



NORTH WEST **cambridge**

On Site Composting

Condition 58

September 2013

North West Cambridge: Planning Condition 58 – On site composting

Table of Contents

Introduction	1
Background – Initial proposed waste collection strategy	2
Proposals within the Outline Planning Application.....	2
Underground bin collection strategy	2
IVC feasibility study	4
Introduction.....	4
Waste flow model and analysis	4
Design and engineering considerations	5
Consents, permits, and environmental issues.....	5
Development and operational costs.....	6
Conclusions from the IVC study	6
Proposed approach for composting	8
Requirements	8
Community composting option	8
Proposed Green Waste Strategy.....	8
Management of the on-site composting facilities.....	12
Environment Permits.....	12
Composting off-site	12
Appendix 1 – Feasibility analysis of proposed compost solution for Phase 1	14

Introduction

The proposed development at North West Cambridge has been designed to be an exemplar of sustainable development, addressing many areas such as energy, water, materials, and transport amongst others. The minimisation and sustainable management of waste, both through construction and in occupation is one of the key sustainability principles applied to the development.

As part of the waste strategy, the site will incorporate on-site composting facilities. This has been proposed by the University as the site developer as an important feature of the waste strategy and it is also required as part of the domestic waste collection strategy developed in collaboration with Cambridge City Council and South Cambridgeshire District Council. As a result of the proposal for on-site composting as part of the residential waste management, a planning condition has been imposed on the development for an in-vessel composting system (IVC) or other solution:

Condition 58

Prior to, or concurrently with, the first submission of reserved matters for development full details of the in-vessel composting solution for on-site green waste and/or food waste shall be submitted to, and approved by the local planning authority. The details shall include final location and phasing for provision. The permanent compound shall be retained thereafter in accordance with a management scheme agreed with the local planning authority which shall include hours of operation for at least 2 hours on one week day evening and two hours at the weekend.

Should a temporary arrangement be required full details of a temporary solution shall be submitted to and approved by the local planning authority.

The temporary arrangement shall be implemented prior to occupation of the first building and retained until a permanent in-vessel compound is provided.

In the event an in-vessel solution cannot be delivered alternative arrangements for the disposal of green waste shall be submitted to and approved by the local planning authority. The alternative solution shall then be carried in accordance with the approved details and thereafter retained.

This document outlines how the initial composting strategy was developed, resulting in the proposed approach which meets the requirement of Condition 58. The appendix indicates how this strategy will be applied in the first phase.

Condition 58 is a site wide requirement and the approach set out in this document will be implemented by the University across the North West Cambridge Development for all eligible homes. The strategy will be implemented in phases and the University will monitor the strategy through its implementation and if needed, reassess the strategy for future phases.

Background – Initial proposed waste collection strategy

Proposals within the Outline Planning Application

The Sustainable Resource and Waste Management Strategy submitted as part of the North West Cambridge Outline Planning Application in 2011 examined a number of potential options for waste management on the development. This was based on an assessment of the likely waste generation by occupants using existing data.

One key proposal from this initial strategy was the use of a system of segregated underground waste collection bins for the residential development. This system, whilst immature in the UK, has a significant track record of successful operation in continental Europe. The selection of this strategy has had subsequent impacts on the composting strategy (see below).

Another key component proposed in the Sustainable Resource and Waste Management Strategy was the use of on-site composting. This includes smaller compost bins suitable for individual homes, and a larger centrally managed facility for ground maintenance waste and food waste from non-domestic sources. It was proposed that an IVC system may be feasible for the central composting system, based on a number of factors:

- The assessment of waste generation from the site identifies food waste as a reasonably large proportion due to the on-site catering facilities and the supermarket.
- IVCs are well suited to the composting of food waste, including animal products, due to the higher temperature process employed. This allows the composting of both fresh food and cooked food including animal products (dairy and meat).
- The higher temperature process employed means that the composting period is shorter than for lower temperature systems, and thus a smaller footprint area is required than for more traditional composting methods.
- As the initial composting process is contained in the IVC unit, there is less issue with odour (although this may still arise from initial waste storage, and the maturation stages).

Whilst IVC systems are a relatively mature technology, often used in commercial and industrial environments, there is little existing UK experience of them on a mixed-use residential-led development such as North West Cambridge.

Underground bin collection strategy

Following the submission of the Sustainable Resource and Waste Management Strategy in 2011, negotiation took place with both district councils to refine the underground bin collection system for residential waste.

The original scheme proposed for the underground bins comprised the collection of three waste streams consistent with Cambridge City Council's existing collection strategy. These waste streams are:

- Mixed "residual" waste
- Dry recyclables
- Garden and food waste

During discussions with both Cambridge City Council and South Cambridgeshire District Council the following points were raised:

- The proposed scheme did not include a segregated paper collection (as currently collected by SCDC). This can be a valuable waste stream.
- There is likely to be relatively little green waste generated. Approximately half of the dwellings are flats, the communal gardens will be managed by the University, and the remaining private gardens will be relatively small and will be provided with individual compost bins.
- The Mechanical Biological Treatment (MBT) system at the Amey Cespa waste management site in Waterbeach can process mixed waste, extracting any food waste for composting.

In light of this feedback, an alternative solution has been proposed by the University for adoption across the North West Cambridge site. This has been agreed to by both district councils and it is secured through the Section 106 agreement.

This comprises a 3-bin system, but with the third bin being used for segregated paper collection instead of garden and food waste, and food waste disposed of together with the mixed waste (and separated at Amey Cespa's site) as follows:

- Mixed "residual" waste, including food waste
- Dry recyclables excluding paper
- Paper

Any residual green waste from individual gardens which cannot be composted within the householder's own compost bin will be collected using an alternative (non Council) means and composted on site (see below). This allows for the value from segregated paper waste to be realised, and removes the need for installing a bin dedicated to green waste, which may have low utilisation rates. The green waste therefore never becomes under the remit of council collection or council waste.

The key outcome from this proposal is that the waste collection authority, confirmed as Cambridge City Council, will not be required to take excess green waste from individual homes, and an alternative on-site collection and treatment method is required. This is the foundation for Condition 58.

IVC feasibility study

Introduction

The University commissioned AECOM to conduct a feasibility study for an on-site IVC unit and to assess the following issues:

- A refined waste flow model identifying the assumed feedstock source(s) and end market for the process residues
- A conceptual facility design, identifying technology options, providers and associated engineering and land-take requirements
- Consideration of the necessary consents, permits and potential environmental issues
- Headline capital and operational expenditure estimates for the proposed development.

The following sections provide a high level overview of the technical feasibility study.

Waste flow model and analysis

The IVC study included the assessment of the following waste streams as potential sources of feedstock:

- Food waste from catering and retail establishments at NW Cambridge
- Grounds waste from University maintained communal areas
- Grounds waste from managed gardens in University-owned and market housing
- Excess green waste from private gardens (which is not composted within individual gardens).

Food waste from dwellings was not included as this will be collected in the residual waste bin, or composted in on-plot compost bins.

Based on the completed development, the feedstock analysis estimated an annual volume of circa 1,200 tonnes per year waste, comprising 74% green waste, and 26% food waste. Of the food waste, around half is attributed to the buildings allocated to academic and commercial research uses on North West Cambridge, which will be developed over a number of years. Around one third of the total food waste (approximately 100 tonnes per year) is attributed to the food store, with the remainder arising from a large number of smaller sources dispersed across the site, many in commercial ownership or management.

As noted above, food waste is a key driver in the development of an IVC unit where the advantages of high temperature processes allow the waste to be safely and quickly composted. Therefore an understanding of the food waste generation is important in assessing the feasibility of an IVC unit.

The waste flow model shows that with food waste being only one quarter of the overall feedstock, it is not a significant driver in the selection of type of centralised on-site composting solution. Furthermore, half of the food waste is predicted to arise in future phases of the development and the available volume arising from the development in Phase 1 is significantly smaller. Therefore any food-waste composting solution needs to be based on the entire site and not simply Phase 1.

In addition to the limited overall food waste generation, the food waste arising from the food store, and many other commercial food waste generating sources, will not be available for on-site treatment due to pre-existing commercial arrangements with food-store operators and commercial waste treatment companies. Discussions with food-store operators have revealed that they have their own sustainable disposal methods including sending the waste to composting facilities under contract, or to dedicated anaerobic digestion plants. On-site treatment would mean the breaking of existing contractual arrangements. These existing contracts also include the de-packaging of food-waste and subsequent processing, something which would not be viable on a single site basis due to personnel and equipment requirements.

Design and engineering considerations

The feasibility study examined the technology options available for an IVC unit, suggesting that for the full 1,200 tonne annual volume of waste (ie when the site is fully developed), two IVC units (each approximately 10m long and weighing 30 tonnes) would be required. In addition, a reception area for the collection and processing of waste and a maturation area, essentially an open composting facility (for an additional 4-month composting of the immature IVC output), is required. So the total site area required is around 1,200m², which will need to consist of a suitably drained hard standing area with appropriate parking, drop off and access arrangements. To allow for phasing and uncertainty in early years, a more modular approach could be taken made up of a number of smaller units phased in over time.

Due to the waste handling and processing, and the maturation area which requires mechanical handling of the compost, the facility has the potential to be a source of noise. This could arise from the IVC unit itself, shredders, and vehicle movements for loading and turning of maturing compost. Odour may also be an issue from initial waste handling and the maturation area. Therefore suitable mitigation measures may be required. One approach would be to house the facility in a building which is likely to be of an industrial nature due to its size, the requirement for vehicles entering and exiting, and internal processing using mechanical equipment (including front-end loaders) and their associated height.

Consents, permits, and environmental issues

Due to the potential for food waste to contain animal products, the IVC has to be compliant with Animal By-Products Regulations (ABPR) which stipulate maximum waste particle sizes, and minimum process temperatures and treatment times. IVC systems are designed to meet these requirements and therefore the ABPR can be complied with for low risk waste.

Environmental permits are required where the annual volume of waste on a site at any one time exceeds 60 tonnes as is predicted for North West Cambridge. Key requirements for obtaining a standard permit are:

- The system must be at least 250m away from sensitive receptors including dwellings and work spaces
- There must be strict control of pollution to air, water and land, including air scrubbers and sealed drainage systems
- There must be a management plan for the control of odour, noise, and vibration
- There are strict requirements for monitoring and reporting to the Environment Agency.

For North West Cambridge, there are virtually no sites available for locating the IVC system which can meet the 250m buffer-zone requirement in areas which are permitted for development. The only locations that could achieve these stand-off distances are in the Green Belt, in areas 4 or 5 on Parameter Plan 03. A 1,200 m² facility in either of these areas is not considered the preferred approach.

Development and operational costs

The capital cost for the equipment is calculated at £1m excluding the additional infrastructure, utilities, hard standing, and building (if required). The final costs are therefore likely to be substantially higher.

The operating costs including scheduled maintenance and permits are calculated at £17,000 per year. These do not include the cost for fuel, electricity, and consumables including sawdust. They exclude an operator for the IVC system, predicted to be a full time role. Therefore it could be expected that annual operating costs could be around £50,000 per year on average.

These costs would not be recouped through the charging of a competitive gate fee for food waste or through sales of the resulting compost (which may not bring any revenue at all).

Conclusions from the IVC study

Four key conclusions can be drawn from the feasibility study:

1. Food waste will only be a small component of the overall waste stream and therefore a key driver for the use of an IVC (composting of food waste) does not exist. The benefits of IVC systems are not realised with waste streams which are predominantly non-food waste.
2. If a facility is sized for grounds waste in addition to food waste, the facility would be substantial and require a dedicated site, and potentially a large building, with significant services including dedicated waste handling vehicles. Locating such a facility in North West Cambridge will be challenging; it would need to be located in the Green Belt, and would potentially have adverse

implications on the neighbouring areas. A more “natural” solution would be preferable which could be phased in and potentially located in a number of sites where green waste is generated, and be more appropriate for the types of waste.

3. The facility requires an environmental permit. The size of the facility and site layout mean that a standard permit will not be granted and specialist mitigation measures may be required, if available.
4. The anticipated capital costs of over £1m and operation costs of around £40,000 - £50,000 per year are significant and unlikely to be economic compared with alternative composting mechanisms.

In summary, the use of an IVC is not suited to the expected waste generation at North West Cambridge in the absence of a significant food waste component. In the absence of food waste, the drivers for an IVC system do not exist, as an IVC system would not provide any major benefits for the composting of green waste over alternative systems, but will impose significant additional costs and impacts on the development. It is possible that smaller IVC systems could have potential in future phases for individual sites of food-waste generation, but these would not be a major component of a site-wide composting strategy, and not provide composting services for excess green waste from gardens, the driver of Condition 58.

In light of these conclusions the use of an IVC at North West Cambridge is no longer proposed as a key part of the composting strategy.

Proposed approach for composting

Requirements

In the absence of an IVC system, an alternative composting solution is required to meet Condition 58 across the North West Cambridge Development, in particular to provide on-site green waste treatment for excess garden waste which would otherwise be part of the Waste Collection Authority's collection.

The composting system will need to have the following attributes:

- It must be capable of treating the volumes of garden waste generated by homes with gardens, and have potential for treating garden waste for future phases as and when developed.
- It must be accessible for at least 2 hours on one weekday evening and for at least 2 hours at the weekend for local residents to dispose of garden waste with sufficient flexibility.
- It must have a management strategy.
- It must meet the relevant environmental permits and consents.

Community composting option

The University has considered the use of community compost facilities managed by residents. Whilst these provide a sustainable solution which links to the behavioural aspects of the sustainability strategy, uncertainties over the reliability of the waste streams from private homes at a disaggregated level, combined with the risks to on-site treatment if the systems are not well managed by the community, means that this is not proposed as a baseline solution for the disposal of Condition 58. Therefore a scheme managed by the Estate Management Company is proposed.

Proposed Green Waste Strategy

A technical study has been conducted to assess the size and type of a green-waste composting facility which can meet the requirements of Condition 58 for the proposed Phase 1 solution (see Appendix 1), and to inform the site wide approach. Based on this work, the following strategy is proposed:

Strategy principles:

The following principles will apply across the development, irrespective of the number of composting locations ultimately delivered on site:

- The University is currently considering the best technical option for the composting, but it will be either heap composting, open windrows, aerated piles, or aerated bays. The overall implications on design of the site are similar, and the exact type of system will be based on more detailed assessment of potential waste streams, which may also change over time. The technical study in Appendix 1 has considered an open-windrow system which is the most space demanding, and therefore allowance is made for expansion to include waste from future phases, or a smaller area of land to be used.

- To provide maximum accessibility for residents, the University is proposing a drop off point by the compost scheme such that residents can drop off excess garden waste without needing to attend at a certain time period. The drop off area will be designed so that access is prevented to the main compost facility for health and safety reasons. Access will be provided for cyclists / pedestrians, and vehicles. Access control systems are currently being considered (for example a card-entry system) for residents to restrict access to non-North West Cambridge Residents. In the absence of an access control system, the University estate management company operating the compost scheme will monitor waste disposal to ensure that the scheme is being correctly used. The drop off point will contain some form of green waste receptacle into which the garden waste will be deposited.
- The management of the compost scheme will be by the estate management company. This includes transfer and processing of green waste from the drop-off point to the composting system. There will be no charge to residents for the depositing of garden waste through direct charging.
- The annual mass of waste from private residences means that the initial scheme will be under 60 tonnes material at any one time on site, and therefore exempt from licence requirements. Any increase in materials resulting from ground waste will be achieved through making use of remaining allowance, additional compost schemes in future phases, or the application for a licence.
- Compost from the facility will be made available for residents on the development. The University is currently considering how best to provide this (for example bagged or collection) and whether there will be a cost.

Strategy for location(s)

- An initial compost site will be located in the south part of the North West Cambridge Development site adjacent to the Madingley Road Park and Ride site as shown in Figure 1. This location offers convenient access for residents from the main route through the site, is close to the allotments allowing the use of compost, and is sufficiently remote from neighbouring residences to ensure that operation of the site will not present a nuisance. This will have an area of approximately 350m² and provide composting for excess household green waste predicted from Phase 1 private home gardens, and additional composting for grounds waste.
- The initial site may provide additional capacity for future phases. There is significant uncertainty around the amount of green waste that will be generated for composting on site. For households, average data from Cambridgeshire County Council has been used, but this will not accurately reflect waste generation from new urban homes, which combined with compost bins, may produce significantly less. For the landscaping, the green waste generation will depend on the final landscape design proposals and management strategy which is still in the process of development.

- Due to the current uncertainty, it is not possible to state the site-wide requirements for composting facilities and the strategy will need to be refined based on actual measured data in early phases. However depending on the requirement for further composting facilities, the University proposes that additional schemes will be developed in the landscape on the Western Edge which are conveniently located for homes built in future phases. The use of additional sites allows for flexibility in phasing and build out rates, and also monitoring of the Phase 1 system to inform the scale of the future schemes. The development of more than one compost location also means that the sites may be permit-exempt allowing more convenient locations for access.

The University believes that this solution is better suited to the composting of green waste, and will provide easier access and ease of use by residents than an IVC system. The nature of the processes outlined is also well suited to the development proposals, which are centred around open spaces and a natural landscape.

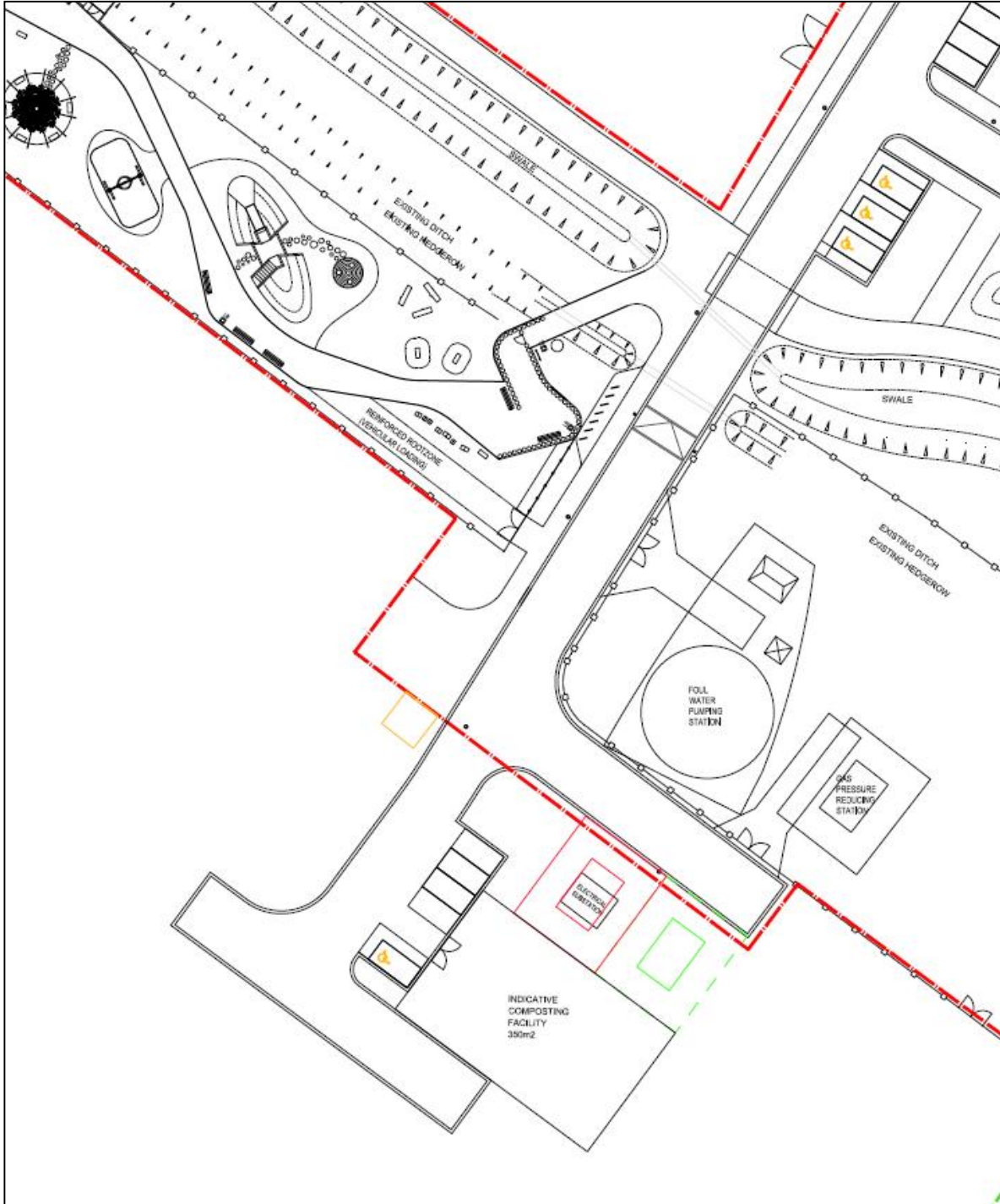


Figure 1. Drawing showing the location of the composting area of 350 m². The Madingley Road Park and Ride is located to the bottom right.

Management of the on-site composting facilities

The proposed composting facilities will be managed by the University as part of the estate wide management strategy. The exact requirements for the composting facilities will depend on the type of system selected, and this will be developed in more detail as the designs progress. The University is also in the process of developing its management strategy for the site and composting will be included within this.

Management of the facility will include consideration of licensing requirements (if needed), and the management of odour and noise (see next section).

The University commits to managing the scheme for the life of the North West Cambridge Site or providing alternative composting arrangements.

Environment Permits

The facility proposed will be exempt from Environment Agency Environmental Permit licensing requirements due to its size. However if the initial site, or any future site, exceeds the exemption limits, the University commits to applying for a licence and implementing any mitigation measures required.

Key considerations for licensing are odour and noise. Irrespective of whether the compost facilities are exempt or not, the University will assess odour and noise effects on nearby residences as part of the design development of the facility and incorporate required mitigation and monitoring. This is to ensure that the compost facilities do not have an impact on the users and residents of the site.

The Environment Agency has considered the Environmental Permitting requirements and confirmed that key concerns include odour and noise from small sites located close to sensitive receptors, particularly should the composting process become anaerobic. However, the EA is not able to provide more detailed guidance at present until further detail has been provided, and agree that many of these issues can be assessed in the future at a more appropriate stage as and when the specific proposals are more developed.

Composting off-site

This strategy, submitted to discharge Condition 58, specifically sets out the University's intention to compost green waste from households on the development site. Certain circumstances may, in the future, mean this solution is impractical, unfeasible, or not viable. In those circumstances the University will re-evaluate this strategy and determine a more suitable green waste strategy. These circumstances could include:

- If the overall generation of green waste on North West Cambridge exceeds the levels of composting which can be practically achieved on site. It should be remembered that the scheme is a predominantly urban site, and as such less suited to composting than other sites in and

around Cambridge. However this also means that the generation of green waste will also be lower than for less urban sites reducing the possibility of excess green waste.

- If assessment of licensing requirements, and/or the assessment of odour and noise mean that mitigation is not practical or viable.
- If the strategy is modified in the future to favour an off-site scheme.

In these circumstances the University will consider alternative options for future collection and treatment of green waste using off-site facilities. This may include composting off-site on a University facility, or treatment by a third party.

Appendix 1 – Feasibility analysis of proposed compost solution for Phase 1

Project:	North West Cambridge	Job No:	60282890 / MDI01.100
Subject:	Green Waste Composting Facility for Dwellings in Phase 1		
Prepared by:	Aakanksha Sinha	Date:	02 August 2013
Checked by:	Lawrence Chinery	Date:	05 August 2013
Approved by:	Andrew Wilson	Date:	06 August 2013

Background

North West Cambridge ('the development') is a mixed use development being developed adjacent to the University of Cambridge. AECOM was previously asked by the University to produce a waste management strategy and a detailed feasibility study into the utilisation of In-Vessel Composting (IVC) for treating green waste and commercial food waste from the development. From these studies it was determined that the IVC was not commercially feasible for the development. As such, the University retained AECOM to develop an alternative composting solution to meet the requirements of Condition 58, in particular to provide on-site green waste treatment for excess garden waste which would otherwise be part of the Waste Collection Authority's collection.

The resulting study recommends appropriate technology options and provides an assessment of the land-take requirements for the 'preferred' facility arrangement. A further 'mini-study' has also been conducted to calculate the estimated green waste arisings from dwellings having private gardens (i.e. not flats) in Phase 1 in order to inform the architect of the required land-take for composting activities associated with the initial phase of development.

Green Waste Arisings Estimate

Green waste arisings from Phase 1 of the development have been estimated using data for waste collected per household (HH) by the local District Councils (DC) in 2010-11 as provided by Cambridgeshire County Council¹. It is also observed that a third of households in the United Kingdom (UK) which have gardens compost their garden waste at home². Therefore it is assumed that only two-thirds of the total green waste expected to be generated by residents at the development (Phase 1) will be available as feedstock for the green waste composting facility.

The latest proposals for NWC³ indicates that there will 347 individual houses in Phase 1 which may have private gardens.

¹ Cambridgeshire County Council, email from Paul Rawlinson (Waste Infrastructure Project Manager) dated 08/03/2012, Spreadsheet '*Final Data Publication 2010-2011*'

² National Archives, DirectGov, 2013, '*Composting and Disposing of Kitchen and Garden Waste*'

³ AECOM, July 2013, '*130719_NWC_Master_Schedule_9.1*'

Table 1: Green waste expected to be produced by houses in Phase 1 of the development

Quarter (Q)	Green Waste Collected by DC (t/HH)	Total Dwellings (No.)	Green Waste Expected to be Produced (t)	Total Green Waste Expected to be Collected (two-thirds of total green waste produced)	
				t	m ³
Q1 (April-June)	0.087	347	30.2	20.1	47.9
Q2 (July-September)	0.075		26.0	17.4	41.3
Q3 (October-December)	0.057		19.8	13.2	31.4
Q4 (January-March)	0.049		17.0	11.3	27.0

For the purpose of this study, the peak period of green waste production (Q1) has been used to undertake the sizing assessment for the green waste composting facility. Therefore, based on the estimates shown in

Table 1, the quantity of green waste produced and collected from individual homes constructed during Phase 1 of the development has been assumed for calculation purposes as **6.7 t per month**.

Technology for Composting

For the purposes of this study, open windrow composting has been chosen as the most 'space hungry' technology scenario for calculation purposes, with approximately 50% of green waste feedstock being converted into compost⁴. The volume of composted green waste that then required maturation and finishing to produce the final compost has therefore been calculated as **3.4t** (50% of 6.7t) per month. The total tonnage of green waste held on-site at the composting facility at any one time (reception, composting, maturation and storage) has therefore been calculated to be **41.9 t** based on the following:

Activity	Period	Weight (tonnes)	Volume (m ³)
Storage of green waste prior to being composted	1 week	1.7	4.0
Composting of green waste in open windrow	4 months	26.8	63.9
Maturation of composted green waste in open windrow	2 months	6.7	11.2
Storage of mature finished compost	2 months	6.7	11.2
Total	8.25 months	41.9	90.3

Land-take Requirements for the Green Waste Composting Facility

The facility will include individual areas for

- storage of green waste prior to being composted;
- windrow for composting green waste;
- windrow for maturing compost; and
- storage of mature finished compost prior to distribution.

In addition to the above areas 3m space will be allowed between the above areas to provide sufficient space for the movement of the front end loader to turn the windrow and for movement of the green waste feedstock and compost.

Table 2: Land-take for the proposed green waste composting facility at NWC

Component of Facility	Length (m)	Width (m)	Height (m)	Area (m ²)	Comment
Reception area for green waste	6	5	1.08	26	AECOM assumption
Storage of green waste before composting	2	2	1.08	4	AECOM assumption
Windrow for composting green waste	14	3	2.50	42	Assumptions made for width and height of windrow and length calculated based on volume of 1 windrow. Volume of windrow calculated using formula provided in "The Buyers' Guide to Composting Pads and Drainage Systems" ⁵ , Composting News, Volume 11 Issue 4 Winter 2007.

⁴ On Farm Composting Handbook', Northeast Regional Agricultural Engineering Service (NRAES)

⁵ Composting News, Volume 11 Issue 4 Winter 2007, 'The Buyers' Guide to Composting Pads and Drainage Systems'

Compost maturation windrow	5	3	2.50	15	Assumptions made for width and height of windrow and length calculated based on volume of 1 windrow. Volume of windrow calculated using formula provided in "The Buyers' Guide to Composting Pads and Drainage Systems" ⁶ , Composting News, Volume 11 Issue 4 Winter 2007.
Storage of mature finished compost prior to distribution	4	3	3	12	Based on calculations from "The Buyers' Guide to Composting Pads and Drainage Systems", Composting News, Volume 11 Issue 4 Winter 2007
Space between piles and around perimeter				251	AECOM assumptions
Total Area of Facility				350	

Regulatory Requirements

The Environment Agency requires any facility treating green waste aerobically (or composting) to obtain an Environmental Permit or exemption depending on the scale of the facility. Exemption T23⁷ provides guidance for registering a composting site as an exempt operation. It details that a composting facility treating green waste collected from separate dwellings can store or treat (i.e. compost) up to 60t of green waste at any one time. The above calculation estimates that up to 41.9t of green waste and compost will be stored at the site at any time; therefore the facility will be beneath the exemption threshold and could be registered as an exempt facility.

⁶ Composting News, Volume 11 Issue 4 Winter 2007, 'The Buyers' Guide to Composting Pads and Drainage Systems'

⁷ EA, 2013, 'T23 - Aerobic composting and associated prior treatment'