1 INTRODUCTION

1.1 BACKGROUND

Organic Gold (Marketing) Ltd. of Wilkinstown, Navan, Co. Meath is an existing waste composting facility located in a predominantly rural area (Refer to site location map in **Fig 1.1**). Current operations at the site primarily involve the composting of green waste, woodchip, sludge and other commercial organics to produce compost to be used for land restoration such as quarry reinstatement and road construction. Composting activities at the site are currently permitted by Meath County Council since 2002 under waste permit (WMP 2002/26).

Other activities at the site involve the specialised production of two specialised fertiliser products: Organic Gold Multi-purpose Compost and a High Grade Fertiliser Product which have been ongoing at the site since 1986 and take place in the fertiliser production building. Previous to this, the site has been in agricultural use for a number of decades, and has been in the ownership of the Finnegan family throughout this time.

The facility is located on 4.5 hectares of land and the facility essentially consists of three parts:

1. Site Buildings and Fertiliser Production Shed (1.2 ha)
2. Paddock Area (1.5 ha)
3. The Composing Slab (1.8 ha)

Organic Gold have been requested by Meath County Council to prepare an Environmental Impact Statement (EIS) which will accompany a planning application for the retention of the composting slab and permission to erect a boundary fence and to carry out some landscaping on the site. Some additional proposals are now being made, including the erection of a waste reception building and an in-vessel composting system.

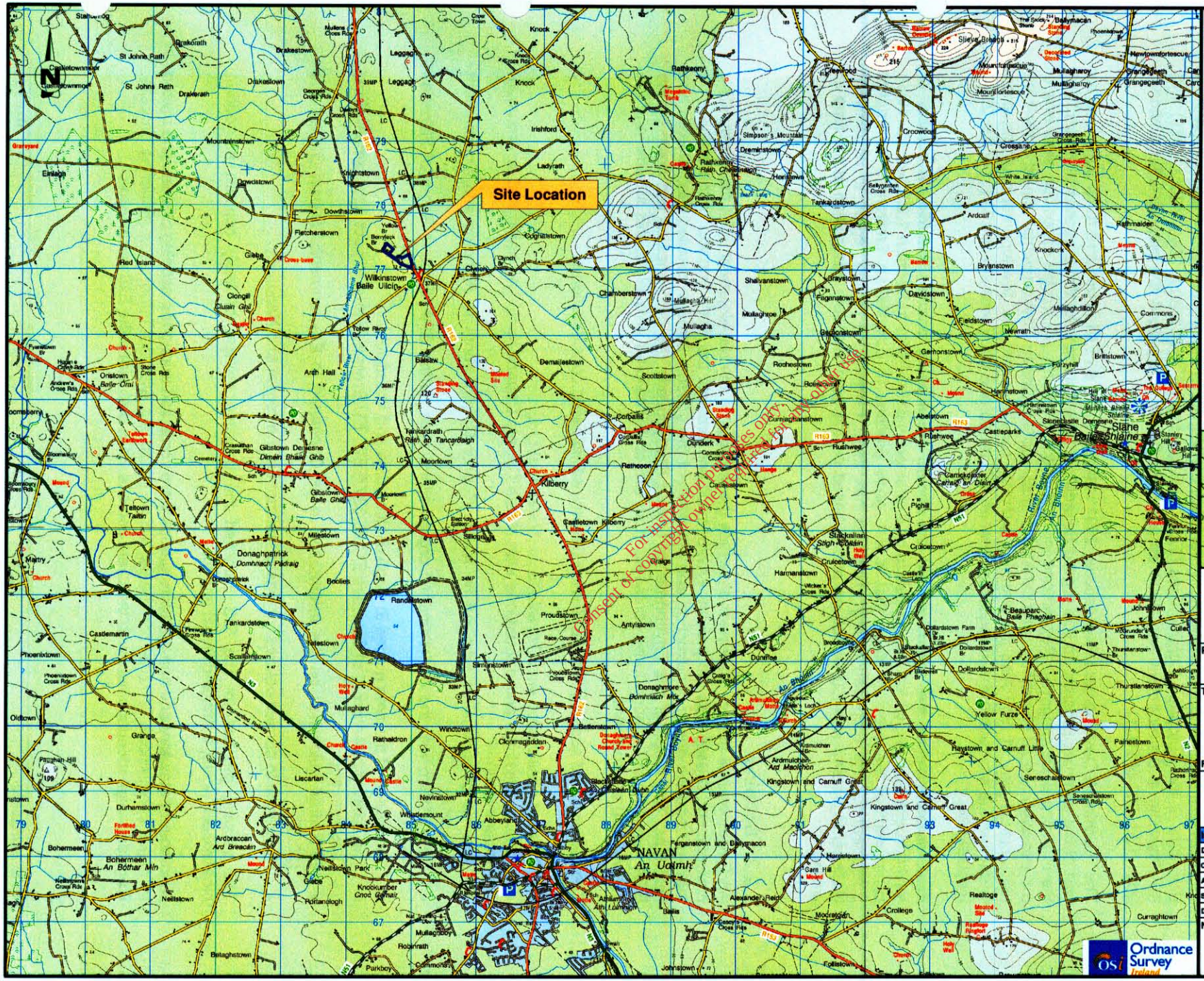
Organic Gold are also applying for a Waste Licence to the Environmental Protection Agency, which will allow them to increase throughput at the plant. This EIS will also accompany the Waste Licence Application to be made in early 2005.

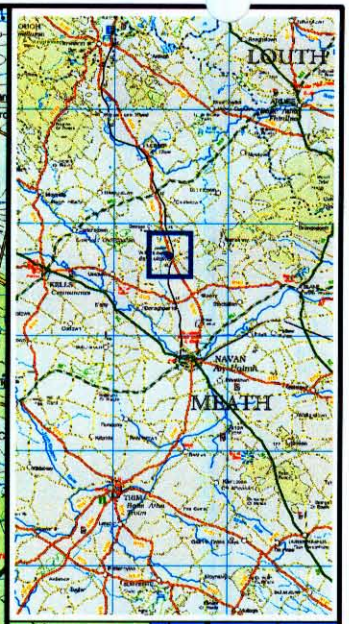
Compost Activities: Past and Present

The Organic Gold outdoor composting facility has operated under a waste permit from Meath County Council since 2002, in this period they successfully composted green waste, sludge and wood chips in outdoor windrows on part of the existing slab which was on an agricultural farmyard. In February 2004 the company decided to remove existing farm building and make more room for composting. At this time (and particularly due to space and operational constraints) nuisance odours were generated and Meath County Council responded with temporary restrictions on operations.

Organic Gold subsequently employed RPS-MCOS and also Odour Monitoring Ireland to respond to problems and prepare an EPA Waste Licence application and to help prepare the EIS.

At this stage some new proposals are being put forward in the EIS including the use of new technology and to provide in-vessel composting and a waste reception building and improved management and monitoring at the site. This is discussed in more detail in the EIS, which will assess the environmental impacts of composting activities at the facility and will also point out necessary measures to be taken to minimise negative impacts resulting from all activities at the site.





Project	*Organic Gold Compost Facility*
Title	**Site Location**
Figure	1.1

RPS mcos
Carnegie House
Dun Laoghaire
Co. Dublin
Phone: 01 - 2020670
Fax No. 01 - 2020797
rpsmcos@rpsgroup.ie

Issue Details

Drawn:	SK	Project No.	MDE0202
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Notes

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1.2 ENVIRONMENTAL IMPACT STATEMENT

1.2.1 Requirements for an EIS

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

The Planning & Development Regulations, 2001 indicate when an EIS is required to be submitted as part of the planning process. In this regard Schedule 5 (Development for the purposes of Part 11) of the Planning & Development Regulations indicate "*Other Projects, (d) sludge deposition sites where the expected annual deposition is 5,000 tonnes of sludge*" require an Environmental Impact Statement (Schedule 5 part 11 (d)). Also the planning authority considers that the development could have an impact on the environment and requested that an EIS be carried out under article 103 (1) of the 2001 Regulations.

Also, notwithstanding the criteria as set out above, the scoping process identified a number of environmental issues, which would need to be examined in detail (refer to **Section 1.2.2** below). It was considered at the scoping stage that it was good practice to compile an Environmental Impact Statement for the proposed facility. This EIS has been carried out having regard to all relevant National legislation and EU Directives and is based on the best available information at the time of writing.

1.2.2 Scoping

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

The contents and scoping of the EIS were determined following consideration of:

- Detailed consultation with Organic Gold (Marketing) Ltd.
- Scoping meetings and discussions with Meath County Council (including traffic and environment departments).
- Analysis of complaints received by Meath County Council (both to Planning and Environment Divisions)
- Consultation with the environmental organisations such as the EPA, Eastern Regional Fisheries Board.
- Knowledge of the area gained through desk studies and site visits.
- The content of Annex III of Directive EC 85/337/EEC, EU Environmental Impact Assessment (EIA) Directive; and
- EPA draft guidelines on the *Information to be Contained in Environmental Impact Statements* (2002).
- Reference to current policies for waste treatment in the region and Nationally.

The scoping process for the EIS identified the principle matters of likely concern as: odour, bioaerosols, noise, traffic and visual impact.

A number of statutory and non-statutory groups were contacted during the scoping process and invited to make submissions or raise comments, which would aid with the information gathering process. Regular design meetings held with the client and site visits also aided the EIS compilation.

1.2.3 Content of the EIS

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

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

1.2.4 Format of the EIS

The Environmental Impact Statement for the proposed development consists of two volumes, which are as follows:

- Volume 1 – Main Report (includes the non technical summary and the main body of the EIS report)
- Volume 2 – Technical Appendices

1.3 CONSULTATION

1.3.1 Statutory Bodies and Non-Governmental Organisations (NGO's)

In accordance with the EPA guidelines on compiling Environmental Impact Statements, consultation forms an integral part of the EIS process. During the preparation of this EIS, contact was made with a number of relevant statutory and non-statutory bodies outlining details of the proposed facility and inviting written submissions. Some of the statutory bodies contacted included the Department of Environment, Heritage and Local Government, the Environmental Protection Agency (EPA) and the Eastern Fisheries Board.

1.3.2 Consultation with the Public

In the first part of consultation, complaints received from Meath County Council both in the Planning and Environment Department were consulted. There were a number of complaints relating to a number of issues at the existing site. Following on from this, a programme of public consultation was devised by Organic Gold along with RPS-MCOS and consists of two parts.

In the first part of the consultation RPS-MCOS carried out door to door consultation with residents and local businesses in the vicinity of the facility seeking information in relation to their concerns about the existence of such a facility and find out if the site has impacted on their day to day lives. Information leaflets were handed out explaining the existing and proposed situation and to advertise the fact that an EIS was being prepared and a Waste Licence Application will would be sent to the EPA in due course.

This part of the public consultation took place on the 12th, 18th and 19th of August by calling on people who lived in the vicinity of the area. If there was no reply an information leaflet was put through the mail box of each house. The leaflet contained contact names (John Finnegan of Organic Gold and Lorraine Herity, Project Scientist from RPS-MCOS) and other details such as phone numbers and email addresses for people to contact if they had any queries in relation to existing and proposed site activities.

In total, nine residents, one of which lives and has a business in the area, were spoken to, during the three day consultation period.

Issues Arising out of the Public Consultation
It was found that there were a number of issues within the local community in relation to composting activities at the existing site. These are outlined and briefly discussed below:

- Odour - There was a general consensus in the local community that the existing facility was having and odour impact on residents in the immediate vicinity of the site There was also a consensus that the facility had operated for a long time in the area without impacting on locals but had caused an odour impact in the period from February – June. Odour emissions arising at the site were the main concern of residents in the area and did appear to impact on the quality of life for those people living directly north east of the facility.

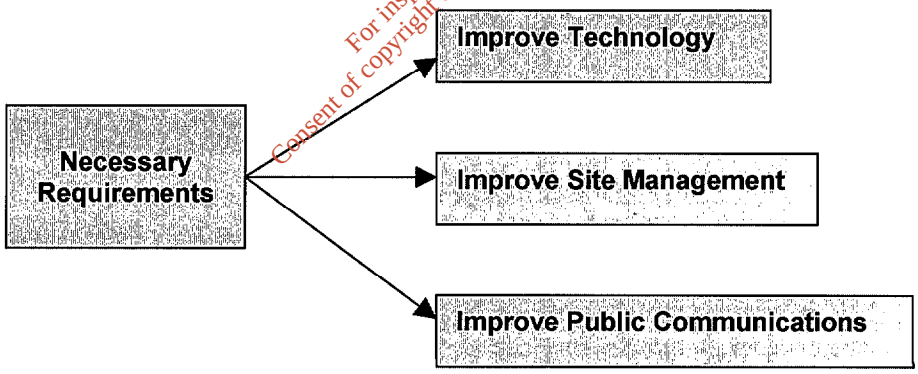
- Health – There were some concerns especially for children attending the local school in Wilkinstown village in relation to odour and the composting of sludge at the site. Residents were of the belief that raw sewage was being treated at the site. Issues were raised in relation to the health implications of bioaerosols arising at composting plants. Concern was also expressed in regard to the liquid used in the mist air system surrounding the boundary of the composting slab. One resident complained of wind blown litter.

- Planning – Residents were concerned that the facility was operating without appropriate planning permission.

- Communication – There were also some complaints that there were poor communications between site management and local residents.

Having taken all of these concerns into account in the scoping stage of the EIS, it was understood that emphasis on odour control and management practices would form a critical part of the EIS and the development of the proposed site.

It was decided that a three pronged approach to managing odour nuisance at the site would be necessary and consist of:



A specialist company 'Odour Monitoring Ireland' were employed to assist in the analysis of the problem and identify solutions. The odour difficulties experienced in the first half of 2004 were attributed by Organic Gold to a lack of space during construction which impaired turning of windrows leading to anaerobic conditions and odours emanating from the composting materials.

The second part of the consultation will involve inviting local residents to a public meeting and a site visit where future operations at the site will be discussed and explained to the public by Organic Gold and RPS-MCOS. Information on the new composting technology to be used at the site and the proposed methods to prevent environmental emissions and nuisances at the site will be supplied and questions from the public answered. This part of the consultation will take place shortly after the EIS is submitted, as agreed with Meath County Council, and a report will be sent to the Council accordingly.

Other Consultations

Consultations with other parties or their representatives, private and public, likely to be affected by, or who may have an interest in the proposed development have been carried out and include the following:

- Meath County Council
- Department of the Environment, Heritage & Local Government
- Eastern Regional Fisheries Board
- An Taisce
- Irish Farmers Association
- Birdwatch Ireland
- Irish Wildlife Trust
- Department of Agriculture and Food
- Teagasc
- Bat Conservation Group Meath
- Bord Fáilte
- North Eastern Heath Board
- Geological Survey Of Ireland

The public consultation notice and a list of the various submissions and letters received during the consultation period can be found in **Appendix 1**, **Volume 2** of this report.

1.4 DIFFICULTIES DURING STUDY

No major difficulties were encountered in the compilation of the Environmental Impact Statement. The final choice of composting technology suitable for the facility was decided close to the 6-month deadline for keeping the planning application active. It was originally planned to hold an information meeting with the public before submitting the EIS, but for practical purposes this will be carried out shortly after the EIS is submitted to Meath County Council.

1.5 ORGANIC GOLD (MARKETING) LTD

Organic Gold (Marketing) Ltd. is one of the longest established composting facilities in Ireland. They operate their composting facility at Wilkinstown, Navan, Co. Meath and are permitted by Meath County Council under waste permit number WMP 2002/26.

Composting operations at the site include the composting of a mixture of sludge, green waste, wood chip and other commercial organics on the slab, preventing these wastes from being landfilled. The finished compost product is used mainly in the construction of roads and motorways and for quarry reinstatement. Some of the product is returned to the local authorities to grow filter beds along roads sides.

Other operations at the site include the production of specialised fertilisers: Organic Gold multi-purpose compost which is on sale throughout Ireland for domestic use in gardens, and a high grade fertiliser product which produced specifically for golf courses according to customer requirements. Mr. John Finnegan, Managing Director of Organic Gold holds the patent to a high-grade fertiliser. These operations have been on going at the site since 1986.

Organic Gold are very experienced in the field of composting and are continuously involved in research and development. Currently developments are focusing on developing a growing media, which is peat free. This is a very innovative approach to waste management and can potentially help protect the depleting peat lands of Ireland.

Organic Gold has eight employees on site, which includes company directors and site management.

2 PLANNING POLICY & CONTEXT

2.1 INTRODUCTION

Organic Gold (Marketing) Ltd are proposing to increase composting activities at an existing composting facility in the townland of Wilkinstown, Navan, Co. Meath. The development represents a substantial investment in waste recovery infrastructure and will provide a treatment system for a mixture of organic wastes. The following sections provide a review of EU, National and Regional Waste Management policy in place and how the future development fits into these established strategies and policies.

2.2 EUROPEAN WASTE MANAGEMENT POLICY

EU waste management policy is set out in a number of documents, most notably the following:

- Community Strategy for Waste Management adopted in September 1989 (reviewed in 1996).
- Fifth and Sixth Environmental Action Programme.
- Agenda 21.
- Waste Framework Directive (75/442/EEC).

Community Strategy for Waste Management

The Community Strategy identified the most favourable methods of dealing with waste, in which prevention, minimisation, re-use are the favoured options, followed by recycling and energy recovery. Disposal of waste to landfill is the least desirable option. This is because there are many environmental concerns in relation to landfilling of waste, primarily due to the production of greenhouse gases, leachate and because it is an unsustainable method of waste disposal (Refer to Fig 2.1).

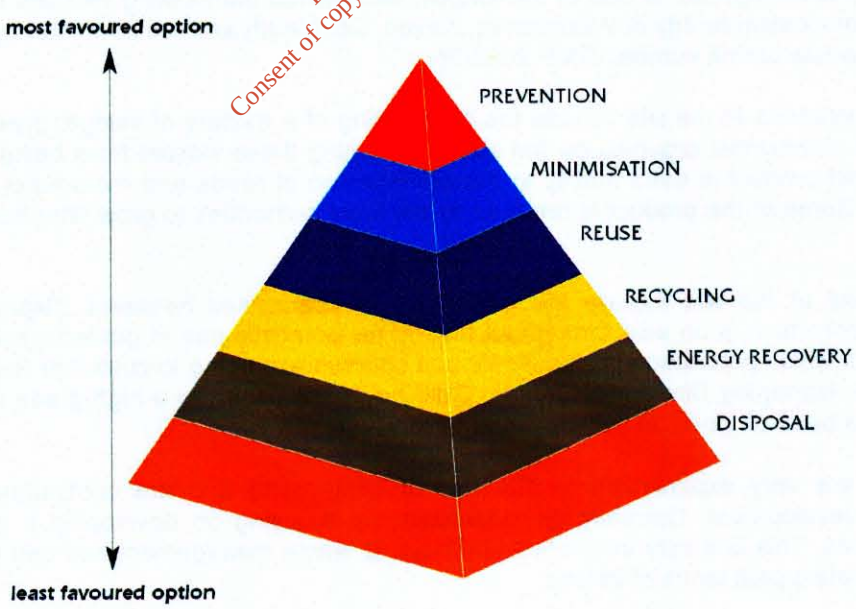


Figure 2.1 The EU Waste Management Hierarchy

Fifth and Sixth Environmental Action Programme
In the Fifth Environmental Action Programme, *Towards Sustainability*, one of the key tasks for the 1990's actions was improved waste management. It focused on prevention/reuse, promotion of recovery, minimisation of final disposal, regulation of transport and remedial action.

The Sixth Environmental Action Programme developed further the thematic strategy on preventing and recycling of waste, which reiterates the policies at the core of waste management – the Waste Management Hierarchy and Producer Responsibity. Some of the key points are as follows:

- The development of environmentally sound waste recycling and treatment technology and measures encouraging ecological and sustainable product design will form part of the future Strategy.
- A reduction in the use of landfill as a means of disposal is a key consideration, as well as waste prevention and sustainable use of resources.

Agenda 21
One of the programmes that constitute Agenda 21 is environmentally sound waste management. It must go beyond the mere safe disposal or recovery of wastes that are generated and must encourage countries to seek waste disposal solutions within their sovereign territory and as close as possible to the sources of origin that are compatible with environmentally sound and efficient waste management. These objectives of Agenda 21 are firmly seated in the Government's Policies on Waste Management in Ireland.

Waste Framework Directive (75/442/EEC)
Apart from the Waste Framework Directive (75/442/EEC), European policy on waste management is embodied in a number of Directives which set statutory targets for minimising, reusing, recycling or recovering of waste and have set out a certain timeframe for which these targets must be achieved. Current and proposed Directives in relation to biological treatment of waste are discussed in the following sections.

2.2.1 Landfill Directive

The Landfill Directive came into effect in April 1999. The Directive aims to progressively reduce the amount of biodegradable waste sent to landfill and sets statutory targets which are to be met by member states. A reduction in the amount of biodegradable waste landfilled to 75% of the 1995 level by 2006, to 50% by 2009 and to 35% by 2016 is required.

The Organic Gold composting facility proposes to recover organic waste and prevent it from being disposed off to landfill, which in turn will result in a reduction in greenhouse gas emissions. In general terms, switching away from landfill means an urgent requirement for more facilities to treat organic wastes. Composting is also considered to be a more sustainable and viable approach to organic waste management and will help to achieve the targets set by this Directive.

2.2.2 The Proposed EU Biowaste Directive

The EU published a 2nd draft of the working document on the Biological Treatment of Biodegradable Waste in February of 2001. Its main aim is to promote the biological treatment of biowaste and to help achieve the targets set by the Landfill Directive.

Other objectives of the proposed Directive are:

- To define common limit values for quality parameters such as pathogens, heavy metals, and impurities.
- To classify finished compost into 3 compost quality classes and stipulate conditions of use for the different classes of compost in agriculture.
- To protect the soil and ensure that treated biowaste benefits agriculture or results in ecological improvement.

This Directive will be very influential in promoting composting and stipulating quality specifications and uses of the compost within the EU. It is thought that this Directive may be merged with the proposed EU Soil Strategy and will be finalised in 2005.

2.2.3 EU Soil Strategy

The soil is an environmental entity which has not being afforded much environmental protection in the past. In order to prevent soil pollution, erosion and lack of soil fertility the EU are taking steps in the development of comprehensive EU policy on soil protection. The first of these steps consisted of the publication of a Communication "Towards a Thematic Strategy for Soil Protection" in 2002. The published document is broad in its approach and paves the way forward on how best to protect soil.

The Commission are undertaking intensive research at the moment in varoius aspects of soil management. The Soil Strategy will generally consist of a proposal for legislation, a monitoring system, community information as well as detailed recommendations for future uses. In fact, it is envisaged that there will be a possible merger between the Biowaste Directive, Soil Strategy and the new Sludge Directive (Refer to **Section 2.2.4**) which could take another three years or so to be finalised.

2.2.4 Urban Wastewater Treatment Directive (91/271/EEC)

The introduction of Urban Wastewater Treatment Directive (91/271/EEC) has led to an increase in the amount of secondary treatment of wastewater, which has in turn led to a significant increase in the amount of sludge produced, which ultimately needs to be disposed off. In Ireland sludge production is expected to increase fourfold by up to 130,000 tonnes by 2013. This will increase the requirement for sludge treatment across Ireland.

2.2.5 The Proposed EU Sludge Directive

The EU published a 3rd draft of a working document on sludge on 27th April 2000. The 3rd draft of the working document proposes to reduce the maximum levels of heavy metals in the soil and sludge in comparison to those levels set in the Sludge Directive 86/278/EEC. The EU Sludge Directive (86/278/EEC) is based on maximum soil and sludge concentrations and maximum permitted loads to agricultural land. The Working Document on Sludge (3rd draft) proposes new concentration limits for heavy metals and also for a variety of organic micro-pollutants. It requires that producers and handlers of sludge must be certified and ultimately be responsible for the quality of sludge produced. The overall objective of the proposed Directive is to improve rates of recycling of sludge and organic matter. Composting of sludge is therefore in accordance with the main aim of the proposed Directive.

2.3 NATIONAL WASTE MANAGEMENT POLICY

As Ireland is a member of the EU, National Waste Management Policy is fundamentally governed by European Policy and EU Waste Directives. In this regard, a number of national policy statements relating to waste management have been published by the government to date and form the basis on which integrated and sustainable waste management practices and infrastructure are being developed in Ireland.

2.3.1 Changing our Ways (1998)

The policy statement 'Changing Our Ways' was published by the Minister for the Environment and Local Government in October 1998 and provided a national policy framework to address the issues surrounding waste management and the development of strategic waste planning. The policy statement set out to promote sustainable management of waste in an integrated manner with clear targets set for treating waste over a fifteen-year period, whilst also endorsing the EU Waste Management Hierarchy.

The targets aim to achieve:

- A diversion of 50% of household waste from landfill.
- A minimum of 65% reduction in Biodegradable Municipal Waste sent to landfill.
- **The development of composting and other biological treatment facilities capable of treating up to 300,000 tonnes of biodegradable waste per annum.**
- Recycling of 35% of municipal waste.
- Recycling of at least 50% of construction and demolition (C&D) waste within a five year period, with a progressive increase to at least 85% over fifteen years.

Planning for the Future

In attempting to achieve these targets the policy document highlights the importance for increasing the participation of the private sector in all sectors of waste management. The key document recommendations pertaining to the Organic Gold composting facility are as follows:

- Local authorities should encourage and facilitate private sector involvement in the provision of waste management services, in particular in the development of waste recovery infrastructure, and the establishment and operation of waste recovery facilities especially those requiring high capital investment.

- Private participation can deliver much needed financial investment, specialist expertise of emerging technologies, marketplace 'know-how', and in certain cases operational efficiency and flexibility.

The proposed development fits into the future national plan for waste management as set down in 'Changing Our Ways' and can form part of the **300,000 tonnes target** referred to above. The development represents a large-scale financial investment by a private sector business in the waste sector. The facility will provide much needed composting capacity in Ireland for treating organic waste and will help to recycle some municipal waste and divert it from landfill.

2.3.2 Delivering Change - Recycling and Preventing Waste (2002)

This government policy statement focused on waste prevention and recycling and further emphasised the national approach to regional waste management planning. The statement was based on the principles of the previous policy statement 'Changing Our Ways'. This discusses the responsibilities and recommended actions for preventing and minimising waste production. It also recommends a framework for increasing recycling levels and expanding the markets for recyclable wastes. In particular the increased diversion of biodegradable waste from landfill is a key target.

The proposed development would provide additional capacity for the diversion of biodegradable waste from landfill and is in line with this policy approach.

2.3.3 Waste Management - Taking Stock and Moving Forward (2004)

Waste Management, Taking Stock and Moving Forward was published in April 2004 which consisted of a five year report on Ireland's waste management progress from 1998-2003. Again the policy was rooted in the concept of an integrated approach to waste management. However, it stated that the approach would not reach its full potential until all the elements had reached parallel success rates in their implementation according to National policy and the Regional Waste Management Plans.

The report stated that the recovery of biodegradable waste was a key element in Irish waste management planning and that the area of biological waste treatment needed to be given priority attention. Biological treatment of municipal waste will help to meet national and EU recovery targets and also reduce methane emissions from landfill. The report also called for the draft National Biodegradable Waste Strategy (See Section 2.3.4) to be finalised and implemented.

2.3.4 Draft National Strategy For Biodegradable Waste (2004)

A draft National Biodegradable Waste Strategy outlining government policy for the diversion of biodegradable municipal waste from landfill was published in April 2004. The strategy builds on the above policy statements and is expected to be finalised by the end of 2004. The strategy sets ambitious targets for diverting biodegradable municipal waste streams which principally include food and garden waste, and paper and cardboard. The targets were established according to national recycling targets and the targets set out by the Landfill Directive (1999/31/EC).

The report stated that a significant increase in biological treatment capacity is required to meet the targets set out by the Landfill Directive.

The proposed development plans on composting green waste, needed as a matrix bulking material in the process, which will be delivered from civic amenity sites where householders can drop off their garden waste and will help to achieve the targets for diverting biodegradable waste from landfills as specified within the draft strategy.

2.3.5 National Climate Change Strategy (2000)

Ireland is obliged to reduce its greenhouse gas emissions if its Kyoto Protocol target (to limit increases in greenhouse gas emissions to 13 per cent above 1990 levels), is to be met by the 2008–2012 commitment period. The National Climate Change Strategy sets out a framework to achieve Ireland's climate change commitment. Although measures were mainly aimed at the industrial and energy sectors, the implementation of an integrated waste management approach will benefit in reducing the greenhouse gas impact, with the strategy calling for a reduction of 40% in waste related emissions which currently account for 3% of total emissions. The strategy recognises that biological waste treatment along with landfill gas capture can play a significant role in reducing greenhouse gas emissions from the waste sector.

By diverting organic wastes from landfill, the proposed facility can reduce greenhouse gas emissions and will therefore help to achieve our targets set out in the Kyoto Protocol.

2.3.6 Waste Management (Use of Sewage Sludge in Agriculture) Regulations 1998 – 2001

The Waste Management (Use of Sewage Sludge in Agriculture) Regulations 1998-2001 were developed for the purpose of protecting soil. Sludge is defined as the residual sludge from sewage plants treating domestic/ urban wastewaters and other wastewaters from septic tanks and wastewaters of a similar composition. These regulations stipulate that only treated sludge be landspread unless it is soil injected. Treated sludge consists of sludge that has been biologically, chemically or heat-treated and reduces potential health hazards and sludge fermentability. These regulations require that sludge be applied to land in accordance with a soil nutrient management plan (NMP) and surface water and ground water must not be impaired. The 2001 regulations state absolute values for the amount of heavy metals which may be introduced into soil per hectare per year in accordance with a NMP. Soil and sludge analysis is also required under the 1998 Regulations.

There are some limitations on the use of treated sludge when cultivating certain crops in agriculture. Treated sludge must not be applied to fruit and vegetable crops for ten months prior to harvesting, or for three weeks prior to grazing/ harvesting of grassland/ forage crops.

Local authorities must set up a sludge register which details information such as the quantities of sludge produced, and supplied for use in agriculture, the composition and properties of the sludge, and the treatment undergone by the sludge. Details and location of the facility which treats the sludge must also be recorded.

Up to now large quantities of sludge have been disposed or spread on land without treatment. Meeting the requirements of the regulations means Ireland must upgrade its capacity to handle and properly treat sludge from both industry and wastewater treatment plants.

Organic Gold currently accept sludge from local authorities such as Meath, Louth and Cavan County Councils are fully aware of the procedures to be followed when composting municipal sludge and the proposed facility is designed to meet the requirements of the Regulations.

2.4 REGIONAL WASTE MANAGEMENT POLICY

The North East Region Waste Management Plan was fully adopted by four local authorities within the region: Meath, Cavan, Monaghan and Louth County Councils in 2001. The plan was developed with the aim of achieving National and Waste Management Targets and to fulfil EU waste legislation obligations. The Plan laid the foundation for the future sustainable management of solid wastes throughout the North East Region. The main objectives of the Plan are as follows:

- The diversion of waste from landfill.
- To stabilse the growth in waste production, and in the longer term to reverse this growth in line with National Policy.
- Waste must be re-used, recycled, recovered and disposed off according to National and Regional Waste Management Policy and the infrastructure required to treat waste to be provided as outlined in the Plan.

The plan specified key targets for the management of waste within the region and included targets for recycling, energy recovery and residual landfill as outlined in Table 2.1.

Table 2.1 Recycling, Recovery and Landfill Targets for the North East Region

Waste Treatment	Proposed Targets
Recycling	38.9%
Energy Recovery	57.1%
Residual Landfill	4.0%

Key Recycling and Recovery Recommendations

Various recycling and recovery facilities were proposed to be developed to meet the ambitious recycling targets outlined in the plan and include provisions for material recovery facilities, commercial and demolition waste recycling facilities, home composting initiatives. Significant green waste and biowaste composting facilities were also recommended. These count towards recycling targets.

Proposed Composting Facilities

Composting of green waste and separately collected food waste will play a significant role in meeting the targets for recycling of municipal waste. In the plan it was proposed that:

- Two green waste composting facilities to treat garden waste
- One centralised biological treatment facility

for separately collected food waste from households and businesses be developed in the region. It was suggested that the centralised facility could also accept other organic waste such as sewage sludges.

Developments to date in the region have not met these targets . Organic Gold is one of two permitted facilities in Meath, but overall capacity is still short of that required. The biowaste treatment facility has not been implemented. The Organic Gold proposal can potentially make a significant contribution to meeting that targets of the North East Waste Management Plan given that the proposals can cater for both green waste and food wastes.

2.5 SLUDGE MANAGEMENT PLAN FOR COUNTY MEATH

The 2001 sludge management plan for County Meath proposes sustainable management practices for treating non-hazardous sludge in Ireland over a 20-year period. It was recognised within the plan that due to increasing populations within the County and the requirements for increased water treatment

processes set out in the EU Urban Wastewater Treatment Directive the quantities of sludge within the county would rise dramatically. The type of sludge referred to here includes the sludge residue from water, wastewater and industrial treatment processes.

Currently there are no landfills licensed to accept sewage sludge for disposal. It is also likely that new facilities will not be licensed to accept sewage sludge for disposal. Currently sewage and industrial sludges are landspread. However, within the plan it was stated that this is an unsustainable management practice for the future due to the expected increases in sludge production. It can therefore be seen that there is an imminent requirement to develop alternative methods of sludge management in the County.

Composted sludge contains valuable nutrients and organic matter which can beneficially applied to agricultural land or used in land improvement/remediation projects. It was stated in the plan that composted sludge could produce good quality top soil. It was also stated that composting would be the preferred option of sludge management if sustainable outlets for the product could be found. It was however stated that this would not be achievable for the future and that processes such as thermal drying of sewage sludge would be a more efficient management practice.

Organic Gold have developed a good base of customers and currently composts sewage sludge received from the local authorities in Meath, Louth and Cavan. Organic Gold have developed their own outlets for the finished product with some of the product going back to the local authorities for use in motorway construction, quarry reinstatement and on road grass verges.

On this basis, Organic Gold contend that the facility helps meet the fundamental objectives of the Meath Sludge Management Plan and can continue to provide an authorised outlet for sludge generated in industry and by municipal waste water treatment plants.

2.6 PLANNING POLICY

2.6.1 National Spatial Strategy

The overarching planning policy at national level is the National Spatial Strategy 2002 (NSS), which deals with the strategic development of the regions including the definition of Gateway Cities at Dublin and Dundalk, and primary development towns at Navan, and Drogheda.

Ireland is undergoing a phase of population expansion and economic development. The delivery of infrastructure will be a factor in Ireland maintaining economic competitiveness and ensuring environmental protection against a backdrop of growth.

The NSS (Section 3.5.1) recognises the changing nature of agriculture and the challenges of maintaining sustainable rural communities. Diversification of agriculture and farm enterprises are acknowledged as potential solutions for the coming rural generation.

2.6.2 Regional Planning Guidelines

County Meath lies within the Greater Dublin Area (GDA), along with Counties Kildare, Wicklow and the four Dublin local authorities. Regional Planning Guidelines 2004-2016 (RPGs) have been adopted by the relevant Regional Authorities in 2004. The RPGs provide a strategic framework for future development and will be locally implemented by each local authority. Some of the relevant issues include:

Navan is selected as a primary growth town, with a target population of up to 40,000. (Drogheda is also identified to grow to a similar population in the Border Regional Plan). Other 'primary dynamic clusters' are identified at Trim-Kells-Navan and Ashbourne-Dunboyne. Overall the population of the GDA is expected to grow to 1.8 million by 2020. Over 130,000 additional houses are expected to be developed by 2010, 13,000 of these in County Meath.

All of this growth in households will inevitably result in generation of more sludge (at wastewater treatment plants, by industry) and more green waste from households and landscapers.

The RPGs (Section 8.6.3) identify a deficiency in waste infrastructure in the region and suggest further facilities including biological treatment, should be developed urgently by the waste management industry (including local authorities and private companies).

2.6.3 Local Planning Policy

The current Meath County Development Plan was adopted in 2001. Wilkinstown is in a rural area and hence is not a 'zoned' for any particular land use. There is no specific policy in relation to biological waste treatment facilities.

2.7 SUMMARY

To summarise, the proposed development fulfils the objectives of EU, National and Regional Policy in relation to waste management and in particular the provision of waste infrastructure in achieving waste recycling/ recovery targets, especially in light of the lack of composting infrastructure within Meath and the remainder of the North East Region.

3 ALTERNATIVES

3.1 INTRODUCTION

The Finnegan family have gradually developed the Organic Gold company over the last 19 years and initially started from their existing farm. The business has developed first as an activity ancillary to agricultural activities, and gradually has taken over from agriculture on the site. In general, the business has not caused any local difficulty but with new processes and increased scale of activities new challenges have emerged. The alternatives considered by the company in this respect are outlined below.

3.2 ALTERNATIVES EXAMINED

3.2.1 Alternative Locations

The following factors were taken into consideration when considering alternative locations in 2004:

1. The proposed development is in keeping with the agricultural nature of the surrounding countryside and does not have a significant visual impact on local residents.
2. There are good access roads and a good overall transport network in the area.
3. The site comprises enclosed sheds suitable for the production, bagging and storage of the retail compost and high-grade fertiliser product.
4. A lot of investment has recently gone into the current site in the form of:
   - Landscaping;
   - Construction of a composting slab;
   - Payment has been made to access public water supply for the introduction of fire hydrants to the site;
   - Pallisade fencing has been purchased to increase air turbulence at the site;
   - A mist air system was also recently constructed to minimise odour at the site.
5. There is a newly laid composting slab at the site designed to handle composting operations proposed by the development.
6. The composting slab is not visible by residents in the area due to an embankment enclosing the slab. There has also been 2,100 tree saplings planted along the site to further screen the site from the road.
7. Because so much investment has recently gone into the site it would not be feasible to move a new site and split up existing operations.

Based on the above, the alternative chosen by Organic Gold was to seek to improve existing operations by investing in technology, training etc. rather than to relocate the facility.

3.2.2 Alternative Layouts

Consideration was given to the most appropriate design and site layout options for the proposed development. Waste acceptance areas, waste inspection and quarantine areas have been designated within a new waste reception building for the proposed development. Consideration was also given to mitigation of environmental impacts, in particular odour, landscape and visual, air quality, noise, and ground and surface water. Traffic movements were an important consideration in designing the facility and an alternative site entrance has been considered.

A proposed development plan for the site was decided upon and includes provisions for:

- Organic waste accepted on site will now be composted in an enclosed in-vessel system in the first stage of treatment. The second stage of treatment will entail allowing the material from the

in-vessel unit to mature in outdoor windrows to ensure a fully stabilised and mature product is produced;
- A waste reception building will be built on the composting slab where all waste accepted at the site will undergo delivery and inspection;
- An improved site entrance which will allow double lane entrance and improved safety for traffic entering and leaving the site;
- Access to local water supply and provision of a number of fire hydrants at the site;
- Increased signage at the site;
- Upgrading of internal surfaces at the site.

3.2.3 Alternative Processes

Because there are no landfills licensed to accept sewage sludge in Meath alternative methods for treating and/ or disposing of sludge needs to be developed. Currently, sewage and industrial sludges are landspread in Meath which can cause significant pollution problems if spread on vulnerable land such as nearby waterways or on land which is already saturated with nutrients. In such circumstances soil nutrient management plans must be devised and adhered to when land spreading of sludge.

There are also many documented environmental issues surrounding the landfilling of organic waste which is an unsustainable method of waste management. National and European policy calls for a reduction in the landfilling of organic waste and the Proposed EU Biowaste Directive sets out to promote the composting of organic waste in order to meet the targets of the Landfill Directive (99/31/EC).

Thermal drying of sludge is a viable method of sludge treatment but requires a large amount of energy. It would not be a viable option for Organic Gold based on the economies of scale required.

Composting is an environmental beneficial and sustainable process of organic waste management, which involves recycling of organic matter and the production of compost products, which can be beneficially used on agricultural land. Compost results in a slow release of nutrients when applied to the land, which has the benefit of not causing immediate saturation of the soil with nutrients which could be the case when sludge is landspread directly. The product can also be used in many other applications such as in land remediation projects and construction of roadways.

3.2.4 Alternative Technology

A considerable amount of research on other types of composting technology on the market was conducted during the preparation of the EIS. Aerated static piles, a number of in-vessel systems such as the VCUS system, enclosed hangars and breathable membrane covers were considered. A number of odour abatement technologies were also considered and included biofilters, bioscrubbers and negative air pressure systems with abatement of extracted air.

It was decided that the Wasteology in-vessel composting system was the most suitable for the proposed development after considering the engineering, potential environmental emissions, and the financial implications of introducing such a system. A company brochure describing the system can be found in **Appendix 2, Volume 2** of the report.

The Wasteology in-vessel system is fully enclosed allowing for greater control of the composting process, in terms of the quality of the product produced and the potential for environmental emissions being released into the atmosphere.

This in-vessel system will also have an influence on environmental emissions in that, there will be better containment of odour, dust and bioaerosols. Operational procedures, waste acceptance procedures, good housekeeping, understanding of local and current meteorological conditions along with expertise in the area of composting will also be equally important in limiting emissions from the site.

After conducting research into alternative odour reduction equipment it was decided to introduce the following odour reduction and control techniques:

(1) Carry out the first stage of composting in **Enclosed In-Vessel Composting Units**. The initial stages of composting, when most decomposition takes place, is the time when there is the greatest potential for odour nuisances to occur. The in-vessel unit rapidly decomposes the waste material and continuously recirculates and contains the air preventing odour nuisance at the site.

(2) Increase Air Turbulence and Dispersion of air from the site by introducing:

- **Natural Screening** around the slab – this has taken place at the site with the planting of tree saplings.
- Erect **Palisade Fencing** around the slab boundary – Organic Gold are awaiting planning permission to do so.
- Build a **Windbreak Mesh** system around the perimeter of the slab – this was erected in May of 2004.

(3) Use a **Mist Air System** at the facility to decrease dust and odours emanating from the site. This was introduced in May/June and is currently operational at the site and will continue to be used around the perimeter of the slab in the future. The effectiveness of the Mist Air System will be increased with the introduction of the palisade fencing which will serve to shield the mist spray from the wind. The mist sir system can achieve up to a 20% reduction in odour emissions leaving the site.

3.3 DO NOTHING SCENARIO

An alternative to the current proposal is to carry on with operations at the existing site ("do nothing" option). The Organic Gold site has reached its permitted maximum capacity on occasion throughout its period of operation, due to the limit of 1,000 m^3 of compost and waste which can be held or treated on site at any one time according to their waste permit. This is a sever restriction to any company trying to maintain a viable waste recycling business.

According to the North East Waste Management Plan (2001), landfills in the region will reach saturation within two years and there is no landfill capacity for disposing of sludge in Meath. Current waste management policy aims to diverge away from traditional landfill towards more sustainable waste management practices. Without development of treatment and recovery facilities such as the proposed facility, it is impossible to make progress in this regard and to meet specified recycling targets.

The increased environmental management and overall standards of waste facilities means that capital and operational costs are increasing and a greater scale of activity is required to make facilities viable.

4 SITE DESCRIPTION

4.1 LOCATION & CHARACTER OF THE SITE

The site of the proposed development is located in the townland of Wilkinstown, Navan, Co. Meath. Wilkinstown is a small village set in an agricultural area. The site is located 10 km's north of Navan along the R162 to Nobber and is located approximately 380 metres from the crossroads in Wilkinstown village. Access to the development is via a private lane way which leads of the R162 road.

The surrounding area is rural and is characterised by agricultural fields, mature hedgerows and trees, narrow winding roads and typical one off housing developments. Agricultural use of land consists of both grazing and tillage. The development is located on an open and elevated site with a slope gradually to the north and east. The site is bounded to the east by the R162 and to the south and west by a hedgerow bordered lane way which leads to a private dwelling in a cul-de-sac approximately 260 metres from the northern boundary of the composting slab. There are also dwellings to the north east and south eastern boundary of the facility. There are also two service garages located to the north east and south east of the facility, 310 and 540 metres from the northern boundary of the composting slab respectively. In the village of Wilkinstown there is a school, post office, service garage, pub and a number of residential dwellings. The school is located 680 metres from the existing site entrance. Refer to **Figure 4.1** which shows the location of all private dwellings and businesses in the area.

4.2 EXISTING SITE LAYOUT

The site is located at an existing waste composting facility owned by Organic Gold (Marketing) Ltd. The existing facility is located on 4.5 hectares of land and the facility essentially consists of three parts:

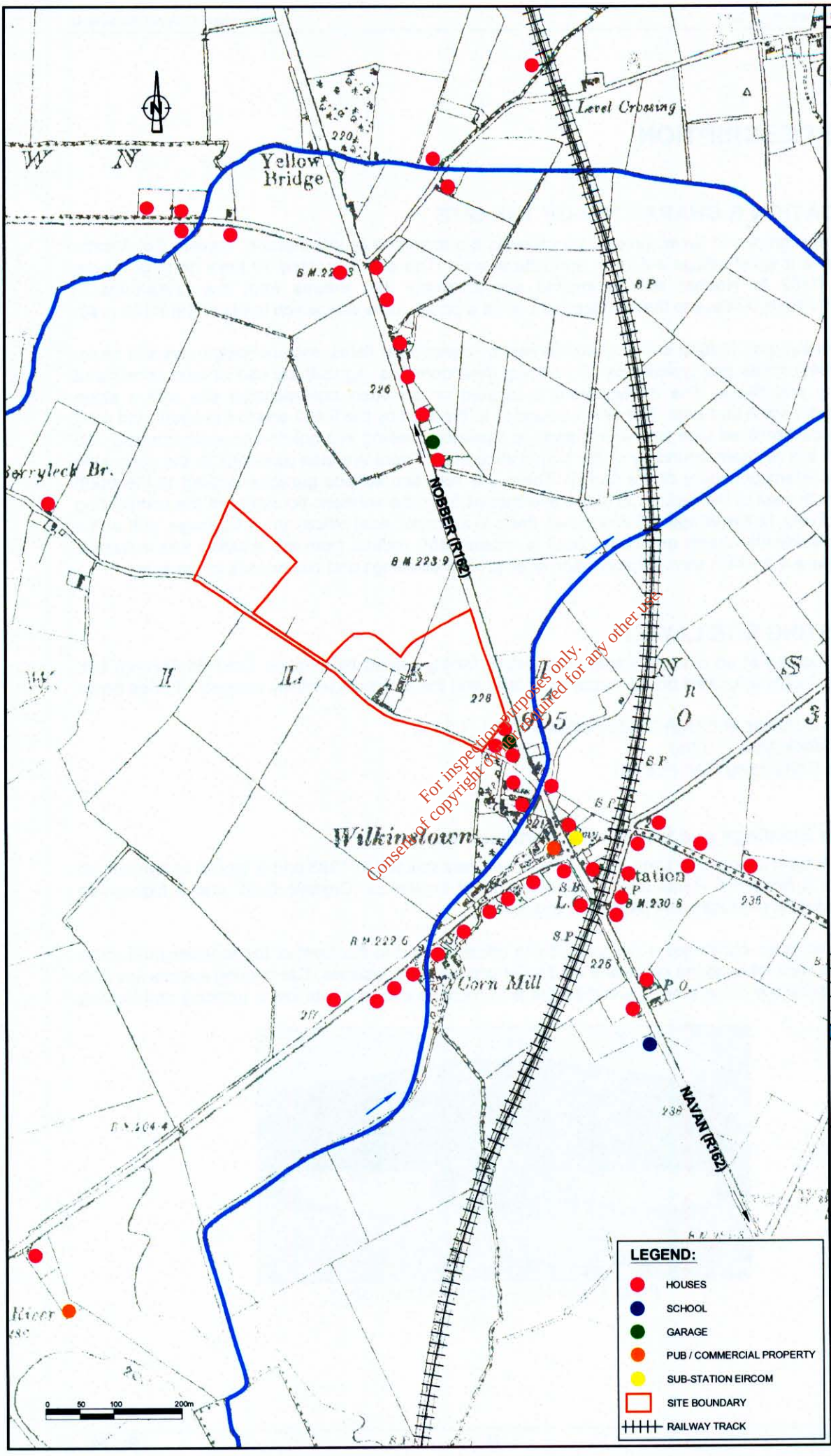
1. Site Buildings and High Grade Fertiliser Shed (1.2 ha)
2. Paddock Area (1.5 ha)
3. The Composing Slab (1.8 ha)

4.2.1 Site Buildings and High Grade Fertiliser Shed

There is a fertiliser production shed on the site, which was erected in 1993 and is typical of agricultural buildings on a farmland. Retail multi-purpose compost known as 'Organic Gold' and a high-grade fertiliser product is produced and bagged in this shed.

Site accommodation comprises a designated site office located to the front of the fertiliser production shed, an entrance lobby to the office and staff toilet and washing facilities. Car parking spaces are also available outside the office area. A weighbridge is in place to record waste loads entering and leaving the site.

Plate 1 The High Grade Fertiliser Shed



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No.	Date		Amendment / Issue	App.
A01	Jun'04		ISSUE TO CLIENT FOR APPROVAL	CB

Client:

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Project:

ORGANIC GOLD COMPOSTING FACILITY

Title:

RESIDENTS/BUSINESSES IN THE VICINITY OF THE PROPOSED DEVELOPMENT

Drawn by:	HF	Job No:	mde0202
Checked by:	WP	File No:	mde0202FG0401
Approved by:	CB	Fig. No:	4.1
Scale:	NTS	Rev:	A01
Date:	Jan '05		

4.2.2 Paddock Area

The paddock is 1.5 ha in area and consists of typical agricultural grazing grass and is fenced off from the other areas of the site. No waste recovery operations take place in the paddock area. A new improved site entrance will be constructed in the paddock area to allow for double lane traffic and for improved safety for traffic entering and leaving the site.

Plate 2 The Paddock Area

4.2.3 The Composting Slab

The composting slab forms the main part of the facility where all composting operations take place. The slab is located on 1.8ha with a boundary wall of 1.5 metres high, built around it to enclose the slab area. There is also an additional 1.5 metre earthen embankment outside the wall where extensive landscaping has been undertaken and 2,100 tree saplings have been planted to enclose and screen the site. There is also a 1m tall windbreak mesh has been erected on top of the perimeter wall, which reduces wind speed and increases the efficiency of the misting system installed to reduce odour impacts.

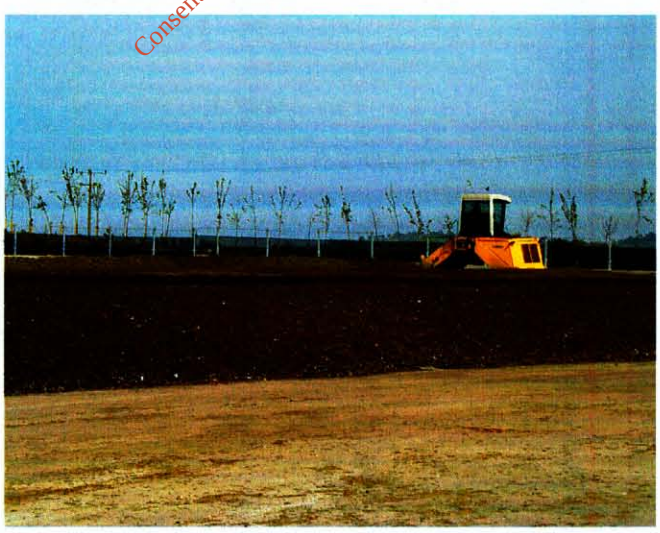

Plate 3 Windrow turner on the Composting Slab

The composting slab was fully concreted in January 2004 to provide further working area for proposed increased operations at the site and also to prevent the possibility of leachate escaping into the groundwater. The newly concreted slab replaced some existing slatted sheds at the site which were previously used to house animal farmyard manure. Previous to 2004, the slab was partially concreted and this is the area where current composting operations take place at the site. There are also two

underground storage tanks and one large above ground storage tank on the slab where all leachate produced by the composting process will be stored and then recirculated back into the composting process. In the future it is proposed to utilise the entire slab where in-vessel composing units, a waste reception building and a maturation area will be located.

4.3 HISTORY OF THE SITE

Organic Gold (Marketing) Ltd. have been commercially active at this site since 1986 producing the product 'Organic Gold' a multi-purpose compost which is sold widely in Ireland. This product was produced by composting dewatered farmyard slurry and mixing it with peat and other nutrients brought on to the site. Previous to this, the site has been in agricultural use for a number of decades and was farmed by the owners throughout this time.

Organic Gold carried out numerous composting trials from 1991onwards on sludge and food waste where they varied the matrix materials from peat to coir, woodchip and green waste. They have continuously composted sludge and a range of organic wastes including green waste, woodchip and other commercials organics for composting at the site since early 2002 and are permitted by Meath County Council to carry out these activities under waste permit number WMP 2002/26.

In 2004 Organic Gold upgraded and enlarged the composting slab where all future composting activities will take place. A enclosed bund around the slab, and an embankment surrounding the outside of the boundary wall were erected, where extensive landscaping has been undertaken to enclose and screen the site. Some farm buildings were also knocked in order to increase the area of the composting slab. Organic Gold are now applying to Meath County Council for retention of the new part of the slab.

The site has reached its permit limit for the amount of waste it is allowed to accept and the amount of compost it is allowed to hold on site at any one time. The company are therefore applying to the EPA for a waste licence to allow them to continue composting operations at the site at a greater scale. This would involve increasing the amounts of waste to be accepted on site for composting. The annual tonnage of waste to be accepted will not exceed 25,000 tonnes.

5 PROJECT DESCRIPTION

5.1 INTRODUCTION

Organic Gold (Marketing) Ltd. intend on accepting non-hazardous organic waste for composting at their existing composting facility in Wilkinstown, Navan, Co. Meath. Organic Gold will be applying to the EPA for a waste licence which will permit composting of up to 25,000 tonnes of waste material at the site. Currently Organic Gold are permitted by Meath County Council and compost approximately 10,000 tonnes of organic waste. The type of waste to be accepted; sludge, green waste, woodchip and a mixture of other commercial organics is similar to that which is currently composted at the existing site.

Proposals are set out in this EIS for upgrading the site and installing more advanced composting technology in the form of in-vessel units to be used for the rapid decomposition of all waste material arriving on site over a 2 week period followed by maturation of the compost in open air windrows on the composting slab. A waste reception building will also be constructed where all waste arriving on site will be delivered and blended with other materials before being placed in the in-vessel units for composting. This new technology to be installed on site will offer more control over the composting process, and minimise odour emissions emanating from the site. Other changes at the site will include constructing a new site entrance, upgrading internal access roads, improving signage and security, connecting to the local water mains and installing fire hydrants for safety purposes. Furthermore, improved process control and management is recommended to ensure that the site does not create nuisance and environmental pollution.

5.2 DESCRIPTION OF EXISTING AND PROPOSED SITE ACTIVITIES

5.2.1 Existing Activities

There are two main waste recycling and processing activities currently undertaken at the Organic Gold facility which consist of the following:

1) Composting of Non-Hazardous Organic Waste
2) Production of Specialised Fertilisers
    a) Organic Gold Multi-Purpose Compost
    b) A specialised High Grade Fertiliser

The first activity, composting of organic waste is the main focus of the EIS and of local concerns. These activities will be discussed in detail in **Section 5.5**.

5.2.2 Proposed Activities

Waste recycling activities at the future site will be similar to existing activities, but with greater emphasis on process control, odour nuisance prevention, waste acceptance and housekeeping procedures and health and safety for employees. Future activities will also be regulated by the EPA in the form of an EPA waste licence, which will stipulate environmental management systems which need to be in place and also quality requirements in terms of pathogens, heavy metals and impurities in the final compost product.

5.3 PROPOSED SITE LAYOUT AND INFRASTRUCTURE

The site layout will not change significantly from the existing site, which is described in **Section 4.2**.

Changes to the proposed site layout include:

- The construction of a waste reception building on the composting slab
- The use of modular in-vessel composting units for treating all waste arriving on site
- The construction of a new site entrance in the paddock area to allow for double lane traffic and improved safety for traffic entering and leaving the site
- Improved signage at the site
- Installation of security gates at the site entrance and the entrance to the composting slab
- Upgrading of the internal access roads
- Installation of fire hydrants at various points through the site

The major changes to the site i.e. the waste reception building, the in-vessel composting system, and the new site entrance along with the fertiliser production shed and miscellaneous infrastructure on site will be described in the following sections and can be seen in the proposed site layout in **Figure 5.1.**

5.3.1 Waste Reception Building

The waste reception building will be constructed as part of an odour mitigation measure where all waste handling such as waste inspection, storage and blending will take place. The building will be 36m long, 22m wide and 11m high at the ridge and 9.6m at the eaves. It will be built using reinforced concrete walls and a steel portal frame system, with a Kingspan horizontal cladding material or similar. This will be green in colour to ensure that the building fits into the agricultural landscape setting with the fertiliser production shed already on site. The building will contain a waste inspection area, storage bays for waste material and a waste quarantine area. All material in the waste reception area will be blended and placed in the in-vessel units within 24 hours, so to prevent potential odours being emitted from the reception area.

5.3.2 In-Vessel Composting System

The Wasteology in-vessel composting system will be used on site for the rapid decomposition of the waste material over a two-week period. The in-vessel units are made out of pre-cast concrete and are modular in nature. Six in-vessel units will be required to treat 1,000 tonnes of waste over a two week period. However, as part of a contingency plan it was purposed to purchase eight of these units so that there is some available capacity to allow for maintenance and repair of units.

The individual units which are 15m long, 8m wide and 2.5m high and are based on the Alfabloc instant walling system will be placed on the existing concrete slab. The units are unique in that they have a retractable roof manufactured out of a PVC coated material. The retractable roof can be either manually or mechanically retracted during loading and unloading of the units. The material in the roof has being designed to withstand severe weather conditions. Air handling units control air flow through the composting material. Safety rails around the top of the wall of the units ensures operator safety during site operation. The Wasteology system is designed as a modular and flexible system. Refer to the company brochure attached in **Appendix 2, Volume 2** of the report.

5.3.3 New Site Entrance

A new site entrance will be constructed in the paddock to allow for double lane traffic and improved site safety. The new entrance will be located 25 metres to the south of the existing entrance and will be 7.3m wide with a 1m grass verge on either side of the carriageway.

Road markings and traffic signs will be provided at the site access road in accordance with the 'Traffic Signs Manual'. Traffic signs will also be provided on the R162 to alert traffic of the right turn ahead into the facility. Further details are provided in **Section 6** of this report.

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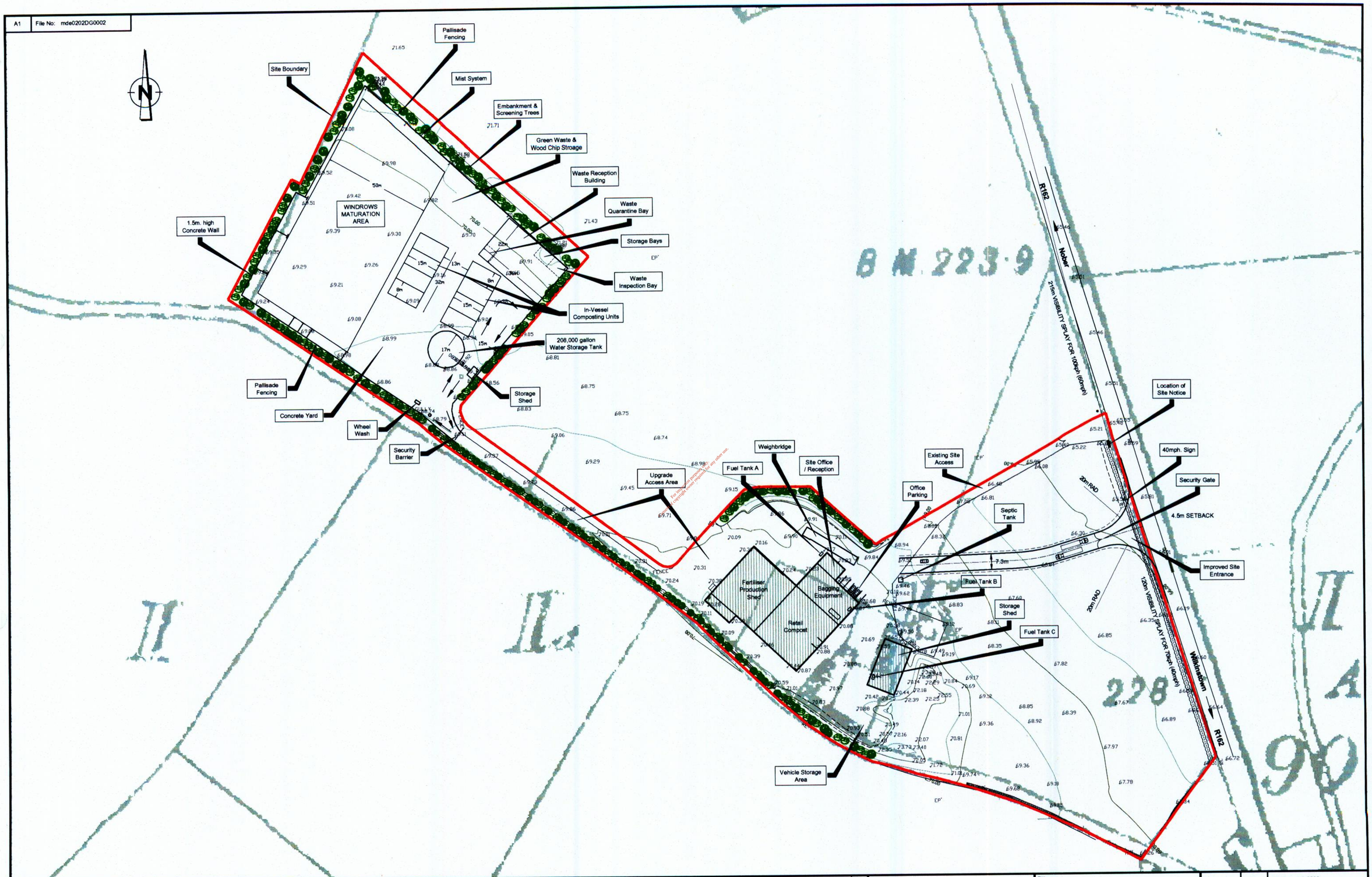

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No.	Date	By / Ch	Amendment / Issue	App.
A01	Jan'05	WP / CB	Issue to Client for Approval	CB

Project: ORGANIC GOLD COMPOSTING FACILITY

Title: PROPOSED SITE LAYOUT PLAN

Drawn by:	RH	Job No:	mde0202
Checked by:	WP	File No:	mde0202FG0501A01
Approved by:	CB	Drg. No: FIG 5.1	Rev: A01
Scale:	NTS		
Date:	JUNE '04		

5.3.4 Fertilser Production Shed Infrastructure

This building contains all equipment for processing and bagging the high-grade fertiliser and retail compost product. The plant contained in the bagging area consists of a hopper, mixing machine (roadstone truck), bagging unit and an aspirator. In the retail compost area only a mixer is used to mix the base product with peat to produce a soil improver and/or soil fertiliser. There is a two metre reinforced concrete wall between these two areas within the fertiliser production building.

5.3.5 Miscellaneous Infrastructure

Mist Air System

The mist air system was erected around the entire boundary of the site with the aim of neutralising odours in the air. The system is equipped with a wind directional control which allows the misting system to be turned on, on the side of the slab where the wind is blowing and hence reduce odour emissions in that direction. This mechanism also saves on the amount of water that may be consumed by the system.

The odour neutraliser that is used in the misting system is called 'Clean Air' which is a blend of natural oils derived from plants, vegetables and flowers, in an aqueous solution. According to the manufacture, these oils are responsible for disinfecting and neutralising offensive odours in the air. Clean air contains no synthetic chemicals only natural ingredients, which are biodegradable in the environment. A Material Safety Data Sheet for 'Clean Air' is included for reference in **Appendix 3, Volume 2** of the report.

Wheel Wash

There is a Jet Wash 3000 – 3000psi Three Phase Power Washer in use at the site presently for cleaning dirty vehicles before leaving the site. In the future a wheel wash will be put in place near the entrance to the composting slab to wash any dirty vehicles on exiting the site and preventing debris from being carried out onto access road. All wheel washings will be diverted to the yard run off waters and stored in the leachate storage tanks until it is recirculated back into the composting vessels and the windrows.

Weighbridge

A 50 tonne electronic Riteweigh Weighbridge is installed at the site to weigh all waste delivery vehicles entering and exiting the site. The weighbridge is installed with its own applications software, which feeds back information to a main computer in the office and allows information pertaining to all waste deliveries to be recorded.

Plant Equipment

Some of the main types of plant equipment used at the site are described in **Table 5.1** below.

Table 5.1 Plant Equipment Used on Site

Plant Type	Use / Description
Composting Slab	
Backhus 15.5 Compost Turner	Purpose built self-propelled compost turning machine
Woiberforce Shredder	For shredding green waste and wood waste
JCB Farmaster 416 S	Mechanical loading shovel with air conditioned cab
Idrotech Odour Control Fogging System	Erected along the compost slab perimeter with spray nozzles at 1.5 metre intervals to help control odour emissions at the site.
2 Ruscon Trailer's	14 tonne tipping trailer with roll over cover
Fliegl trailer	Push-of trailer for transporting compost
John Deere 7810	Tractor with air brake system and air conditioning
John Deere 3200	Teleporter Loading Shovel
Kidd Muck Spreader	Agricultural muck spreader (rear flails) converted for compost turning
Fertiliser Production Shed	
Grade all Grader	Grader for screening amenity compost blends
Big track hopper and elevator	Compost blending hopper and elevator to bagging plant
Aircosse Compressor	Air compressor for bag flushing
Walthamatic Bagging Plant	For bagging compost
Saxon Heat Sealer	Compost bag heat sealer
Pac 1500 Wrapper	Pallet wrapping machine
50 KVA Generator	Electrical generator for back up purposes

5.4 WASTE ACCEPTANCE

Only non-hazardous organic waste will be accepted at the site for composting. The Waste material proposed to be accepted at the site for composting will consist of:

- Green waste
- Woodchip
- Sludge (municipal and industrial)
- Other organic waste (slurry, spent brewers grain, commercial and household food waste)

5.4.1 Green Waste

Green waste will be mainly collected from facilities such as Navan and Trim Recycling Centres in Meath and from Lucan Recycling Centre in Dublin. Quantities of green waste will also delivered to the facility from waste contractors such as Panda Waste, Westside Recycling and smaller amounts from landscape gardeners. The green waste will be delivered to the site in skip loads, in trucks or by tractor and trailer.

5.4.2 Woodchips and Sawdust

Woodchips and sawdust will be delivered to the facility by waste contractors and also from timber sawmills located in Carlow and Galway. These sawmills recover as much material as possible, however, yard scrapings need to be composted at the Organic Gold facility. The wood chips need to be shredded to an optimum particle size before being used as a bulking material in the composting process.

5.4.3 Sludge

Sludge from municipal waste water treatment plants operated for example by Meath County Council will be delivered to the site by Panda Waste a licenced waste carrier. The sludge is delivered in purpose built sludge skip containers which are fully enclosed. The sludge is activated sludge formed during the treatment of wastewater.

During the treatment of wastewater different types of sludge are produced depending on the stage of sewage treatment. For example, in the initial pre-treatment stage, primary sludge is produced and seconday sludge is produced following biological oxidation of the sewage. On completion of all stages of treatment of sewage, excess activated sludge is produced which needs to be disposed off.

Only treated sludge such as activated sludge will be composted at the site. After treatment of sewage in a wastewater treatment plant, activated sludge remains and consists of approximately 17-25% solids and a mixture of light fluffy material. It is not as putrid, or putrescent, or does not contain as much solids as the primary or secondary sludge formed during this sewage treatment process.

Industrial sludges delivered to the site from food processing companies such as Coca Cola will be composted at the plant and used for the production of the high grade fertiliser. These sludges are formed from in house water treatment processes. They will be delivered to the site in purpose built sludge skip containers, which are fully enclosed.

There has been no dried food sludge accepted on site since July 2002, however there is a stock pile of this material (200 tonnes) in the fertiliser production shed for blending with inorganics to produce a high grade fertiliser according to customer specifications and requirements.

5.4.4 Other Commercial Organics

Spent grains left over from the brewing process will be delivered to the facility from breweries such as Guinness Group Ireland from two of its factories in Dublin and Waterford.

Other organics such horse bedding and other smaller streams of commercial organics may be composted. While currently the focus of the Organic Gold waste composting facility is on green waste and sludge. The facility may also accept other suitable non-hazardous organic waste that are compatible with the treatment process on site. This includes: commercial organic waste such as food waste from businesses e.g. supermarkets and shops and also household food waste. All of the above is subject to approval from the EPA in the facility Waste Licence and will require compliance with a waste acceptance criteria agreed advance with the Agency.

5.4.5 Dewatered Slurry

Cattle slurry is currently delivered from KEPAK a meat processing plant in Dublin to be recycled in Waste Recovery Activity 2 as outlined in **Section 5.2.1.** The dewatered slurry is mixed with peat and allowed to mature before being bagged and sold as Organic gold multi-purpose compost.

5.4.6 Waste Acceptance Procedures

The waste will be weighed and documented according to Organic Gold waste acceptance procedures. These acceptance procedures will be in accordance with Section 41 of the Waste Management Act, 1996 and also the issued EPA Waste Licence. Records will be kept of the quantity, nature and origin of the waste. All waste will be weighed using an onsite weighbridge and the delivery truck driver will present an acceptance certificate. Details on the acceptance certificate will include:

- A description of the waste, including as applicable the source of the waste
- Name and concentration of the substances contained in the waste
- Process producing the waste and chemical and physical analyses
- The European Waste Catalogue classification of the waste will be included.

All the waste will be inspected in the waste inspection area and will then be tipped into storage bays in the waste reception area. Potentially odorous or problematic material will be avoided and will serve as a mitigation measure against odour at the site. Waste found not to adhere to waste acceptance procedures will be rejected and deliveries sent back to its origin. Should any waste be detected after delivery is made, it will be stored in the waste quarantine area until it is safely disposed of to landfill.

5.5 WASTE PROCESSING

The two main waste recycling and processing activities outlined in **Section 5.2.1** will be discussed in the following sections.

5.5.1 Waste Processing Activity 1 – Composting of Organic Waste

Introduction

Composting is an exothermic biological process where organic matter is broken down by micoorganisms into carbon dioxide, water and a stabilised humic material. Composting usually proceeds in three phases until the biodegradability of the waste has been significantly reduced to a stabilised product. These phases include:

- The mesophilic phase;
- The thermophilic phase;
- The final maturation phase

The temperatures and corresponding pH values, at which microbes function during these phases, can be seen in **Figure 5.3**. The key parameters which are important to consider during the process are: Carbon : Nitrogen ratio, moisture content, oxygen availability and temperature which all have a direct influence on microbial activity.

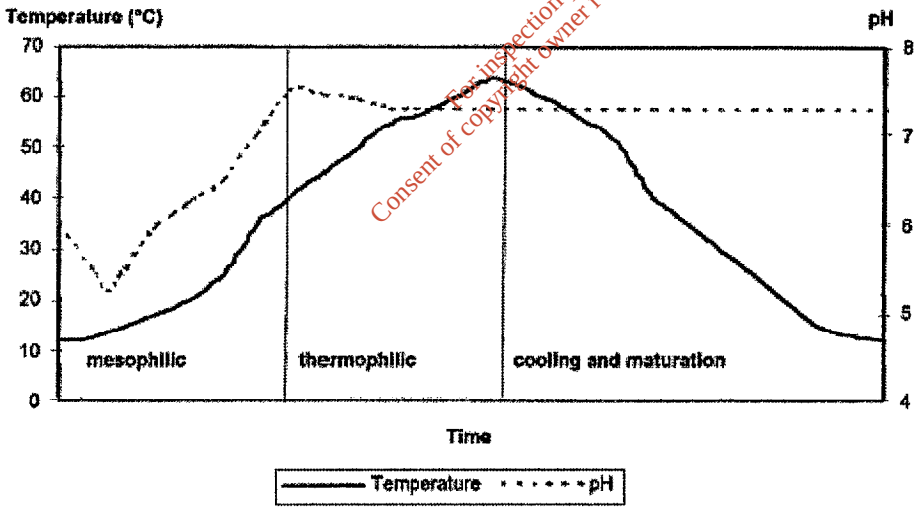


Figure 5.3 Temperature and pH Variation During a Natural Composting Process

Source: Tuomela et al., 2000

Processing of the Waste Material in the In-Vessel Units

All the waste accepted on site will undergo inspection in the waste reception building before it is stored in the storage bays (Refer to Flow Chart in **Figure 5.4**). Bulking materials such as wood chip and saw dust are required in the composting process as these materials provide a carbon source on which microbes can feed off. The organic waste material provides nitrogen sources also required by microbes for cell growth and functioning.

Organic Gold have found that the best mixture for matrix materials of wood chip, green waste and sludge is a 1:1:1 ratio. These materials will be blended together in that ratio in the waste reception building.

All material will be moved to the enclosed composting vessels within 24 hours of arriving on the site, using front loaders. The roof will be retracted to allow for the vessel to be filled which will take approximately 1 hour (**Refer to Plates 4 and 5,** courtesy of Wasteology). Closing and opening of the roof takes about one minute. It will take 3 days of waste acceptance to completely fill each vessel, which can hold approximately 180 tonnes of material depending on the materials bulk density. After three days of filling the vessels, no more waste will be added.

Plate 4 Vessel being loaded with roof drawn back

Plate 5 Vessel with roof drawn back

The material will be allowed to decompose under forced aerated conditions at a temperature of approximately 60ºC over the length of the entire process. The vessels are fitted with fans, which constantly force air up through the composting material via air ducts on the bottom of the units. The ventilation air is circulated within the system containing any odours from the composting process.

Thermometer probes are manually inserted throughout the material in the unit. The measured temperatures are shown on external LCD displays and recorded to produce temperature profiles. Any leachate produced seeps out of the vessel and into a grid along the bottom of the unit. This is then pumped to a collecting sump from where it is then pumped to a leachate storage tank on the slab, before being recirculated back into the composting vessels or the maturing compost in the windrows, as required.

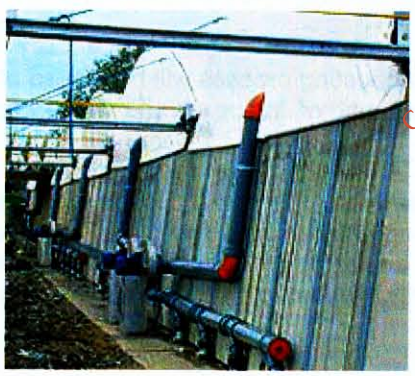


Plate 6 External air ducting and Fans

Plate 7 LCD displays showing temperature profiles

After 2 weeks of rapid decomposition the volume of waste material will have been reduced by 25% and the compost produced will be stabilised and pathogen free, according to the manufacturer of the Wasteology System. The roof will be retracted and the compost moved to a maturation area using a front loader.

Technical backup will be available from Wasteology during the start-up process and throughout the operations during which the System is used on site. Wasteology will also offer assistance to organic Gold in time s of breakdown or maintenance of the system.

Maturation Area

To ensure a quality product is produced, the compost will be removed from the vessels and be allowed to mature in outdoor windrows on the maturation pad. The compost will be introduced in a

synchronised fashion into numbered windrows and a record kept of the original vessel batch number and input dates. This allows for full traceability of waste material processed on site. These records will be kept for a period of three years on site.

Windrows will be constructed in a similar fashion to current practice, using front loaders and formed into piles approximately 90-100m long, 3.5-4m wide and 1.5m high. Each windrow will be capable of holding approximately 200-300 tonnes of compost. A maximum of 12-15 windrows will be required to allow the compost to mature sufficiently. Windrows will be turned approximately 5 times during the maturation period or as temperature dictates to ensure that the windrows are kept aerated. Turning of the windrows can also act as a temperature control. If the temperature begins to exceed 65°C the windrows will be turned. This ensures optimum conditions for microbes during the maturation period. Moisture levels of around 50 to 55% must be maintained to avoid drying out of the process. If the material is seen to be too dry stored leachate will be recirculated back into the process and moisture conditions maintained. Optimum moisture levels are required for optimum microbial growth.

The maturation period will take approximately 6 weeks at which time a fully stable, sanitised and mature compost product will be produced in compliance with EPA quality specifications within an EPA Waste Licence.

Compost Quality Monitoring

The final product will then undergo compost quality testing on a regular basis to ensure compliance with the EPA Waste Licence. Samples will be sent to reputable laboratories for quality analysis and all records of compost quality monitoring will be sent to the EPA.

The final product will be analysed regularly for:

- Heavy metals
- Glass, plastics, metals, gravel and stones
- Faecal coliforms and salmonella
- Stability and maturity
- Other physical and chemical characteristics

The type of monitoring and frequency of monitoring will also be specified within the EPA waste licence.

Use of Final Compost Product

The final product having been fully stabilised and matured in the composting process will be moved off site in bulk quantities. Organic Gold currently uses a Fliegel type push-of trailor on site which can transport approximately 8 tonnes of compost.

The final product is used for quarry side bunding and land remediation projects or supplied to the local authorities who use the compost as a soil improver in green areas and flowerbeds. The product is also used in motorway construction projects. Some of the product may be use in agriculture in accordance with the EPA Waste Licence specifications. However, the majority of product will be used in non-agricultural applications.

Process Control and Management

Throughout composting operations at the site process control and management will play an important role at the site to prevent environmental pollution and potential nuisances which could impact on residents and businesses in the vicinity of the site. **Table 5.2** provides a summary of process controls and monitoring to be followed at the proposed site.

Table 5.2 Summary of Process Controls and Management at the Organic Gold Site

Waste Acceptance	• Only permitted waste types will be accepted. • All waste will be weighed at the weighbridge before and after being tipped in the waste reception building. • All waste will undergo inspection in the waste reception building before being incorporated into the process. • Problematic wastes will be avoided. • Strict application of Waste Acceptance Procedures as agreed in advance with the EPA and outlined in the facility Waste Licence
Storage/ Mixing/ Blending	• Use labelled storage bays. • All waste to be blended and placed in composting vessels within 24 hours. • All mixing to be carried out in-doors.
In-Vessel Composting	• Minimise opening times of the vessel. • Recording of all batches of material treated in the vessels, i.e. origin of material, supplier, type of waste and EWC code, date received, dates of treatment i.e. start and finish dates. • Temperatures within the composting material will be constantly recorded. • In-vessel units will be properly maintained. • Any leachate produced will be collected efficiently and recirculated back into the composting process.
Maturation (out door windrows)	• Temperatures of windrows will be recorded daily. • Windrows will be turned to maintain optimum aeration and temperatures. • Windrows to be wetted to reduce dust where necessary.

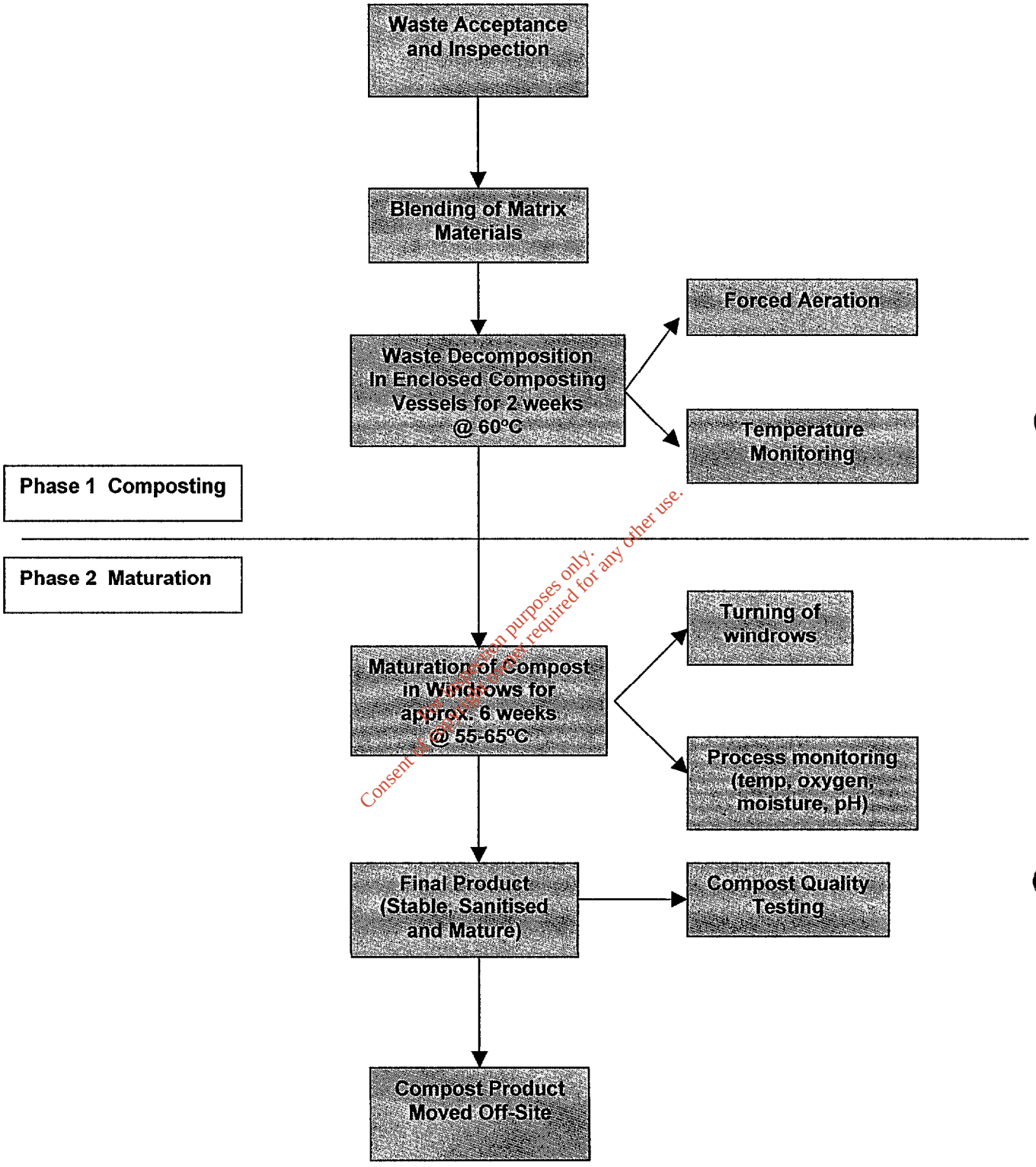


Figure 5.4 **Waste Recovery Activity 1 - Composting of Organic Waste at the Proposed Site**

5.5.2 Waste Processing Activity 2 - Processing of High Grade Fertilisers

Waste processing activity 2 involves (a) the production of the Organic Gold Multi-Purpose Compost and (b) the production of a High Grade Fertiliser within the fertiliser production shed.

(a) Organic Gold Multi-Purpose Compost

Dewatered cattle slurry will be delivered to the site for recovery. On arrival, the waste will undergo the usual waste inspection procedures carried out at the site. Once the site operators are satisfied with the material and it has being weighed and recorded the slurry will be moved to the main fertiliser production area and stored in a specified storage bay. The dewatered slurry is then mixed with various mixtures of peat and other trace elements to produce a variety of commercial products which can be used as soil conditioners and improvers. Refer to the **Figure 5.5 (a)** for details of this process.

A base product is produced by mixing 50% slurry with 50% peat by volume. The base product may then be mixed further with more peat such as base product blended with 50% and 60% more peat to produce the commercial products – Multi-purpose Compost, Richgrow, Natgrow. Peat is purchased from Bord na Mona Ltd for this purpose and consists of 100% *Sphagnum* moss peat.

The base product may also be mixed with some trace elements such as calcified sea weed to increase the nutrient content. The material is then milled and screened into a fine texture to produce the product "Natgrow".

Some times the base product (50% slurry/50% peat(v)) is blended with silica sand according to customer specifications and will produce a specialised growing media for use on golf courses. The silica sand when added to the product will increase drainage of tee boxes at golf courses, for example.

(a) Processing of High Grade Fertiliser

The production of a high-grade fertiliser to be sold to customers upon request also takes place in the fertiliser production shed. Dried sludge from food processing industries will be accepted on site and mixed with a mixture of inorganic substances in a simple mixing bottle unit to produce this fertiliser refer to **Figure 5.5 (b)**. Mr. John Finnegan a Director of Organic Gold holds the EU patent to this fertiliser production process.

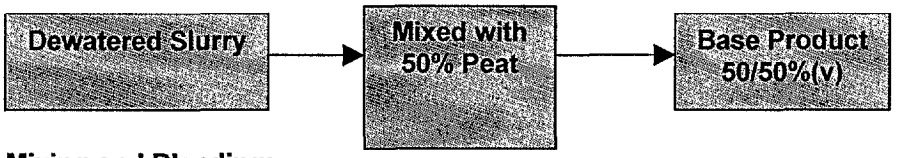
Dried food sludge has not been accepted on the site since July of 2002. However there is a stockpile of 200 tonnes of this material stored in the high-grade fertiliser shed for use in this process in the future. This dried sludge has not being accepted due to a lack of availability of machinery in Ireland to dry the material before it can be used in this process at the site. However, if the material becomes available again, Organic Gold plan on accepting the material and using it in this fertiliser production process.

A variety of inorganics are mixed with the dried industrial food sludge to supply additional nutrients to the product and increase its fertilising capabilities when used on golf courses for example.

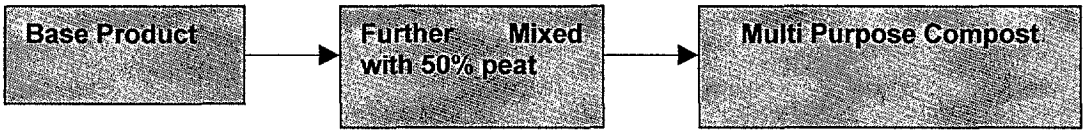
The inorganics used in this process include the following:

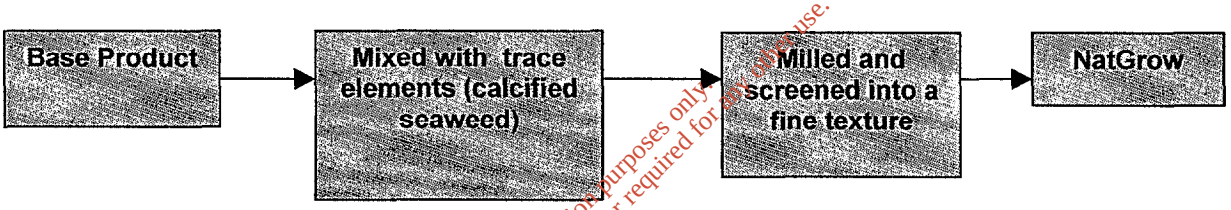
- CAN: Calcium Ammonium Nitrate
- MOP: Muriate of Potash
- DAP: Diamonium Phosphate
- TSP: Triple super Phosphate
- SSP: Single super Phosphate
- $FE_2 (SO_4)_3$: Ferrous Sulphate
- Calcified Sea Weed
- Urea

Basic Process:



Mixing and Blending:





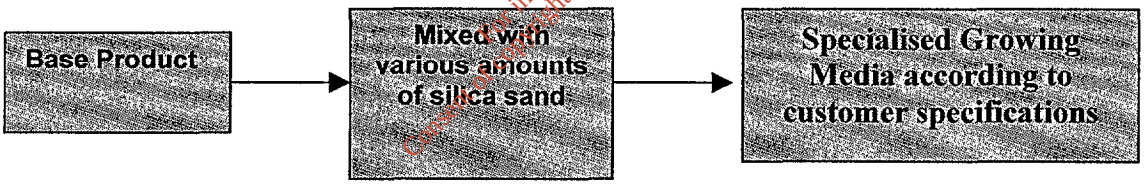


Figure 5.5 (a) Waste Recovery Activity 2 – Production of The Organic Gold Multi-Purpose Compost and Various Blends

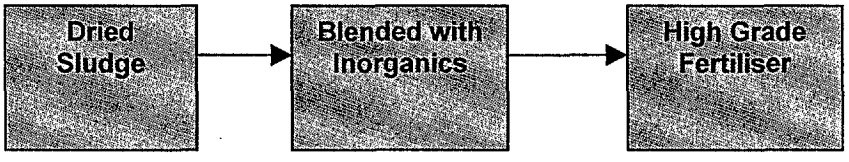


Figure 5.5 (b) Waste Recovery Activity 2 – Production of The High Grade Fertiliser

5.6 SITE SERVICES

All services at the site such as electrical, surface water and foul water flows, fire hydrants etc will be discussed in the following paragraphs.

5.6.1 Electrical Services

The site is served with electrical services at present. Electrical supply runs from a 3-phase transformer in the composting slab with one line travelling south west along the perimeter of the slab via an over head line until it reaches the southern point of the slab from where the second line runs via an underground line for approximately 35 metres, where it then travels via an overhead line west along the slab perimeter out into an neighbours field. At the southern point in the slab the third line runs along the pathway until it reaches a powerhouse near the fertiliser building where it provides electricity for the building.

5.6.2 Water Supply

Water is piped to the facility from a shallow surface water extraction well on the Yellow (Blackwater) River which is located approximately 180m west of the composting slab. The facility are currently waiting to be connected up to the main water supply. 100 mm Class II water mains will run from the site entrance and supply water to the site. Organic Gold has paid for this supply and is awaiting connection from Meath County Council.

5.6.3 Fire Hydrants

Fire hydrants will be installed near the car parking area at the corner of the office building and one in the composting slab area to protect against any potential fires on site. The fire hydrants will be connected up to the main water supply mains when they are connected.

5.6.4 Foul Water Drainage

There is one discharge point of foul water at the site. The foul water is discharged through a pipe running from the office building, toilets and sinks and is directed to a septic tank approximately 40 metres south east of the office building. a percolation area. The tank was recently upgraded in 2003 and included the upgrading of this tank and use of a percolation area through which discharge from the septic tank passes through.

5.6.5 Surface Water Drainage

Surface water flows on site are described below for the:

a) Composting slab;
b) Area around the buildings;
c) And the paddock area.

(a) Composting Slab

The fall of the fall of concrete slab is in a southerly direction towards a gully at the entrance to the paved area. All surface water run-off from the in-vessel composing units and the maturation area will be collected and stored in the leachate collection tanks until it is recircultated in the composting process. Any washings from the proposed wheel wash or existing power hose will be diverted to the leachate storage tanks and also recirculated into the composting process.

(b) Area around and Including the Site Buildings

Surface water collected from the fertiliser production building and its surrounds flows via a 220mm concrete pipe which runs from the corner of the main building via an underground pipe 4 inches below the concrete surface into an open ditch along the site boundary on the R162 road. There is natural infiltration of surface water from the site in the area around the buildings.

(c) Paddock Area

Clean surface water flow in the paddock area undergoes natural infiltration into the ground.

5.7 ENVIRONMENTAL MANAGEMENT

Environmental and process monitoring will take place at the proposed site. Process monitoring and product quality monitoring for the composted material during Waste Recovery Activity 1 was discussed in **Section 5.5.1**.

5.7.1 Site Management

The site will be managed by experienced personnel. A competent person will be on site at all times during site operations. All staff will under go compost training courses for site operators and management which are hosted by Cré - Composting Association of Ireland Teo and WRAP, a UK body which provides training for compost facility operators. It is important that good housekeeping procedures be adhered to at all times by:

- Ensuring that the site is kept tidy at all times.
- Placing materials and machinery in designated storage areas.
- Removing litter form the site and recycling/ disposing off it appropriately.
- Keeping the site clean by avoiding pools of leachate and the build up of waste materials.
- Ensuring that all operators are familiar with the waste streams accepted on site and know what mix is best for the composting process to proceed.

5.7.2 Environmental Monitoring

Environmental monitoring is important to carry out regularly, to identify whether the facility is impacting on the environment. To this end, environmental monitoring at the site will entail monitoring for:

- Odours
- Dust
- Bioaerosols
- Noise

Environmental monitoring will be carried out according to the monitoring stipulations within the EPA Waste Licence.

5.7.3 Health and Safety

Management will ensure that all staff have the appropriate immunisations injections required for handling waste, before commencing work. These include tetanus and polio vaccinations. Staff will get training in overall health and safety to include manual handling, operation of machinery and electricity. Personnel Protective Equipment will be made available by site management to employees, to protect against dust, bioaerosols and noise emissions.

Emergency Procedures

Emergency procedures will be updated at the site and documented within an updated site safety plan, and followed in the event of an emergency situation arising on the site. An emergency situation would be considered to be any of the following:

- A fire on the site
- A spill of fuel or other contaminants
- A serious accident
- An explosion or discovery of a suspicious item etc.

All accidents will be reported to Tony Finnegan the Site Safety Officer.

Emergency Contact Numbers

A list of the emergency numbers will be posted in a prominent position in the site office and fertiliser production building for all staff members.

5.7.4 Environmental Management System/ Conditioning Plan

Environmental Management System (EMS)
An Environmental Management System comprising the entire site will be devised and operated in accordance with the requirements of the EPA waste Licence. An EMS is a continuous cycle of planning, implementing, reviewing and improving the processes and actions that a business undertakes to meet its business and environmental goals. Typically, EMS's are built on the "Plan, Implement, Check, Review" model. This model leads to continual environmental improvement based upon:

- Planning, which includes identifying environmental aspects and establishing goals;
- Implementing, including training and operational controls at the site;
- Checking, including monitoring and corrective actions; and
- Reviewing, including progress reviews and acting to make required changes to the EMS.

The EMS will be complete within 6 months of operation of the proposed site.

Conditioning Plan
A Conditioning Plan outlines proposed measures to constantly upgrade existing operations and to improve on environmental performance. This will be forwarded to the EPA within 12 months of operation at the proposed site.

5.8 NUSIANCE CONTROLS

Controls at the proposed site will be put in place to prevent or minimise environmental nuisances arising at the site which include:

- Fire
- Traffic
- Odour
- Bioaerosols
- Dust
- Litter
- Vermin and Bird
- Noise

These will be discussed further in **Section 13.3**.

6 TRAFFIC

6.1 INTRODUCTION

RPS-MCOS was invited to carry out a Traffic Impact Assessment as part of the Environmental Impact Statement for the Organic Gold Composting Facility located in Wilkinstown, Navan, Co. Meath. The information will be used to support a planning application to be submitted to Meath County Council.

6.2 METHODOLOGY

This section of the Environmental Impact Statement will examine the transportation impacts of the proposed extension of the existing Organic Gold Composting Facility at Wilkinstown. It has been compiled in accordance with the Institution of Highways and Transportation's document 'Guidelines for Traffic Impact Assessment', (September 1994).

This report will address the issues of:

- Site Location;
- Existing Traffic Levels;
- Future Traffic Levels with and without the Development;
- Impact of Development Traffic on the Surrounding Road Network;
- Heavy Goods Vehicle Accessibility;
- Safety of Site Access, and
- Mitigation Measures.

6.3 EXISTING ENVIRONMENT

6.3.1 Site Location

The Organic Gold Composting Facility is located approximately 0.4km north of Wilkinstown Village and 10km north of Navan, Co. Meath. The site entrance is situated on the R162, Regional Road, which forms the Navan to Kingscourt Road. The exact location of the site and the existing transportation network is shown in **Figure 6.1**.

6.3.2 Existing Road Network

A site visit was undertaken by RPS-MCOS on the 8th of December 2004 to establish details of existing traffic conditions. Traffic on the R162 was observed to be fast moving with a reasonably high level of heavy goods vehicles. Further details of traffic flows are provided in Section 6.3.3. The site entrance is situated approximately 30m to the north of the 40 mph zone at the entrance to Wilkinstown Village. The R162 is approximately 7.3m wide with a grass verge of 1.5-2m on either side.

The N51 is located to the south of the facility and has a southwesterly alignment from Drogheda, linking Slane, Navan and Athboy, until it connects with the N52 in Delvin, Co. Meath.

The N52, National Secondary Route to the north of the site, has a south westerly alignment from Dundalk in County Louth through Ardee and Kells and joins the N4 Dublin to Sligo National Primary Route at Mullingar, Co. Westmeath.

ORGANIC GOLD

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Project	ORGANIC GOLD COMPOSTING FACILITY	Drawn : NL	Project No. MDE0202
		Checked : LH	File Ref : mde0202FG0601
		Approved : GK	Figure No. 6.1 / Rev. A01
Title	SITE LOCATION PLAN	Scale : 1:50,000	
		Date : Jan. '05	

6.3.3 Existing Traffic Levels

Meath County Council carried out a 12-hour classified traffic survey on the R162 in 1999. The information made available to RPS-MCOS comprised the total (two way) volume of traffic on the R162 over the 12-hour period. This volume was 3,947 vehicles (17% Heavy Goods Vehicles,) and this figure was used as a basis on which to calculate the traffic volumes for the opening year 2006.

6.3.4 Future Road Network

RPS-MCOS understand from consultation with Meath County Council that there are no major developments or road schemes planned for the area surrounding the Organic Gold Composting Facility.

6.3.5 Site Traffic Generation

The site access road is in poor condition at present and does not afford ease of access for Heavy Goods Vehicles (HGV's). It is approximately 5m wide and can only cater for one-way flow at a time. The safety of the site access is also compromised, as the turning radii and visibility on either side of the junction do not conform to the design standards set out in the National Roads Authority's 'Design Manual for Roads and Bridges'. The access road also requires resurfacing, as there are several deep potholes and there are no road markings.

The majority of traffic movements made to and from the site consist of enclosed tankers, waste tipper trucks and tractors and trailers. The average load of HGV's that deliver to the facility is 12 tonnes whereas the tractors and trailers that move the compost off-site averages a load of 8 tonnes per trip. The facility currently accepts approximately 10,000 tonnes of organic waste per year. This equates to 833 one-way HGV movements. At present the facility is operational 50 weeks per year on a 5.5 days per week basis, which equates to 275 working days. This results in approximately 3 one-way HGV movements onto site per day.

Waste that arrives on site undergoes a 30% reduction in moisture content which results in 7,000 tonnes of compost being transferred off site for further use. Assuming each tractor and trailer takes an 8 tonne load, it is calculated that 875 one-way movements are made per year. This equates to approximately 3 one-way movements per day.

Organic Gold (Marketing) Ltd. employs several workers at the facility. However the maximum number of employees on site at any one time is 8. The current maximum number of visitors to the facility is 5 per day. Table 6.1 below illustrates the existing traffic movements to and from the Organic Gold Composting Facility:

Table 6.1 Existing Traffic Movements (2004)

	Total Tonnes	Average Vehicle Tonnage	One-way Vehicle Movements per year	One-way Vehicle Movements per day	Two-way Vehicle Movements per day
Waste Arrivals on Site	10,000	12	833	3	6
Compost Removal from Site	7,000	8	875	3	6
Staff	~	~	2,200	8	16
Visitors	~	~	1,375	5	10
Total Vehicle Movements	~	~	**5,283**	**19**	**38**

6.4 POTENTIAL IMPACTS

Organic Gold (Marketing) Ltd. currently compost approximately 10,000 tonnes of organic waste per year. However it is proposed that this be increased to 25,000 tonnes per year to cater for increasing demand. This section summarises the potential impacts of the proposed extension.

6.3.6 Traffic Growth

Meath County Council provided RPS-MCOS with the total volume of traffic on the R162, Regional Road, over a 12-hour period. This data was obtained from a traffic survey undertaken in 1999. Growth factors provided by the 'National Road Needs Study' were used to determine the 12-hour movement up to 2002 and factors obtained from the document "NRA Future Traffic Forecasts 2002 – 2040" were employed to growth the traffic from 2002 to 2006. The growth factors used are summarised in Table 6.2 below:

Table 6.2 Traffic Growth Factors for Non-National Roads (Source: National Roads Authority)

Year	Vehicle	Growth Factor	% Growth per Annum
1999 - 2002	Cars	1.108	3.5
1999 - 2002	HGV	1.114	3.7
2002 - 2006	Cars	1.090	2.1
2002 - 2006	HGV	1.070	1.7

The resulting traffic volume on the R162 for the opening year 2006 is **4,756 (17% HGV)**.

6.3.7 Development Traffic

The amount of waste accepted by the Organic Gold Composting Facility will increase to 25,000 tonnes per year. This will result in a corresponding increase in the number of traffic movements to and from the site. It is calculated that, using delivery trucks with a load capacity of 12 tonnes and assuming the facility will be operational for 275 days a year, an average of 8 one-way HGV movements will be made to the facility per day.

Having undertaken the 30% reduction in moisture content, the amount of compost that will be removed from the site will be 17,500 tonnes per year. This equates to an average of 8 one-way traffic movements from the facility per day assuming the trucks removing the compost have a load capacity of 8 tonnes and the operational hours remain the same as current.

It is understood from discussion with Organic Gold (Marketing) Ltd. that the expansion will not result in an increase in staff or visitors from present numbers. Table 6.2 below illustrates the traffic movements to and from the Organic Gold Composting Facility in the opening year 2006:

Table 6.3 Future Traffic Movements (2006)

	Total Tonnes	Average Vehicle Tonnage	One-way Vehicle Movements per year	One-way Vehicle Movements per day	Two-way Vehicle Movements per day
Waste Arrival on Site	25,000	12	2,083	8	16
Compost Removal from Site	17,500	8	2,188	8	16
Staff	~	~	2,200	8	16
Visitors	~	~	1,375	5	10
Total Vehicle Movements	**~**	**~**	**7,846**	**29**	**58**

6.3.8 Construction Traffic

Because the construction activities associated with the waste reception building and the improved site entrance are of such a small scale and provided that the mitigation measures as described in **Section 6.5** are followed, they will have a negligible traffic impact in terms of construction traffic.

6.4.5 Traffic Analysis

The number of two-way vehicle movements on the R162 in the opening year due to the Organic Gold Composting Facility is 58, as can be seen in Table 6.3. This represents 1.2% of the total traffic estimated for 2006 for the R162 (4,756 vehicles).

In accordance with the Institution of Highways and Transportation's document 'Guidelines for Traffic Impact Assessment' a traffic impact assessment is recommended when one or other of the following thresholds are exceeded, "traffic to and from the development exceeds 10% of the existing two-way traffic flow on the adjoining highway" or "traffic to or from the development exceeds 5% of the two-way traffic flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations". It would be appropriate in the circumstances to use the former threshold of 10%. On the basis of this threshold, it is clear that a Traffic Impact Assessment is not necessary. However, in order to ensure that the development can be accommodated satisfactorily within the road network, a preliminary traffic appraisal was conducted by RPS-MCOS. As part of this appraisal, the Report identifies the main traffic issues associated with the extension of the Organic Gold Composting Facility. It also identifies a number of suitable mitigation measures as described below in 6.5.

It is important to note that the net impact of the proposal is the difference between the baseline (10,000 tonnes) and future traffic scenarios (25,000 tonnes). A summary is provided below in Table 6.4.

Table 6.4 Net Impact (2006)

Existing (2004) Vehicles (two-way)	Future (2006) Vehicles (two-way)	Net Impact (2006) Vehicles (two-way)
38	58	20

However, in order to provide a robust assessment for the traffic analysis for 2006, the opening year, the assessment was based on the actual number of vehicles expected to be generated by 25,000 tonnes, rather than the net impact of the Scheme.

6.5 MITIGATION MEASURES

A number of appropriate mitigation measures have been identified to accommodate the proposed expansion of the Organic Gold Composting Facility:

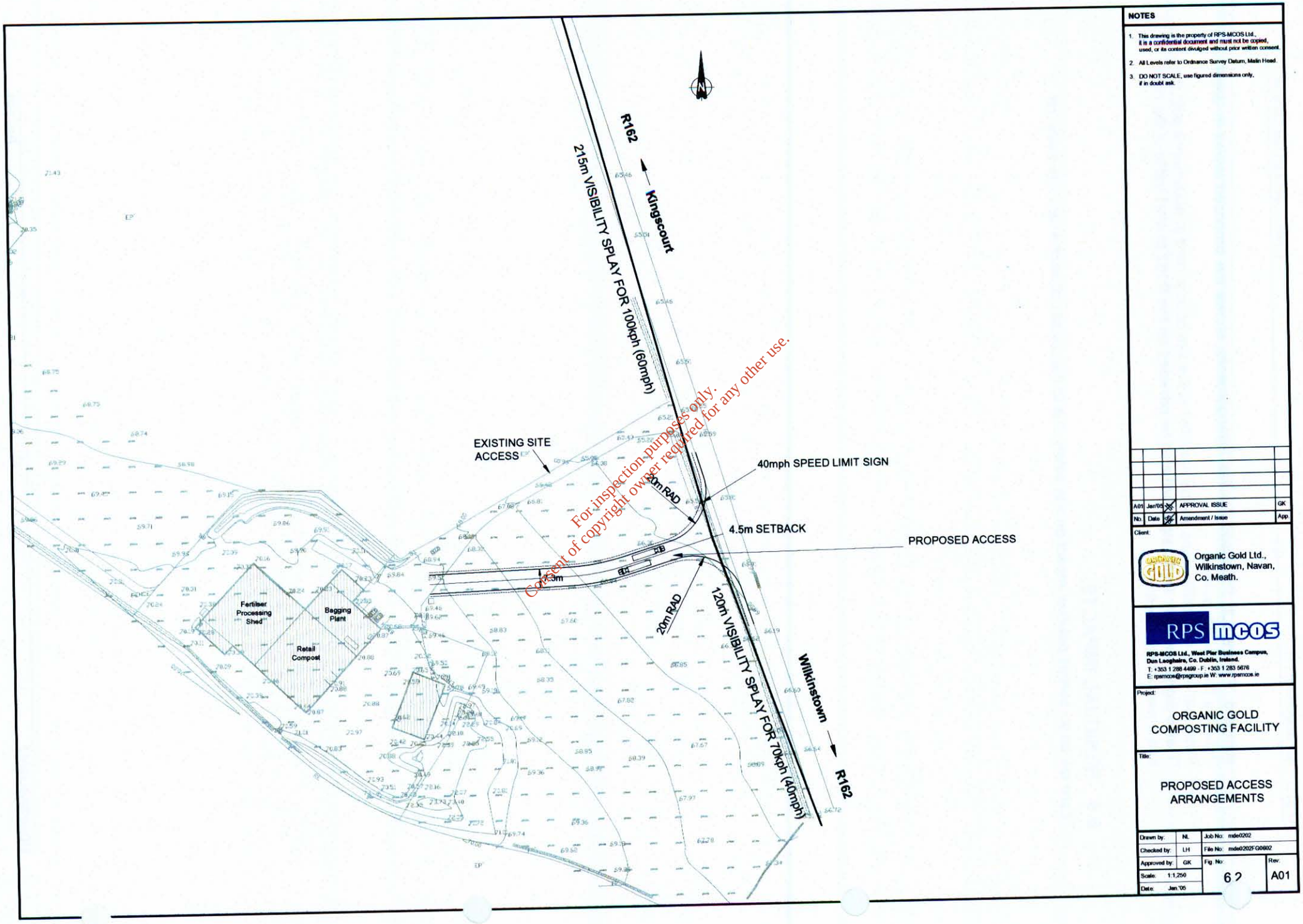
- It is intended that the internal site access road be widened to 7.3m with a 1m grass verge on either side of the carriageway. Resurfacing will also be carried out to accommodate HGVs that will be entering/exiting the facility
- Improvements will be made to the priority junction where the site access road meets the R162. The junction redesign incorporates turning radii of 20m. A visibility splay of 120m to the right from a setback distance of 4.5m will be provided. This is in accordance with current design standards as set out in the 'Design Manual for Roads and Bridges'. A visibility splay of 215m will be provided to the left of the junction and it is recommended that a no overtaking line (continuous white line) should be provided on this approach due to the 60mph speed limit transition to 40mph. In accordance with the 'Design Manual for Roads and Bridges' Volume 6, Section 2, "on non-national urban roads where there is a constraint on overtaking on the approach from the left to a direct access, the visibility splay to the left may, as a Relaxation, be taken to the nearside edge of the lane for oncoming traffic, rather than to the near edge of the road." The visibility splay to the left has been measured in accordance with this design

standard. **Figure 6.2**, Proposed Access Arrangements, shows the proposed layout in detail including the visibility splays.

- Road markings and traffic signs will be provided at the site access road in accordance with the 'Traffic Signs Manual'. Traffic signs will also be provided on the R162 to alert traffic of the right turn ahead into the facility.

6.6 RESIDUAL IMPACTS

There will be an overall positive impact on site safety due to the construction of a new site entrance.



NOTES

1. This drawing is the property of RPS-MCOS Ltd., it is a confidential document and must not be copied, used, or its content divulged without prior written consent.
2. All Levels refer to Ordnance Survey Datum, Malin Head.
3. DO NOT SCALE, use figured dimensions only, if in doubt ask.

No.	Date		Amendment / Issue	App.
A01	Jan'05		APPROVAL ISSUE	GK

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Project:

ORGANIC GOLD
COMPOSTING FACILITY

Title:

PROPOSED ACCESS
ARRANGEMENTS

Drawn by:	NL	Job No: mde0202	
Checked by:	LH	File No: mde0202FG0802	
Approved by:	GK	Fig. No: 6.2	Rev: A01
Scale:	1:1,250		
Date:	Jan '05		

7 GEOLOGY AND HYDROGEOLOGY

7.1 INTRODUCTION

This section of the Environmental Impact Statement assesses any likely and significant impacts on soil, geology and hydrogeology from the proposed expansion of services at the Organic Gold Composting Facility in Wilkinstown Co. Meath. This section should be read in conjunction with the site and project description of this EIS.

The site in question is used for the composting of non-hazardous organic waste that includes sludge green waste and wood chip. The proposal entails the retention of a concrete slab on the site where all composting operations will take place. It is envisaged that the amount of waste accepted on site will increase from 10,000 to 25,000 tonnes per annum. It is anticipated that the amount of leachate produced will also increase proportionally due to an increase in the amount of waste accepted on site. However, the generation of leachate will be relatively low due to evaporation of moisture from the windrows during composting and turning.

The collection of this leachate will continue as per current arrangements. Presently, leachate is circulated from the composting process via a gully into an underground storage tank. From here, the leachate flows under gravity into another underground storage tank. An above ground submersible pump is used to pump the leachate from here to an above ground double walled storage tank. The leachate from this tank is then recirculated back into the composting process via spreading on the windrows. All tanks have been designed to adequately contain the leachate.

7.2 METHODOLOGY

This section of the EIS is based on a desk study and site visit to the existing facility and was prepared with reference to Information *to be contained in Environmental Impact Statements* (EPA 2002) and *Geology in Environmental Impact Statements a Guide,* (IGI 2002). The following sources of information were used.

Bedrock Geological map of Meath by Geological Survey of Ireland (G.S.I.) (1999), Sheet 13
Quaternary Map of Meath by Quaternary Section of GSI
G.S.I. well records
Results of water quality monitoring at the facility

7.3 EXISTING ENVIRONMENT

7.3.1 Soils and Geology

The subsoil geology underlying the site has been mapped as till derived from Lower Palaeozoic rock by the Quaternary Section of the G.S.I. Till is a mixture of clay, silt, sand, gravel and boulder clays deposited by glacier ice). Patches of gravel have also been recorded in the area. The bedrock Geology underlying the site has been mapped as the Salterstown Formation by the G.S.I. (1999), which consists of calcareous greywacke and banded mudstone.

7.3.2 Hydrogeology

The bedrock underlying the site is characterised by low fissure permeability as a result of folding and faulting and is classified by the GSI as a poor aquifer that is generally 'unproductive'. Groundwater may be obtained for domestic supply although failed wells have been frequently recorded. Groundwater in these rocks moves in the upper fractured zones, along more permeable beds of

limited extent and along fracture and fault zones. Flow is generally in localised systems with little continuity between them. Well yields are greatest in fault zones.

A search of the G.S.I. well database identified several groundwater wells within a 3km radius of the site. Two wells are located within the Salterstown Formation, one of which has been classified as poor yielding (<40m^3/d). The classification of the second well is unknown.

There is one groundwater well on site. This is in excess of 50m in depth and is situated within the windrow yard. This well is not presently in use. A sample was taken from the well on the 12th August 2004 to assess the quality of groundwater at the site. Refer to Table 7.1 for results of the analysis conducted on the groundwater sample taken. The results are compared with the Interim EPA Guideline Values for Groundwater (Towards Setting Guideline Values for the Protection of Groundwater in Ireland, EPA, 2003).

Table 7.1 Results of Water Analysis from Groundwater Well

Parameter	Concentration (mg/l)	Interim EPA Guideline Values for Groundwater (mg/l)
Boron	<0.1	1
Cadmium	0.0005	0.005
Chromium	<0.005	0.03
Copper	0.02	0.03
Lead	0.007	0.01
Magnesium	33	50
Mercury	<0.00005	0.001
Zinc	0.075	0.1
Calcium	229	200
Chloride	11.2	30
Coliforms (cfu/100ml)	228.2	0
Nitrate	0.62	25
Sulphate	195.6	200
Potassium	31.0	5
Sodium	39.0	150
Total Phenols	<0.010	0.0005
EC (ms/cm)	1.5	1
PH (pH units)	7.26	≥ 6.5 & ≤ 9.5

With the exceptions of Electrical Conductivity, Calcium and Potassium, parameters are generally in compliance with the Interim EPA Guideline Values for Groundwater quality. Elevated Total Coliform levels may be attributed to organic matter on the surface of the poorly protected well.

The Yellow River is located approximately 200m to the west of the subject site. It would be expected that regional groundwater would flow along the general topographic gradient, which dips to the southwest and would discharge to the Yellow River as baseflow.

The aquifer vulnerability for the site has been classified as High in the Groundwater Protection Scheme for the county due to the presence of thin subsoils and areas of rock outcrop in the area. In the absence of significant soil thickness the underlying aquifer is vulnerable to contamination from the release of hazardous or polluting matter at ground level or in the shallow soil.

7.4 POTENTIAL IMPACTS

7.4.1 Construction Phase

Soils, Geology and Hydrogeology

Construction of the waste reception building will take place on a concreted surface and will not impact on soils, geology or hydrogeology during the construction phase. Because construction of the new site entrance will only involve excavating a small amount of agricultural grassland there will be no significant impact on soils or on the geology or hydrogeology of the site.

7.4.2 Operational Phase

Soils, Geology and Hydrogeology

During its operational phase all composting of waste material will take place in enclosed in-vessel units for two weeks where rapid decomposition of the material will take place. Leachate produced in the units will seep to the bottom of the floor of the unit and into a grid, from where it will be pumped to a collecting sump and into the leachate storage tank on site. All leachate collected in the storage tank will then be recirculated back into the system preventing any net runoff from the slab or the composting process.

Leachate will also be produced while the material will be allowed to mature in outdoor windrows. This leachate will also be collected and stored in the leachate storage tank for recirculation back into the process.

An increase in the amount of waste accepted at the site in the future will impact the amount of leachate generated at the site; that is, there will be an increase in the volume of leachate produced by up to two and a half times the current volume. The increased generation of leachate is a potential impact on groundwater quality if it is not adequately stored.

There will be no significant change in the area being covered by hard standing areas (apart from an additional new site entrance) once the site is fully operational. Therefore, the amount of rainfall that infiltrates to the soil zone will remain more or less unchanged with no change in groundwater recharge.

7.5 MITIGATION MEASURES

7.5.1 Construction Phase

It is proposed that Organic Gold must ensure proper construction of slab around the base of structures for new waste reception building. They will also ensure that the reinstated slab is impermeable and prevent any runoff from entering groundwater.

7.5.2 Operational Phase

It is proposed that additional leachate will be stored in appropriate containment that is designed according to the relevant standards. Any leachate produced will be recirculated back into the composting process, which is currently undertaken at the site. There will be no leachate runoff to soils or groundwater from the composting process taking place on the slab.

The integrity of the concrete slab and the leachate collection chambers should be monitored regularly in accordance with schedule of the future Waste Licence for the site.

7.6 RESIDUAL IMPACTS

There are no residual impacts.

8 AQUATIC ENVIRONMENT

8.1 INTRODUCTION

As part of the EIS for the Organic Gold Composting facility, Wilkinstown, Co. Meath an aquatic assessment has been carried out. The aims of the assessment are:

- To assess the baseline water quality in the vicinity of the proposed development.
- To assess the potential impacts of the development on water quality and to recommend mitigation measures where necessary.

8.2 METHODOLOGY

8.2.1 ASSESSMENT OF CHEMICAL WATER QUALITY

Two watercourses were identified on which the Organic Gold composting facility might have an impact on water quality, the Yellow (Blackwater) west of the composting slab and an open surface water drainage ditch to the east of the site. In order to determine baseline surface water quality, in the vicinity of the facility, two surface water samples were taken on the Yellow (Blackwater).

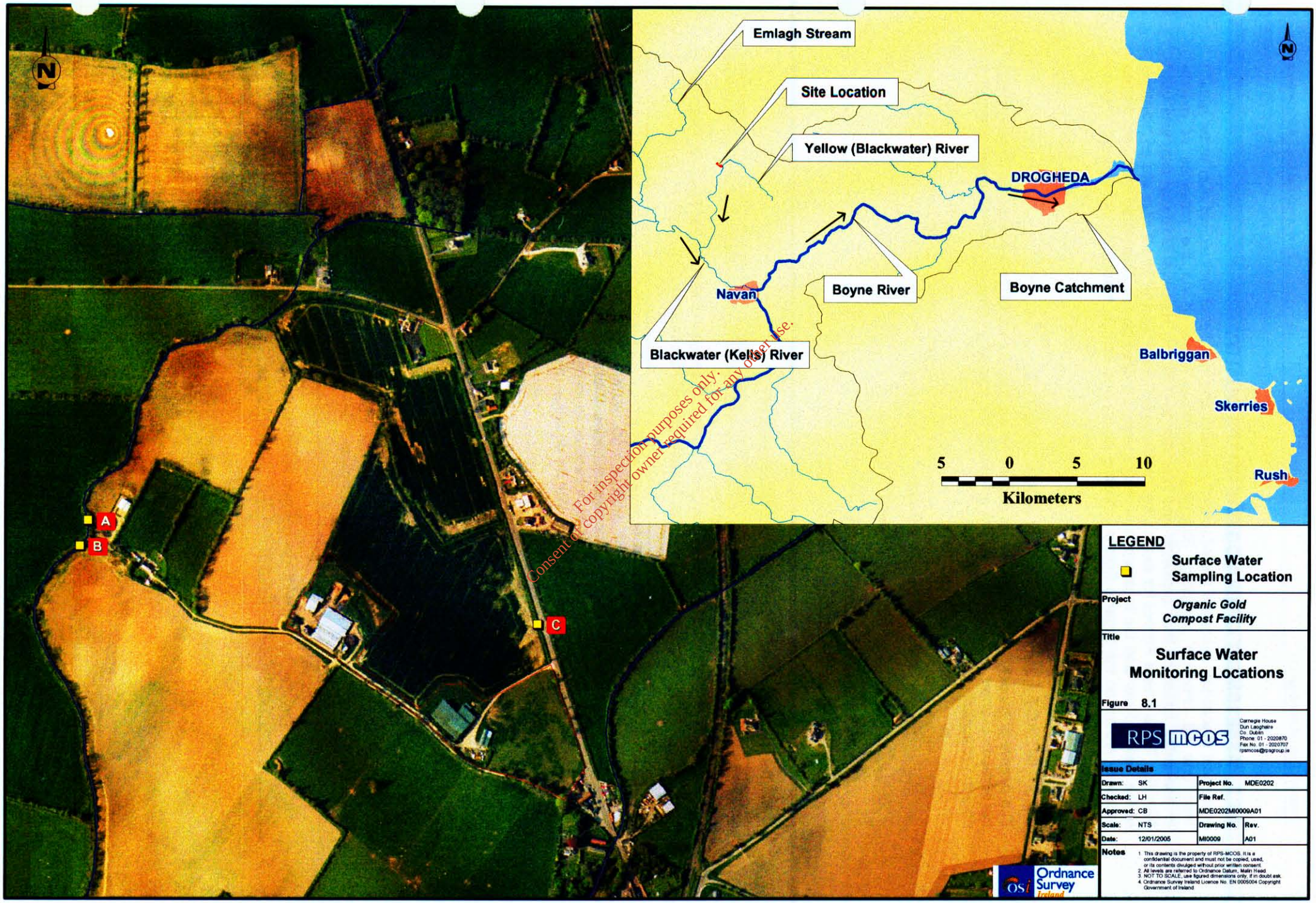
The samples were collected from pre-defined locations given in **Table 8.1** on the 12th of August 2004. The sampling locations are also shown in **Figure 8.1**. A shallow surface water extraction well is being used to abstract water from the Yellow (Blackwater) for operating the misting system surrounding the composting slab and for other miscellaneous uses on site. It was attempted to take a runoff sample from the ditch, in close proximity to the site entrance, however the ditch was dry at the time of sampling.

Table 8.1 Surface Water Sampling Locations

Ref.	Location	Rationale for selection
A	Yellow (Blackwater) River, 5m upstream of the shallow surface water well, approximately 180m west of the composting slab.	To establish baseline water quality upstream of the shallow surface water well.
B	The shallow surface water extraction well on the Yellow (Blackwater) River.	To establish current water quality in the shallow surface water extraction well.
C	Point of discharge of surface water runoff from the site	To establish current water quality at this point.

All samples were despatched to City Analysts Dublin, for laboratory analysis. The suite of parameters tested is outlined below.

- pH
- BOD (mg/l)
- Suspended solids (mg/l)
- Ammonia (NH_3-N) (mg/l)
- Nitrate (NO_3-N) (mg/l)
- Orthophosphate (o-PO_4-P) (mg/l)
- Total Coliforms (CFU/100ml)
- Faecal Coliforms (CFU/100ml)
- Electrical Conductivity



8.2.2 ASSESSMENT OF BIOLOGICAL WATER QUALITY

Biological monitoring assesses the effects of pollution and is a better indicator of over water quality than one off chemical sampling. Biological monitoring is based on the presence of macro-invertebrates, based on their sensitivity and tolerance to pollution. Historical biological data was used from the Three Rivers Project for assessment of biological water quality. The 2 sites are on branches of the Yellow River and the locations and results and are described in **Table 8.5**. These monitoring locations are not on the Organic Gold composting facility and other operations in the area will have an impact on the water quality.

8.2.3 IMPACT ASSESSMENT FOR AQUATIC SITES

The degree of impact on water quality will depend on the importance of the watercourse impacted and the duration of impact. In line with the EPA guidelines the following terms are defined when quantifying duration of impact;

- Temporary: Up to 1 year,
- Short-term: From 1 to 7 years
- Medium-term: 7 to 15 years
- Long-term: 15 – 60 years
- Permanent: over 60 years.

Table 8.2 Classification of Importance of Watercourse

Rating	
A	**Internationally Important** Habitats designated as SACs for Annex II species under the EU Habitats Directive. Major Salmon river fisheries. Major salmonid lake fisheries.
B	**Nationally or Regionally Important** Other major salmonid waters and waters with major amenity fishery value. Commercially important coarse fisheries. Waters with important populations of species protected under the Wildlife Act and/or important populations of Annex II species under the EU Habitats Directive. Waters designated or proposed as Natural Heritage Areas by Dúchas.
C	**High Value, locally important** Small water bodies with known salmonid populations or with good potential salmonid habitat, or any population of species protected under the Wildlife Act and/or listed Annex II species under the EU Habitats Directive. Large water bodies with some fisheries value.
D	**Moderate value, locally important** Small water bodies with some coarse fisheries value or some potential salmonid habitat. Any stream with an unpolluted Q-value rating.
E	**Low value** Water bodies with no current fisheries value and no significant potential fisheries value. Habitat diversity low and degraded