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Organic Gold (Marketing) Ltd. Composting Plant





ENVIRONMENTAL IMPACT STATEMENT

Volume 1 Non-Technical Summary & Main Report



January 2005

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DOCUMENT CONTROL SHEET

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PREFACE

The Environmental Impact Statement for the Organic Gold (Marketing) Ltd. proposed composting facility at Wilkinstown, Navan, Co. Meath consists of two documents:

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Volume 1 Non-Technical Summary

A non-technical summary of the information contained in the Environmental Impact Statement.

Environmental Impact Statement

The Environmental Impact Statement deals with the environmental impact of the proposed development. Information on the design of the facility and waste processing activities are included. Potential environmental impacts are assessed and mitigation measures proposed.

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Volume 2Technical AppendicesSpecialist technical information is supplied.

ACKNOWLEDGEMENTS

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Environmental Sub-Consultants	
Traffic Impact Assessment	RPS-MCOS
Geology & Hydrogeology	RPS-MCOS
Aquatic Environment	RPS-MCOS
Terrestrial Ecology	RPS-MCOS
Air Quality and Climate	RPS Group
Odour	Odour Monitoring Ireland
Noise & Vibration	RPS Group
Landscape & Visual	RPS-MCOS
Human Beings (Socio-Economic / Community Impacts)	RPS-MCOS
Archaeology & Cultural Heritage	Stafford-Mc Loughlin Archaeology
Natural Resources	RPS-MCOS
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Plate 2 The Paddock Area

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Plate 4 Vessel being loaded with roof drawn back

Plate 5 Vessel with roof drawn back

INTRODUCTION 1

BACKGROUND 1.1

Organic Gold (Marketing) Ltd. is an established waste composting facility 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.

The site has been in the ownership of the Finnegan family for a number of decades where farming was the main enterprise for many years. Organic Gold have been involved in composting activities at this site since 1986 where they have been producing 'Organic Gold' a multi-purpose compost, which is widely sold in Ireland.

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 the EIS and an Environmental Protection Agency (EPA) Waste Licence application, as the company intend on increasing the amount of waste to be accepted on site from approximately 10,000 tonnes to 25,000 tonnes per annum.

At this stage, some new proposals are being put forward in the EIS including the use of new technology in the form of in-vessel composting, 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. copyright

1.2 EIS REQUIREMENTS

An Environmental Impact Statement deals with the impacts of any development upon the surrounding environment. It assesses the existing 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, and baseline environmental monitoring. Where necessary mitigation measures are proposed to reduce the potential for impact. 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.

1.3 CONSULTATION

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 and residents/businesses in the vicinity of the composting plant.

During the initial public consultation (which was carried out on the 12th, 18th and 19th of August) a number of issues were raised. These mainly concerned odour emissions, health implications of such a development, planning requirements and lack of communication between Organic Gold and local residents and businesses. 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.

Additional public consultation will involve inviting local residents to a public meeting and a site visit where the proposed future operations at the site will be discussed and explained to the public by Organic Gold and RPS-MCOS. Information will be supplied on the new composting technology to be used at the site and the proposed methods to prevent environmental emissions and nuisances. This

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.

1.4 ALTERNATIVES

A number of alternatives have been considered by the facility operators in conjunction with RPS-MCOS and Odour Monitoring Ireland. This included alternative locations, layouts, processes, and technologies. The revised proposals in the EIS represent the fruits of these considerations and will involve significant improvements in both design and operation of the facility.

1.5 PROJECT DESCRIPTION

1.5.1 Current Site Description

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.

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) Per confied for al
- 2. Paddock Area (1.5 ha)
- 3. The Composing Slab (1.8 ha)

Figure 1.1 outlines the Site Layout for the facility. or purpose

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. This activity has not been the source of any local complaint and no changes to current operations are proposed.



Plate 1 The High Grade Fertiliser Shed



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2.	All Levels refer to Ordnance Survey Datum, Malin Head.	A01	Jan'
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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 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 urvon out of at Purposes only

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 high 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.





1.5.2 Future Proposals

Organic Gold proposes increasing the amount of waste accepted on site for composting from approximately 10,000 up to 25,000 tonnes. The material to be composted will be similar to current waste intake i.e. sludge, green waste, wood chip and other commercial organic materials. However, in the future greater emphasis will be placed on process control, odour nuisance prevention, waste acceptance and housekeeping procedures including health and safety for employees. A number of proposals are made in the EIS to minimise negative impacts resulting from all activities at the site and include the following:

- 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;

Proposed 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 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. Its design and finish will resemble a simple agricultural building with a view to integrating into the existing area.

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 plant is proposed to employ eight of these units so that there is some available capacity to allow for maintenance and repair of composting units.

The individual units which are 15m long, 8m wide and 2.5m high and are based on the Alfabloc instant walling system which 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 and maintain appropriate temperatures. 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.

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.

1.5.3 Processing of the Waste Material

Refer to schematic process flow diagram in Figure 1.2

In-Vessel Compositing Units

All the waste accepted on site will undergo inspection in the waste reception building before it is stored in the storage bays. 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 the nitrogen sources 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 (**Refer to Plates 4 and 5**, courtesy of Wasteology). Each vessel can hold approximately 180 tonnes of material depending on the materials bulk density.



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 60°C 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 and will maintain aerated conditions in the composting material. 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 to allow for temperature to be recorded. Any leachate produced will be stored in a storage tank on the slab, before being recirculated back into the composting vessels or the maturing compost in the windrows, as required.

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.

Maturation Area (Outdoor Windrow Composting)

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.

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. 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 the future EPA Waste Licence.





1.6 POTENTIAL IMPACTS AND MITIGATION MEASURES

Potential impacts which may arise as a result of waste composting activities at the proposed development are outlined below. Mitigation measures are also provided. The subjects of greater significance are discussed first.

1.6.1 Potential Odour Impacts

Odour dispersion modelling was conducted by Odour Monitoring Ireland to predict the potential odour impact the proposed facility would have on nearest receptors, working at a full capacity of 25,000 tonnes and during a worst case meteorological conditions i.e. stable, low wind conditions.

The model predicted that (following the implementation of in-vessel composting technology, the building of a waste reception building for waste delivery, mixing and blending, the use of a mist air system and improved odour management practices at the proposed site), minor odour impact may be perceived in the vicinity of the facility at less than 6 'odour units' for not more than 175 hours in a year. This is a similar level of impact as modelled for the existing facility and current waste intake using just a windrow system.

This however is based on a worst-case scenario and will only occur during meteorological conditions that do not favour odour dispersion (stable, low wind speed).

Mitigation Measures Proposed

- A clear and precise odour management plan will be developed for the site so as to eliminate any significant odour emissions events. This will be integrated into the future environmental management system.
- The proposed use of in-vessel composting units, an enclosed waste reception shed and the mist air system will also help to reduce odour emissions at the site. The material will be greatly reduced in offensiveness after undergoing first stage in-vessel composting.
- That heavy-duty plastic curtains will be installed upon the inlet and outlet door of the waste reception building to reduce air circulation.
- The mist air system will continue to operate at the boundary of the site and will be regularly maintained to ensure odour reduction at the site.
- Odour management practices at the proposed site will need to be precise to eliminate odour impact and will include the following:
 - All raw material will be removed form the waste reception building within 24 hours and placed in the in-vessel composting units;
 - A closed-door strategy will be maintained upon the waste acceptance/mixing/blending building and only one door will be opened for a maximum of 15 minutes per hour;
 - Application of waste acceptance procedures will ensure that problematic odorous material will not be accepted at the site for treatment;
 - All mixing will be carried out indoors;
 - o Sufficient bulking material will be kept on-site to be mixed with the incoming raw material.
 - Meteorological conditions will be taken into consideration when turning windrows and windrows will be turned regularly to maintain aerated conditions;
 - The moisture content, temperature and Carbon:Nitrogen ratio within the windrows will be kept at optimum conditions to favour microbial activity with the piles;
 - Leachate will be recycled back into the process in an appropriate manner. The recycled leachate should be applied evenly and in close proximity to the windrows
- Monitoring of odour emissions according to future EPA Waste Licence.
- Organic Gold Marketing Ltd have agreed in principle that a biofilter will be installed at the proposed facility if negative odour impact occurs.

1.6.2 Potential Visual Impacts

Existing structures present on site have been in place for some time and are in keeping with the agricultural setting. The proposed new waste reception building will be 36m long by 22m wide, with a height of 11m at the ridge and 9.6m at the eaves. Its design and appearance will be simple. 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 and with the fertiliser production shed already on site.

Even after considering the careful design of the building, there will be a negative impact from the new building on visual receptors in the area due to its height and the impact will range from minor to moderate.

The proposed scheme will have no significant impact upon landscape.

Mitigation Measures Proposed

The objective of proposing mitigation measures is to attempt to reduce the level of visual impact at these locations from significant to not significant. This can most easily be achieved by creating screening using tree planting.

- A significant amount of tree planting has already occurred. Approximately 2,800 native and non-native trees have been planted on an embankment around the composting slab. A planted embankment also partially screens the site buildings and high grade fertiliser shed from the R162. The proposed new structures in the eastern corner of the composting slab will be partially screened from view by the existing embankment along the north eastern boundary of the slab. In time when the trees planted on the embankment mature, the level of impact on receptors along this road will be reduced to slight and not significant. The species planted such as Norway maple (*Acer platanoides*), rowan (*Sorbus aucuparia*) and hazel (*Corylus avellana*) will grow to a height of 6 to 15 metres. Other species planted, such as Scots pine (*Picea sylvestris*) and oak (*Quercus robur*), may reach a height of up to 30m. Once these trees have fully matured there will be additional screening and the visual impact will be reduced.
- The green colour of the proposed new structure will make them less intrusive in the landscape. Extra screening will be provided by using climbing plants such as ivy (Hedera helix).

In order to reduce the level of impact on the residence to the south east, the following mitigation measures will be carried out:-

The mound of spoil that partially blocks the view of the existing sheds will be extended and
appropriately landscaped and planted with trees.

1.6.3 Potential Impacts on Ecology

Due to the creation of new habitat and screening (on spoil area) and the planting of native trees for screening purposes, there will be a positive impact on ecology at the site.

1.6.4 Potential Impacts on Community

There will a positive impact on the community due to the employment of 8 full-time staff members and other employment in support of the facilities (monitoring, technical studies etc..) However this is balanced against potential impacts discussed under odour above.

At regional level there will a positive impact in that the facility will offer extra capacity for the recycling of sludge, green waste and other organic waste material, especially in light of the lack of sufficient composting infrastructure within Meath and the remainder of the North East Region. Recycling of this waste material will also help to reach national recycling target of 300,000 tonnes of biodegradable waste by 2013.

1.6.5 Potential Impacts on Traffic/Community/Natural Environment

There will be an overall positive impact from the construction of the new site entrance. The site entrance will be designed in accordance with design standards as set out in the 'Design Manual for Roads and Bridges' which will increase site safety. The improved site entrance will also create less dusty conditions at the site and therefore will reduce dust nuisance potential.

1.7 OTHER POTENTIAL IMPACTS

Volume 2 of the EIS contains more information on all environmental aspects that were considered. The following is a summary of the findings:

Air Quality (Dust) - Baseline monitoring for dust was carried out, the main potential sources were identified as the composting slab and the site entrance. With proposed improvements to both these areas and the implementation of mitigation measures, no negative impacts are predicted for the surrounding environment.

Air Quality (Bioaerosols) – Bioaerosols are tiny air-borne microbes (such as bacteria, fungi) that occur in nature and are generated by processes such as composting, agriculture (harvesting crops), timber processing etc.. Baseline sampling was carried out at the existing facility, which found the highest levels in the composting area during turning operations, which is typical of composting sites. Concentrations were found to be at normal background levels at all of the off-site sensitive receptors (households). There is no household within 260 metres of the site. With the implementation of mitigation measures – these are similar as for dust control – no impacts are predicted.

Noise and Vibration – A baseline noise survey was carried out with day and night time monitoring to characterise the current noise environment. The increased volumes of waste and the use of fans on the in-vessel compost units may increase noise slightly. However noise emissions at the facility are not expected to have a significant impact on the nearest household.

Human Beings – the EIS considered possible impacts on community. This emphasized the need for successful odour control strategies at the facility (as outlined in 1.6.1 above). Other potential nuisance problems were considered including litter, pests & vermin, and fire. Appropriate mitigation measures are required – mainly operational procedures to ensure that these do not create an impact on the local community.

Aquatic Environment (Surface Waters – rivers, streams) – A baseline assessment was carried out including sampling of the nearby vellow (Blackwater) River. Provided mitigation measures are implemented in the facility design and operation, no impacts are predicted.

Geology and Hydrogeology – given that operations will take place on impermeable surfaces, no impacts are expected. Mitigation and monitoring measures are included, to ensure any leachate generated does not reach groundwater.

Archaeology and Cultural Heritage – a Licensed Archaeologist was employed to assess the proposed development. No impacts are predicted

Material Assets – no impact is predicted on agricultural land. Measures must be put in place to minimise odour impacts and other nuisances in order to prevent negative impacts on non-agricultural properties.

Natural Resources – consumption of energy (electricity and fuel), water and other consumables will increase at the site due to the proposed development. However this is balanced with the environmental benefits of biological waste treatment. The facility will operate under a waste licence, which will require an environmental management system to be put in place. One aspect of this will be to minimise resource consumption.

Climate – no significant impacts predicted on local or global climate. Additional energy is used but by diverting organic waste from landfill, greenhouse gas emissions are also reduced.

Interactions of Impacts – reduction of some environmental impacts can have a positive or negative effect on other aspects of the environment. In this proposed development, the requirement to control odour emissions means constructing a new building and employing in-vessel composting units. These have a slight negative impact on visual amenity, noise and the use of resources. On the other hand there are also positive interactions – for example the screening/ landscaping measures can improve ecology and the improved site entrance can reduce dust emissions and improve safety.

1.8 RESIDUAL IMPACTS

- After applying the odour mitigation measures outlined above, and during a worst case scenario, the model suggests minor odour impact may be perceived by houses in the direct vicinity of the facility during meteorological conditions that do not favour odour dispersion (i.e. stable, low wind). This odour impact will not exceed 175 hours in a year.
- There will be a negative impact from the new waste reception building on visual receptors in the area, which will range from minor to moderate. However proposed mitigation measures may reduce the significance of this impact in time due to landscaping and screening at the site.
- The facility will have a positive impact on the region in providing additional composting capacity to meet national and regional recycling targets.

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