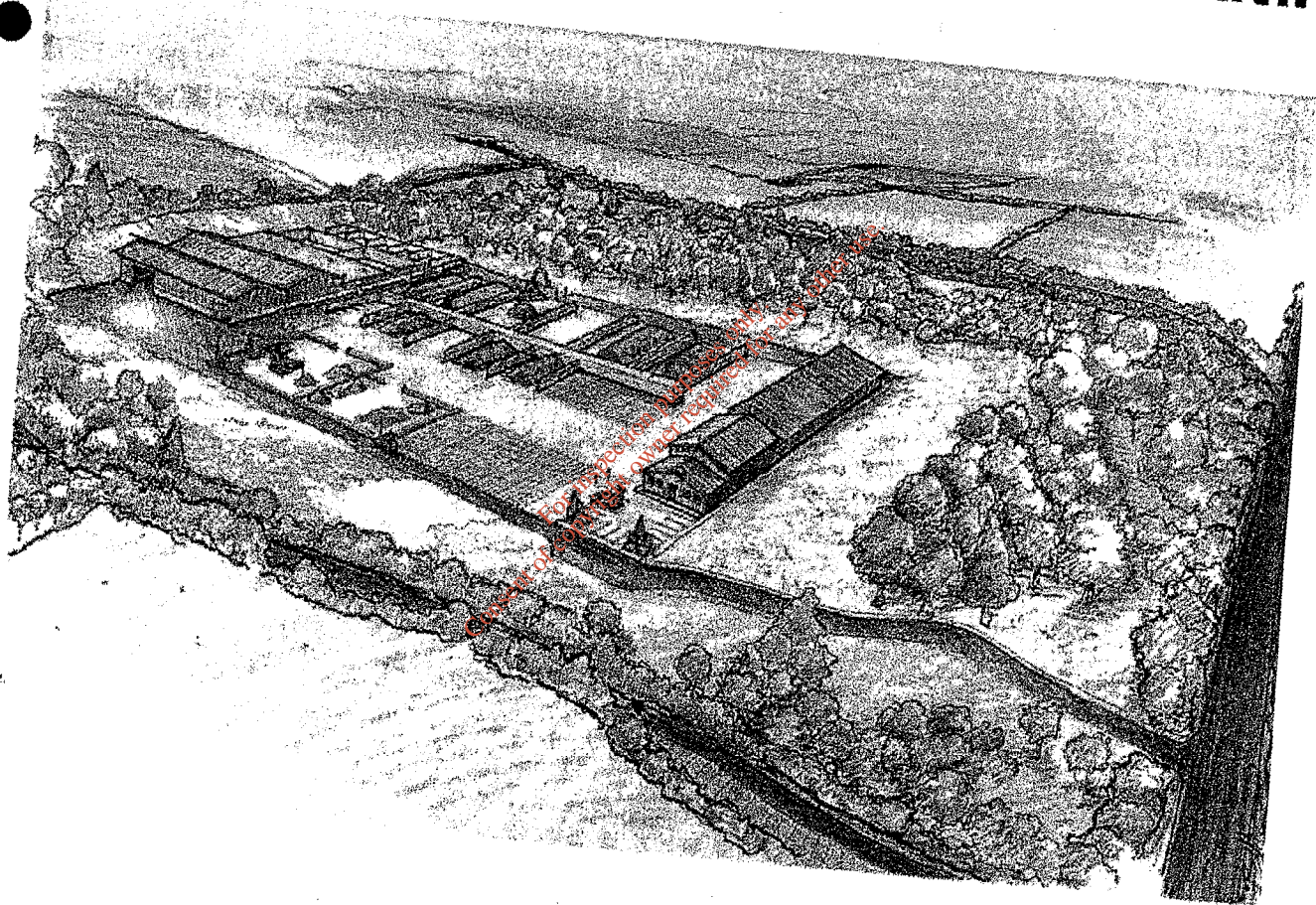


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# Proposed Composting Facility at Pass of Kilbride, County Westmeath



**NON TECHNICAL SUMMARY**  
**July 2004**

## Introduction

Thorntons Recycling is a 100% Irish owned family run business that has over 25 years experience in recycling and waste management.

The company intends to establish a composting facility in the townland of Pass of Kilbride in County Westmeath. The facility would be capable of processing 90,000 tonnes of organic waste per annum, comprised of the following types of waste:

- catering waste (from household and commercial kitchens);
- green (garden) waste;
- organic fines (i.e. organic material that has been mechanically separated from mixed municipal waste); and
- wood waste.

The waste will be processed in a state-of-the art facility to produce a compost product for sale to customers throughout Ireland.



## Why is this Development Needed?

By publishing regional waste management plans, the government and local authorities track the amount of waste being produced in the country. These figures are then used to plan whether new waste management facilities are needed to handle the waste.

The Government Report 'National Overview of Waste Management Plans, 2004' predicted that the amount of household and commercial waste ('municipal' waste) generated in the Midlands in 2010 could be 237,000 tonnes. This is significantly higher than the 192,199 tonnes which the Midlands Waste Management Plan predicted for 2013. This large and unexpected growth in the quantity of waste requiring management within the Midlands region has placed considerable pressure on local authorities to continue with the implementation and upgrading of the existing waste management infrastructure.

Additionally, EU and Irish legislation requires the amount of biodegradable waste sent to landfill to be reduced to 75%, 50% and 35% of 1995 waste levels by the years 2006, 2009 and 2016 respectively. This legislation has been put in place to reduce methane emissions, which

are linked to global warming. Composting of waste can play an important part in managing this waste stream and reducing levels of methane produced in Ireland.

## Environmental Impact Statement

The planning application for the proposed development is accompanied by an Environmental Impact Statement which can be purchased from Westmeath County Council Planning Department.

The Environmental Impact Statement describes the existing environment at the proposed site and outlines the potential environmental impacts that could occur as a result of the development. The Statement also recommends mitigation measures will be put in place to prevent these impacts.

During the preparation of the Environmental Impact Assessment the design of the composting facility was amended and improved to incorporate all of these mitigation measures.

This non-technical summary provides an overview of the contents of the EIS.

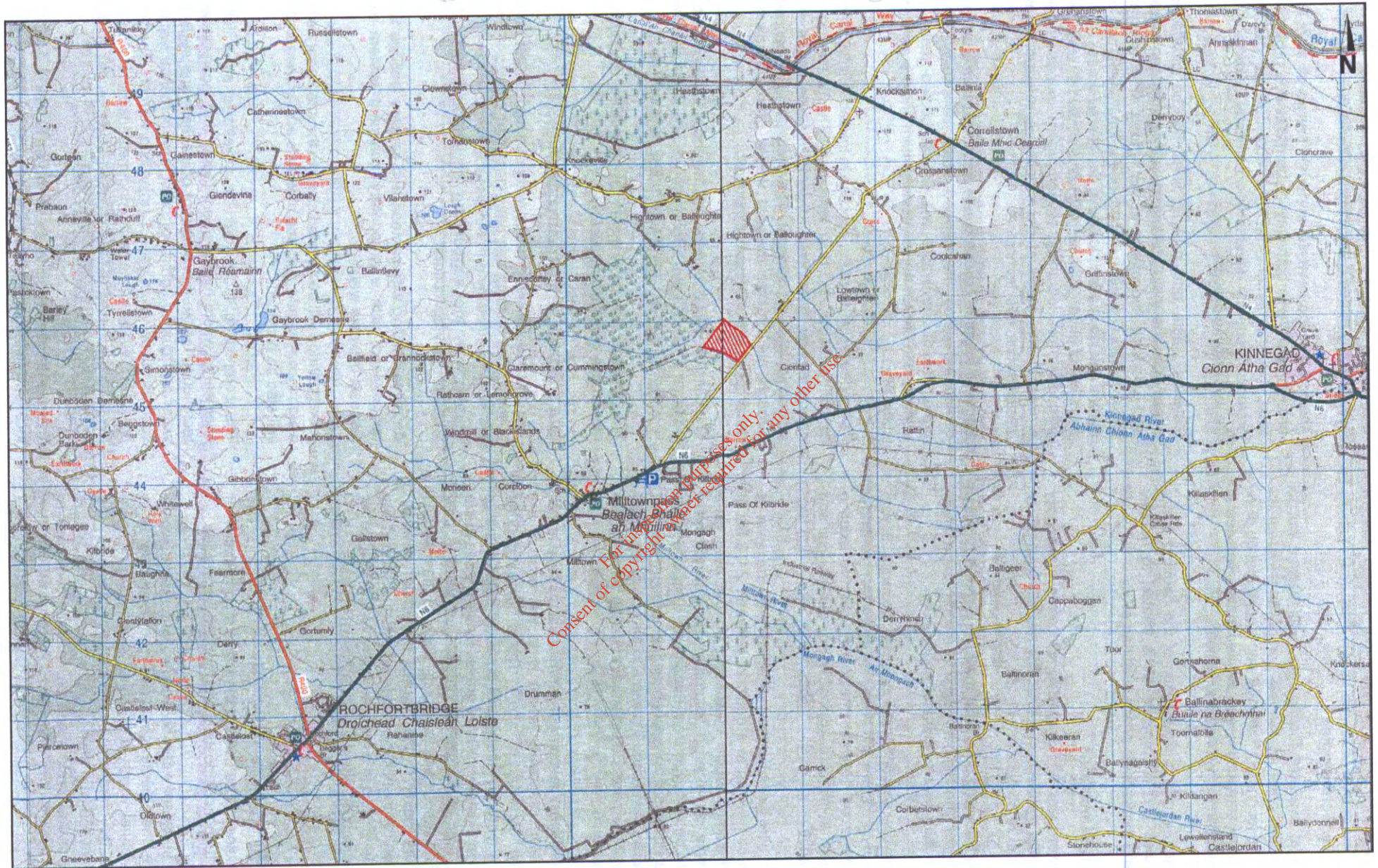
## Site Location

The site is located in a rural area 8 km to the west of Kinnegad village. It is situated in the townland of Pass of Kilbride, County Westmeath. Mullingar is the principal town in County Westmeath and is located 10km to the North West of the site. The site entrance would be situated on a local road which connects with the N4 approximately 4km to the north of the site and the N6 1.75km to the south. The nearest settlement is the village of Milltownpass which is situated approximately 2km south of the site. The village of Rochfortbridge lies over 6km to the South West of the site. Local housing is made up of farms and residential properties in a linear formation along the N6, N4 and minor roads in the vicinity.

The proposed site is 17.5 hectares in size and is currently agricultural land with newly planted trees to the northern, eastern and southern boundaries. The proposed facility would occupy 4.8 hectares of the site. Thorntons also own the land to the west of the proposed site, which is currently planted with a mix of coniferous and deciduous trees.



View across the existing site



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**Figure 1 : Site Location**

## Alternatives Considered

### Alternative technologies

A review of available technologies was carried out to determine the most appropriate composting system for the site. The technology selected was a combination of in-vessel tunnel composting and aerated static piles due to its efficiency and environmental benefits.

This system allows pasteurisation of the catering waste and ensures that all process air is treated to remove odours and bioaerosols prior to discharge.

### Alternative Locations

The site was selected due to its rural location, low density of residential dwellings in the vicinity and its proximity to the National Road Network.

Thomtons Recycling purchased the lands with the intention of applying for planning permission for a composting facility situated in the centre of the total landholding.

The initial site location was selected because it was surrounded by mature and semi mature trees, providing a large buffer zone between the facility and the existing environment to mitigate against noise, dust, odour and visual impact.

However, site investigations revealed that the area is underlain by peat up to a depth of between 2 - 3.5m in depth. The implications of building on the peat were unfavourable as a large volume of peat would have needed to be removed from the site. In turn, this could have had significant consequences for surface water and groundwater flow around the site and may have impacted on the Milltownpass Bog Natural Heritage Area to the south of the site.

Further site investigations were carried out on the site that is now being proposed (which is to the east of the previously considered site). These investigations revealed a more favourable soil profile of 2.5m of sandy silt over approximately 10m of gravel. Existing trees at the north and east of the site will provide screening as they mature. The second site location is closer to the road and about 100m closer to the nearest residential dwelling, however, on balance, it is considered that the second site could be developed in a manner that would provide better levels of mitigation against environmental impacts.

## Project Description

### The process

The technology to be used at the site is a combination of 'in-vessel tunnel composting' and 'aerated static piles'.

The term 'in-vessel' refers to a composting system where the waste material is contained and enclosed in a concrete tunnel which is completely sealed. Enclosure means that the composting material is not affected by the external environment (temperature, rainfall etc) so the conditions in the system can be carefully controlled to make the composting process more efficient. Aeration levels can be adjusted to control the temperature of the

composting materials, for example, or water can be automatically added if low moisture levels are detected.

The fact that the in-vessel system is sealed off from the environment works both ways - the material is protected from the environment, and the surroundings can be protected from any adverse environmental impacts from the composting process.

Catering waste and organic fines will be off-loaded directly into the main building, mixed with garden waste and woodchip and placed in the tunnels. Following an initial composting stage in the tunnels, the material will be placed outside in piles located in designated areas. Using a system of underground piping, air is sucked through the compost to provide it with oxygen, which speeds up the process. This stage of the process is referred to as 'aerated static pile' technology.

Some of the pure garden waste and wood waste will be composted using the aerated static piles only. The remainder of the waste will be composted using a combination of both the in-vessel system and the aerated static piles.

The air collected from the process is treated in a 'biofilter' to control odour and dust emissions. The biofilter is a concrete bay filled with organic material such as woodchip, peat or compost. The process air is passed through the organic material where micro-organisms decompose the odorous compounds.

The compost will be 'screened' at the end of the process to separate it into different sized fractions. The larger fraction is added back to the tunnels for further composting.

The process will be capable of producing a quality, marketable compost product.

### Site buildings and infrastructure

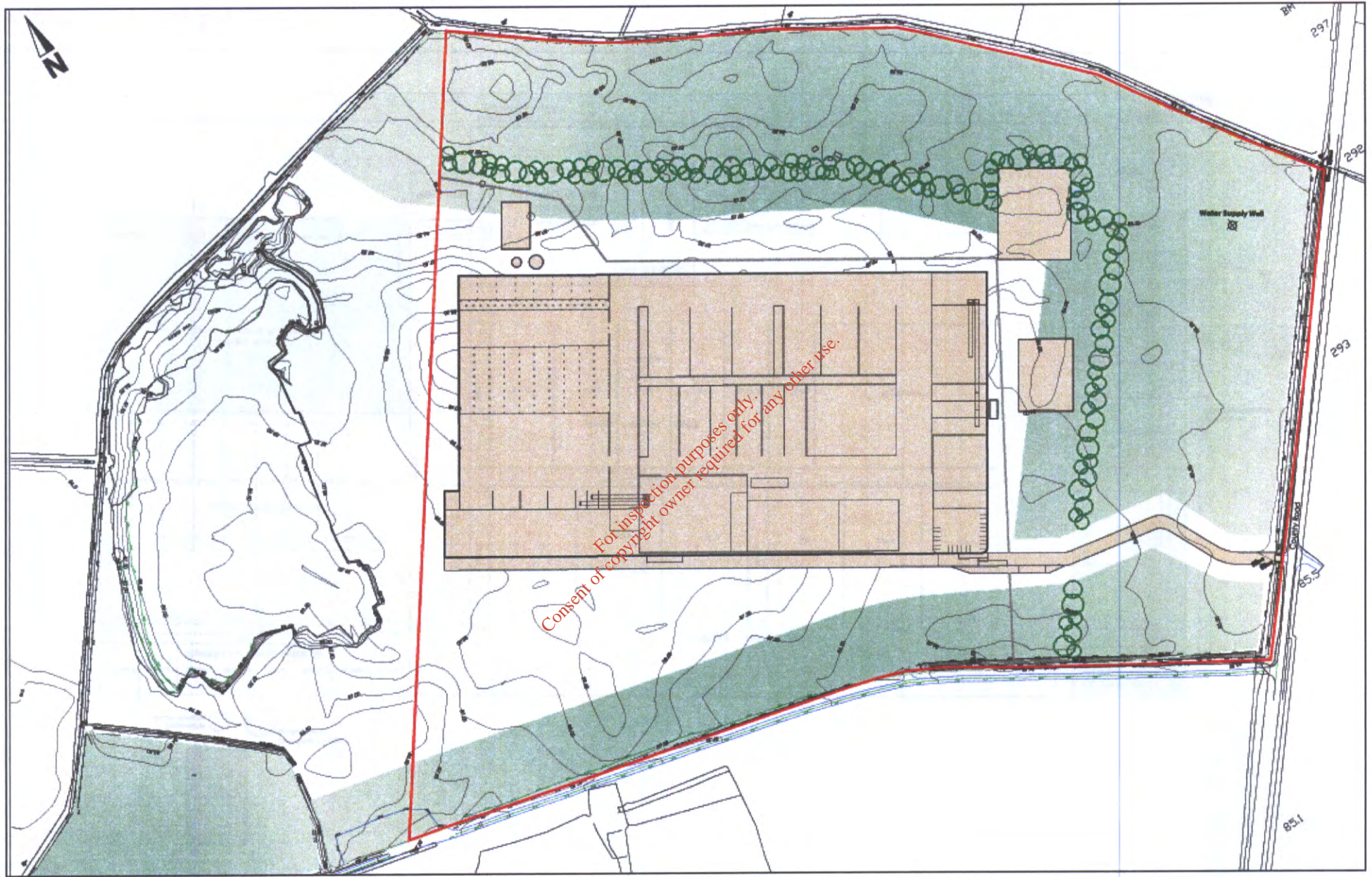
The process will be enclosed within an agricultural style building. The building has been designed to ensure that the proposed activity and the associated facilities are in keeping with the surrounding environment which is predominantly agricultural.

An office building with canteen and sanitary facilities will be provided, with a proprietary treatment system for disposal of waste water.

A weighbridge will be situated close to the site entrance to weigh incoming and outgoing materials and a wheelwash will also be provided.

The composting facility will be developed as a fully engineered waste management facility that incorporates techniques for the management of leachate and surface water and careful control of other environmental issues such as odour, visual impact, noise and vermin. The site operations will be carried out using methods that minimise the potential impact of the proposed development on the environment both locally and globally.

The layout of the facility is shown in Figure 2 and its location within the site is shown in Figure 3.



**Figure 2 : Site Layout Plan**

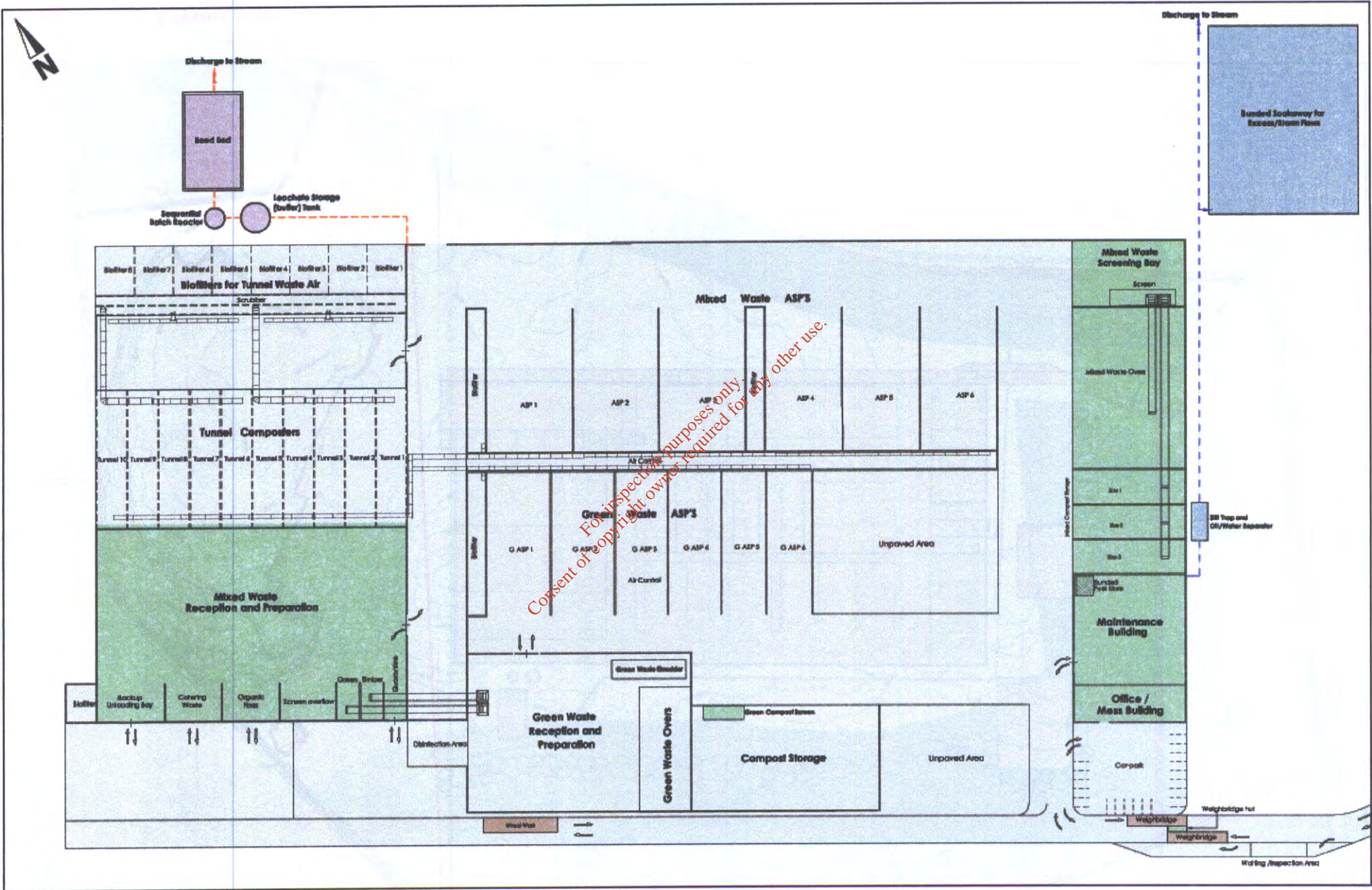


Figure 3 : Facility Layout Plan

## Human Beings

The site is located in a rural location and as such has a low population density. There are a limited number of houses in the vicinity of the proposed site, the nearest being 510m from the site boundary and 640m from the facility itself. The locations of the nearest neighbours are shown in Figure 4.

Site neighbours were contacted in June 2004 to determine whether there were any concerns in relation to the facility. Several issues were raised; these are listed as follows, together with additional impacts that could be of importance to the local population:

- Bioaerosol emissions ('spores')
- Dust emissions
- Odours
- Noise
- Groundwater and surface water quality
- Traffic
- Changes in the landscape and visual impact
- Litter
- Birds, Vermin and Flies
- Fly-tipping

The Environmental Impact Assessment concluded that the proposed development will have limited impact on human beings, due its remote location and due to the design of the facility, which limits the possibility of any of these impacts occurring.

## Air

### Bioaerosols

The proposed facility will compost green (garden) waste, organic fines, wood waste and catering waste and therefore has the potential to generate 'bioaerosol' emissions.

Bioaerosols are airborne micro-organisms, which because of their microscopic size can remain airborne for long periods of time. The principal bioaerosol of concern is a species known as *Aspergillus Fumigatus* which flourishes at temperatures above 45°C, releasing fine spores when disturbed.

Airborne micro-organisms are inhaled throughout normal everyday life and rarely cause any ill effects as the body is equipped to cope with the presence of microbes. However they have been linked with respiratory diseases in certain immune-sensitive individuals. Background levels of bioaerosols are highly variable but higher levels are commonly encountered in agricultural and forest environments.

There is currently no Irish Guidance on the siting of composting facilities and therefore the Environmental

Impact Statement takes account of guidelines published by the Environment Agency (EA) for England and Wales.

The EA has set a limit of 250m around composting sites within which it is necessary to assess risks to exposed neighbours. Although the nearest house to the proposed facility located over twice this distance away, an independent study to assess the risks from bioaerosols was carried out and is included in the EIS.

The study concluded that emissions of bioaerosols will not propose a significant risk to neighbours. This is due to the fact that all process air will be collected and treated with biofilters and also because the nearest houses are well removed from the facility.

### Dust

Dust monitoring was carried out near to the proposed site and levels were found to be typical of a rural area.

The environmental impact assessment concluded that the majority of the dust generated during construction operations would be deposited on the ground within Thorntons landholding, even when the wind blows directly towards the houses in the vicinity of the site.

During the operation of facility potential dust emissions would be limited by the amount of moisture present in the waste material. The composting process requires a minimum moisture level of at least 35%, in order for the organic decomposition to take place, rising to 65-70% at some stages. Therefore the material will not be permitted to dry out to such an extent that significant dust generation may arise. Other activities on site such as shredding of wood/green waste, screening of compost and movement of trucks could lead to dust emissions, but with good operational practices in place these emissions would not be expected to cause a nuisance to neighbours.



Forestry to the west of the site

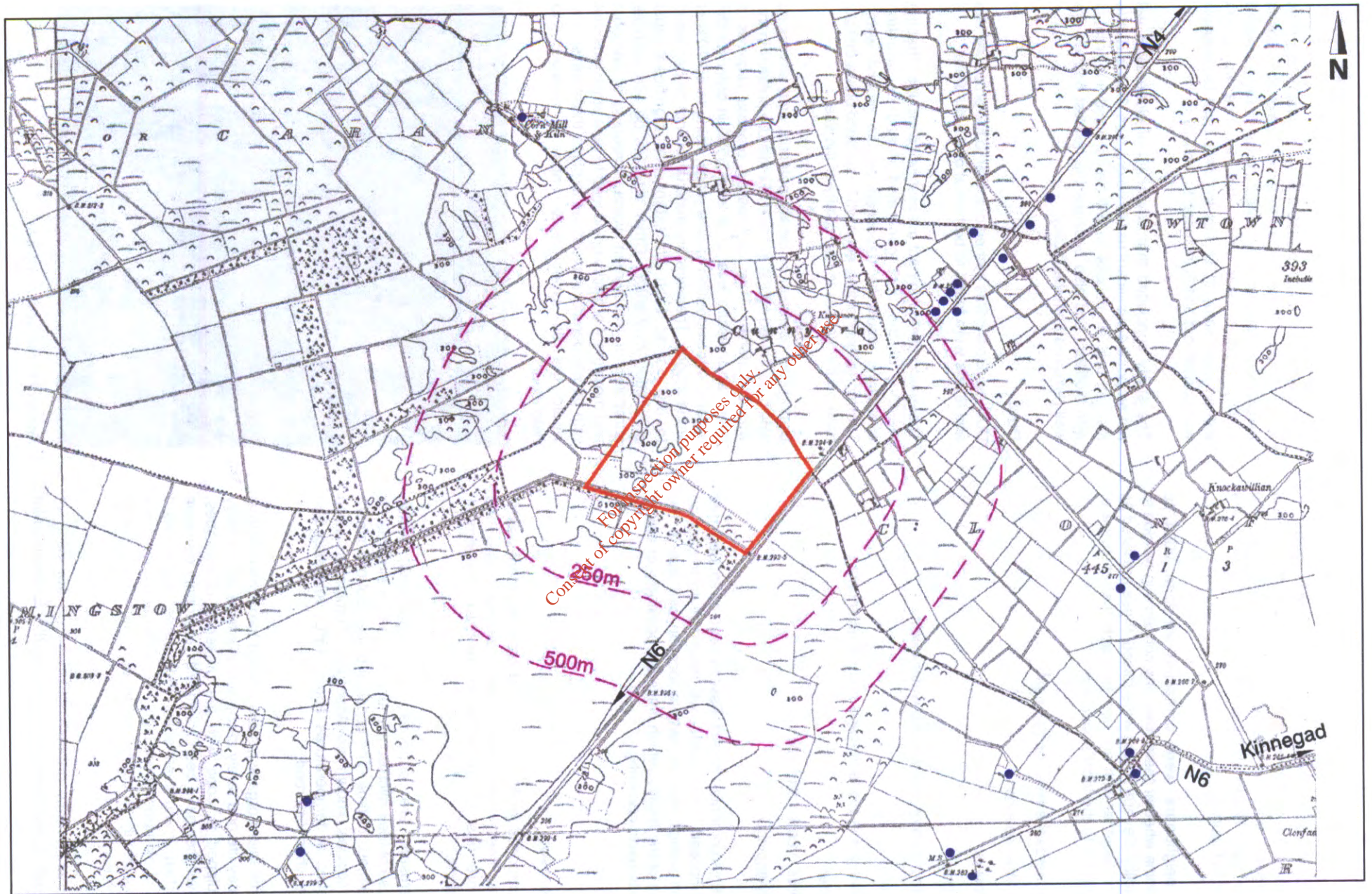


Figure 4 : Location of Houses



## Odours

An assessment of the potential for odours to cause a nuisance to local residents has been carried out.

All material will be delivered to the facility in sealed containers. The catering waste and organic fines will be offloaded directly into the composting building, thereby reducing the potential for odours.

Additionally, the facility has been designed based on an air extraction and treatment system which provides advanced odour control. Waste material will undergo two stages of treatment, firstly in-vessel composting will be employed with a second further stage of curing provided in the aerated static piles. The air handling system draws air through the static piles as well as from the in-vessel tunnels, and directs the emissions to biofilters for treatment prior to release to atmosphere. Untreated dispersal of odours from the static piles and the in-vessel tunnels is thereby prevented.

This system of odour control is an effective method for preventing odours. It will ensure that local residents do not experience any odour nuisance from the site.

## Climate

Climatic conditions at the site are typical of the Westmeath area. The average rainfall is 76.6mm per month and the prevailing wind is south westerly.

The development is expected to have no significant impact on the local climate and a positive impact on the global climate. Currently, a large percentage of Ireland's waste is landfilled and when this waste decomposes it generates methane gas. Methane is a greenhouse gas, which contributes to global warming.

Composting results in the slow release of Carbon Dioxide (CO<sub>2</sub>). Carbon dioxide is also a greenhouse gas (although 21 times less potent than methane), but the carbon dioxide released from composting is not considered to be a contributor to greenhouse gas emissions since it is derived from vegetable/organic matter that would produce carbon dioxide as it decomposed if left in a "natural" state in a short period of time.

Therefore the facility would have a positive impact on climatic conditions.

## Noise

An assessment of the potential for noise to cause a nuisance to local residents has been carried out.

Noise monitoring was carried out and the results were typical of levels in a rural area. At present there are no man-made noise sources attributable to the site, except for sporadic agricultural activity and light traffic on the country road.

The proposed development has the potential to give rise to noise from three sources:

- road traffic noise on the County Road
- noise from construction plant on-site
- noise from operational mobile and fixed plant on-site

At present the site is quite open to all sides and visible from the County Road. It is proposed that a 4 to 5 metre high earth berm will be constructed around the northern and eastern perimeter of the proposed activity. With the construction of the berm and the planting of trees and vegetation on the margin between the operational facility and the site boundary, the site will effectively be screened in order to minimise the noise emission.

These mitigation measures will ensure that the potential noise impact from the site operations will not have a significant impact on local residents.

## Traffic

The impact on local traffic has also been assessed. This included an assessment of alternative routes to and from the site and recommended the most favourable route.

The proposed route to and from the facility will use the direct connection to the N6 via the existing intersection at the Pass of Kilbride. Visibility is acceptable at this intersection although some minor junction enhancements have been suggested to further improve on this.

The use of the existing N6 and the new separate dual carriageway route provides access to destinations without passing through built up areas such as Kinnegad. When the new dual carriageway is in operation it is anticipated that there will be an 87% reduction in traffic on the existing N6.

The proposed access to the facility will ensure that the largest vehicles generated by the facility can be accommodated and also satisfies the sight line requirements in both directions, as set by the National Roads Authority. Widening of the road adjacent to the facility, from the site entrance to the N6, is recommended, in order to provide a 6.5 metre wide carriageway.

The traffic study concluded that there would be an increase of 6 HGV movements (3 in and 3 out) per hour. Current traffic levels in the vicinity of the site are low and the volume of traffic that would be generated by the facility is also low. Therefore, measures to enhance the capacity of the roads are not considered necessary.

## Surface Water

Detailed assessments of the impact of the facility on surface waters have been prepared. This included water quality sampling and analysis both on and off-site and an assessment of on-site streams and ditches to determine water levels and flows.

Any water that comes into contact with waste or compost is referred to as 'leachate'. This leachate will be collected by a dedicated collection system, separate to surface water runoff from the non-process areas, and stored prior to recirculation and use during the composting process. The re-circulated leachate will be used to maintain optimum conditions in the compost.

Water is required to be added to the compost and if there is any excess that is not taken up by the compost it will generally be recirculated into the compost or collected. However, not all of the collected leachate will be reused in the process at all times, as water requirements will vary on a seasonal basis. Quantities of leachate in excess of the process water requirements will be collected and contained prior to treatment in a sequencing batch reactor followed by polishing in a reed bed. The effluent from the reed bed will be a clear and odourless liquid of a quality consistent with discharge conditions required by the Environmental Protection Agency. It will be discharged to the surface water via an outfall pipe.

The construction of the facility would involve replacing areas of soil with areas of concrete. This will change the way surface water flows across the site, as it will not be able to run through the concrete. All surface water collected (i.e. run-off from the roofs) on site will be treated by a silt trap and oil/water separator prior to discharge to the adjacent water bodies. During times of heavy rainfall ('flood events') excess water will be diverted to a soakaway area between the site and the stream.

The soakaway will provide storage for excess water and will enable the water to slowly soak through the base of the soakaway into the groundwater table, which will eventually flow into the stream in the north of the site. This operation will delay large quantities of water reaching the stream.

It is anticipated that there will be an insignificant impact on surface water following the implementation of all the proposed mitigation measures. The proposed mitigation measures will minimise the potential impact of leachate, firewater, accidental spills, domestic effluent and surface runoff on the local surface water environment.

The operation of the development in accordance with good management practices and the containment provided by the surface water management system will mitigate against significant environmental impacts during normal operation of the facility.

Accident and emergency response procedures will be prepared for all identified risks (for example the spillage of fuel oil), to further mitigate against potential impacts.

## Geology and Hydrogeology

The geology and hydrogeology at the site were determined by collation and study of existing published information and by on-site intrusive site investigation work. The site investigation and monitoring data provide information in relation to:

- Groundwater levels and quality;
- Local groundwater flow;
- The nature of the geological strata underlying the proposed composting facility.

The impacts associated with the proposed facility will be low, as the concrete base of the facility forms an effective barrier for the migration of leachate to groundwater. The Construction Quality Assurance scheme and the integrity testing and inspection programme that will be implemented will ensure that the risk to groundwater beneath the site does not become significant.

Pumping tests have shown that water levels and yields in local wells will be unaffected by the development.

## Landscape and Visual

A landscape character assessment and a viewpoint analysis were carried out to assess the impact of the facility on the landscape in the area and the impact on views towards the site

The landscape assessment concluded that the impact of the facility on the landscape would be limited, due to the rolling nature of the landscape and the trees planted around the site.

The viewpoint assessment identified that there will not be significant effects on either the landscape character or visual amenity as experienced at the majority of locations around the site. The site would be most visible from the south east, along the minor road that runs adjacent to the site, but this impact will begin to reduce with the establishment of the proposed soil berm and the woodland/screen planting to the roadside. The viewpoint analysis indicates that residents in close proximity to the proposed facility will not experience significant effects/views to the site. Analysis of longer distance views indicates that residents and road users will not experience significant effects at greater distances from the site.

## Soils and Agriculture

The impact of the facility on the soil and agricultural environment was assessed by means of a desk-top study and site investigations.

The proposed development will result in the movement of soils on-site. The potential impacts on soil and agriculture during construction, operation and restoration of the development include the following:

- soil and agricultural excavation and disturbance due to material movement and removal within the development footprint;
- compaction of soil by heavy machinery and vehicle movements and also to create a suitable base profile;

- alteration of the hydrological and hydrogeological regimes (decreased infiltration, increased surface runoff and incident storm water) which has the potential to effect local water courses;
- impact in the quality of surface water run-off to the northern drainage ditch, during construction and operation due to silt run-off; and
- contamination of the soil and local area due to leachate.

The proposed design of the facility incorporates measures to ensure that contamination of soils will not occur (e.g. collection and treatment or recirculation of all run-off water from the compost) will ensure that these potential impacts are mitigated against.

Once the facility is operational it would result in a positive impact on the wider soils and agricultural environment. 90,000 tonnes of waste would be converted into compost. Compost is a soil improver and could be used to replace peat, which is a non-renewable resource.

## Flora and Fauna

An ecology survey of the site was carried out in March and April 2004. During these site visits a detailed and comprehensive account of the floral and faunal composition encountered during the survey was recorded. A desktop study was also carried out.

The site is not under any designation as per the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997). Nor is the site registered for containing any species under the Wildlife (Amendment) Act, 2000.

The lands located directly south of the subject site are however designated as a Natural Heritage Area (NHA) referred to as the Miltownpass Bog NHA. Miltownpass Bog NHA is a site of considerable conservation significance comprising a raised bog that includes both areas of high bog and cutover bog.

There is a relatively high diversity of habitats within the local area, and correspondingly a high diversity of species. The site itself is cultivated land and removing this habitat during construction will not cause any ecological impact.

Construction of the facility must be carefully controlled to prevent a significant impact on the ecology of the surrounding areas.

There will be high potential for an impact to the water quality of the northern drainage ditch either from the construction of the discharge culverts or the silt run-off from earth movement works. Silt fences are recommended to protect the ditch and these will be put in place during construction of the facility.

There will be no predicted impact to the hydrology of the area, and hence upon the ecology of Miltownpass Bog. The existing bog woodland between the bog and the subject lands provides more than sufficient buffering capacity.

Once operational all surface and foul water will be adequately treated and as such will not present an ecological impact.

The greatest potential for operational indirect impacts would be that brought about by increased ambient noise. Given that the subject lands are located close to existing noisy operations such as the road and the peat extraction industry it is considered unlikely that the predicted increase in noise levels will bring about any secondary ecological impacts to adjacent habitats.

The various odour control measures that have been incorporated into the design of the proposed development, coupled with the pest control measures will negate the possibility of the increase of scavenging species within the study area.

There are no foreseeable indirect ecological impacts arising from the proposed development.

## Cultural Heritage

To assess the impact of the proposed facility on the cultural heritage in the area, a survey of all available archaeological, historical and cartographic sources was undertaken. A site visit was also carried out.

The townlands of Enniscoffey and Pass of Kilbride are dominated by lowland boggy terrain. There are no recorded archaeological sites or monuments in the area to be developed, and nothing of archaeological significance was noted in aerial photographs of the site or during the field survey.

However, there is extensive supporting evidence to indicate that should any archaeological material remain undisturbed in the boggy deposits that underlie the plantation to the west of the proposed site, it may survive in unusually good condition. The anaerobic nature of the bog environment means that the survival rate of any archaeological material, particularly wood, leather and other organic material, is exceptionally high compared with other 'land' contexts. In addition, material from the Mesolithic period may survive under the bog, from a period that predates the growth of the bog. This may also be said of the adjoining agricultural land on which the proposed composting facility would be located.

During the soil stripping phase of the construction of the facility, a qualified archaeologist will monitor the development.

## Material Assets

Material assets in the area consist of agriculture, forestry, infrastructure, housing and tourism. Although within 5km of the site material assets are very limited due to the remote nature of the site.

The development will not have any significant negative impact on material assets in the area. It will have a positive impact in that it will bring up to 20 new jobs to the area.

## Interactions

The Environmental Impact Assessment also considered the interaction between all of the environmental issues discussed in the sections above. For example, if there are changes in water quality in the area, this could also have an impact on people who may use the water for drinking and if there are changes in the soil quality on this site this may affect vegetation growing there etc.

The Environmental Impact Assessment has been an on-going process which has led to changes in the site location and design of the facility. The proposed location and design of the site incorporates all of the mitigation measures that the EIS identified, resulting in a proposed facility that will have the minimum impact on the surrounding environment.

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