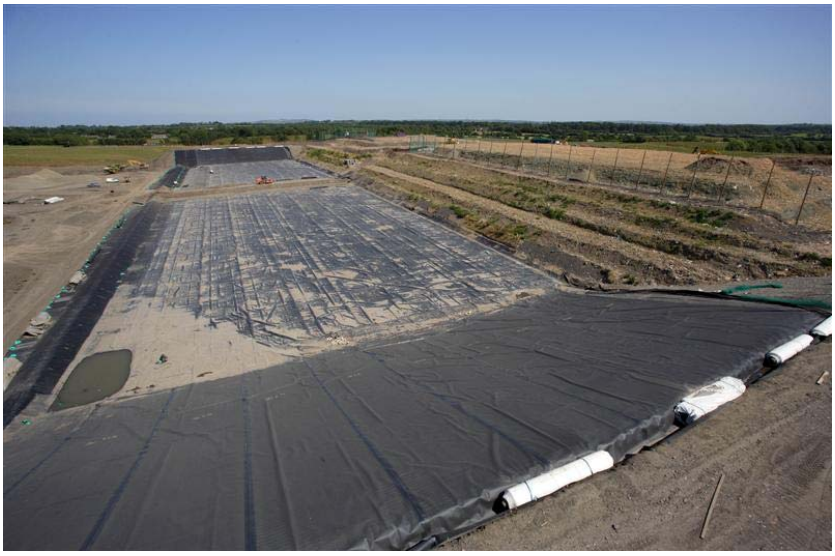
Photograph 1.1 Knockharley Landfill Administration Buildings

1.2.2. Waste Deposition

The deposited waste is fully contained through the use of a 1 m thick composite HDPE membrane and clay basal liner complying with both EU regulation and with the site's EPA waste licence.

Waste is compacted immediately and covered daily to limit wind-borne litter and other nuisances. Vermin control is achieved through the use of trained birds of prey controlled by a specialist handler, combined with other deterrents such as kites and balloons. In addition to the use of daily cover, supplementary odour control technology comprising fine-moist deodorising spray has been installed at the landfill.

The cell lining employed for Knockharley Landfill is shown in Photograph 1.2.



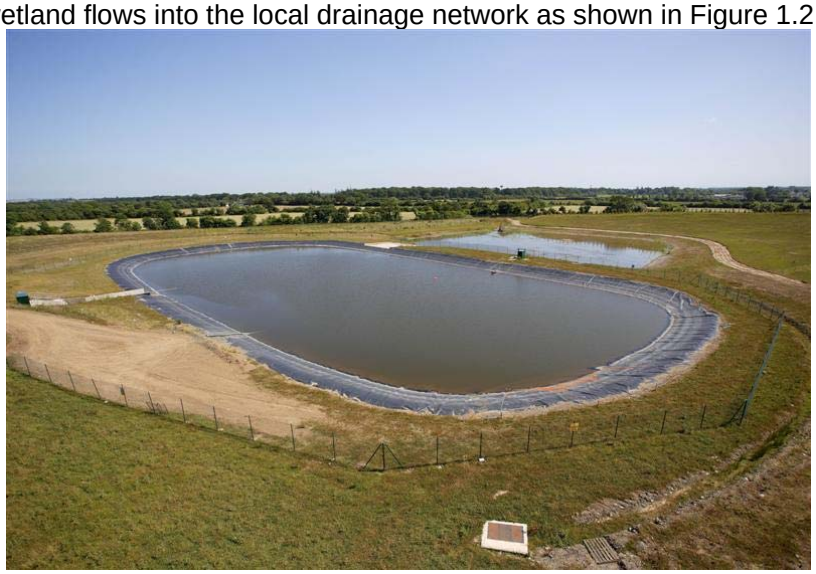
Photograph 1.2 Lined cells at Knockharley Landfill

1.2.3. Leachate and Surface Water Control

Waste-contaminated water is known as leachate. Leachate that gathers in the base of the landfill footprint is pumped to the leachate lagoon and is ultimately tankered from the site for treatment and disposal.

Drainage from adjoining lands onto the Knockharley site is directed around the property and flows into the local drainage network at the southern boundary of the facility.

Surface water from the landfill is directed to a purpose-built storm water attenuation pond and constructed wetland. This is shown in Photograph 1.3. The outflow from the constructed wetland flows into the local drainage network as shown in Figure 1.2.



Photograph 1.3 Storm Water Attenuation Pond

The development of the landfill to date has included the construction of screening mounds and the planting of trees, that are designed to reduce the visual impact of the landfill within the local landscape.

1.2.4. Site Licensing and Monitoring

The site is licensed by the EPA (Licence register number W0146-01) (granted in March 2003) for operating a landfill whose principal class of activity is "*Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment*".

Emissions from the facility are monitored as required under the waste licence under the headings groundwater, surface water, leachate quality, landfill gas, noise and dust deposition. The frequency of monitoring of the different environmental parameters is set in the waste licence with a requirement to submit monitoring data in quarterly and annual reports.

Leachate – Leachate is sampled both from the body of the landfill and from the leachate lagoon. This monitoring is conducted to trend the chemical composition of the leachate and monitor the leachate sent off-site for treatment.

Landfill gas – Landfill gas monitoring is conducted on a monthly basis. There are landfill gas wells locations inside and outside the body of the waste. The landfill gas wells located outside the landfill body are used to determine whether landfill gas is escaping from the contained cells. Monitoring records have not shown migration of landfill gas beyond the landfill cells.

Ecological – Aquatic ecological monitoring is undertaken upstream and downstream of the site on an annual basis to determine whether site activities are impacting on surface water quality. The results show no change in water quality between upstream and downstream locations.

Surface water – Surface water samples are collected upstream and downstream of the site on a quarterly basis and analysed for pollutant levels and chemicals to determine whether the site is impacting the local water courses through run-off from the site. The results show no change in water quality between upstream and downstream locations.

Groundwater – Groundwater samples are collected from dedicated wells on a quarterly basis and analysed for chemical parameters. The analyses determined that the landfill is not causing deterioration of the groundwater quality.

Dust – Dust deposition is monitored on a monthly basis at dedicated locations around the site. Samples are collected over a monthly period and are compared with a level which would indicate whether significant nuisance could be caused off-site by dustfall. There have been no exceedances of the dust deposition level due to activities on-site.

PM_{10} – Particulates of less than 10 microns are monitored because these sized particulates or smaller can be inhaled into the lungs and are linked with health impacts. There have been no exceedances of the PM_{10} limit due to activities on-site.

Noise – Noise monitoring is undertaken for compliance with licensed noise limit values. There have been no exceedances of the daytime noise limit value due to activities on-site.

1.2.5. Status of Landfill Filling and Construction

The currently permitted site comprises 28 lined cells:

- Cells 1 to 10 are constructed
- Cells 1 to 4 are nearing their final capacity, have an intermediate cap and will be fully capped in 2009
- Cells 5 & 6 are approximately 65% full and have an intermediate cap.
- Cells 7 & 8 are approximately 50% full and capped with soil like material which is covered by wood-chip
- Cells 9&10 are empty but ready for receive waste

Preliminary (final) capping works have commenced on Cells 1 to 6.

The existing development also comprises:

- road works including an underpass to separate local traffic from landfill traffic;
- environmental monitoring and control infrastructure;
- fencing and security, including extensive CCTV
- offices, carparks;
- storm water and leachate storage lagoons
- waste inspection/quarantine slabs
- landfill gas collection pipework, and gas flares
- litter netting

1.3. Description of Proposed Development

The current permission restricts waste deposition to 132,000 tonnes per annum until the end of 2010 and to 88,000 tonnes per annum thereafter. Permission is sought to increase the quantity of waste accepted at the site to 400,000 tonnes per annum from 2009 until approximately 2016/17 with a further two years to restore the landfill in accordance with EPA restoration guidelines and best practice. The proposed increase rate of waste acceptance entails the filling of the landfill void more rapidly than the current permitted rates thereby enabling early closure and commencement of landfill aftercare.

Waste processing prior to landfilling is a requirement of national and EU law. In particular, the amount of biodegradable waste being sent to landfill must be reduced. The proposed residual waste types comprising the 400,000 tpa include the following;

- Short to medium term disposal of stabilised biowaste from MBT (mechanical biological treatment) processes
- Other stabilised secondary wastes from the processing of non-food-bearing construction, commercial and industrial wastes.
- Soils and rubble and other wastes from the construction industry
- Other residual wastes from the mechanical processing stages of municipal, commercial and industrial waste
- Non-hazardous residual wastes from other waste recovery processes.

It is not proposed to increase the permitted total quantity of waste to be deposited in the landfill or to extend the landfill footprint. Instead, this proposal involves a more efficient and more environmentally sustainable filling rate over a considerably reduced time period. The proposed increased rate of waste intake will also reduce the potential for odour nuisance.

In operational terms, residual municipal waste will continue to be deposited at the south end of the active void working north. It is proposed to develop a second working face at the north end of the landfill void starting at Phase 7 for the deposition of stabilised waste and other wastes suited for disposal separately to biodegradable waste. Both ends of the active void will be worked towards the centre of the void with capping and screening occurring on a phased basis. This second working face is consistent with the company's objective to have proper regard to the protection of the amenity of adjoining property including residential property. It is also consistent with contemporary scientific advice.

The proposed development at the Knockharley Landfill underpins the recycling industry and helps achieve key objectives in the waste management hierarchy by providing a sustainable disposal outlet for the residual wastes generated by the activities higher up the hierarchy. This is illustrated by the changing characteristics of the residual waste to be landfilled, which will comprise progressively less biodegradable waste and increasing volumes of MBT stabilised waste and other stabilised residual waste from recycling activities.

No change in the operational hours is proposed. .

The waste licence does not distinguish hours for construction and maintenance. The current proposal is to allow for industry-standard construction working hours and also to allow routine maintenance of machinery to be done on Sundays.

The proposed hours for construction/ maintenance operations are:

- 07:00 to 20:00, Monday to Friday
- 07:30 to 18:30, Saturday
- 07:30 to 16:00, Sunday (maintenance only).

1.4. Proposed Main Operational Changes

The main changes to the existing operation of the landfill will relate to:

(i) the landfilling development schedule;
(ii) the capping & restoration programme;
(iii) operational and construction traffic movements.

The intensification of use will:

- result in an increase in the number of traffic movements entering and leaving the site associated with waste deliveries, leachate removal and the construction and restoration programmes. Otherwise, the proposed intensification of use will have a minimal impact on the existing daily operation of the landfill.

- an improved use of both human and mechanical resources at the landfill and which are currently available to handle the existing permitted disposal rate. Clearly, operating two 'faces' will require extra machinery and manpower however all ancillary infrastructure will be shared and therefore used more efficiently.
- not alter the final-land form when compared with the current permitted development.

With this proposal, the final land-form will be achieved sooner and this is seen as a positive impact. In addition, there will be a reduced visual impact from the north because the northern working cells will face south. The proposed change to dual-filling is seen as a positive impact.

The intensification of annual intake will also reduce the annual and total amount of leachate generated and will hasten the progress of final capping and thus the enhancement of high-efficiency landfill gas capture which can be used to generate electricity. Planning permission was granted in April 2007 for installation and operation of a gas utilisation plant (planning reference NA70015). The proposed plant will be phased and will generate up to 4.2 MW of electricity for input into the national grid.. Greenstar is awaiting connection to the national grid and it is envisaged that the first gas engine will be installed and operation in 2009 pending the grid connection. Knockharley Landfill is therefore classed as disposal with energy recovery.

It will also bring forward the contribution to the community fund. The community fund is tonnage based and will increase in accordance with accepted waste. The fund currently accrues at approximately €250,000 per annum but this would increase to approximately €750,000 per annum should permission be granted, thereby providing even more funding for local projects.

1.5. Site Selection and Alternatives Considered

The application relates to an existing waste landfill and no alternative locations were considered.

The applicant company considered options ranging from the continuation of landfilling of the void space at the maximum current permitted rates to the filling of the void at a number of different increased rates. The analysis assesses the status of key planned waste management facilities in the Greater Dublin Area and the need for biological stabilisation of waste to meet the 2010 Landfill Directive Target.

2. CONSULTATION

Pre-Application Consultations

For the purposes of this EIS, formal and informal pre-application consultations were made with statutory and non-statutory stakeholders under the Planning and Development (Strategic Infrastructure) Act 2006 (SIA Act). Formal consultation was held with An Bord Pleanala (ABP). Informal consultations were undertaken with local community groups, regional waste steering groups and governmental agencies through correspondence and meetings. The applicant company contacted the following bodies/groups during the pre-application stage to inform them of the forthcoming planning application and to allow them an opportunity to highlight issues and concerns.

- Dublin Waste Region Steering Group
- North East Waste Region Steering Group
- Meath County Council
- Environmental Protection Agency
- Knockharley Landfill Liaison Committee
- Community Liaison Committee, Meath County Council
- An Taisce
- Commission for Energy Regulation
- The National Roads Authority

These consultees were invited to make submissions and/or comments in respect of the proposal to Fehily Timoney & Company Limited and/or Greenstar.

Greenstar and its agents met with representatives of the North East Region Steering Group and Meath County Council on 27 August 2008 at Navan, Co. Meath.

The applicant company also met with the Dublin Waste Region Steering Group on 17 October 2008 and the Environmental Protection Agency on 9 September 2008.

Prescribed Bodies

In accordance with Section 37E(3)(c) of the Planning and Development Acts, 2000-2006 a full copy of the planning application and Environmental Impact Statement will be sent to the following prescribed bodies as per Article 213 of the Planning and Development Regulations, 2001-2007.

- The Minister for the Environment, Heritage and Local Government
- The Minister for Communications, Marine and Natural Resources
- The Minister for Agriculture, Fisheries and Food
- Meath County Council
- Fáilte Ireland
- The Commissioner for Energy Regulation
- An Táisce
- National Roads Authority
- Environmental Protection Agency

- Health Service Executive
- Dublin Transportation Office

3. WASTE MANAGEMENT POLICY & PLANNING CONTEXT

Waste management is identified as a priority in the National Spatial Strategy and the Regional Planning Guidelines for the Greater Dublin Area and in accordance with Circular WIR 04/05 the inter-regional movement of waste is essential for effective waste management within North Leinster (North East Region and the GDA).

Due to the closure of existing disposal facilities and the uncertainty over the future and timing of the replacement waste infrastructure, an emerging waste crisis is anticipated where the licensed MSW capacity in the study area would be considerably short of the predicted demand for disposal capacity in the period to 2016.

In the short term a deficit of at least 450,000 tonnes per annum rising to approximately 600,000 tonnes per annum from 2014 of licensed MSW disposal capacity is predicted in North Leinster and this is corroborated by the request from the four Dublin local authorities for additional MSW disposal capacity for non-hazardous waste in the Dublin Region.

A known volume of permitted and licensed disposal capacity is immediately available at the applicant's merchant landfill at Knockharley. The Board's decision to permit an increase in the rate of waste accepted from the North East Region and Greater Dublin Area confirms the landfill is a crucial facility in North Leinster. This landfill is ideally located to serve the Greater Dublin Area and to meet some of the predicted shortfall. The landfill at Knockharley is a private merchant facility and is not the long-term landfill for the North East Region.

This approach based upon the mechanical and biological treatment of waste together with landfill plus energy recovery represents a sustainable form of waste management, which supports the other higher in the waste hierarchy measures to reduce the volume of waste disposed to landfill. Given the delays in the delivery of key infrastructure in the regional waste plans and having regard to targets in the National Biodegradable Waste Strategy, the proposed increase in the rate of waste intake and the stabilisation of biodegradable waste using MBT processes is an effective alternative approach, which is consistent with national waste management policy.

Having regard to the prevailing circumstances there is an imminent risk of a deficit in waste management infrastructure. This proposal seeks to meet some of that demand should it arise. This is in accordance with the interest of the efficient provision of waste management facilities.

Proper planning with respect to the provision of infrastructure requires not only meeting predicted needs but providing an element of redundancy to cope with the unexpected. It is prudent therefore and in accordance with the proper planning and sustainable development of the catchment to provide a viable solution to the waste crisis in the Greater Dublin Area by ensuring there is permission at this established licensed facility to cater for demands arising in the North East Region and other regions.

4. IMPACTS AND MITIGATION

The following summarises the assessment of potential environmental impacts from the proposed intensification of waste intake at Knockharley landfill.

4.1. Climate and Air

There are no predicted adverse impacts from the development on the local climate in the area. Landfill facilities generate landfill gas as the waste decomposes over time mainly comprising methane and carbon dioxide. As at present, landfill gas will be actively abstracted and directed for flaring and for energy production in the permitted gas utilisation plant. In fact the efficiency of landfill gas collection and energy recovery will increase with the increased rate of landfilling. No further mitigation measures are required for the proposed increase in waste intake.

4.2. Traffic

The volume of traffic entering and leaving the site will increase by an approximate factor of three. The access to the site is fully compliant with NRA standards and has a capacity many times in excess of the forecast demand. The impact on the capacity of the existing access is therefore not likely to be significant. The impact on the N2 traffic will in general be negligible. Furthermore, the existing left and right turn lanes at the access reduces local impact on this mainline traffic. .The longstanding regime to ban traffic from the R150 has proven successful and will be maintained under this application.

4.3. Noise

Noise generation will increase due to increased traffic and extra operational plant. The increased noise has been mathematically modelled and the noise levels from the site will remain in compliance with the EPA waste licence daytime limit of 55 dB(A) from activities associated with dual filling and intensification of waste intake.

4.4. Soils and Geology and Hydrogeology

As there is no proposal to enlarge or deepen the current permitted landfill, there is no significant impact on soils, geology or hydrogeology.

4.5. Surface Water

Surface water protection measures currently in place at the facility will be sufficient to ameliorate any potential impacts of the development on surface water. However, it is not envisaged that the proposed intensification of waste disposal will have an impact

on surface water. A second wheelwash is proposed for trucks returning from the northern cells.

4.6. Groundwater

As there is no proposal to enlarge or deepen the current permitted landfill, there will be no adverse impact on groundwater due to the proposed intensification of intake.

The increased waste intake actually has the effect of reducing the quantity of leachate produced as the landfill cells will be capped in a shorter period reducing the volume of rainwater infiltration. This reduces the risk of impact on groundwater.

4.7. Ecology

The landfill development is a continuation of the current development. The land in question has no significant designation or interest from an ecological perspective. The establishment of mixed-species woodland surrounding the footprint plus an extensive wetland to the south mitigates and enhances the biodiversity on the site. The earlier restoration of the landfill mound will advance the establishment of habitat and flora at the development site.

4.8. Cultural Heritage

The proposed intensification of waste intake is a continuation (without extension) of the current permitted development. Archaeological studies have not given rise to concern that the landfill site is of particular interest and no impact is predicted. Notwithstanding that, as at present, all earthworks will be undertaken under archaeological supervision as is required by the site's planning permission.

4.9. Landscape and Visual Aspects

The intensification of waste intake will not alter the final-land form when compared with the current permitted development. Clearly, with the current proposal, the final land-form will be achieved sooner and this is seen as a positive impact.

It is also proposed to continue to fill concurrently from the south and from the north, commencing at Phase 7. This will alter the sequence in which the landfill is developed and restored. The south to north development will continue as at present (albeit at a faster rate) but development at the northern part of the landfill will commence much sooner. This will reduce the visual impact from the north because the northern working cells will face south (i.e. towards the southern working cells. The dual-filling proposal will mean that at an early stage, the only visual impact from the north will be the 'back' of an advancing landscaped mound. The proposed change to dual-filling is seen as a positive impact.

There will be no change to the final maximum filled height of the landfill as currently permitted under both the planning permission and the waste licence. Thus, no additional mitigation measures are required relating to the protection of the landscape.

4.10. Human Beings and Material Assets

The main potential impacts on human beings in the vicinity of a landfill are from contamination of surface and groundwater, sub-surface migration of landfill gas, odour, dust, litter and vermin.

The facility has a proven high level of environmental performance. The site operations were officially audited by the EPA in March 2005, April 2006, May 2007 and April 2008 and on all occasions were found to be fully compliant with the conditions of the waste licence. This makes Knockharley the most compliant landfill in the country.

Environmental control measures currently in place at the landfill address odour, dust, noise, emissions to ground and surface water and vermin on site. It is not proposed, nor is it deemed necessary, to implement changes to the comprehensive environmental controls and monitoring that are presently in operation for the purpose of this proposal.

The proposed intensification is in itself an odour mitigation measure due to the changing characteristcs of waste to be disposed. In addition the intensification will mean that the gas capture efficiency will increase as final capping will be placed sooner.

There is no evidence to show that property will be devalued in the vicinity of the landfill. In fact residential development continues near the site. The construction of relatively dense housing has occurred since the site opened at the eastern end of Kentstown village (approximately 1,600 m from the site boundary, 1,900 m from the nearest landfill footprint and 2,250 m from the proposed footprint extension).

An increase in landfilling waste to 400,000 tpa will have the combined positive effect of hastening the filling and closure of the landfill as well as shortening the period when the perception of disamenity is at a maximum. It will also bring forward the contribution to the community fund. The community fund is tonnage based and will increase in accordance with accepted waste. The fund currently accrues at approximately €250,000 per annum but this would increase to approximately €750,000 per annum should permission be granted, thereby providing even more funding for local projects.

No additional mitigation measures are required in relation to the protection of human health or property.

4.11. Air Quality

Air quality in the existing environment is discussed under the headings of odour, landfill gas and dust including PM_{10}.

The proposed intensification will reduce the potential for odour generation and will have a positive impact on air quality. The changing characteristics of residual waste to be landfilled which will comprise progressively less biodegradable waste and greater volumes of MBT stabilised waste and other stabilised residual waste from recycling activities, will reduce the potential for odour generation. In addition the use of northern

cells (Phase 7) for stabilised wastes and wastes suited for disposal separately to biodegradable waste will further reduce the potential for odour generation. Existing odour control measures will continue to be rigorously applied.

The proposed intensification will accelerate the provision of capping and LFG collection infrastructure thus increasing the overall efficiency of the LFG management system. Landfill gas will continue to be directed for flaring and utilisation. There will be a faster production rate of landfill gas and the peak generation will occur sooner. The overall quantity will not be altered by the accelerated filling but the efficiency of extraction and the economics of gas utilisation will be increased. A gas-engine and generator will be installed at the site in the near future to utilise the gas. This is a positive impact on air quality.

Increased traffic and the establishment of a second working face have the potential to increase dust generation. The current rigorous dust control measures employed on site such as speed restrictions, routinely spraying of road with water and daily cover on the working faces will ensure air quality does not deteriorate.

5. INTERACTIVE IMPACTS AND CONCLUSION

Interactions between impacts can also occur when the impact caused by the project causes interaction or dependency with other environmental aspects. This section discusses the interaction between impacts and assesses them as positive, negative or neutral (as having no interaction or interdependency). Figure 5.1 is a matrix showing the interactions.

5.1. Interactions

Traffic

The intensification of waste intake results in increased traffic movement on the N2 (ca. 2%) before accessing the site.

The increased traffic flows will also cause a corresponding slight increase in noise level. There will also be greater visual impact from the increased traffic movements on the N2, impacting predominantly on local road users.

Noise

Both the increased traffic flows and the intensified waste deposition works will have a imperceptible noise effect on human beings in the environment. The noise model in Section 6 predicts that resulting noise from the intensification of waste intake will remain complaint with the EPA waste licence noise emission limits.

Landscape and Visual Impact

The proposal also includes dual filling in the southern and northern landfill cells, resulting in the landform being visible in a shorter time-frame to the dwellings on the northern boundary of the site. This is considered significantly positive as the landform will be visible when the filling starts in the northern cells in Phase 7 rather than having the landform approaching the dwellings over the coming years. The landform will also conceal the filling works in the remaining cells (Phase 6, Phase 5, etc) to these dwellings when complete.

Air Quality

The proposal has a significantly positive interaction between air quality and human beings. The northern cells at Phase 7 will be used for stabilised wastes and wastes suited for disposal separately to biodegradable waste with low potential for odour generation.

There is also a positive interaction between air quality and climate. The proposed intensification of waste intake will allow sufficient landfill gas generation to efficiently run the permitted gas utilisation plant and reduce the odour potential for landfill gas. This positive impact on air quality also positively impacts the climate as the methane in the landfill gas is converted to carbon dioxide, a much less harmful greenhouse gas.

Figure 5.1 Matrix of Impact Interactions

	Climate	Traffic	Noise	Soils and geology	Surface water	Groundwater	Ecology	Landscape and Visual Aspects	Human Beings and Material Assets	Air quality
Climate		~	O	O	O	O	O	O	O	++
Traffic	~		_	O	O	O	O	_	_	_
Noise	O	_		O	O	O	O	O	~	O
Soils and geology	O	O	O		O	O	O	O	O	O
Surface water	O	O	O	O		O	O	O	O	O
Groundwater	O	O	O	O	O		O	O	O	O
Ecology	O	O	O	O	O	O		O	O	O
Landscape and Visual Aspects	O	_	O	O	O	O	O		++	O
Human Beings and Material Assets	O	_	~	O	O	O	O	++		++
Air quality	++	_	O	O	O	O	O	0	++	

Legend

O	Neutral	_	Slight negative	+	Slight positive
~	Imperceptible impact	_ _	Significant negative	++	Significant positive

5.2. Cumulative Impacts with Other Projects

A planning search was undertaken for applications in the townlands of Knockharley, Flemingstown and Tuiterath. There are no known parallel applications that will cause impacts that will accumulate or interact with the proposed intensification of waste intake at Knockharley to create a significant effect.