BORD NA MÓNA

DREHID MECHANICAL BIOLOGICAL TREATMENT FACILITY

WASTE LICENCE APPLICATION
ENVIRONMENTAL IMPACT STATEMENT

NON TECHNICAL SUMMARY

VOLUME I

JUNE 2012

TOBIN CONSULTING ENGINEERS

TOBIN

Document Amendment Record

Client:	Bord na Móna
Project:	Drehid Mechanical Biological Treatment Facility
Title:	Waste Licence EIS-Non-Technical Summary

Project Number: 6301			**Document Ref: Drehid MBT NTS- 01**		
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Revision	**Description & Rationale**	**Originated**	**Checked**	**Authorised**	**Date**
		TOBIN			

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1 INTRODUCTION

Bord Na Móna Plc. (hereafter referred to as Bord na Móna) proposes to develop a Mechanical Biological Treatment (MBT) Facility (Drehid MBT Facility) in its landholding located within the townlands of Coolcarrigan and Drummond, Carbury, County Kildare.

The site is located within a larger Bord na Móna landholding, which comprises 2,544 hectares (ha). That landholding is outlined in blue on Figure 1.1 and the activity area of the proposed MBT Facility is outlined in red. The permitted and operational Drehid Waste Management Facility is located within this landholding and is located approximately 1km north of the proposed MBT Facility site.

This application by Bord na Móna for the development of the Drehid MBT Facility is being made directly to An Bord Pleanála as '*Strategic Infrastructure Development*' under the provisions of Section 37 of the Planning and Development (Strategic Infrastructure) Act, 2006, the Planning and Development Act, 2000 as amended and the associated Planning Regulations.

1.1 Proposed Development

The proposed Drehid MBT Facility will primarily accept and process municipal solid waste (MSW) and will provide for an overall capacity of 250,000 tonnes per annum (TPA).

Mechanical Biological Treatment through a combination of mechanical processing and biological treatment (such as composting and anaerobic digestion) reduces the volume of waste which requires treatment by disposal in landfill or incineration.

By virtue of the biological process in an MBT facility, biodegradable municipal waste can be biostabilised thereby eliminating its potential to generate methane (a harmful greenhouse gas) and leachate, thus contributing to the fulfilment of Ireland's targets under the Landfill Directive (1999/31/EC).

In deciding on the configuration of the biological process, and in particular the inclusion of Anaerobic Digestion (AD), consideration was had of the fiscal incentives for the development of AD– namely the Renewable Energy Feed In Tariff (REFIT). Regrettably, the current fiscal incentives in the Republic of Ireland make it difficult to create a compelling or indeed viable, economic argument for the development of AD. The REFIT for AD in the Republic of Ireland is currently significantly inferior to its equivalents in Northern Ireland and Italy (for example).

Therefore, Bord na Móna proposes the preparation of the Planning Application and

Waste Licence Application for the proposed Drehid MBT Facility such that it provides for the development of an optional Dry AD step as part of the biological treatment stage. The biological treatment stage will include a composting step in any event. This approach has been subject to detailed pre-application discussions with both An Bord Pleanála and the EPA.

This Planning Application and Waste Licence Application includes for both scenarios (Configuration A (MBT with Composting) and Configuration B (MBT with Dry Anaerobic Digestion and Composting)) and the potential impacts and mitigation measures for both scenarios are considered for each environmental parameter within this EIS.

1.2 Need for Environmental Impact Statement (EIS)

The consequences of any major engineering project are required to be presented in the form of an Environmental Impact Statement (EIS). The EIS, as prepared, contains a description of the existing environment, information on the scale and nature of the proposed development, an impact assessment of the proposed development and mitigation measures to reduce the impact on the receiving environment. This document provides a non-technical summary of the overall EIS describing the existing environment, the proposed development and potential impacts and mitigation measures.

1.3 Consultation

A very comprehensive consultation process has been followed to date in respect of the proposed facility. The consultation process consisted of consultation with the competent bodies, statutory bodies and other interested parties. The primary objectives of the consultation process followed were to aid the scoping of the Environmental Impact Assessment (EIA) and to fully brief all those consulted of Bord na Móna's proposal and to ascertain their observations.

1.4 Planning Process

The provisions of the Planning and Development (Strategic Infrastructure) Act 2006 (the 2006 Act) came into effect on 31st January 2007. The 2006 Act, which amends the Planning and Development Act 2000, provides generally for applications for permission/approval for specified private and public strategic infrastructure developments to be made directly to An Bord Pleanála.

Part 18 of the Planning and Development Regulations 2006 (S.I. No. 685 of 2006)

(the 2006 Regulations) relating to strategic infrastructure development also came into effect on 31st January 2007. The 2006 Regulations amend the Planning and Development Regulations 2001.

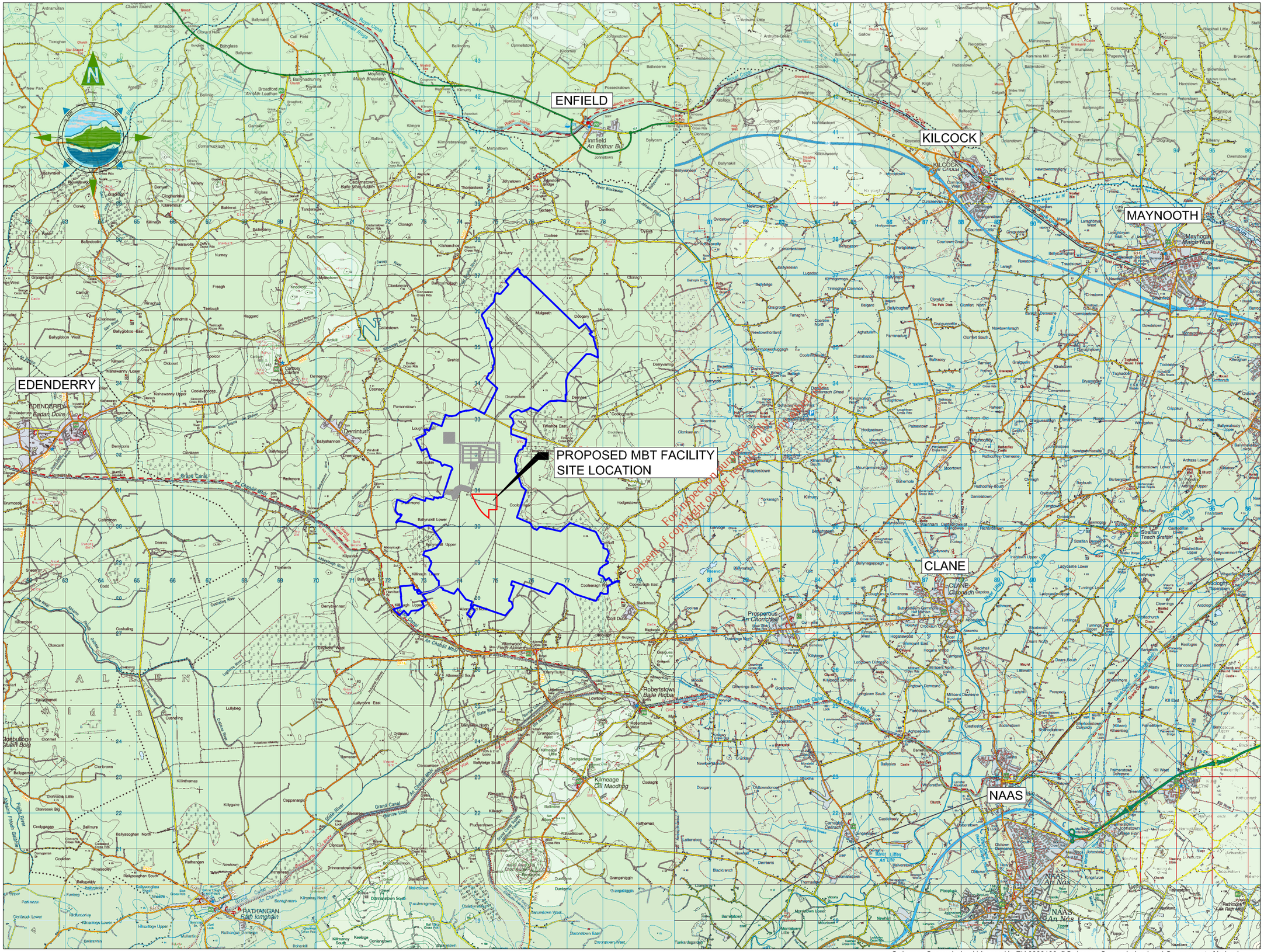
Private strategic infrastructure developments, to which the 2006 Act and Regulations apply, are listed in a new 7th Schedule to the 2000 Planning Act (inserted by section 5 of the 2006 Act). These generally refer to projects classified as major energy, transport and environmental infrastructure, the applications for which are to be made to An Bord Pleanála instead of to local planning authorities.

In October 2010, in accordance with the provisions of Section 37B of the 2000 Act as amended, Bord na Móna made a request to An Bord Pleanála for pre-application consultations in respect of the proposed development. Once this application for consultation was made, details of the proposed development were posted on the website of An Bord Pleanála (file reference 09.PC0106).

Subsequently, representatives of Bord na Móna met with staff of the Board in the Board's offices on three separate occasions namely on the 7th of December 2010, on the 27th of April 2011 and on the 9th of August 2011.

Following the completion of the pre-application consultation process, and having regard to the nature and extent of the proposed development, An Bord Pleanála issued a notice in accordance with Section 37B(4)(a) of the 2000 Act as amended, that it was of the opinion that the proposed development would, if carried out, fall within each of paragraphs (a) to (c) of section 37A(2).

Following the issuing of this notice by the Board under Section 37B(4)(a) of the 2000 Act, as amended, and in accordance with the provisions of Section 37E of the Planning & Development Act 2000, as amended, Bord na Móna is now making this application for the proposed MBT Facility directly to An Bord Pleanála.



GENERAL LEGEND

OWNERSHIP BOUNDARY

ACTIVITY BOUNDARY

EXISTING PERMITTED WASTE MANAGEMENT FACILITY

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

1000m 0 1000m 2000m 3000m

Issue	Date	Description	By	Chkd.
A	22.06.12	ISSUED FOR WASTE LICENCE	MN	ST

Client: BORD NA MÓNA

Project: DREHID MECHANICAL BIOLOGICAL TREATMENT (MBT) FACILITY

Title: SITE OWNERSHIP PLAN

Scale @ A3: 1:100,000

Prepared by: M. Nolan | Checked: S. Tinnelly | Date: November 2011

Project Director: D. Grehan

TOBIN
Patrick J. Tobin & Co. Ltd.
Consulting, Civil and Structural Engineers,
Block 10-3, Blanchardstown Corporate Park,
Dublin 15, Ireland.
tel: +353-(0)1-8030406
fax:+353-(0)1-8030409
e-mail: info@tobin.ie
www.tobin.ie

Drawing No.: Figure 1.1

Issue: A

2 DESCRIPTION OF THE EXISTING SITE AND PROPOSED DEVELOPMENT

2.1 Existing Environment

2.1.1 Site Location

The MBT Facility site boundary or the activity boundary, outlined by the red line on Figure 1.1, (an extract from the *Discovery Series Map No 4)* which is defined as the area in which all activities associated with the Drehid MBT Facility will occur, is located in the townlands of Coolcarrigan and Drummond, Carbury, Co. Kildare. It should be noted that the activities associated with the Drehid MBT Facility will be confined to a landbank of approximately 29ha.

The MBT Facility site is located on a segment of land within a larger Bord na Móna landholding, which is located to the east of the existing access road and approximately 1km south of the existing Drehid Waste Management Facility. This overall landholding is located within the County Kildare townlands of Drehid, Ballynamullagh, Kilmurry, Mulgeeth, Mucklon, Timahoe East, Timahoe West, Coolcarrigan, Corduff, Coolearagh West, Allenwood North, Killinagh Upper, Killinagh Lower, Ballynakill Upper, Ballynakill Lower, Drummond, Kilkeaskin, Loughnacush, and Parsonstown.

The topographic landform within the site boundary consists of flat lying to gently undulating topography of cut away peatland.

Figure 1.1 shows the site location relative to a number of adjacent villages including Derrinturn, Timahoe, Coill Dubh and Allenwood at a scale of 1:100,000. The location of the MBT Facility footprint relative to the R402 and R403 regional roads is also shown on Figure 1.1.

The proposed development does not lie within or adjacent to any site designated for nature conservation.

2.1.2 Proximity of Dwellings

The immediate area around the MBT Facility site is reasonably sparsely populated. The nearest residential dwelling is located approximately 1km to the west of the proposed activity boundary. The nearest dwelling to the east of the activity area is approximately 1.4km distance. The largest concentration of houses close to the proposed facility is to the north west of the site in the village of Derrinturn.

2.1.3 Infrastructure and Traffic

Access has been provided into the existing Drehid Waste Management Facility from

the R403 regional road via a dedicated site entrance and a 4.8km access road. This entrance and road will also provide access from the R403 regional road to the MBT Facility.

Given that access to the proposed MBT Facility will be by means of the already permitted and existing site entrance at the R403 regional road, it will be ultimately accessible via a network of regional routes which in turn link with the National Motorway network. The R403 lies south, southwest and west of the site. The R403 joins the R402 at Carbury to the northwest of the site. The R402 connects to the M4 while the R403 connects to central and south County Kildare. The M4 (Dublin to Sligo/Galway) motorway is located approximately 9km to the north of the proposed MBT Facility location, while the M7 (Dublin to Limerick/Cork) motorway is located approximately 17km to the south of the proposed MBT Facility location.

In order to quantify existing traffic flows on the adjoining road network a series of traffic counts were carried out in the area in 2012 and the most recent traffic count data for roads leading to the site were also sourced from Kildare County Council and the National Roads Authority.

2.2 Proposed Development

As outlined in Section 1, Bord na Móna proposes to develop a Mechanical Biological Treatment (MBT) Facility within its landholding located within the townlands of Coolcarrigan and Drummond, Carbury, Co. Kildare.

The proposed Drehid MBT Facility will accept and process municipal solid waste and will provide for an overall capacity of 250,000 tonnes per annum (TPA).

Bord na Móna proposes the preparation of the Planning Application and Waste Licence Application for the proposed Drehid MBT Facility such that it provides for the development of an optional Dry Anaerobic Digestion step as part of the biological treatment stage. The biological treatment stage will include a composting step in any event.

The Planning Application and Waste Licence Application includes for both scenarios:

- Configuration A (MBT with Composting)
- Configuration B (MBT with Dry Anaerobic Digestion and Composting)

The potential impacts and mitigation measures for both configurations are considered within the EIS.

The design of the MBT Facility is such that there are no significant external differences between Configuration A (MBT with Composting) and Configuration B

(MBT with Dry Anaerobic Digestion and Composting). It is proposed that the AD plant and ancillary plant will be located within the enclosure of the biological treatment buildings. The main physical difference between the two Configurations will be that Configuration B will have a standby gas flare compound and a stack associated with the CHP plant. In addition, Configuration B will require physical infrastructure (i.e. overhead power line) to facilitate the export of electricity to the electricity network. The site layout for the Drehid MBT Facility is shown on Figure 2.1.

The following is a schedule of the main infrastructure elements which shall form the proposed Drehid MBT Facility:

- Access roads, parking areas and hardstanding areas
- Security Infrastructure
- Administration and Welfare Building
- Mechanical Treatment Building
- Solid Recovered Fuel (SRF) Building
- Biological Treatment Building No. 1
- Biological Treatment Building No. 2
- Refining Building
- Biofilter/Odour Abatement Buildings No. 1 – 3
- Maintenance Building
- Truck Wash
- Truck Park and Skip Storage Area
- Weighbridge and Weighbridge control building
- Wheelwash
- Gas flare compound (only for Configuration B)
- Combined Heat and Power (CHP) Plants (only for Configuration B)
- Electrical Power Supply Infrastructure
- Outdoor storage area for SRF
- Surface Water Pumping Stations
- Surface Water Attenuation Ponds
- Bunded Fuel Storage Area
- Heat Transfer System (between the existing Drehid Waste Management Facility and proposed Drehid MBT Facility)
- Potable Water Supply
- Landscaping Features

PROPOSED HEAT TRANSFER PIPES TO DREHID WASTE MANAGEMENT FACILITY

ATTENUATION PONDS NO'S. 1 & 2

200m HIGH BUNDING AROUND HARDSTAND & SRF STORAGE AREA

2.4m HIGH POST AND RAIL FENCE

SRF STORAGE AREA

SRF BUILDING

BIOFILTER / ODOUR ABATEMENT BUILDING NO.3

BIOLOGICAL TREATMENT BUILDING NO. 2

BIOLOGICAL TREATMENT BUILDING NO. 1

MECHANICAL TREATMENT BUILDING

REFINING BUILDING

BIOFILTER / ODOUR ABATEMENT BUILDING NO.1

BIOFILTER / ODOUR ABATEMENT BUILDING NO.2

OUTLET TO EXISTING DRAINAGE SYSTEM

- WATER SUPPLY PUMP STATION
- SURFACE WATER PUMP STATION
- FIREWATER PUMP STATION
- PROCESS WATER PUMP STATION

RAMP @ 1:10

RAMP @ 1:10

WHEELWASH

BUNDED FUEL STORAGE AREA (20,000L Green Diesel & 5,000L Kerosene)

PROPOSED CANTILEVER GATE

RAINWATER HARVESTING TANK

ADMINISTRATION & WELFARE BUILDING

PARKING AREA (101 car, 2 Delivery Vans & 2 Bus Spaces)

WEIGHBRIDGE

PROPOSED DIVERTED LAND DRAIN

ELECTRICAL ROOM

TRUCK WASH

MAINTENANCE BUILDING

TRUCK PARK & SKIP STORAGE AREA

ATTENUATION POND NO. 3

2.4m HIGH POST AND RAIL FENCE

PROPOSED CANTILEVER GATE
(Refer to Drg. No: 6301-2624 for details)

GENERAL LEGEND

- ACTIVITY BOUNDARY
- PROPOSED CHAINLINK FENCE
- PROPOSED ROAD
- PROPOSED HARDSTAND
- PROPOSED ATTENUATION POND
- PROPOSED GREEN AREA
- PROPOSED BUILDINGS
- FINISHED ROAD LEVEL — FRL +159.5
- FINISHED FLOOR LEVEL — FFL +149.85
- PROPOSED LANDSCAPED SCREENING BERM

NOTES:

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES
5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Issue	Date	Description	By	Chkd.
A	15.06.12	ISSUED FOR LICENCE	M.N.	D.C.

Client: BORD NA MÓNA

Project: DREHID MECHANICAL BIOLOGICAL TREATMENT (MBT) FACILITY

Title: SITE LAYOUT PLAN

Scale @ A3: 1:2,500

Prepared by: M. Nolan | Checked: D. Conneran | Date: May 2012

Project Director: D. Grehan

TOBIN
Patrick J. Tobin & Co. Ltd.
Consulting, Civil and Structural Engineers,
Block 10-4, Blanchardstown Corporate Park,
Dublin 15, Ireland.
tel: +353-(0)1-8030406
fax:+353-(0)1-8030409
e-mail: info@tobin.ie
www.tobin.ie

Drawing No.: Figure 2.1

Issue: A

2.2.1 Facility Operations

The mechanical treatment process at the Drehid MBT Facility will operate 6 days per week (Monday to Saturday inclusive) and for 16 hours per day (on a two shift basis) as follows:

- Shift A = 08.00 to 17.00
- Shift B = 17.00 to 02.00

The SRF drying process and the biological treatment process will operate on a continuous basis (24 hours per day and 7 days per week) and will be fully automated. It is envisaged that there will be two operators required at the MBT Facility, between the hours of 02.00 and 08.00, to supervise the SRF drying process. Waste will be accepted to and outputs will depart from the MBT Facility from 7.30am to 6.15pm.

It is estimated that the operation of the MBT Facility will generate direct employment for 74 staff. Additional employment will be generated during the construction phase of the development.

Only household, commercial and non-hazardous industrial wastes will be accepted at the MBT Facility. Waste from HGVs will be deposited into the waste reception bunker within the Mechanical Treatment Building as directed by the site operative on duty at the MBT Facility. Waste will be accepted at the facility only from customers who are holders of a waste collection permit, unless exempted, under the Waste Management (Collection Permit) Regulations (S.I No. 820 of 2007) and amending Regulations, the Waste Management (Collection Permit) (Amendment) Regulations (S.I No. 87 of 2008). The MBT Facility will not accept waste delivered directly by the general public and a civic amenity facility will not be provided at the site.

The operation of the proposed MBT Facility will be undertaken in compliance with a waste licence to be issued by the EPA. The conditions of the waste licence will include measures to minimise or prevent nuisance to the public occurring as a result of the operation of the facility. A complaints register detailing any complaint received from the general public in respect of the operation of the facility will be maintained at the site.

The MBT Facility processes will be carried out in a planned and controlled manner, thereby minimising nuisances such as odours, dust, noise, litter, vermin etc. Environmental monitoring stations, in accordance with EPA requirements, will be established at the site.

All environmental monitoring will be carried out under the conditions of an EPA waste licence for the facility. Emission Limit Values (ELV) will be set by the EPA

for many of the parameters to be monitored. Exceeding these values will be considered a non-compliance with the waste licence. As part of the Waste Licence, an Annual Environmental Report (AER) will be required and will include the collation of all monitoring data each year. Within the AER a comparative assessment will be made with data from previous years.

All proposed MBT activities will take place indoors and all plant, equipment and tipping areas will be cleaned regularly. SRF will be baled and wrapped in plastic before being stored outdoors. It should be noted that SRF will typically not contain food waste and therefore will not attract vermin. The biological treatment process will also take place within completely enclosed buildings, including the storage of organic fines, mixing, composting/anaerobic digestion and refinement.

Contingency plans will be put in place and any accidents and other emergencies will be handled by on-site personnel in accordance with Bord na Móna emergency response procedures. Emergency response contact numbers for the relevant authorities including the Fire Service, Gardaí, and Ambulance Services will be prominently posted on-site. All site operatives and other relevant employees of Bord na Móna will be regularly trained in emergency response procedures and in fire prevention and control.

3 SOCIO-ECONOMIC

3.1 Introduction

This Chapter assesses the existing environment in addition to the potential impacts on human beings arising from the proposed development. This Chapter will focus on land use, population, employment, tourism and amenities, infrastructure, community gain and health and safety. Mitigation measures will be proposed to mitigate any potential impacts arising from this proposed Drehid MBT Facility development.

3.2 Existing Environment

Land use

The proposed MBT Facility site consists of cutover bog with a mosaic of bare peat and revegetated areas with scrub, woodland, heath and grassland communities present. It is located within a mixed rural/urban setting in northwest Kildare where the settlement pattern is largely dispersed. Within the extended area, farming enterprises intermingle with a multiplicity of industrial and commercial establishments as well as a number of settlements that have developed primarily along a section of the existing national road system. The site is located within the same Bord na Móna landownership boundary as the existing Drehid Waste Management Facility.

Population

All of the existing settlements in the vicinity are at a considerable distance from the subject site, the nearest being Timahoe, at approximately 2.5km from the proposed MBT Facility activity boundary. Between 2002 and 2011, population in County Kildare increased (28%) as did population in the districts of Naas No.1 Rural Area (34%) and Edenderry No. 2 Rural Area (30%). There has also been an increase in the population within the ED of Timahoe South (45%).

Employment

Recent Live Register figures and the Quarterly National Household Survey illustrate that unemployment rates remain high throughout the State, the Mid-East Region and County Kildare. This underscores the need for immediate employment opportunities in the area.

Tourism and Amenities

Fáilte Ireland has identified the top visitor attractions for County Kildare. The nearest of these to the MBT Facility site is the Bog of Allen Nature Centre (Lullymore), southwest of Allenwood, which is located approximately 7km from the MBT Facility site. This centre focuses on Irish Peatland Heritage and all aspects of its history, folklore, nature & wildlife.

Infrastructure

The MBT Facility site is located within the confines of the Bord na Móna landholding and is accessible via a network of regional roads that link with the National Motorway network.

3.3 Potential Impacts

Land Use

The development of the proposed MBT Facility will result in an alteration to the current land use of the Bord na Móna landholding. The cut-over bog and scrubland will be replaced by an MBT Facility with associated infrastructure. As the proposed MBT Facility will be located in close proximity to an existing waste management activity, it is considered that this development will not result in a significant change of use to the overall Bord na Móna landholding.

Population

The development is unlikely to have any significant negative effects on the local or broader population. There is likely to be a positive impact on the local population as some of those employed at the proposed MBT Facility may in fact move into or continue to reside in the locality. Air emissions from the MBT Facility will not cause a nuisance at sensitive receptors. There will be no disruption to the social travel patterns of those residing adjacent to the MBT Facility.

Employment

It is envisaged that approximately 175 people will be employed for construction and a further 74 people will be employed for the operation of the MBT Facility. In addition, there is strong potential for new, spin-off employment in the surrounding area. The increase in staff levels will be a commercial opportunity for local suppliers of goods and services thus stimulating the local economy.

Tourism and Amenities

The MBT Facility site is at a significant distance to any tourist attractions or amenities. Furthermore, traffic generated by the MBT Facility will not adversely impact on visitors travelling to these attractions. The only buildings within the Bord na Móna landholding are those constructed for the development of the existing Drehid Waste Management Facility. The nearest building of historic interest is Coolcarrigan House, 1.6 km to the east. This is screened by an extensive coniferous forest plantation.

Infrastructure

Access from the R403 will follow the existing 4.8 km entrance route of the Drehid Waste Management Facility. Waste haulage contractors will be required to enter into

a contract with Bord na Móna that will strictly control haul routes.

Health and Safety

Impacts regarding health and safety at the development relate primarily to concerns about individuals either straying or trespassing onto the MBT Facility site, alongside the health and safety of each worker or visitor to the MBT Facility. Security fencing will be erected to prevent accidental or intentional trespass onto the MBT Facility site. Warning signs will be placed along the fencing at regular intervals, informing people of the potential hazards associated with unauthorised trespass. The overall Bord na Móna landholding and entrance will continue to be secured against unauthorised trespass and access. The MBT Facility will also have a dedicated secure entrance. All machinery will be locked away during non-working hours and parked within the confines of the MBT Facility. The limited number of houses and absence of walking routes in the vicinity will undoubtedly reduce opportunistic trespass.

Community Gain

The proposed MBT Facility has been designed and will be constructed and operated to Best Available Techniques (BAT). All information will be available to interested parties and a complaints register will be maintained at the MBT Facility site. The EPA will also undertake regular environmental audits.

A Community Liaison Committee has previously been established for the existing Drehid Waste Management Facility. In regard to the proposed MBT Facility, it is proposed that this or a similar committee (for agreement with Kildare County Council) will identify environmental works and community facilities to be funded by the MBT Facility Community Development Fund.

Consistent with previous proposals and permissions, Bord na Móna will agree the establishment of a Community Development Fund with Kildare County Council in respect of the proposed MBT Facility. This fund will contribute to the provision of environmental improvement and recreational or community amenities in the locality. This type of community fund has previously been established for the existing Drehid Waste Management Facility.

The educational room in the Administration and Welfare Building of the MBT Facility will be used for the provision of a public education area for environmental education needs.

3.4 Mitigation Measures

The proposed MBT Facility will be developed in a manner such that the impact on human beings is minimised.

There will be no negative impacts on tourism, employment or infrastructure. Dust, air, odour, noise and surface/ground water will be monitored on site in compliance with an EPA waste licence. The Community Development Fund will provide benefits for the local community. Mitigation measures in relation to the visual impact are discussed in Chapter 10 of the main EIS.

4 ECOLOGY

4.1 Introduction

This chapter presents an Ecological Impact Assessment (EcIA) of the proposed MBT Facility development and should be read in conjunction with the site layout plans and project description section (Sections 1 and 2) of this Non Technical Summary.

The MBT Facility site (29ha) is located in the townlands of Coolcarrigan and Drummond, Carbury, Co. Kildare within a larger Bord na Móna landholding, which comprises 2,544 hectares (ha) consisting largely of cutover bog. The assessment to date has been an iterative process with the aim being to minimise/ avoid ecological impacts as far as possible.

Desktop and field surveys informed the assessment and consultation was conducted with statutory agencies including National Parks and Wildlife Service and Inland Fisheries Ireland.

4.2 Existing Environment (Findings and evaluation)

There are no sites designated under the EU Habitats Directive and EU Birds Directive, i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) located within the footprint of the proposed MBT Facility development site. In addition, there are no National or proposed National Heritage areas (NHA/pNHA) close to the site. The nearest designated site is Hodgestown Bog (NHA) which is located 4km from the site.

No protected or rare floras were noted during surveys.

No protected mammals including badger and otter breeding sites were noted on the site of the proposed MBT Facility.

In general, the habitats present within the site of the MBT Facility consist of cutover bog which has been undisturbed in recent years. A mosaic of bare peat and re-vegetated areas occur with scrub, woodland, heath and grassland communities present.

Habitats evaluated as being of Local Importance (Higher Value) with Common breeding bird species, Frogs, Viviparous Lizard and Common Lizard requiring mitigation consideration as all are considered key ecological receptors.

4.3 Potential Impacts

No adverse impacts are likely to designated sites, protected flora, protected mammals

and bird species of conservation significance.

The site clearance works will involve the permanent removal of approximately 24.4ha of woodland/ scrub/ grassland and heath habitats within the 29ha MBT Facility site. However approximately 14.5ha or c.a. 50% will have retained habitats or new habitats created based on ecological design. The removal of scrub, bog woodland and cutover bog will reduce potential areas of nesting and foraging habitat for common breeding birds locally.

4.4 Mitigation

The following mitigation measures are recommended to limit the direct and indirect impacts of the proposed site clearance/ construction phases on the local ecological environment:

- All construction works on site will be guided by best ecological practice guidance such as those listed in Section 4.1.1 of the main EIS.
- As frogs breed on the site, pre-site clearance surveys of drainage ditches will be implemented to inform best practice during the site clearance phase. If froglets are present then it is recommended that all works in the vicinity of the drainage ditch take place between August and late September before frogs go into hibernation. During site clearance an ecologist will be present to remove frogs and / or Viviparous Lizard to an alternative safe location.
- The works area will be clearly marked and fenced off to minimise impacts to any surrounding habitats of ecological significance.
- There will be no soil storage outside the site area thereby avoiding impacts to adjacent habitats.
- Where possible tree vegetation (birch and willow growth) within the site boundary will be retained for landscaping so as to reduce ecological impact, also refer to the Landscape Plan (Chapter 10 of the main EIS).
- Adjacent tree, scrub and heath vegetation that is to be retained will be clearly marked and fenced off to avoid accidental damage during excavations and site preparation. No materials will be stored within five metres of retained trees and scrub. Materials, especially soil and stones, can prevent air and water circulating to the roots of trees and shrubs.
- The site clearance phase of the proposed development will only take place during daylight hours to minimise potential disturbance risks to nocturnal mammal species.
- Where possible, scrub, tree or heath removal will be undertaken outside of the bird nesting period, which begins on March 1st and continues until August 31st, in order to protect nesting birds. All birds and their nesting places are protected under the Irish Wildlife Act 1976 (as amended 2000).
- As an extended period of time may arise prior to site clearance works, pre-site clearance ecological survey checks will be conducted to update baseline

ecology and to determine any site specific recommendations for minimising impacts to potential key ecological receptors.

- Extensive site works such as site excavation will not take place during extended periods of heavy rain in order to minimise soil and silt water run off to silt traps.
- Soil storage will be in a manner which avoids impacts to surface waters and instability issues.
- Bund areas created will be replanted with native vegetation similar to species currently growing on the site.
- Two new ponds will be created within the site and designed based on ecological principles and having regard for species such as frog as these ponds will provide suitable breeding habitat.

4.5 Conclusion

No impacts will arise to sites designated for conservation purposes and protected fauna and flora. The impacts will be localised to within the MBT Facility site boundary (29ha site). The post construction Landscape Plan will reduce the overall impact as a significant proportion of the site (approximately 14.5ha or c.a. 50%) will have retained habitats or new habitats created based on ecological design.

5 SOILS, GEOLOGY & HYDROGEOLOGY

5.1 Introduction

The baseline assessment of the soils and geology is concerned with an appraisal and description of the deposits within the MBT Facility site. The information contained in this section has been divided into sub-sections, so as to describe the various aspects pertaining to soil, geology and hydrogeology.

5.2 Existing Environment

The principal dominant soil within the site comprises basin peat deposits. The proposed MBT Facility has been positioned to, inter alia, minimise the volume of peat that is required to be removed. The contact between the peat deposits and the underlying glacial subsoil is very pronounced, with a sharp change between the two materials. The subsoils, which underlie the site, are predominantly low permeability tills. The groundwater vulnerability rating is classified as *'Low Vulnerability'* which is the rating that affords greatest natural protection against contamination.

5.3 Potential Impacts

Potential impacts during the construction phase include activities associated with the movement, excavation and disposal of soils, contaminated materials (if present), compaction of soils and construction of roads. This can result in temporary and permanent impacts on the geological environment.

In order to minimise any potential impact on the environment, including the soil, geological and hydrogeological environment, 'Avoidance of Impact' was incorporated into the design of the development. For example, one of the considerations when selecting the site within the Bord na Móna landholding was minimising the depth of peat that would require excavation.

Earthworks and excavations are likely to cause the greatest impact on the soil environment during the construction phase. Imported material required for the construction of the facility will require appropriate handling during the construction phase.

All excavations within the MBT Facility site will be terminated in the unconsolidated material with the exception of driven piles which may be required during the construction phase; potential impact on the bedrock environment will be negligible. It will be necessary to progressively clear the peat material from the proposed footprint in order to achieve formation levels for proposed construction. The peat and subsoil material will be used to screen the proposed facility as outlined in section 10 of the main EIS.

The potential impact associated with exposed soil surface principally relates to sediment laden run-off to watercourses. Management and control of water falling on worked areas will be an important aspect in minimising the impact of construction. Mitigation measures are proposed in section 5.5 of the main EIS to reduce the impact on the soil environment. The implementation of such measures will ensure that surface water discharges will be of good quality.

Due to the low permeability of the natural subsoil and the thickness of this unconsolidated material, the potential impacts on any domestic wells or boreholes in the broad vicinity of the proposed facility are considered low.

The proposed facility will not impact upon the quality or abstraction rate of any supplies in the area. The proposed MBT Facility is outside of the source protection zones of both the Robertstown well field and the Johnstown Bridge well field (over 5 km from the MBT Facility). Therefore the proposed MBT Facility will not impact upon these abstractions.

Operational Phase

Due to the nature of the proposed development, machinery will be present and operational on the MBT Facility site. This may lead to occasional accidental emissions, in the form of oil, petrol or diesel leaks, which could cause contamination if the contaminants entered the soil environment. However, given that the MBT Facility site is underlain with low permeability subsoil, the potential for migration offsite is low/negligible. Contaminated groundwater/soil would be contained in the shallow subsoil environment and treated in accordance with mitigation measures outlined below.

5.4 Mitigation Measures

The mitigation measures proposed herein are to ensure that the proposed development has minimal impact on the soil, geology and hydrogeology environment. As detailed above, during the development design, "Avoidance of Impact" was incorporated into the design rationale.

During the construction of the MBT Facility and especially when excavation of unconsolidated material is required, standard approved working methods will be employed to reduce the risk to the surrounding environment. Temporary and permanent water control measures, comprising temporary sediment control measures and permanent settlement lagoons, will control the quality of any water discharged from the site of the MBT Facility.

During the course of progressive ground clearance for the proposed MBT Facility footprint, the excess soil material will be used to create visual berms where possible. To mitigate soil erosion, all exposed soil surface will be anchored by vegetation

and/or by use of ground stabilisation geogrids. During construction work and until vegetation has anchored the embankments, any water accumulating on exposed soil will be diverted through settlement lagoons.

The use of piled foundations for the MBT Facility buildings will minimise the requirement for subsoil and peat removal from large areas of the MBT Facility site.

Given the above mitigation measures proposed, it is considered that the impact on the geological and hydrogeological environment will be negligible and permanent.

Operational Phase

The avoidance of impacts is integral to the design and operation of the MBT Facility. The proposed MBT Facility will comprise fully enclosed dedicated buildings for the treatment and processing of waste. These buildings in turn will be fully bunded to prevent leachate and process water from entering the soils and groundwater environment at the proposed MBT Facility site.

All potentially polluting materials, including hydraulic fluid, engine oil and fuel, will be stored in bunded areas to ensure total containment in the event of failure of the storage tank/piping. Any vehicles utilised during the operational phase will be regularly maintained and checked to ensure any damages or leakages are corrected. This will reduce the risk of soil contamination due to activity of plant and equipment.

If any leakage occurs to the shallow subsoil/groundwater, the potentially polluting material will be contained by the presence of low permeability subsoil material and cannot enter the underlying aquifer. Any contaminated material can be collected and treated in an appropriate manner according to best practice and the waste management act 1996-2011. As part of the operational phase and in compliance with future waste licence conditions, groundwater monitoring will be undertaken at the MBT Facility.

Given the above mitigation measures proposed (and the measures included in Chapter 6 of the main EIS (Water)), it is considered that the impact on the geological and hydrogeological environment will be low/negligible albeit permanent.

6 WATER

6.1 Introduction

The proposed MBT Facility will occupy an area of 29ha and will be located in the southern portion of the Bord na Móna landholding. The Bord na Móna landholding in this area has been utilised for the industrial harvesting of peat over an approximate 50 year period. Artificial drainage of the bog has resulted in an alteration of the natural hydrology and therefore this assessment details the surface water and groundwater environment at its current state.

6.2 Existing Environment

The artificial drainage network heavily influences the current appearance of the bog. The entire site has been divided into a number of compartments, referred to as 'peat fields' due to the excavation of east-west trending artificial surface drains. All surface water draining from the proposed MBT Facility site drains to the west to the Cushaling River, which is a tributary of the River Figile. The River Figile is a sub-catchment of the River Barrow.

Extensive groundwater and surface water baseline sampling has been carried out on and adjacent to the site. The surface water sampling programme indicates that the quality is generally good; however the setting of the site is naturally impacting the quality of water. The reducing environment of the bog is resulting in elevated ammonia, manganese and iron concentrations for example. The organic analysis indicates that pesticides, herbicides and organic solvents are not detected in the area. Data on historical flooding is limited but the records do not indicate that flooding occurred at the proposed MBT Facility site or on the Cushaling River immediately downstream. No records of flooding were noted based on desk study information and on site information for the proposed MBT Facility location.

The Water Framework Directive (WFD) requires 'good water status' for all European waters. The Cushaling River was identified as at risk of failing to meet the objectives of the WFD by 2021.

6.3 Potential Impacts

The regional hydrological setting will not be significantly impacted by the proposed development.

During the construction of the MBT Facility there will be a requirement to provide temporary sanitary facilities at the site compounds. It is not proposed to discharge wastewater from the site compounds.

The construction of the MBT Facility has the potential to have a negative impact on the surface water and groundwater environment if not managed properly. All construction activities will be confined to a 29ha landbank, which is referred to as the MBT Facility site activity boundary.

The existing artificial drainage infrastructure will only be impacted in areas of the site where construction occurs. It is proposed to re-route drainage channels at the periphery of the construction zones to minimise the volume of water that could potentially be impacted.

There is the potential for the release of sediments into watercourses as a consequence of soil stripping and also due to potential run-off and erosion from soil stockpiles. Details of water treatment (where appropriate) is outlined in Section 6.4 of the main EIS.

MBT process waste water will be fully contained, therefore there will be no discharge of waste water to the water environment. The acceptance and treatment of waste will only take place within fully enclosed and bunded MBT Facility buildings. Waste water will be recycled within the MBT process. It is envisaged that no excess process waste water will be generated by Configuration A (MBT with Composting) while an estimated 3,285 m^3 of process water will be generated by Configuration B (MBT with Dry Anaerobic Digestion and Composting). Process water will be managed as outlined below Section 6.4 of the main EIS.

As such, the water quality of the Cushaling River will not be impacted by the operation of the MBT Facility. The operation of the MBT Facility has the potential to increase the rate of surface water runoff from this site. Mitigation measures are outlined in Section 6.4 of the main EIS and summarised below.

6.4 Mitigation Measures

In the case of MBT Configuration A (MBT with Composting), all waste water produced by the MBT process will be reused in the process. However, in the case of Configuration B (MBT with Dry Anaerobic Digestion and Composting), the worst case scenario considers that all waste water produced by the MBT process may not be reused in the process and that an estimated 3,285 cubic metres per annum will require treatment off-site at an EPA licensed waste water treatment facility.

During the construction phase and the operational phase a high standard of environmental engineering practices will continue to be utilised to minimise the impact of the facility on the surrounding surface water environment.

In order to reduce the risk of sediment laden water adversely impacting surface water, measures will be implemented to divert such water through treatment systems

(settlement lagoons) prior to discharge to receiving waters.

Three additional lagoons will be constructed for the MBT Facility and an existing lagoon will also be utilised. The settlement lagoons will mitigate the potential of sediment laden run-off impacting the surface water environment in the environs of the proposed development site.

There will be no uncontrolled discharge from the MBT Facility to the surface water environment. Regular sampling of the surface water environment will be undertaken downstream of the waste management facility to ensure that on-site activities are not causing an adverse impact on the natural water quality.

Given the mitigation measures proposed, it is considered that the impact on the water environment will be low/negligible and permanent.

7 CLIMATE

7.1 Introduction

This Chapter assesses the impact on climate arising from the proposed Drehid MBT Facility located within the Bord na Móna landholding in the townlands of Coolcarrigan and Drummond, Carbury, Co. Kildare.

7.2 Existing Environment

Rainfall

In order to give reliable climatic data on a particular area a weather station should be located within 10km of the site and in operation for at least 30 years. A rainfall station is located at Lullymore (Bord na Móna) approximately 3.9m south west of the proposed MBT Facility. This station was in operation from 1945 to 1992 (47 years). Casement Aerodrome is the nearest synoptic station and it is located approximately 29km east of the proposed facility. This station began operating in 1944.

Based on meteorological data from the above measuring stations, the average monthly, annual precipitation levels and effective rainfall for the proposed Drehid MBT Facility can be calculated.

7.3 Potential Impacts

During the construction phase of the proposed development, the potential impacts on climate will be those associated with dust and exhaust emissions from construction traffic. These impacts will be of temporary duration and their impacts are not considered to be significant.

During the operational phase of the proposed development, the potential impacts on climate are likely to arise from emissions from mobile plant e.g. loading shovels, mechanical grabs etc. Under Configuration B (MBT with Dry Anaerobic Digestion and Composting), emissions may also arise from the CHP plants and from the standby gas flare (when in use).

Methane is a harmful greenhouse gas if it escapes to atmosphere. By virtue of the biological process in the proposed MBT Facility, biodegradable municipal waste will be biostabilised thereby eliminating its potential to generate methane (a harmful greenhouse gas) and leachate, thus contributing to the fulfilment of Ireland's targets under the Landfill Directive (1999/31/EC).

Under Configuration B (MBT with Dry Anaerobic Digestion and Composting), dry anaerobic digestion will generate biogas from biodegradable waste. The biogas

produced will be used to produce renewable electricity and heat. The generation of renewable electricity from biogas results in no net increase in greenhouse gas emissions. Given that the production of renewable electricity displaces the production of electricity from fossil fuels, the dry anaerobic digestion step in Configuration B (MBT with Dry Anaerobic Digestion and Composting) will reduce overall carbon dioxide emissions to the atmosphere and the potential impacts of climate change.

7.4 Mitigation Measures

During the construction phase of the proposed development, all contractors will ensure that machinery used on site is properly maintained and is switched off when not in use to avoid unnecessary dust and exhaust emissions from construction traffic.

The proposed MBT Facility will include a building ventilation system and an odour abatement system.

Under Configuration B (MBT with Dry Anaerobic Digestion and Composting), the dry anaerobic digestion step will generate biogas which is considered a carbon neutral fuel, thereby resulting in the production of carbon neutral electricity (i.e. where there is no net increase in greenhouse gas emissions). Emissions from the CHP plants' stack will be maintained below emission limit values imposed by the EPA in the form of a waste licence for the proposed MBT Facility. Monitoring of emissions will be in accordance with the conditions of an EPA waste licence. A standby gas flare will be provided to facilitate the thermal destruction of the biogas in the event of unavailability of the CHP plants and insufficient volume in the biogas storage units.

7.5 Conclusion

Configuration A (MBT with Composting)

The proposed MBT Facility will result in a number of environmental benefits including the lowering of greenhouse gas emissions by the diversion of waste from landfill and by the stabilisation of biodegradable municipal waste prior to landfilling. The proposed development will assist Ireland in meeting its commitments under the Landfill Directive (1999/31/EC) and the Kyoto protocol.

Configuration B (MBT with Dry Anaerobic Digestion and Composting)

Similar to Configuration A, the proposed MBT Facility will result in a number of environmental benefits including the lowering of greenhouse gas emissions by the diversion of waste from landfill and by the stabilisation of biodegradable municipal waste prior to landfilling.

The proposed development will also assist Ireland in meeting its commitments under

the Landfill Directive (1999/31/EC), the Kyoto protocol and the EU Directive 2001/77/EC on electricity from renewable sources.

8 AIR

8.1 AIR QUALITY, ODOUR & BIOAEROSOLS

8.1.1 Introduction

AWN Consulting Ltd. has been commissioned to carry out an air quality impact assessment including an air dispersion modelling study of air, odour and bioaerosol emissions from the proposed Drehid MBT Facility at the townlands of Coolcarrigan and Drummond, Carbury, County Kildare based on the design details. The purpose of this assessment is to determine whether the air, odour and bioaerosol emissions from the facility will lead to ambient concentrations which are in compliance with the relevant ambient air quality standards and guidelines for odour, nitrogen dioxide (NO_2), sulphur dioxide (SO_2), & particulate matter less than 10 (PM_{10}) and 2.5 ($PM_{2.5}$) microns.

8.1.2 Existing Environment

A baseline monitoring study was carried out close to the Drehid MBT Facility for the pollutants NO_2 and SO_2. Results indicated that the site currently experiences levels of these pollutants well within the ambient air quality standards.

8.1.3 Potential Impacts

The potential impacts from the facility includes odour nuisance from the treatment of municipal waste, bacteria emissions from the composting of the organic fines, and emissions of NO_2 and $PM_{10}/PM_{2.5}$ from the CHP associated with Configuration B (MBT with Dry Anaerobic Digestion and Composting).

8.1.4 Mitigation Measures

Stack height determination was undertaken to ensure that the appropriate stack height for the proposed biofilters was selected such that the impact on the surrounding environment would not be significant. The stack height selection process established that a stack height of 20m for each new biofilter stack and the CHP stack (consisting of two CHP emission points) was appropriate in ensuring that no adverse impact would occur in the surrounding environment in terms of air quality, bioaerosols and odour.

The Drehid MBT Facility site will also operate an odour mitigation / management plan which includes a range of practical odour abatement measures. All processes will be internal within buildings under negative pressure so air will not escape from the buildings. Air from the Mechanical Treatment Building and the Refining Building will pass through a dust filter prior to passing through the odour abatement system. An odour management plan will be developed prior to the detailed design

and construction of the facility. This plan will include management strategies for the prevention of emissions and a strict preventative maintenance and management program for ensuring that all odour mitigation techniques remain operational at optimal capacity throughout all operational scenarios. Good housekeeping practices (internally and externally) and a closed-door management strategy will also be maintained at all times.

In the case of Configuration B (MBT with Dry Anaerobic Digestion and Composting), a standby gas flare will be provided to facilitate the thermal destruction of the biogas in the event of unavailability of the CHP plants and that there is insufficient volume in the biogas storage bladders.

8.2 DUST

8.2.1 Introduction

For this report baseline dust monitoring was undertaken within the vicinity of the proposed Drehid MBT Facility development site in January/February 2012.

8.2.2 Existing Environment

A review of the existing 2011 monthly dust monitoring results for the Drehid Waste Management Facility and the 2012 results of dust monitoring at the proposed Drehid MBT Facility site confirmed that all dust-monitoring locations within the Bord na Móna landholding are below the compliance threshold limit of 350mg/m^2/day, when measured using the TA Luft Bergerhoff Method.

8.2.3 Potential Impacts

Wind blown dust emissions may arise during the construction of the proposed MBT Facility development. The main potential source of dust throughout the operational phase for both Configuration A (MBT with Compositing) and Configuration B (MBT with Dry Anaerobic Digestion with Composting) will be from traffic entering and exiting the MBT Facility.

8.2.4 Mitigation Measures

Bord na Móna will endeavour to ensure that dust emissions are kept to a minimum at all locations and will take all reasonable steps as far as is practical to minimise dust emissions during both the construction and operational phases of the proposed development.

It is anticipated that with the implementation of the proposed mitigation measures during the construction and operational phases, dust emissions from the proposed

Drehid MBT Facility will be in compliance with recommended limits when measured using the TA Luft/VDI 2119/Bergerhoff Method and will not have a perceptible impact on the local or regional environment.

9 NOISE & VIBRATION

9.1 Introduction

This noise and vibration assessment addresses the potential noise and vibration impacts associated with the proposed Drehid Mechanical Biological Treatment (MBT) Facility. The proposed MBT Facility will primarily accept and process municipal solid waste and will provide for an overall capacity of 250,000 tonnes per annum (TPA).

Methodology

The assessment takes cognisance of the existing and future landfill operations within the Bord na Móna landholding in addition to the operation of the composting facility. The existing Drehid Waste Management Facility's current planning permission to accept waste is due to expire in 2028 so this study represents the worst case scenario during the operation of the proposed MBT Facility (which will extend beyond 2028).

9.2 Existing Environment

The existing environment within the Bord na Móna landholding is a remote location, containing an operational landfill with associated infrastructure and a composting facility.

9.3 Potential Impacts

There is potential for noise and vibration impacts during both the construction and operational phases of the proposed development. The predicted construction noise levels are in compliance with the recommended noise levels for construction projects. With regard to potential vibration impacts, a distance separation of approximately one kilometre from the proposed site of the MBT Facility to the nearest sensitive receptor should ensure that these limit values are complied with. The operational phase noise emission data for all noise emitting plant proposed for use in the proposed MBT Facility have been used to facilitate this assessment. Cumulative impacts at sensitive receptors will be below the target criterion for both day and night time operations in all scenarios.

9.4 Mitigation Measures

Construction Phase Mitigation

With regard to construction activities, all plant items used during the construction phase should comply with standards outlined in 'European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1998. Reference should be made to BS5228: Noise control on construction and open sites,

which offers detailed guidance on the control of noise from construction activities.

Operational Phase Mitigation Measures

During the operational phase of the proposed MBT Facility, the design and layout of the MBT Facility buildings will in itself serve as a mitigation measure by virtue of the fact that all MBT processing equipment will be located within fully enclosed buildings. Potential noise emitting plant will be acoustically treated to prevent a noise nuisance at the nearest noise sensitive properties. This phase of the development is not anticipated to significantly increase noise within the surrounding environment.

9.5 Conclusion

The proposed MBT Facility is predicted to be in full compliance with all applicable noise and vibration limit values during both the construction and the operational phases of the development during both the day and night scenarios. As such no significant noise and vibration impact is predicted from the proposed scheme.

10 LANDSCAPE AND VISUAL

10.1 Introduction

The Environmental Impact Statement describes the predicted landscape and visual effects of the proposed Drehid Mechanical and Biological Treatment (MBT) Facility. Potential effects on the character of the landscape and on views from settlements, public roads and designated landscapes are described. Mitigation measures have been proposed for reducing the identified potential effects.

The methodology used for the assessment follows standard industry guidelines and refers to Kildare County Development Plan 2011-2017 for existing descriptions of landscape character, designated landscapes and the location of scenic routes and viewpoints.

10.2 Receiving Environment

A site survey assessed the character of the landscape and the most sensitive features and views.

The proposed site is located in the townlands of Coolcarrigan and Drummond, Carbury, Co. Kildare within a Bord na Móna landholding. The proposed MBT Facility site is located approximately 1km south of the existing Drehid Waste Management Facility and consists of cutover bog with areas of regenerating scrub.

The Bord na Móna landholding is surrounded by agricultural landscape of medium-sized and larger fields, an established hedgerow infrastructure and clusters of mature trees. Regenerating vegetation is beginning to enclose some of the views across the landholding. The eastern bog edge is mainly bordered by mixed coniferous and deciduous tree belts. Isolated tree plantations can be found to the west.

The Bord na Móna landholding is enclosed by a network of regional and local roads. An access road to the existing Drehid Waste Management Facility enters the landholding directly from the R403 in the southwest and will also facilitate access to the site of the proposed MBT Facility.

There are residential and farm properties along all of the surrounding roads, with a higher density of settlement around Derrinturn and Allenwood.

The Grand Canal runs 3-4km to the south and southwest of the Bord na Móna landholding.

10.3 Potential Effects

Potential effects are divided into landscape effects and visual effects. Landscape effects are the result of physical changes to the fabric of the landscape resulting from new development. Visual effects relate closely to landscape effects but concern changes in views. The definitions of terms used to describe effects are contained in Chapter 10 of the main EIS.

The difference in the landscape and visual effects between Configuration A (MBT with Composting) and Configuration B (MBT with Dry Anaerobic Digestion and Composting) are considered negligible and therefore the potential effects for both configurations are the same.

Figure 10.1 and Photosheets 1-5 accompany the written chapter on landscape and visual effects (see Chapter 10 of the main EIS).

Visual Effects

Views in the immediate vicinity of the applicant site

The proposed MBT Facility would be visible at close range from the existing private access road to the Drehid Waste Management Facility within the Bord na Móna landholding. The visual effects at such close range would be substantial, but given the context of the site in the vicinity of the existing Drehid Waste Management Facility, the nature of the visual effects would be neutral.

Views from within 3km of the site

The highest visual effects would be on views from the local road (L50222) to the immediate west of the application site. Views of the MBT Facility would be interrupted by intervening vegetation and at a viewing distance of over 1km will result in negligible visual effects. Open views will be experienced along the final 500m of this road as there is little intervening vegetation. Views of the existing Drehid Waste Management Facility are possible from these locations. However, the MBT Facility would be equally visible on the horizon, though appearing smaller due to the effects of distance. The resulting visual effects would be moderate.

There is a short stretch of approximately 300m of road, 2km west of Timahoe, where the roadside vegetation opens up to reveal open views of the Bord na Móna landholding. The upper parts of the proposed MBT Facility may be visible over the existing trees in the distance, but the visual effects would be slight.

The remainder of the study area, within a 3km radius of the site, would generally not experience any visibility of the MBT Facility. Upper parts of the proposal may be visible from properties on roads along the edges of the bog where there is no significant intervening vegetation; visual effects in these areas would be slight. The forestry plantations surrounding most of the Bord na Móna landholding and the flat

nature of the landscape would generally screen the MBT Facility from the surrounding areas.

Views from 3km+ radius of the site

Views from public roads of the proposed MBT Facility would range between slight and negligible due to intervening vegetation and the effects of distance.

Landscape Effects

The landscape character of the Bord na Móna landholding has undergone change – from an initially intact bog, to large scale peat extraction, to a landscape of regenerating cutover bog and more recently to one which includes industrial waste management. The permitted Drehid Waste Management Facility is located approximately 1km north of the MBT Facility site. The construction of the proposed MBT Facility is therefore not significantly uncharacteristic within the context of recent landscape character change and will therefore have low to moderate localised effects on landscape character.

Views from outside of the site boundary are limited. However, due to intervening vegetation, effects on the character of the wider landscape are generally negligible.

10.4 Mitigation Measures

Mitigation Measures were taken into account to minimise landscape and visual effects, these included:

- Location of the proposed development
- Materials and colour
- Vegetation (including proposals for new screen planting along the boundary of the proposed MBT Facility Site)

The location of the proposed MBT Facility generally results in good screening within the landscape due to its distance to sensitive receptors and the screening effects of intervening vegetation.

A landscape plan has been prepared for the site (refer to Landscape Plan, Chapter 10 of the main EIS and Drawing 6301-2321 (Volume 3 of the EIS)) indicating the proposed mitigation measures.

10.5 Residual Impacts

Residual impacts are the impacts that remain after establishment of mitigation measures. Overall, the site is well screened within the wider landscape, the implementation of the proposed mitigation measures (including the retention of as

much existing vegetation as possible) will further screen the site.

The upper parts of building structures and stacks may be visible in the immediate vicinity of the proposed MBT Facility Site, and at isolated identified locations approximately 1km and 2km to the west of the site and 2km to the north of the proposed site.

It is expected that white plumes will be released by the stacks on an intermittent basis. Their visibility will depend on ambient air conditions, temperatures and seasonal aspects. It is expected that the plumes will be more visible in winter, when ambient temperatures are lower.

11 TRAFFIC

11.1 Introduction

This chapter assesses the potential impact that both the construction and operational phases of the proposed Mechanical Biological Treatment (MBT) Facility will have on the surrounding road network.

11.2 Existing Environment

Traffic surveys were carried out on the surrounding road network in order to determine background traffic flows on the haul routes that will be used by MBT Facility traffic. In addition to these traffic surveys, further traffic data has been sourced from Kildare County Council and the National Roads Authority.

The proposed development is located within the townlands of Coolcarrigan and Drummond, Carbury, Co. Kildare within an overall landholding which is under the ownership of Bord na Móna. The site is accessible via a network of regional routes which in turn link with the National Primary Road / Motorway network. Access to the site will be provided by an existing entrance on the R403. The R403 lies south, southwest and west of the site and joins the R402 at Carbury to the northwest of the site.

It is proposed that traffic will be dispersed over these routes. The significant majority of the roads making up the haul routes are sufficiently wide to accommodate two way HGV movement along them. Where there are narrow sections along a haul route, these sections are short in nature with ample opportunities for vehicles to pass.

11.3 Potential Impacts

All construction contractors, and all contractors delivering waste to the proposed MBT Facility, will be issued with a map of permitted haul routes such that all materials imported into the proposed development or exported from the proposed development are transported via one of the identified haul routes. The exact distribution pattern of traffic generated by the MBT Facility is not known so a series of stress tests have been applied to the haul routes using differing distribution patterns in an attempt to illustrate both the highly unlikely scenario, where all traffic travels to and from the development in the same direction, and the more likely scenarios where generated traffic is split in some proportion.

In some of the more extreme stress tests considered, some sections of the haul routes during the operational scenarios would experience a net percentage increase in HGV traffic of approximately 16% compared to predicted background HGV traffic volumes. In actuality it is more likely that one of the more balanced distributions will

prevail and would result in a maximum net percentage increase in HGVs during the operational scenarios of approximately 10.5% compared to predicted background HGV traffic volumes.

Adequate visibility splays of 3.0 x 160m have been provided at the existing entrance junction at the R403. A ghost island junction has been provided at the existing entrance with a right turning lane. This is adequate for the proposed traffic increases.

11.4 Mitigation Measures

The following are measures that will be implemented to mitigate the impact associated with the development:

- Photographic survey of haul roads prior to commencement of construction;
- Continuous monitoring of haul roads throughout both the construction and operational phase;
- All contractors, delivering waste to the facility and removing outputs from the facility, and all construction contractors will be issued with a map of the permitted haul routes such that all materials imported into the site and exported out of the site are transported via one of the identified haul routes. A penalty system will be operated by Bord na Móna to ensure haulage operators comply with these requirements;
- Wheel wash facilities at the MBT Facility during both the construction and operational phase;
- Maintenance of warning signage on the approach to the entrance;
- Monitoring of car parking requirements during the operational phase with additional spaces to be provided if required;
- Maintenance of site entrance ensuring visibility splays remain intact; and,
- Monitoring of haul routes for problems such as congestion and refining the routes where required.

11.5 Conclusion

The main conclusions of the Traffic Impact Assessment, as outlined in the Main EIS, include the following:

- The volumes of traffic that will be generated by the proposed Drehid MBT Facility will have no significant impact on traffic flows on the haul routes with reference to the terms outlined in the NRA "Traffic and Transport Assessment Guidelines";
- It is considered that the existing road network is capable of accommodating the net increase in generated traffic associated with the proposed MBT Facility;
- The R402 Road Improvement Scheme will further improve the haul route for vehicles accessing the proposed MBT Facility from the north;

- The existing site entrance will operate below the desired 0.85 RFC up to and including the design year of 2035, with the inclusion of MBT Facility generated traffic;
- The regional road network comprising the haul routes will operate below capacity up to and including the design year of 2035; and,
- There will be a negligible net increase in HGV traffic as a result of the proposed MBT Facility which may have minimal impact on the pavement condition along the haul routes.

12 ARCHAEOLOGY/CULTURAL HERITAGE

12.1 Introduction

The archaeological assessment of a proposed Mechanical Biological Treatment (MBT) Facility was undertaken by Arch Consultancy Ltd. The proposed development is located in the townlands of Coolcarrigan and Drummond, Carbury, County Kildare. The site consists of an area of cutover bog located immediately east of the private access road to the existing Drehid Waste Management Facility located within the same Bord na Móna landholding. Two separate configurations for the Drehid MBT Facility are proposed –Configuration A (MBT with Composting) and Configuration B (MBT with Dry Anaerobic Digestion and Composting). The archaeological assessment was conducted in order to determine if any previously unrecorded sites exist in the area proposed for development. The assessment involved an analysis of previous work on the site and a walkover survey of the proposed development.

12.2 Existing Environment

Timahoe Bog is part of Bord na Móna's Allen group of bogs which were first brought into industrial peat production in the 1950's. Peak production at Timahoe Bog was achieved during the 1960's when the bog was in sod peat production. The peat was removed from the bog via a railway system, with many of the tracks, or sections of them still in place. One such section of track runs from east to west through the proposed development site. Industrial production at the site was gradually phased out over the last twenty two years as most of the bog was cut away and the poor quality of the remaining peat made further peat harvesting uneconomical. Small scale production for domestic purposes continues at the margins of the commercially cut away bog.

To reduce the moisture content of the peat material during the years of peak industrial activity it was necessary to drain the entire bog. This was achieved by the excavation of a network of east to west running drains that discharged into a central underground culvert that ran from north to south. The drainage network facilitated heavy plant and machinery to safely traverse the bog. As a result of the drainage channels the entire site is divided into plots referred to as 'peat fields'. These turf plots span the length of the bog. In some areas they have been exploited to a depth of 0.5m-1m above the natural mineral soil.

The surface areas of the proposed development site consist of tracts of flat low-lying bog with varying densities of vegetation cover. The walk over survey was restricted to areas where over-growth was sparse or non-existent. Inspection of drain section faces and a walkover of the area yielded nothing of archaeological interest. Furthermore the archaeological assessment found that the proposed development will

not impact on any known features or artefacts.

12.3 Potential Impacts

Archaeological finds recorded in the topographical files of the National Museum of Ireland indicate human activity in the general area from the Neolithic period with many of the artefacts recovered from a peat environment. A number of archaeological artefacts and sites have been recorded to the north of the proposed development site. All the identified sites are trackways- called toghers from the Irish word tógher meaning causeway (Harbison 1988). These trackways invariably transverse bogs at the narrowest crossing point. While the bogs have since been harvested it is possible that further artefacts and/or features survive in the lower levels of peat.

Given the partly overgrown nature of the site of the proposed development a full survey of the area proved problematic. The archaeological and cartographic records indicate no features of archaeological significance in the area of the proposed development.

12.4 Mitigation Measures

The evidence from archaeological monitoring of all ground disturbance associated with the Drehid Waste Management Facility to the north suggests that the area is devoid of archaeology. In 2006 archaeological monitoring of the initial phases of the Drehid Waste Management Facility revealed nothing of archaeological significance. This work included monitoring of the access road located to the west of the proposed MBT Facility. In 2008/9 further monitoring was carried out in advance of the construction of additional landfill cells (Phases 3, 4 & 5). Further monitoring associated with a biowaste composting facility was undertaken in 2010-2011. Nothing of archaeological interest was noted during the course of these groundworks. While the possibility of archaeological artefacts or features surviving at the site seems slight it cannot be discounted. Therefore all ground disturbance associated with the development will be monitored by a suitably qualified archaeologist. Furthermore in advance of construction all vegetation on the site will be cleared to enable a full appraisal. The route of the existing railway will be recorded to ensure its documentation as part of the industrial heritage of the site.

13 INTERACTION OF THE FOREGOING

The most significant possible interactions are between the following potential impacts and human beings and the material assets of the area:

- Visual intrusion
- Noise
- Air quality
- Traffic

However, with the mitigation measures outlined in the preceding sections of the Non-Technical Summary in relation to visual intrusion, noise, air quality, and traffic, the likely effects of the proposed development on the local residents and material assets are expected to be relatively insignificant.

While there is potential for the above impacts to interact and result in a cumulative impact, it is also unlikely that any of these cumulative impacts will result in significant environmental degradation.

The proposed MBT Facility site is sited at a significant distance from the local road network and residential properties, with the nearest residence being approximately 1km from the proposed MBT Facility footprint. Avoidance of impacts was used throughout the design of the development. The mitigation measures proposed are designed to further ameliorate the impact of the proposed Drehid MBT Facility on the wider environment and the potential cumulative impact of the development within the same Bord na Móna landholding as the permitted Drehid Waste Management Facility.