

PROPOSED USE OF A BUILDING FOR FOOD WASTE PROCESSING BY MEANS OF THERMOPHILIC AEROBIC DIGESTION AND USE OF BIOFUEL FROM FOOD DERIVED OIL FOR GENERATION OF RENEWABLE ENERGY

PEBBLE HALL FARM, BOSWORTH ROAD, THEDDINGWORTH,
NORTHAMPTONSHIRE, LE17 6NJ

WELLAND WASTE MANAGEMENT LTD

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1 INTRODUCTION

1.1 Introduction

- 1.1.1 This Planning Statement accompanies a planning application seeking planning permission for the change of use of one existing building for oil-rich food waste processing by means of thermophilic aerobic digestion (TAD). This application relates to the site operated by Welland Waste Management Ltd at the company's existing Pebble Hall complex, near Theddingworth in Northamptonshire. The Applicant has been carrying out green waste composting operations at the site for ten years and four years ago added wood waste processing. It is seeking to further diversify its waste operations at its premises.
- 1.1.2 The food waste processing would produce fertiliser granules for agricultural use and renewable energy would be generated from the residual bio-oil. The food waste processing would enable fertiliser granules for agriculture and renewable energy to be generated in order to be exported to the national grid. This application seeks to extend the existing building in order to accommodate the new TAD system. There will be a number of associated features and machinery located around the building, such as an office, generators and a biofilter detailed in Chapter 2.
- 1.1.3 Two versions of the planning application have been submitted and subsequently withdrawn, following advice from Planning Officers at Northamptonshire County Council.
- 1.1.4 When the original planning application was withdrawn, the Applicant took the opportunity to revise a number of elements of the proposal, the most significant one of which was an increase in the amount of power generation from biodiesel from oil extracted from oil-rich food waste. The other changes were as follows:
- 4 No generators in 4 separate acoustic enclosures
 - Complete internal cladding of the existing building and its extension with cold-store specification of insulation to reduce noise and fugitive odour emissions
 - Steam boiler
 - Recovered oil storage ISO container
 - Heat exchange and control panel buildings
 - Four additional 36,000 litre tank movements per day will be required in order to collect and deliver oil
 - Additional tertiary odour control scrubber on biofilters
- 1.1.5 Since the second submission was withdrawn the Applicant has made a number of further changes to the proposal following the advice of Northamptonshire County Council. The changes in the third submission are as follows:
- The catchment area plan has been revised so that all waste will be sourced from a sub-regional catchment area. This new catchment area is now shown on Drawing GPP/WWM/PH/12/06 v4.
 - The input tonnages have been reduced.
- 1.1.6 The generators will be linked to the National Grid via underground cables along the route shown on the plan in Appendix 8. These will be installed by Western Power Distribution. The longer term aspiration for the facility is to have a substation on site. It should be noted that there is agreement to export power from this development to the local grid.

1.1.7 The planning application is supported by the following documents:

- W001-07 – Design and Access Statement
- Welland Waste Management Ltd Working Plan – version 2 Appendix 10
- Noise Assessment – Appendix 8 of the Planning Statement
- Sound Barrier Solutions Noise Report – Appendix 8 of the Planning Statement
- Air Quality Assessment – Appendix 9 of the Planning Statement
- Flood Risk Assessment - Appendix 11
- Traffic Report – Appendix 12 of the Planning Statement
- Odour Assessment – Appendix 13 of the Planning Statement

1.1.8 The application is supported by the following drawings:

- GPP/WWM/PH/12/01 – Site Location Plan
- GPP/WWM/PH/12/02 – Site Plan
- GPP/WWM/PH/12/03 – Site Layout Plan
- GPP/WWM/PH/12/04 – Existing Building Elevations
- GPP/WWM/PH/12/05 – Proposed Building Elevations
- GPP/WWM/PH/12/06 v4 – Catchment Area Plan
- GPP/WWM/PH/12/07 – Photograph Panel A
- GPP/CL/PH/09/04 Rev 2 – Landscape and Biodiversity Plan (Approved)
- GPP/WWM/PH/13/09 – Illustrative Cross Sections
- GPP/WWM/PH/13/10 – Photograph Panel B
- GPP/WWM/PH/13/11 – Photograph Panel C

1.1.9 Northamptonshire County Council's Validation Checklist is included in Appendix 1. Compliance, as appropriate, is identified in the list.

1.2 The Site and its Surroundings

1.2.1 Pebble Hall Farm is located South of the A4304 (Bosworth Road), Theddingworth in the Northern part of the District of Daventry as shown on Drawing GPP/WWM/MT/12/01 (Site Location Plan). It is approximately 1.8 km East of the village of Husbands Bosworth and 750 metres South-West of Theddingworth. Existing access to the Application Site, which crosses the Northamptonshire and Leicestershire county boundaries, is surfaced in concrete and is approximately 560 metres long from its junction with the A4304. The Applicant currently has a legal agreement with Leicestershire County Council not to exceed 240 vehicle movements per day Monday to Friday, 120 on Saturdays and 65 on Sundays. This is enforced through a traffic counter, which has been installed at the site access. The site has excellent access onto the strategic highway network via the A4304, A5199 and M1.

1.2.2 Pebble Hall Farm is an agriculturally based operation that has been the subject of farm diversification, mainly as a result of the BSE crisis. By a series of grants of planning permission over a number of years, the site has established a variety of industrial/commercial concerns and a waste management operation as part of the diversification of the farm. The site currently operates in composting and has various workshops/storage units, which are rented out. The site already undertakes wood waste management operations and shredding, in compliance with the planning permission for the Renewable Energy Generation Facility(REGF). There is a proposal to modify the existing permission for a REGF on site, to be located adjacent to the TAD system. The two proposals can be seen on the Site Layout Plan GPP/WWM/PH/12/03. The planning application to modify the existing REGF permission is currently being considered by Northamptonshire County Council and is due to be determined in February 2014 (13/00098/WASFUL).

- 1.2.3 The Application Site is approximately 1ha in size and is shown on Drawings GPP/WWM/PH/12/02 – Site Plan and GPP/WWM/PH/12/03 – Site Layout Plan. It is located in an area of open countryside, most of which is in arable cultivation; there are no sensitive receptors within 500 metres of the site. The nearest sensitive receptor is located over 600 metres away. Land around the Pebble Hall building complex has been extensively landscaped in recent years.
- 1.2.4 There are no international or European designated nature conservations sites within 2km of the application site. There is one SSSI within 2km of the application site, at a distance of 1.98km. There is a Scheduled Ancient Monument in Theddingworth. The Public Right of Way Network in the area is limited. The nearest public footpath is east of the site, through the Hothorpe Hills, which is 1.3km away.
- 1.2.5 Aspects of the site are illustrated in the Photopanel, Drawings GPP/WWM/PH/12/07, GPP/WWM/PH/13/10 and GPP/WWM/PH/13/11.
- 1.2.6 The proposed change of use relates to the building contained within the red line boundary on drawing GPP/WWM/MT/12/01 which benefits from planning permission for B8 use. The building was previously used as a grain storage building for the agricultural activities but is currently being used to store the TAD system, until this planning application is determined. No processing will take place until planning permission is granted. It is 1680 square metres in size.

Benefits of the Development

- 1.2.7 Overall, the benefits of the facility include:
- Renewable electricity from a sustainable waste resource.
 - The availability of renewable heat for use by existing businesses and industry and for new residential development near Market Harborough.
 - The facility will provide various employment opportunities, including direct sources, securing existing jobs at Pebble Hall, as well as indirect technical/maintenance support operations.
 - A multi-million pound investment in local industry.
 - Resource recovery of food waste which would otherwise be landfilled
 - Renewable electricity, which is produced continuously, unlike wind farms which typically only produce for 25-30% of their installed capacity.
 - Ofgem have predicted that the UK may be subject to blackouts as a result of electricity shortages from 2015. This facility already has an agreement to connect to the grid and thus would work alongside other renewable power plants to make an important contribution to prevent this.

1.3 Planning History at Pebble Hall

- 1.3.1 The planning history at Pebble Hall is complex. Only those activities relevant to this planning application are included here, for information.
- 1.3.2 In December 2000 Daventry District Council granted planning permission for a change of use of the farm buildings to B8 distribution uses; reference DA/00/1095.
- 1.3.3 On 21 October 2003 (reference DA/03/725C) planning permission was granted by Northamptonshire County Council for green waste composting. This permission has been implemented. A second permission was granted on 4 October 2005, for an extension to the

area to be used for green waste composting, it has also been implemented (reference DA/05/773C). These permissions allow a total throughput of 25,000 tonnes per annum of green waste.

- 1.3.4 Planning permission DA/07/319 was granted in 27th June 2007 for the construction of an In-Vessel Composting Facility to deal with mixed green and food waste up to 25,000 tonnes per annum. However, as the Waste Collection Authority has subsequently abandoned plans to collect the food waste there is no need to provide an In-Vessel Composting Facility.
- 1.3.5 Planning permission 08/00053/WAS was granted in June 2008 for a Renewable Energy Generation Facility (REGF), on the site previously consented for In-Vessel composting as detailed above. The REGF occupies a similar footprint, and uses waste wood to generate renewable electricity. The permission was implemented when the hoggin was excavated to create the platform for the proposed REGF and subsequently the wood waste imports and processing commenced. The site now handles 40,000 tonnes of wood waste per annum. However the building has not yet been constructed.
- 1.3.6 Planning permission 09/01593/FUL was granted on 14th June 2010 for the widening of the access track.
- 1.3.7 Planning permission 2010/C262/03 was granted by Daventry District Council on 7th July 2010 for the retention of temporary office buildings in association with the permitted carpet recycling activities at Pebble Hall.
- 1.3.8 Planning permission 2010/0477 was granted by Daventry District Council on 19th October 2010 for the retention of engineering works associated with the existing distribution uses and waste related activities at Pebble Hall.
- 1.3.9 Planning permission 10/00038/WAS was granted on 28 July 2010 for the use of one B8 unit for carpet recycling and part of the yard for carpet storage. The carpet recycling operations have now ceased.
- 1.3.10 A planning application has been submitted to Leicestershire County Council to carry forward the limitations imposed on a S106 Agreement restricting vehicle movements onto the highway as follows: not to exceed 240 vehicle movements per day Monday to Friday, 120 on Saturdays and 65 on Sundays.; reference 2010/0879/03. This application will not be determined until such time as Northamptonshire County Council determine the application for the TAD.
- 1.3.11 A planning application was submitted to Northamptonshire County Council in October 2013 for to modify the existing planning permission (08/00053/WAS) for a Renewable Energy Generation Facility. The modifications include the re-siting of the power generation building, an increase in its footprint and height to accommodate gasification plant, an increase in the stack height and an increase in wood waste inputs to provide the fuel supply. The REGF planning application and the TAD planning application will be submitted as two separate planning applications as they have been brought forward by two separate developers.
- 1.3.12 A separate planning application is to be submitted to Leicestershire County Council to link the S106 Agreement to a permission for the revised REGF, if granted.

1.4 Proposed Renewable Energy Generation Facility (REGF)

- 1.4.1 A planning application was submitted to Northamptonshire County Council for changes to the approved Renewable Energy Generation Facility (REGF) in October 2013, to be located adjacent to the TAD facility. If approved, this facility will process 72,000 tonnes of wood waste per annum (40,000 already consented) into renewable energy. If both applications are approved there is the potential for sharing combined heat and power (CHP).
- 1.4.2 It was agreed with the Planning Officer of Northamptonshire County Council that the TAD application would be re-submitted alongside the planning application for the REGF. This will provide the opportunity to explain the synergies between the two facilities and to consider the combined impacts. It is hoped that the two applications can be determined at the same time.

1.5 Site Selection and History

- 1.5.1 Welland Waste Management Ltd (WWM) has a long term strategy to identify the best food waste treatment options to produce a fertilizer that would offset the chemical fertilizer costs associated with their 1450 acres of wheat and oil seed rape production. In 2008 Planning Permission was gained for an In-Vessel Composting (IVC) facility. However, the business case was not sufficiently robust in light of falling gate fees, high plastics contamination, the Waste Collection Authority deciding not to collect food waste, the large amount of capital investment required. In 2010 a 25,000 tpa TAD system from Tanks and Vessel Ltd was considered as an alternative due to its lower capital costs, more rapid processing times and ability to handle pure food waste with higher gate fees and better nutrient values. WWM was particularly interested in TAD because evidence from other farms (Bonby) using aerobic digestate was that crop yields improved up to 3 times greater than the raw nutrient values of the digestate suggested, due to positive biological effects in the root zones. Details of other farms are included in Appendix 3.
- 1.5.2 The grain customers of Pebble Hall Farm were also showing a keen interest in the concept of closed loop biological nutrient recycling i.e. where food waste from production operations was returned to land to grow more crops. This interest was being driven by the major supermarkets, which increasingly require carbon reduction and 'closed loop' policies throughout their supply chain. However, because the farm can only spread liquid digestates to land during certain crop windows, it meant that 2 x 12,500m³ (50m dia. and 6 meter deep) storage tanks would need to be installed and shallow soil injection equipment purchased. The total cost of this additional equipment was over £1,000,000, making the business case for the project unviable.
- 1.5.3 At this time Mike Jordan of CH4Power Ltd was introduced to WWM by Tanks and Vessels with a view to installing a hybrid system including TAD system with a dryer. This system was innovative and highly competitive in terms of capital and operating costs compared to existing AD and IVC systems, meaning it would be able to offer food waste customers lower gate fees and a good competitive position in the market place. The solution also produces a dried granular fertilizer. This solution eliminated the need for expensive storage solutions. In addition the Combined Heat and Power (CHP) system can produce income from electricity and a surplus of heat that can be used to dry the product, thus increasing efficiency. The hybrid system was being built as a 'proof of process' facility at ORM Ltd, at Saxthorpe, in North Norfolk, therefore WWM would not be the first to operate the system,

thereby reducing their technical and commercial risks.

- 1.5.4 Unfortunately before the Saxthorpe project was completed CH4Power Ltd was put into administration by its investors due to some financial reporting irregularities perpetrated by the owner of CH4Power Ltd at previous sites. These issues were unrelated to the performance of the TAD system, which was operating correctly and had gained the required EA and AHVLA approvals, including an Environmental Permit.
- 1.5.5 During the period at Saxthorpe it had been possible to conduct successful trials and development on a TAD dryer system for digestate, and a decontamination system to remove packaging fines from digestate. These proven solutions form part of the basis for the WWM proposal.
- 1.5.6 CH4Power Ltd had also been a market leader in energy generation from used cooking oil. It had patented a process for clarifying oil and had received 'end of waste' approval from the Environment Agency (EA). It had successfully financed and built a 6MW power station using cooking oil. It sold the entire operation to REG Power, because the used cooking oil collection business was becoming increasingly more competitive and less profitable. Therefore CH4Power Ltd started to look for opportunities to recover oil from alternative sources where they could create a profitable niche. This led to the identification of the Tricanter centrifuge system to recover oil from high oil food waste. This, combined with their unique operational competences for running power stations on cooking oil, gave rise to a design for WWM for a plant design that would recover 300% more energy per tonne of feedstock and sequester 60% more carbon back to soils as fertilizer than a traditional AD plant. Due to its compact footprint, it would have a much lower environmental impact than an AD or composting system. In particular, odours can easily be contained due to the fact that the entire process can be completely enclosed and all emissions treated.
- 1.5.7 The Application Site was chosen when WWM decided to buy the secondhand TAD equipment, located at Saxthorpe, from the administrators of CH4Power Ltd. WWM had been considering a TAD facility for several years and this was an excellent opportunity to purchase a proven system at low cost. At this time Mike Jordan of Advanced Organics Ltd, who was then Development Director of CH4Power Ltd, presented WWM with a proposal for integrating oil recovery, electricity generation and drying into the existing TAD equipment to improve its profitability and overcome the cost and odour issues associated with digestate handling. Following appropriate technical and commercial due diligence WWM first sought planning permission for the proposed facility in November 2012.
- 1.5.8 CH4Power Ltd had been looking for purchasers of the TAD facility with sites that met the following criteria.
- Existing composting sites or anaerobic digestion sites preferably on farm to ensure the most economic use of digestate products.
 - Distant from sensitive receptors
 - Close to key sources of food waste feedstock. Pebble Hall has several sources of food waste feedstock nearby and meets this criteria.
 - Suitable existing buildings and access to reduce planning requirements
 - Grid connection
 - Operational capability
- 1.5.9 A summary of the lessons that have been learnt from the operation of the TAD system elsewhere is included in Appendix 9.

1.6 Environmental Impact Assessment

- 1.6.1 A screening opinion was issued by Northamptonshire County Council on 11th December 2012 in which it was confirmed that an EIA for this development is not required; a copy is included in Appendix 4. The development has not changed significantly since the issuing of a Screening Opinion, therefore no further request has been made.

1.7 Progress of the Environmental Permit Application

- 1.7.1 The Applicant has consulted with an Environment Agency (EA) officer earlier in 2013 and submitted a draft permit application for his review. In particular, guidance was provided on odour control, noise control, bunding and stack design. A summary of all the abatement technologies to be used was sent for review in July and the Applicant received no adverse comments.
- 1.7.2 The EA and Animal Health and Veterinary Laboratories Agency (AHVLA) policy teams had substantial discussions over a period of months as to whether the use of recovered oil in engines would be subject to the Waste Incineration Directive (WID) or not. It was decided that the Applicant's situation was similar to that of the rendering industry, which is permitted to use recovered oil in engines without further treatment providing it meets 'end of waste' criteria. This is a common solution within the UK and the EA have reassured the Applicant that they would not anticipate any issues with achieving 'end of waste' criteria and that the application is not subject to WID.
- 1.7.3 The formal Environmental Permit application will be submitted when planning permission has been granted.

2 THE PROPOSED DEVELOPMENT

2.1 Overview

- 2.1.1 The proposal is for a small extension to an existing building and the change of use of that building to Sui Generis waste use in order for it to be used for Thermophilic Aerobic Digestion. The proposed layout of the facility may be found on GPP/WWM/PH/12/03, Site Layout Plan. The facility will process 36,000 tonnes per annum of food waste, dealing with two waste streams, oil-rich food waste (such as pork pies, sausages, chips) and general food waste. Approximately 70% (25,000tpa) of incoming material will comprise oil rich (30% plus) food and 30% (11,000tpa) will comprise general food waste.
- 2.1.2 Food waste will be received inside the existing building, where it will be separated into two waste streams, oil-rich and general. Oil-Rich food waste will be easy to identify based on where the load has come from. General food will be de-packaged using a depacking machine, as necessary. Oil will be extracted from oil-rich food using a centrifuge and the fibrous material recovered from the centrifuge will be added to the general food and processed before being transferred to the TAD plant. Following aerobic digestion, the digestate will be dried and compacted into pellets for removal off-site onto local agricultural land for use as a fertiliser.

2.2 Site Operations and Process Description

- 2.2.1 The building and its extension will be completely clad with cold-store specification insulation, to retain heat, which will have the benefit of reducing noise from the operations. A heat exchanger and control panel will be fitted.
- 2.2.2 2 biofilters of 210m³ EA will be installed, in order to control air emissions. There will also be an associated tertiary biofilter scrubber and fan.
- 2.2.3 Also, there will be an outside office and utility building, a biodiesel storage tank, a recovered oil storage tank and 2 digestate storage tanks, as shown on the Site Layout Plan GPP/WWM/PH/12/03.
- 2.2.4 Waste will be delivered to the building in HGVs, using the existing site access. All loads will be weighed on the existing weighbridge alongside the compost site.
- 2.2.5 The proposed TAD will be an entirely enclosed process, which is fully compliant with the Animal By-Products Regulations. The thermophilic aerobic digestion process takes place inside a series of tanks, which are linked together with pipework, as shown on the process diagram in Appendix 5 and on the Site Layout Plan, Drawing GPP/WWM/PH/12/03. The components of the system are listed in Appendix 5.
- 2.2.6 The food waste will enter the building in HGVs through a roller shutter door to be added in the North-East end of the building. All existing openings will be blocked up. Once the HGVs are inside the building the roller shutter door will be closed. The HGVs will then go through a wheel wash, comprising a sunken wheel bath in the floor. A large majority of the incoming food waste will be packaged. The food waste will then be deposited onto the floor, before being put into a depacking machine.

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- 2.2.7 Prior to the food waste being put into the TAD it will be removed from the packaging using a depacking machine. During processing, 80% of the input tonnage will be lost in moisture and there will be approximately 3 - 4 tonnes of plastic per load in the form of food packaging. It will then be fed into a homogenization tank with screening system to ensure particle size is less than 12mm and that any non-organic fractions are removed; water will be added as necessary. The waste will then be fed into a centrifuge to extract the oil.
- 2.2.8 In the short-term, this oil will then be stored in the tank pending removal off-site for processing into biodiesel. This is because the oil is required to meet Environment Agency Biodiesel quality protocol. The primary process to achieve this quality is transesterification to meet the requirements of BS EN 14. It is intended to apply to the Environment Agency for 'end of waste' status for the oil. This is expected to take approximately 18 months. Once the 'end of waste' status is achieved, the oil will then be able to be used as a fuel directly in the generators, to create heat and power, some of which will be used in order to facilitate the drying process at the end of the TAD system. This means that the TAD facility needs to use very little imported energy and thus be very sustainable in its energy use. The oil recovery process is described in Appendix 6.
- 2.2.9 There will be 4 generators on site, with the capacity to produce 4 MW of electricity. In addition, there will be one smaller generator (500kW) to provide power for use during the commissioning and initial running of the plant. The generators will be located to the South-West of the proposed TAD building. They will be housed within acoustic containment.
- 2.2.10 For the initial period only, a biodiesel product to fuel the plant will be brought onto the site in 36,000 litre tankers. There will be one delivery of oil per day and one collection of oil per day. As outlined above this situation is temporary until an end of waste status is gained for the residual oil from the TAD process. At that time the imports of biodiesel will cease and the oil generated can be directly used in the generators.
- 2.2.11 At the end of the digestion process the digestate will be put into driers before being put into a machine to produce fertiliser granules. The granules will be sold or used on Pebble Hall Farm crops as a fertiliser.
- 2.2.12 A Landia mixing system will be used to recycle heat, reduce particle size and settle out contaminants. This system will reduce processing times approximately 50% through the TAD.
- 2.2.13 The building structure and management procedures will have to comply with the requirements of the Animal By-Products Regulations (2009), controlled by the Animal Health and Veterinary Agency (AHVLA) of DEFRA. Therefore, the pedestrian doors will have changing areas and foot baths located adjacent to them. The Western end of the building will have the walls and roof insulated to reduce heat loss, thus reducing the amount of energy used by the process.
- 2.2.14 Two attenuation ponds will be installed to the South-West of the proposed TAD building to manage surface water drainage.
- 2.2.15 The proposed development will require an Environmental Permit from the Environment Agency. The technology is proven and meets the requirements of the Animal By-Products Regulations date and an Environmental Permit has been issued for its operation elsewhere.

Connection to the National Grid

- 2.2.16 The generators will be linked to the National Grid via underground cables, see Appendix 7. These will be installed by Western Power Distribution. The longer term aspiration for the facility is to have a substation on site. A separate planning application, as necessary, will be submitted to Northamptonshire County Council for this, subject to an arrangement being agreed. It should be noted that there is agreement to export power from this development to the local grid.

Feedstock Quantities and Outputs

- 2.2.17 The facility will process 36,000 tonnes per annum of food waste, dealing with two waste streams, oil-rich food waste (such as pork pies, sausages, chips) and general food waste. Approximately 70% (25,000tpa) of incoming material will comprise oil rich (30% plus) food and 30% (11,000tpa) will comprise general food waste.
- 2.2.18 The catchment area for both waste streams is shown on Drawing GPP/WWM/PH/12/06 v4. The justification for this catchment area is included in Section 4.9. The food waste is likely to be sourced from waste collection companies, supermarkets and food manufacturers in Leicester, Milton Keynes, Wellingborough, Corby, Market Harborough, Banbury and the sub-region within which they lie.
- 2.2.19 Plastics from the de-packaged material will need to be taken offsite. This will initially be to landfill, but once the facility is established this will go to a local recycling centre. Other outputs include agricultural fertiliser granules (approximately 10,000 tonnes per annum) and renewable energy for export to the National Grid.

Hours of Operation

- 2.2.20 Delivery times will be controlled to between 7am and 6pm Monday to Friday and 8am to 1pm Saturdays. There will be no deliveries on Sundays or Bank Holidays. This is the same as the compost operation on the site.
- 2.2.21 The plant would run 24 hours per day but with controlled delivery times.

Building Components

- 2.2.22 The proposal includes an amount of built development relating to the proposed extension to the North-West elevation of the existing building, shown on Drawing GPP/WWM/PH/12/03 Site Layout Plan. This extension measures 12.2m x 18.3m. It will carry on the slope of the roof of the existing building. The highest point will measure 9m and the minimum point will measure 5.4m in height. The whole building and the extension will have its walls and roof insulated to retain heat, which in turn will reduce the noise from the operations inside the building. The total floor area of the extension equals 223m². The height of the proposed stack will be 17 metres.

Landscaped Bund

- 2.2.23 A soil bund along the northern boundary has been moved North to accommodate the extension, but retained to provide screening. The height of this bund is 2.5 metres and it will be landscaped.

Storage of Material

2.2.24 There will be no storage of food waste outside the building.

2.3 Traffic and Vehicle Numbers

2.3.1 There will be 36,000 tonnes of incoming waste per year which will be brought into the site in 25 tonne loads. This will create 1440? loads per year which will produce 6 incoming HGV loads per day or 12 movements (In & Out).

2.3.2 The site will produce 10,000 tonnes of agricultural granules per annum, which will be taken out in 10 tonne loads. This will mean that there will be 1000 loads of product per year. The total number of output vehicle loads will be 4 or 8 movements (In & Out). In addition, the plastics will be removed in bulk loads of 25 tonnes, of 1-2 loads per day, adding 4 vehicle movements (In & Out) per day.

2.3.3 One HGV will be needed per day to collect oil and one will be needed to deliver biodiesel, therefore generating 2 vehicles or 4 movements (In & Out).

2.3.4 The total traffic generation potential associated with the proposed use is therefore a total 28 HGV movements per day (In & Out). Allowing for two staff to enter and leave the site per day this will make the overall total number of vehicle movements per day to this part of the site 32. An application has been submitted to Leicestershire County Council to include these traffic numbers in the existing legal agreement.

2.4 Fire Risk

2.4.1 There are two very large water tanks on site to store water for use in the event of a fire, one of which has a capacity of 200,000 litres. This provision has been installed to meet the requirements of the Fire and Rescue service.

2.5 Lighting Scheme

2.5.1 All proposed external lights are shown on the proposed elevations Drawing GPP/WWM/PH/12/05. Exterior lighting will be confined to downward facing low-energy lights mounted on the building. Any additional lighting will be agreed with Northamptonshire County Council prior to instillation in order to protect local amenity.

2.6 Site Security

2.6.1 The access to the Pebble Hall complex is closed outside operational hours, using a locked gate. There is an existing CCTV network of cameras around the existing site, which will be maintained and extended to provide covering over the whole building complex.

2.7 Utilities and Grid Connection

2.7.1 The applicant has been provided with a letter of intent to supply electricity to the local grid, via underground cables to the substation on the outskirts of Market Harborough. A plan showing the proposed route of the cables is included with the application, Drawing WPD

161495 - Grid Connection, in Appendix 7.

2.7.2 Foul sewage will be managed by a septic tank and soakaway.

2.8 Environmental Controls

2.8.1 In their email of the 22/8/13 the Environmental Health Officer of Daventry has general concerns regarding potential odours from site operations and suggested adding a planning condition that Odour Management and General Site Management Plans be submitted for the approval to the local planning authority. The applicant is happy to accept this condition because these documents will be approved by the Environment Agency who is responsible for ensuring that best available technology and procedures are implemented to prevent environmental impacts.

3 PLANNING POLICY CONTEXT

3.1 Introduction

3.1.1 This section provides an indication of the main Development Plan policies and national planning guidance that has been considered and assessed in the preparation of the planning application.

3.1.2 The Development Plan in this instance consists of:

- Northamptonshire Minerals and Waste Development Framework Core Strategy, Development Plan Document (2010)
- Northamptonshire Minerals and Waste Development Framework Locations for Waste Development, Development Plan Document (2011)
- Northamptonshire Minerals and Waste Development Framework The Control and Management of Development, Development Plan Document (2011)
- Development and Implementation Principles, Supplementary Planning Document (2011)
- Daventry District Council Local Plan 1997 (Saved Policies)
- West Northamptonshire Joint Core Strategy Pre-Submission February (2011)

3.1.1 The main objectives and planning policies that are relevant to the proposal are set out below. The policies are not all included in full; only the relevant parts of the policies are included. The parts that are relevant to this development are highlighted by underlining.

3.2 The Development Plan

Northamptonshire Minerals and Waste Development Framework Core Strategy, Development Plan Document (2010)

3.2.1 Objective 5 relates to the spatial distribution of waste development and aims to:

Facilitate the delivery of a strategic urban-focused flexible waste management network which supports the treatment of waste close to where it has been generated, with particular encouragement of integrated waste recovery and treatment facilities.

3.2.2 The focus of this objective is to integrate waste sites rather than separating out facilities.

3.2.3 Box CS3:

Locational hierarchy

The hierarchy of areas for locating waste management facilities are defined as:

Central spine – in or related to the principal urban area of Northampton; in or related to the urban areas of Corby, Kettering, Wellingborough and Rushden / Higham Ferrers; in or related to the central spine service centres of Burton Latimer, Irthlingborough, Rothwell and Desborough; in or related to other built up local service centres within the central spine between Northampton and Corby.

Sub-regional centre – in or related to Daventry.

Rural service centres – in or related to Brackley, Oundle, Raunds, Thrapston and Towcester.

Rural hinterlands – the rest of Northamptonshire.

Catchment areas

Waste management facilities in Northamptonshire will be designated as having one or more of the following catchments within which waste can be sourced:

- National
- Regional
- Sub-regional
- Local, and
- Neighbourhood

Functional role

The functional role of waste management facilities are defined as:

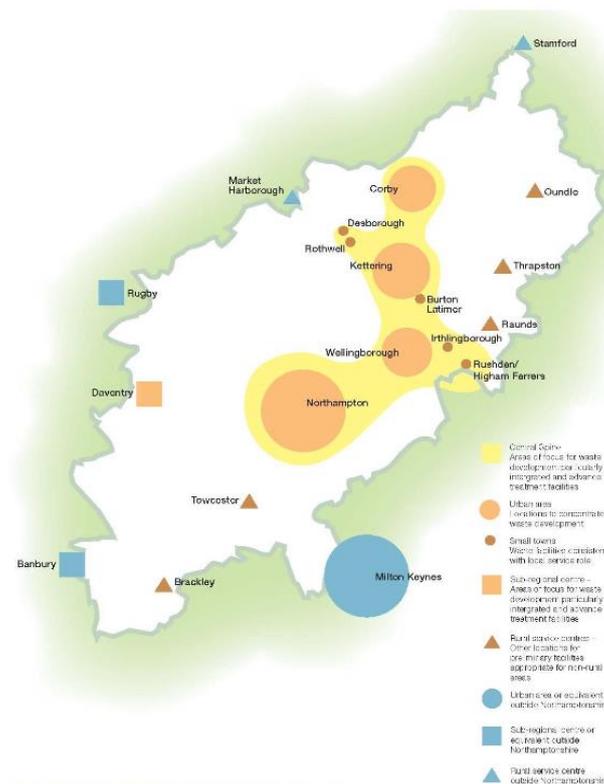
Advanced treatment – thermal, pyrolysis, gasification, plasma arc and other waste to energy processes and other emerging advanced technologies.

Preliminary treatment – household waste recycling centres, materials recycling facilities, composting (open windrow and in-vessel), anaerobic digestion, mechanical biological / heat treatment, inert processing, other recycling facilities and waste transfer stations.

Disposal – non-inert landfill / landraise and inert landfill / landraise.

Sewage and waste water treatment – sewage and waste water treatment plants.

3.2.4 Plan CS3



Plan CS3: The spatial strategy for waste management

3.2.5 Policy CS1 – Northamptonshire’s waste management capacity:

The development of a sustainable waste management network to support growth within Northamptonshire will involve the provision of facilities to meet the following indicative waste management capacities during the plan period:

Biological processing (MSW and C&I) capacity of 423,000 and 498,000 tonnes per annum for 2016 and 2026 respectively

This provision will come from a mix of extensions to existing sites, intensification or re-development of existing sites and new sites, providing they all meet the spatial strategy for waste management and are assessed as meeting environmental, amenity and other requirements. Allocations that will contribute to meeting provision will be identified in the Locations for Waste Development DPD.

3.2.6 Policy CS2 – Spatial strategy for waste management:

Northamptonshire's waste management network, particularly advanced treatment facilities with a sub-regional or wider catchment, will be focused within the central spine, and the sub-regional centre of Daventry.

In the rural hinterlands only facilities with a local or neighbourhood catchment providing for preliminary treatment, or that are incompatible with urban development, should be provided.

Where it is the latter they should deal with waste generated from identified urban areas and be appropriately located to serve those areas. Facilities in rural areas should, where possible, be associated with existing rural employment uses.

3.2.7 Policy CS9: Encouraging sustainable transport movements:

Minerals and waste related development should seek to minimise transport movements and maximise the use of sustainable or alternative transport modes.

3.2.8 Policy CS14: Addressing the impact of proposed minerals and waste development:

Proposals for minerals and waste development must demonstrate that the following matters have been addressed:

minimising environmental impact and protecting Northamptonshire's key environmental designations,

protecting natural resources or ensuring that any unavoidable loss or reduction is mitigated,

ensuring built development is of a design and layout that has regard to its visual appearance in the context of the defining characteristics of the local area,

ensuring access is sustainable, safe and environmentally acceptable, and ensuring that local amenity is protected.

3.2.9 Paragraph 4.16 the Core Strategy provides that:

Inevitably there will be some cross-border flows for reasons of geographical convenience, which may be broadly balanced, or because some waste management facilities can have a highly specialised role that means they have larger catchment areas. The Core Strategy recognises that waste management is becoming more specialised and is also a higher value industry than previously. It is not appropriate to oppose facilities serving wider catchments when other industries and commercial enterprises are not so constrained. However, in the wider interests of sustainability, it is not envisaged that Northamptonshire should take on a role as a key sub-national location for waste management facilities.

3.2.10 Paragraph 6.17 provides that:

Facilities provided for within the rural hinterlands should have a local or neighbourhood catchment and should mainly be for preliminary treatment. Facilities located within the rural hinterlands may also include those whose siting is incompatible with, or not complementary to, urban development; for example due to facility operational requirements (such as in the case of anaerobic digestion). In such

circumstance, the facility should deal with waste generated from identified urban centres and be appropriately located to serve those centres.

Northamptonshire Minerals and Waste Development Framework Locations for Waste Development, Development Plan Document (2011)

- 3.2.11 This DPD sets out the allocation of specific sites for waste management facilities, and the identification of specific locations where waste management uses would be acceptable in principle. Paragraph 3.2 states that:
It is therefore not appropriate for this DPD to attempt to identify all of the sites that will be required for waste management facilities over a twenty year period. To do so would be too prescriptive and inflexible and could potentially mean that acceptable sites identified outside of the plan-making process could be prevented from being implemented.
- 3.2.12 Paragraph 3.4 sets out four distinct categories for locations of waste development, one of which is:
Sites for waste management use in rural areas - *specific sites within rural areas where those waste management uses most appropriately located in these areas (particularly composting and anaerobic digestion) would be acceptable.*
- 3.2.13 The footnote to paragraph 5.58 in the emerging Northamptonshire Local Plan states that there is no hierarchal status or preference in the classification of sites in the paragraph.
- 3.2.14 The only allocated sites for waste management use in rural areas are listed in Policy W4, none of these are located in the central spine and therefore contrary to the development plan, despite being allocated. These sites are at Kilsby, Chelveston and Nassington – Kings Cliffe Regeneration Centre. However, in Appendix 2a the list of commitments for waste management include Pebble Hall Farm, for a biomass fuelled power generation facility, due to the planning permission that was granted in 2008 and now implemented. The site is also listed in Appendix 2a for composting (in-vessel and open windrow) due to the planning permission for these uses (see Planning History in Section 1.3). There are sites in Northamptonshire that are allocated but not in the Central Spine, for example the AD facility at Helmdon.

The Control and Management of Development, Development Plan Document (2011)

- 3.2.15 Box CMD1: Indicative (non-hazardous) waste management capacity gaps (2026)
Biological processing capacity for municipal and commercial & industrial waste will need to increase by 221,000 tonnes.
- 3.2.16 Policy CMD 1 within the DPD sets out the need to identify the likely catchment area of waste sources for specific waste facilities. Paragraph 3.12 of the DPD sets out the definition of the scales of geographic influence that a waste facility may command. Sustainability principles are indicated within the DPD as the core reason for the management of waste streams to occur within the vicinity of its creation. The DPD document states the criteria against which each facility is to be measured with regard to scale. The classifications are National, Regional, Sub-Regional, Local and Neighbourhood facilities. Each of these facilities has a list of criteria that indicate the scale of development and the area the waste is to be

derived from, and as such the catchment area for the facility.

Sub-Regional

- *Waste to be managed on site originates from within Northamptonshire or an equivalent geographical area.*
- *May include a wide variety of waste types including municipal solid waste, construction and demolition and green waste.*
- *The facility supports the waste hierarchy and is not for the disposal of waste, unless this is the last available option.*

3.2.17 Policy CMD1: Development criteria for waste management facilities:

Proposals for waste management facilities on non-allocated sites (including extensions to existing sites and extensions to allocated sites) must demonstrate that the development:

- *does not conflict with the spatial strategy for waste management,*
- *promotes the development of a sustainable waste network and facilitates delivery of Northamptonshire's waste management capacity requirements,*
- *clearly establishes a need for the facility identifying the intended functional role, intended catchment area for the waste to be managed, market base for any outputs, and where applicable the requirement for a specialist facility,*
- *is in general conformity with the principles of sustainability (particularly regarding the intended catchment area),*
- *facilitates the efficient collection and recovery of waste materials, and*
- *where intended for use by the local community, is readily and safely accessible to those it is intended to serve.*

3.2.18 Policy CMD1 states that waste treatment facilities should, where appropriate:

- *ensure waste has undergone preliminary treatment prior to advanced treatment,*
- *integrate and co-locate waste management facilities together with complementary activities,*
- *maximise the reuse of energy, heat and residues, and*
- *maximise the use of previously developed land (particularly existing and designated industrial land and derelict, despoiled or brownfield urban land) or redundant agriculture and forestry buildings (and their curtilages).*

3.2.19 Box CMD2: Functional role of waste management facilities:

- *Preliminary treatment includes Anaerobic Digestion, (which is very similar in principle to the TAD system).*

3.2.20 Policy CMD7: Natural assets and resources:

Minerals and waste development should seek to (where possible) achieve a net gain in assets and resources, through:

- *delivery of wider environmental benefits in the vicinity where development would adversely affect any regional or locally designated sites or other features of local interest,*
- *protecting and enhancing green infrastructure and strategic biodiversity networks, in particular the River Nene and other sub-regional corridors, and*
- *consider opportunities to contribute towards Northamptonshire Biodiversity Action Plan targets for habitats and species.*
- *Proposals for minerals and waste development will be required to undertake an assessment (where appropriate) in order to:*
- *identify and determine the nature, extent, and level of importance of the natural assets & resources, as well as any potential impacts, and*

- *identify mitigation measures and / or requirement for compensation (where necessary) to avoid, reduce, and manage potentially adverse impacts.*

3.2.21 Policy CMD8: Landscape character:

Minerals and waste development should seek to reflect Northamptonshire's landscape character. Development should mitigate potentially adverse impacts on the local character and distinctiveness of Northamptonshire's landscape where necessary during the development, operational life, restoration, aftercare, and after-use. Opportunities for enhancement should be maximised through restoration, aftercare, and after-use.

Proposals for minerals and waste development will be required to undertake a landscape impact assessment (where appropriate) based on the landscape character assessment in order to identify:

- *the presence of landscape values (including their nature, extent, and level of importance) and determine any potential impacts,*
- *any necessary measures to mitigate potentially adverse impacts, and*
- *opportunities to protect and enhance particular features that create a specific aspect of local distinctiveness or character.*

3.2.22 Policy CMD10: Layout and design quality:

The layout and overall appearance of waste management facilities will be required to demonstrate that the development:

- *supports local identity and relates well to neighbouring sites and buildings,*
- *is set in the context of the area in which it is to be sited in a manner that enhances the overall townscape, landscape, or streetscape (as appropriate)*
- *incorporates specific elements of visual interest, and*
- *builds-in safety and security*

Minerals and Waste Local Plan Final Draft (September 2013)

3.2.23 This document was made available for the submission of representations on 5 September 2013, with the closing date of 31 October 2013. It retains much of the policy contained in the Local Development Framework documents as described earlier in this section. It incorporates that Northamptonshire's Core Strategy, Control and Management of Development DPD and Locations for waste developments DPD. In this document the spatial strategy for the rural hinterlands remains the same.

3.2.24 Paragraph 5.2 notes that:

In recent years Northampton has experienced a growth in the waste management industry. This has been beneficial to the development of a sustainable waste management network throughout the county and has greatly increased our operational capacity, particularly in relation to preliminary treatment, i.e. preparing for re-use and recycling. Although the county has made headway in this regard, there is still a need to continue to drive waste up the hierarchy, recognise waste as a resource and maximise recovery.

3.2.25 It is noted at Paragraph 5.30 that:

The permitted capacity for waste management and disposal is sufficient to meet Northamptonshire's current requirements with the exception of non-inert landfill and advanced treatment. Mid-way through the plan period (2021) the permitted capacity for (non-inert) recycling, biological processing, inert recovery / landfill, hazardous

landfill and hazardous treatment are sufficient. By the end of the plan period (2031) (non-inert) recycling, biological processing and hazardous treatment have sufficient capacity.

3.2.26 Paragraph 5.31 states that:

Where particular management methods have been shown to be sufficient through the plan period, or for part thereof, proposals would have to demonstrate how the proposal promotes the development of a sustainable waste network and facilitates delivery of the County's waste management capacity requirements. Where this capacity would be surplus to our requirements it would be prudent to demonstrate a wider need for the facility and that the benefits for the receiving environment (including the community) outweigh potentially adverse impacts of the county acting as a net importer of waste, e.g. such as impacts on sustainable transport.

3.2.27 Paragraph 5.34 states that:

The waste industry and management technologies are dynamic and being overly prescriptive may stifle innovation and uptake of emerging technologies.

3.2.28 Paragraph 5.35 states that:

The Local Plan seeks to secure delivery of the indicative capacity requirements in two ways: (1) identification of specific sites for waste management facilities along with specific locations where waste management uses would be acceptable in principle; and (2) identification of locally specific policies on which the acceptability of proposals for waste-related development that come forward on non-allocated sites can be determined.

3.2.29 Paragraph 5.39 states that:

Proposals for extensions or change in waste-related development on the committed sites (and on other sites on which planning permission for waste use has been subsequently granted) must be in accordance with the Local Plan policies. However, it is accepted that being commitments confers a favourable status on these sites for a continuation of a waste use where this meets the intent of the Local Plan strategy and policies, and is also in accordance with national planning policy.

3.2.30 The plan seeks to strike a balance between identifying allocations and allowing non-allocated sites to come forward.

3.2.31 The footnote to paragraph 5.58 states that there is no hierarchal status or preference in the classification of sites by location.

Daventry District Council Local Plan 1997 (Saved Policies)

3.2.32 The relevant policies are:

- *Policy GN1 – Guide to granting planning permission, which sets out the parameters that need to be taken into account.*
- *Policy GN2 – Criteria for granting planning permission: development will normally be granted provided the proposal will be in-keeping with the locality and does not detract from its amenities.*
- *Policy GN3 – Availability of services, infrastructure and amenities.*
- *Policy EM16 – Employment in the open countryside; exceptions to the restriction on employment are for development involving the reuse of buildings.*
- *Policy EN1 – Special Landscape Areas (now superseded by the Northamptonshire*

Landscape Character Assessment).

Daventry District Council Energy and Development Supplementary Planning Document (March, 2007)

- 3.2.33 The SPD recognises that renewable energy provides an increasingly important fuel source. It provides the following:
Using wastes as fuel can have important environmental benefits. It can provide a safe and cost-effective disposal option for wastes that could otherwise present significant disposal problems.

3.3 Other Policy Documents

Waste Framework Directive 2008

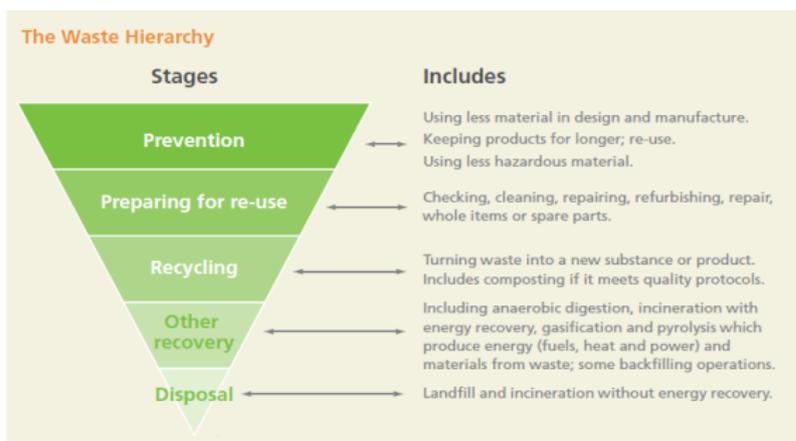
- 3.3.1 The Waste Framework Directive sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. It explains when waste ceases to be waste and becomes a secondary raw material, therefore gaining “end of waste criteria”. It requires that waste be managed without endangering human health and harming the environment and without adversely affecting the countryside or places of special interest.

European Landfill Directive 1999

- 3.3.2 The Landfill Direct sets the following target:
By 2020 to reduce biodegradable municipal waste landfilled to 35% of that produced in 1995.

The 2007 Waste Strategy for England

- 3.3.3 The main objective of the 2007 Waste Strategy is to significantly reduce the amount of waste that is disposed at landfill. Fundamental to this objective is the concept of the waste hierarchy, where by operators are encouraged through policy, targets and levies to move up the waste hierarchy through more efficient and sustainable waste management.



Government Review of Waste Policy in England 2011

- 3.3.4 The Waste Review 2011 builds upon the waste hierarchy which was the core of the 2007 Waste Strategy for England. The key themes that are discussed within the review are;

The need to focus on preventing waste as a priority, as a key component of broader resource efficiency;

- *The importance of treating waste as a resource and embedding waste policies into a wider resource and material security policy;*
- *The need to remove barriers which prevent greater integration of household and business waste policy and service delivery;*
- *The importance of policies which continue to promote high levels of high quality recycling; and*
- *The need to continue to reduce the amount of waste going to landfill.*

National Waste Strategy 2013 Consultation Document

3.3.5 The Government's latest thinking on waste management was published in July in the Waste Management Plan for England: Consultation version. It sets out how it will support the implementation of the objectives and provisions of the revised Waste Framework Directive. When adopted it will replace the Waste Policy Review document of 2011. It continues to promote compliance with the waste hierarchy.

3.3.6 The document states that:

The Government supports efficient energy recovery from residual waste – of materials which cannot be reused or recycled - to deliver environmental benefits, reduce carbon impact and provide economic opportunities. Our aim is to get the most energy out of waste, not to get the most waste into energy recovery.

National Planning Policy Framework

3.3.7 The National Planning Policy Framework was published on the 27th March 2012 and came into force immediately with respect to plan and decision making. The NPPF states at paragraph 5 of its introduction that it does not contain specific waste policies '*since national waste planning policy will be published alongside the National Waste Management Plan for England*'. However, paragraph 5 goes on to say that local authorities should have regard to the policies in the National Planning Policy Framework in preparing their waste plans.

3.3.8 The NPPF provides a presumption given in favour of development with sustainable credentials. Paragraph 14 of the NPPF states:

At the heart of the planning system is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan making and decision taking. For decision-taking this means approving development proposals that accord with the development plan without delay and where the development plan is absent, silent or relevant policies are out of date, granting planning permission unless:

- *Any adverse impact of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole or*
- *Specific policies in this Framework indicate development should be restricted.*

3.3.9 In paragraph 17, the NPPF states that one of its core planning principles is to: *support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy);*

3.3.10 In paragraph 97, it states:

To help increase the use and supply of renewable and low carbon energy, local

planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should: have a positive strategy to promote energy from renewable and low carbon sources; design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts; consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources; support community-led initiatives for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning; and identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

3.3.11 In paragraph 98, it states that:

When determining planning applications, local planning authorities should: not require applicants for energy development to demonstrate the overall need for renewable or low carbon energy and also recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and approve the application if its impacts are (or can be made) acceptable. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should also expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.

PPS10 Planning for Sustainable Waste Management and Companion Guide and Updated National Waste Planning Policy: Planning for Sustainable Waste Management – Consultation July 2013.

3.3.12 The National Planning Policy Framework has replaced most Planning Policy Guidance Notes and Statements, but it is noted that PPS 10 and Guidance Note are extant. Planning Policy Statement 10 considers that positive planning has an important role in delivering sustainable waste management, through the development of appropriate strategies for growth, regeneration and the prudent use of resources. This guidance will be replaced following consultation and adoption of the 'Updated National Waste Planning Policy: Planning for Sustainable Waste Management'.

One of the key objectives of PPS10 is driving waste management up the waste hierarchy and using waste more as a resource. Paragraph 29 states that "waste planning authorities should consider the likely impact on the local environment and on amenity".

3.3.13 When PPS10 is revoked, the revised technical guidance is likely to be the National Planning Policy Guidance for waste. The consultation version of the updated planning policy maintains the core principles of the 'plan led' approach, with a continued focus of moving waste up the waste hierarchy by moving away from traditional landfill towards more sustainable options for waste management. The new guidance will carry forward the factors against which waste planning authorities should use to assess the suitability of sites for waste development.

- 3.3.14 In determining planning applications, the new guidance urges waste planning authorities only to refuse planning permission for facilities not in line with the local plan if the applicants cannot demonstrate that the facility will not undermine the local waste planning strategy through prejudicing movement up the waste hierarchy.
- 3.3.15 It brings into national guidance the requirement of the revised European Waste Framework Directive to have regard to the proximity principle which requires all waste for disposal and mixed municipal waste (i.e. waste from households) to be recovered in one of the nearest appropriate facilities.
- 3.3.16 In respect of the locations of new development, it encourages siting for energy from waste facilities such that waste heat can be used as a waste source, as set out in footnote 4 to Paragraph 4.

Energy from Waste: a guide to the debate, published February 2013 by DEFRA.

- 3.3.17 This guide provides advice on the interpretation of the proximity principle in respect of energy from waste facilities, as follows:
this principle must not be over-interpreted. It does not require using the absolute closest facility to the exclusion of all other considerations.
There is nothing in the legislation or the proximity principle that says accepting waste from another council, city or region is a bad thing and indeed in many cases it may be the best economic and environmental solution and/or be the outcome most consistent with the proximity principle.
The ability to source waste from a range of locations/organisations helps ensure existing capacity is used effectively and efficiently, and importantly helps maintain local flexibility to increase recycling without resulting in local overcapacity.
- 3.3.18 The guide also acknowledges that the market-led approach to infrastructure should help to avoid the development of too much or too little energy from waste capacity.

CHP Ready Guidance for Combustion and Energy from Waste Power Plants, February 2013

- 3.3.19 The Environment Agency requires that all applications for Environmental Permits for new installations regulated under the Environmental Permitting (England and Wales) Regulations 2010 demonstrate the use of Best Available Techniques (BAT) for a number of criteria, including energy efficiency. One of the principal ways in which energy efficiency can be improved is through the use of Combined Heat and Power (CHP). The facility will be CHP-Ready.

National Policy Statements by Department of Energy and Climate Change July 2011

- 3.3.20 The following National Policy Statements published by the Department of Energy and Climate Change are relevant:
EN-1 Overarching Energy NPS:
The UK has committed to sourcing 15% of its total energy (across the sectors of
-

transport, electricity and heat) from renewable sources by 2020 and new projects need to continue to come forward urgently to ensure that we meet this target. Projections suggest that by 2020 about 30% or more of our electricity generation – both centralised and small-scale – could come from renewable sources, compared to 6.7% in 2009. The Committee on Climate Change in Phase 1 of its advice to Government in September 2010 agreed that the UK 2020 target was appropriate, and should not be increased. Phase 2 was published in May 2011 and provided recommendations on the post 2020 ambition for renewables in the UK, and possible pathways to maximise their contribution to the 2050 carbon reduction targets

Energy from Waste (EfW) – the principal purpose of the combustion of waste, or similar processes (for example pyrolysis or gasification) is to reduce the amount of waste going to landfill in accordance with the Waste Hierarchy and to recover energy from that waste as electricity or heat. Only waste that cannot be re-used or recycled with less environmental impact and would otherwise go to landfill should be used for energy recovery. The energy produced from the biomass fraction of waste is renewable and is in some circumstances eligible for Renewables Obligation Certificates, although the arrangements vary from plant to plant.

EN-3 Renewable Energy Infrastructure NPS:

Given the importance which Government attaches to CHP, for the reasons set out in EN-1, if an application does not demonstrate that CHP has been considered the IPC should seek further information from the applicant. The IPC should not give development consent unless it is satisfied that the applicant has provided appropriate evidence that CHP is included or that the opportunities for CHP have been fully explored. For non-CHP stations, the IPC may also require that developers ensure that their stations are configured to allow heat supply at a later date as described in paragraph 4.6.8 of EN-1 and the guidance on CHP issued by BIS in 2006.

4 ASSESSMENT OF THE PROPOSAL

4.1 Introduction

4.1.1 From a review of the relevant planning policy, the main issues relating to whether this proposal complies with policy are:

- The Location of the Development Within the Countryside
- Non-allocated Site
- Need and Compliance with the Waste Hierarchy
- The Catchment Area
- Compliance with Energy Policy
- Design of the Facility
- The Sustainability Credentials Associated with the Development
- Environmental Considerations (including intensification of waste uses and cumulative effects)

4.2 The Location of the Development within the Countryside

4.2.1 The Table 4.1 lists the policy references:

Table 4.1

Northamptonshire Minerals and Waste Core Strategydate?	
Box CS3	The site is located in the rural hinterland
Policy CS1	Capacity will come from a mix of extensions, intensification or redevelopment of existing sites.
Policy CS2	In the rural hinterlands only facilities with a local or neighbourhood catchment providing for preliminary treatment, or that are incompatible with urban development, should be provided; waste generated from identified urban areas and be appropriately located to serve those areas; be associated with rural employment uses.
Northamptonshire Minerals and Waste - Control and Management of Development	
Policy CMD1	Maximise previously developed land and maximise re-use of energy, heat and residues
National Planning Policy Framework	
Paragraph 14	Any adverse impacts must significantly and demonstrably outweigh the benefits
Daventry District Council Local Plan saved policy	
EM16	Supports employment in the open countryside provided it involves re-use of buildings
Northamptonshire Minerals and Waste Local Plan Final Draft	
Paragraph 5.58	Removes locational hierarchy for waste management developments

4.2.2 The site is located in the 'rural hinterlands', as defined in the Core Strategy (Box CS3) and illustrated on Plan CS3. While the Core Strategy indicates that the rural hinterlands fall at the bottom of the locational hierarchy, Policy CS2 recognises that preliminary treatment facilities or facilities that are incompatible with urban development are acceptable. Such

uses are acceptable in the rural hinterland because of their incompatibility with urban development, due to the risk of odour release and noise.

- 4.2.3 The Preliminary Treatment facilities are defined in Box CS3 and include anaerobic digestion. TAD is not specifically listed but it is very similar to an anaerobic digestion process.
- 4.2.4 It is acknowledged that the TAD process is preliminary treatment and this type of use would comply with Policy CS2 if it serves a local or neighbourhood catchment. However, it is also the case that a TAD process is incompatible with urban development (due to the potential risk of noise and odour) and in such cases facilities should deal with waste generated from identified urban areas and be appropriately located to serve those areas. This site is well located to serve defined urban areas.
- 4.2.5 It is acknowledged that the TAD process is preliminary treatment and this type of use would comply with Policy CS2 if it serves a local or neighbourhood catchment. However, it is also the case that a TAD process is incompatible with urban development and in that case facilities should deal with waste generated from identified urban areas and be appropriately located to serve those areas. This site is well located to serve defined urban areas.
- 4.2.6 In addition, the proposed development is ideally suited for a rural location as the TAD system will produce fertiliser granules, which will be used for agriculture. This process will effectively return carbon to the land. The fertilizer created will increase the competitiveness and sustainability of the existing local farms businesses and assist in minimising vehicle movements.
- 4.2.7 Policy CS1 of Northamptonshire Minerals and Waste Core Strategy recognises that the new provision for biological treatment facilities will come from a mix of extensions to existing sites, intensification or re-development of existing and new sites. The complex of redundant agricultural buildings at Pebble Hall has planning permission for change of use to B8. Some units also benefit from additional permissions for workshop use. Alongside these uses, waste activities in the form of green waste composting and wood shredding are undertaken and permission has been granted for a Renewable Energy Generation Facility. This proposal accords with the initial part of Policy CS1. In order to fully comply with policy CS1 the proposal must also accord with the spatial strategy and meet environmental, amenity and other requirements. Compliance with the spatial strategy is demonstrated in section 4.3 and environmental, amenity and other requirements in 4.10.
- 4.2.8 The use of a building with permission for commercial use means that the proposals are in line with Policy EM16 of the Daventry Local Plan.
- 4.2.9 The proposed processes are compact and can therefore be completely contained to prevent noise and odours becoming a nuisance. Therefore, there are no significant adverse impacts to outweigh the benefits of waste management and renewable energy generation.
- 4.2.10 The hierarchy for the location of waste management sites in the adopted Development Plan, which places rural sites at the bottom, is proposed to be removed in the Draft Waste and Minerals Local Plan. This appears to acknowledge that rural sites are important in the provision of facilities to deliver capacity for waste management as required to meet the needs of the County in relation to the import and export of waste across county boundaries.

4.3 Non-allocated Site

4.3.1 Table 4.2 lists the policy references:

Table 4.2

Northamptonshire Minerals and Waste - Locations for Waste Development	
Policy W4	Does not include Pebble Hall as an allocation
Paragraph 3.2	It cannot identify all of the sites that will be required
Paragraph 3.4	Sites in rural areas should manage waste most appropriately located in these areas
Appendix 2a	Lists Pebble Hall as a commitment for REGF and composting
Northamptonshire Minerals and Waste Local Plan Final Draft	
Paragraph 5.39	Commitment confers favourable status for continuation of waste use.
Northamptonshire Minerals and Waste - Control and Management of Development	
Policy CMD1	Maximise previously developed land and maximise re-use of energy, heat and residues

- 4.3.2 Although the site is not shown as an allocation in the Development Plan, it is clearly acknowledged as a commitment in terms of waste sites in Northamptonshire, which in turn means that its extension is compliant with Policy CS1, as explained in 4.2 above.
- 4.3.3 The proposed development is compliant with Policy CMD1 as it is situated on previously developed land and maximises the re-use of energy, heat and residues. It is also
- 4.3.4 It is in general compliance with the emerging policy as set out in the Local Plan Final Draft, as it is for the continued use of waste, involving the generation of renewable energy.

4.4 Need and Compliance with the Waste Hierarchy

4.4.1 Table 4.3 lists the policy references:

Table 4.3

Northamptonshire Minerals and Waste Core Strategy	
Policy CS1	Identifies a capacity for biological processing
Northamptonshire Minerals and Waste - Control and Management of Development	
Policy CMD1	Biological processing capacity gap of 221,000 tpa
Northamptonshire Minerals and Waste Local Plan Final Draft	
Paragraph 5.2	Need to continue to drive waste up the hierarchy
Paragraph 5.30	There is sufficient capacity for biological treatment.
Paragraph 5.31	Development must promote a sustainable waste network. Where capacity would be surplus to requirements to demonstrate a wider need for the facility and that the benefits for the receiving environment (including the community)

	outweigh potentially adverse impacts of the county acting as a net importer of waste
PPS 10 and National Waste Strategy Draft 2013	
Revised waste policy	Moving waste up the hierarchy and using waste as a resource; energy from residual waste
Landfill Directive	
	Reduction in municipal biodegradable waste disposed of to landfill.

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- 4.4.2 National and local waste planning policies require waste management to be moved up the waste hierarchy, away from disposal to landfill. The National Planning Policy Framework, which postdates adopted waste policy, places an emphasis on promoting sustainable development.
- 4.4.3 The Development Plan has identified a shortfall in biological processing capacity, which this facility has been designed to assist in reducing. However, the Final Draft Minerals and Waste Local Plan has identified sufficient capacity for the plan period. The capacity is based on schemes with planning permission and the plan acknowledges that some of these may not be implemented. However, this facility meets a wider need and the benefits outweigh any adverse impacts due to the importation of waste from outside the county. Importing waste over county boundaries is not contrary to planning policy or the Development Plan. Notwithstanding the capacity issues the facility is compliant with the waste hierarchy as it drives the management of food waste up the hierarchy and diverts it from landfill.
- 4.4.4 Food waste has traditionally been landfilled, although more recently it has been diverted from landfill for treatment in in-vessel composting facilities to produce compost or in anaerobic digestion facilities to produce renewable energy and a digestate agricultural fertiliser. The thermophilic aerobic digestion process, with the addition of a food oil recovery process, has proved to be much more efficient.
- 4.4.5 The TAD system requires only a low energy input, to run the preparation processes and the pumps. It has been shown that it only requires 22kW per tonne. This energy input will be provided by on-site combined heat and power plant, principally a generator, which will utilise oil recovered from the oil-rich food waste, thus making the process energy self-sufficient. The aerobic process for the breakdown of the waste takes only 3-4 days, thus is much quicker than either in-vessel composting or anaerobic digestion processes. This means that much less equipment is needed to process a similar tonnage of material. During the aerobic process, heat is produced, which promotes the digestion process and dries the material, thus producing a product in a short period of time, that is easy to handle and in a concentrated granule, which thus uses less transport to deliver the product to local farms.
- 4.4.6 The granular product is easy to store pending its application to agricultural land, as it does not continue to breakdown. It returns organic material to the land to sequester carbon, rather than using it to generate energy and CO₂, the gas then entering the atmosphere. It promotes CO₂ removal from the atmosphere by natural plant photosynthesis, and displace highly polluting fertilizers. For each tonne of typical nitrogen fertilizer that is displaced by organic fertilizer granules, up to 6t of CO₂ is prevented from entering the atmosphere.
- 4.4.7 The TAD process has been verified to comply with the PAS100 composting standard, thus the granules are regarded as a product. The oil extraction system and the use of the oil in the energy generation plant has been approved for double ROCs payments, in recognition

of the efficiency of the generation of renewable energy.

- 4.4.8 The technology is the most sustainable available for the treatment of food waste, therefore complying with national and local policy.
- 4.4.9 The facility is designed to treat commercial food waste, which due to the location of the site very close to the county boundary, will be partially sourced from outside the county (see section 4.5 below). The Applicant has identified a need for specialised treatment of oil-rich food waste in particular, which is to be sourced from a scattered location of specialised food producers in the West and East Midlands. There is no other such treatment facility to serve this catchment, therefore there is a clear need. There will be no adverse environmental impacts (see Section 4.9) and there will be significant benefits of providing a fertiliser for agricultural use and of producing renewable energy.

4.5 The Catchment Area

- 4.5.1 Table 4.4 lists the policy references:

Table 4.4

Northamptonshire Minerals and Waste Core Strategy	
Paragraph 4.16	Cross-border flows for geographical convenience and acknowledgement of inappropriateness in opposing facilities with wider catchments
Policy CS2 and Paragraph 6.17	Sites in the rural hinterland should have local or neighbourhood catchment and be for preliminary treatment, unless they are incompatible with an urban location.
Northamptonshire Minerals and Waste - Control and Management of Development	
Paragraph 3.12	Defines the criteria for a sub-regional catchment
Policy CMD2	Identifies AD as a preliminary treatment facility.

- 4.5.2 Policy CS2 does not preclude facilities in the rural hinterlands with a sub-regional catchment area where the use is incompatible with an urban area. The TAD system is very similar to AD, therefore is categorised as preliminary treatment, for which a location in the rural hinterland is compliant with policy (see Section 4.2). Such facilities should have a local or neighbourhood catchment, unless they are incompatible with urban development. The reason that AD facilities are unacceptable in urban locations is due to the risk of odour. The implication of this is that a larger than local catchment is acceptable. It should be noted that planning permission for Anaerobic Digestion facilities have been granted in rural hinterlands in Northamptonshire with a sub-regional catchment area e.g. Helmdon and Chelveston. xxx
- 4.5.3 The proposed catchment area, shown on Drawing GPP/WWM/PH/12/06 v4, is smaller than the originally proposed catchment area and is based on a sub-regional area. Since the application was originally submitted, the applicant has been approached by various oil-rich food providers located within the identified sub-region. The applicant therefore now can be confident that there is a robust market for sourcing oil-rich food waste within a sub-regional catchment area. The facility is centrally located in order to serve a number of urban centres identified on Plan CS3

- 4.5.4 Pebble Hall is well located to serve a major concentration of oil-rich food waste sites; there is a cluster of commercial meat processors around Leicester and red meat abattoirs and food processors in the proposed catchment area.
- 4.5.5 As this is a new, specialised facility, using a novel oil extraction technology in association with the TAD process, there are currently no similar processors in the region. The TAD facility is more efficient than standard AD facilities, returns more carbon to the land and can be carried out on a smaller footprint. This justifies the need for a sub-regional catchment area.
- 4.5.6 The site is located close to the county boundary, therefore cross-border flows will occur. It is acknowledged in Northamptonshire's Core Strategy that there will be some cross border flows of waste because some waste management facilities can have a highly specialised role that means they have larger catchment areas. Importing waste over county boundaries is not contrary to planning policy or the Development Plan.

4.6 Compliance with Energy Policy

- 4.6.1 Table 4.5 lists the policy references:

Table 4.5

DDC Energy and Development SPD	Supports renewable energy from waste
National Waste Strategy Draft 2013	To get the most energy out of waste
National Planning Policy Framework	
Paragraph 17	Encourage renewable energy
Paragraph 97	Responsibility on all communities to contribute to renewable energy generation and local authorities should have a positive strategy to promote energy from renewable sources
Paragraph 98	Approve the application if its impacts are (or can be made) acceptable
DEFRA Energy from Waste	Don't over-interpret the proximity principle; allow waste from other council areas; source waste from a range of locations to provide efficiency and flexibility
CHP Ready Guidance	Requires energy from waste facilities to be CHP-ready
DECC National Policy Statements	Set targets for renewable energy
Regional Spatial Strategy	Targets for CHP and distributed energy network using renewable resources
Northamptonshire Minerals and Waste - Control and Management of Development	
Policy CMD1	Maximise previously developed land and maximise re-use of energy, heat and residues
West Northamptonshire Joint Core Strategy Pre-Submission February 2011	
Policy S11	Bring wider environmental, economic and social benefits and contribute to national renewable energy production targets in terms of addressing climate change

- 4.6.2 Policy CMD1 seeks to maximise previously developed land and maximise re-use of energy, heat and residues. The proposed development is in accordance with this policy. The production of renewable energy is in accordance with the NPPF, Daventry District Council's adopted SPD and the West Northamptonshire Joint Core Strategy Pre-submission.
- 4.6.3 The facility has been designed to be CHP-ready, which means that there will be the ability to utilise both electricity and heat generated by the process. This is fully in compliance with current and emerging Northamptonshire County Council policy and Government guidance on the design of new waste to energy facilities. Primarily, there is an opportunity to use the heat generated by the TAD system to fuel the driers. Also, it will mean that there is the potential to supply heat to adjacent businesses, local businesses and future housing development around Market Harborough. In the latter case, this will assist the developers in meeting their obligations in respect of sustainable development.
- 4.6.4 The use of the oil-recovery technology to produce a renewable fuel means that the facility will make a significant contribution to the targets for the production of renewable energy. Also, it is fully compliant with the emerging National Waste Strategy, which seeks to get the most energy out of waste.
- 4.6.5 Government policy as set out in DEFRA's Energy from Waste encourages local planning authorities when considering renewable energy from waste projects to allow waste from other council areas and to allow a location that will provide efficiency and flexibility. The location of Pebble Hall close to the county boundary means that cross boundary inputs are essential.
- 4.6.6 The project has the potential to generate a significant amount (4MW) of renewable electricity. The NPPF provides that renewable and low carbon energy facilities should be located in suitable areas. Power distribution companies have welcomed the energy generation proposals in this location as it will assist in filling a predicted shortfall in local grid capacity to cater for the planned 1000 home Airfield Farm housing development at Market Harborough. The applicant is currently exploring opportunities to supply this housing development with heat from the TAD CHP system.
- 4.6.7 Pebble Hall is therefore seen as an appropriate location for energy generation and is therefore compliant with the NPPF.

4.7 Design of the Facility

- 4.7.1 Table 4.7 lists the policy references:

Table 4.7

Northamptonshire Minerals and Waste Core Strategy	
Policy CS14	Design and layout that has regard to its visual appearance
Northamptonshire Minerals and Waste - Control and Management of Development	
Policy CMD10	Support local identity and good relation to neighbouring buildings; elements of visual interest and built in safety and security
Daventry District Council Local Plan saved policies	

Policy GN3	Requirement for available services and infrastructure
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- 4.7.2 A Design and Access Statement has been prepared, which is submitted with the planning application documents.
- 4.7.3 The facility has been designed in order to utilise the best available technologies and to minimise the impact on local amenity. The compact footprint of the plant means that it can be placed within an existing building at Pebble Hall with a small extension, reducing the visual impact caused by the development. In addition, the whole building and the extension will have its walls and roof insulated to retain heat, which in turn will reduce the noise from the operations inside the building. The whole process will be self-contained and any emission will be passed through a biofilter in order to ensure that there is no odour impact on the local amenity.
- 4.7.4 A drawing showing the proposed route for the connection to the national grid system is included in Appendix 7. Western Power has confirmed that there is the ability to export the power from this facility to the local distribution network and a formal application for the connection has been submitted.

4.8 The Sustainability Credentials Associated with the Development

- 4.8.1 Table 4.6 lists the policy references:

Table 4.6

National Planning Policy Framework	
Paragraph 14	Presumption in favour of sustainable development
Planning for Sustainable Waste Management – Consultation Document	
Paragraph 4, footnote 4	Location of energy from waste facility to enable utilisation of heat
Northamptonshire Minerals and Waste Core Strategy	
Policy CS1	Development of a sustainable waste management network.
Northamptonshire Minerals and Waste - Control and Management of Development	
Policy CMD1	Development of a sustainable waste management network
Northamptonshire Minerals and Waste - Control and Management of Development	
Policy CMD1	Maximise previously developed land and maximise re-use of energy, heat and residues

- 4.8.2 The NPPF provides that Local Authorities should have a positive strategy to promote energy from renewable and low carbon sources. The proposed development will generate energy from waste that would otherwise go to landfill or lower quality recovery. The NPPF also provides that Local Authorities should maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily.
- 4.8.3 The Anaerobic Digestion Strategy and Action Plan (2011) realises that AD offers a local,

environmentally sound option for waste management that helps divert waste from landfill, reduce greenhouse gas emissions and produce renewable energy which could be used to power homes and vehicles. As the TAD facility proposed at Pebble Hall is similar in principle to AD facilities, it should be noted that it has the potential to provide similar and improved benefits. The TAD system is an improvement over AD in that it can produce up to 3 times more energy from the same food waste, and recycles up to 50% more carbon back to soil as organic fertiliser granules.

- 4.8.4 The facility has been designed to be CHP-ready, which means that there will be the ability to utilise both electricity and heat generated by the process. It will mean that there is the potential to supply heat to adjacent businesses, local businesses and future housing development around Market Harborough. In the latter case, this will assist the developers in meeting their obligations in respect of sustainable development. This is in accordance with the latest Government guidance for the location of energy from waste developments, as set out in the document 'Planning for Sustainable Waste Management'.

4.9 Synergies from the Co-location of Facilities

- 4.9.1 The TAD facility and the proposed REGF have a number of significant synergies, as explained in detail in Appendix 2. The main benefits relate to the management of the site, technical considerations and commercial benefits. Therefore, the location of these facilities on the same site has considerable benefits.

4.10 Environmental Considerations

- 4.10.1 The site will be regulated by the Environment Agency through the conditions contained in an Environmental Permit. This will be applied for upon receipt of planning permission; the facility will not be permitted to operate until a Permit is received.

Introduction

- 4.10.2 Table 4.8 lists the policy references:

Table 4.8

Northamptonshire Minerals and Waste Core Strategy	
Policy CS1	Meet environmental and amenity requirements
Policy CS9	Minimise transport movements
Policy CS14	Minimise environmental impacts; protect natural resources; provide safe access.
Northamptonshire Minerals and Waste - Control and Management of Development	
Policy CMD7	Minimise impacts on natural resources; deliver wider environmental benefit
Policy CMD8	Mitigate potentially adverse impacts on local character
Daventry District Council Local Plan saved policies	
Policy GN2	In keeping with locality; doesn't detract from its amenities
Policy EN1	Special Landscape Area (now superceded by Northamptonshire Landscape Character Assessment)

4.10.3 To demonstrate compliance with these policies, the following environmental impacts are addressed:

- Traffic and Transportation
- Noise
- Landscape and Visual Amenity
- Odour
- Air Emissions
- Flood Risk Assessment and Drainage
- Ecology
- Dust, Litter and Mud
- Pest Infestations
- Fire Risk
- Cumulative Impact

Traffic and Transport

4.10.4 Policy CS9 of the Core Strategy encourages sustainable traffic movements and policy CS14 requires that access is sustainable, safe and environmentally acceptable.

4.10.5 HGVs will bring the food waste onto the site in bulk loads. The food waste will be bulked up either by the producer or at a waste transfer station, to deliver large loads to the site, in 25 tonnes loads thus minimising HGV movements on the strategic highway network.

4.10.6 During processing, 80% of the input tonnage will be lost in moisture and there will be approximately 3 - 4 tonnes of plastic per load in the form of food packaging. This may be washed using a hose; it will be taken off site for recycling elsewhere. The food will then go through the thermophilic aerobic digester and turned into fertiliser granules. There will be separate HGV movements bringing food waste onto the site and taking the granules off the site.

4.10.7 There will be 36,000 tonnes of incoming waste per year which will be brought into the site in 25 tonne loads. This will create 1440 loads per year which will produce 6 incoming HGV loads per day or 12 movements (In & Out).

4.10.8 The site will produce 10,000 tonnes of agricultural granules per annum, which will be taken out in 10 tonne loads. This will mean that there will be 1000 loads of product per year. The total number of output vehicle loads will be 4 or 8 movements (In & Out). In addition, the plastics will be removed in bulk loads of 25 tonnes, of 1-2 loads per day, adding 4 vehicle movements (In & Out) per day.

4.10.9 One HGV will be needed per day to collect oil and one will be needed to deliver biodiesel, therefore generating 2 vehicles or 4 movements (In & Out).

4.10.10 The total traffic generation potential associated with the proposed use is therefore a total 28 HGV movements per day (In & Out). Allowing for two staff to enter and leave the site per day this will make the overall total number of vehicle movements per day to this part of the site 32.

4.10.11 The application site would have the potential to generate up to 77 vehicle movements per day as a B8 use, if it was used for commercial warehousing. This is over double the amount

associated with the proposed development per day.

4.10.12 There is a limit agreed by means of a S106 Unilateral Undertaking with Leicestershire County Council on the total number of daily movements using the Pebble Hall access and this limit is monitored using a traffic counter at the access to the site. On the basis of the traffic figures above, the proposed development is not expected to cause the limit to be exceeded. This complies with the requirement for a safe and acceptable access. As the proposed development will fit within the existing parameters of vehicle movements per day it is not expected that traffic to the site will be a significant issue.

4.10.13 Although the plant will be running continuously the delivery times will be controlled to between 7am and 6pm. This is the same as the compost operation on the site.

4.10.14 Through minimising the amount of HGV movements the operations comply in part with policy. In addition, a main supplier will be in Leicester, which supplied the TAD plant in Norfolk before the site was closed. Therefore by relocating the plant to Pebble Hall, the HGVs will save approximately 100 miles per trip. Food waste will be bulked up at centres within the catchment area and brought to the site. Further information on traffic is detailed in section 3.2.

4.10.15 The food waste will be supplied from a number of different commercial premises within the proposed catchment area; other than bulking up there is no alternative means of conveying the material to a specialist treatment facility.

4.10.16 The facility complies with policy for sustainable transport as far as is possible when handling food waste.

4.10.17 A Transport Assessment (included in Appendix 12) has been prepared in order to thoroughly assess the amount and type of traffic that will be generated by the proposed development. The report concludes:

It can be concluded from the information set out in the Tables [in the report] that proposed use has the potential to significantly reduce vehicular traffic associated with the site when compared to the potential from the consented use of the floor area to be lost. Whilst there may be a small increase in goods vehicle movements over the course of an entire day this must be seen in the context of the potential for an overall reduction in traffic volumes associated with the site.

Noise (controlled by the conditions of an Environmental Permit)

4.10.18 Policy CS14 of the Core Strategy requires that local amenity is protected.

4.10.19 The Thermophilic Aerobic Digester would be fully enclosed within the building, which will utilise equipment with low levels of noise generation. Therefore, it is not envisaged that it will create a significant noise issue. In addition, the whole building and the extension will have its walls and roof insulated to retain heat, which in turn will reduce the noise from the operations inside the building.

4.10.20 The CHP generators used to produce electricity will be acoustically enclosed in order to reduce the possibility of noise being generated.

4.10.21 The closest sensitive receptor to the site is the residential dwelling that is located 510

meters away from the building. There have not been any issues of noise from the existing operations at the site, therefore a detailed noise impact assessment is not considered to be necessary. Therefore, there is no conflict with the policy to protect local amenity.

4.10.22A noise assessment has been carried out for the proposed development and is included in Appendix 8. It concludes that:

*Site noise levels and background noise levels are below BS 4142 standards
Noise levels are unlikely to cause complaints during the daytime or night time*

4.10.23 An additional noise assessment has been carried out to address comments following comments during the consultation stage of previous submission and updates the previous one. This concludes that:

Having constructed the noise model for the TAD development and assessed it in accordance with BS4142 for both daytime and night-time conditions, we would conclude that the operation of the Thermophilic Aerobic digester would be less than marginal if not unlikely to result in complaints in accordance with BS4142. This is the case for the most part because the background noise levels and TAD rating levels at the considered dwellings are very low and considered outside of the scope of assessment to BS4142.

We would also conclude that in combination with the REGF development, the cumulative noise generated would also be less than marginal if not unlikely to result in complaints in accordance with BS4142. This study has not focussed on the REGF in isolation however our expectation would be that this would also be true in this case.

Whilst some consideration might be given to Pebble Hall Farm the likelihood of complaints might be considered marginal for daytime conditions as this is entirely due to the HGV traffic on the service road which will not increase substantially from its current level of use.

HGV Transient Events

Outside of BS4142, we would however recommend that further consideration is given to providing protection specifically to Hothorpe Hall from HGV traffic arriving and departing from the site. At the bend in the service road, the noise appears to "funnel" up the valley toward Hothorpe Hall. This makes the arrival and departure of HGV's round this corner a transient but noticeable 'event'. We would therefore recommend the installation of a suitably designed noise barrier at this point to shield the Hall from these short term events. This is covered in the Appendix section below.

4.10.24A full version of this noise assessment can be found in Appendix 8. In terms of noise, there is no conflict with policy to protect local amenity.

Landscape and Visual Amenity

4.10.25 Policy CS14 of the Core Strategy requires that the built development has regard to its visual appearance in the context of the landscape character and Policies CMD7, 8 and 10 require a net gain in natural assets, respect for landscape character and support of local identity.

4.10.26 The landscape character assessment for Northamptonshire as a whole. The character assessment describes the area as being located in Welland Valley. The Welland Valley is described as varying in height with the Southern side of the Welland Valley overlooking

Rutland and Leicestershire. It is due to these differences in height in the lay of the land that the Pebble Hall site does not disrupt the visual character of the area; the high level ground between the highway and the proposed extension effectively screens it from view.

- 4.10.27 The Thermophilic Aerobic Digester will be fully contained within the building, once it is extended. See Drawing GPP/WWM/PH/13/11 which shows how the extension will fit into the existing buildings at Pebble Hall.
- 4.10.28 Due to the siting of the building and the extensions, it is barely visible from the highway or the residential properties to the North, as it is largely screened by the established vegetation and the intervening landform. Drawing GPP/WWM/PH/13/09 shows an illustrative cross section of the lie of the land between the proposed extension and the nearest residential property, Woodside Bungalow and Farm. From this drawing it can be seen that the land between Woodside Bungalow and Farm and the extension is high enough to effectively screen it. In addition, the proposed 2.5 metre high bund will provide further screening. Photograph Panel B shows the view from the two nearest residential properties looking towards the site. From these photographs it can be seen that the extension would not be visible and therefore not cause any visual impact. It is worth noting that these photographs were taken in January and at other times of the year the existing vegetation would provide even more screening. Due to the fact that the extensions will not be visible, there will be no cumulative impact as a result of the development.
- 4.10.29 Recent tree and shrub planting, as shown on the Approved Landscape and Biodiversity Plan, Drawing GPP/CL/PH/09/04 will significantly enhance the appearance of the Pebble Hall complex of buildings and operations. Although the management of this planting was inadequate during the first couple of years following planting, a management contract has now been let and significant improvements were carried out in 2012. All dead plants were replaced, weed control was carried out at the appropriate times and plants were properly protected by staking and replacing rabbit guards. These measures will ensure that the planting makes a positive contribution to the landscape and to screening the wider site.
- 4.10.30 The proposed stack has the potential to have an impact on visual amenity. The proposed stack will be barely visible due to the fact that it has a very small diameter (0.5 metres) and will be coloured grey in order to blend into the colour of the sky. In addition, even though it will need to be 17 metres high it will only be 5 metres above the height of the rising land to the South of the site. If the proposed REGF facility is consented, additional landscape planning will be installed on this bank, further reducing the visual impact of the stack.
- 4.10.31 The lack of landscape impact, the extent of landscaping and extent of biodiversity provision mean that the proposals comply with planning policy.

Odour (controlled by the conditions of an Environmental Permit)

- 4.10.32 Policy CS14 of the Core Strategy requires that local amenity is protected.
- 4.10.33 Waste reception will be carried out within the building, with fast acting roller shutter doors kept closed except during deliveries. Prior to the reception, the waste will be transported in enclosed HGVs. Load inspections will be carried out in the building to avoid an odour release. The building will be fully enclosed. Air from within the building will be extracted and passed through 2 biofilters and tertiary air scrubber, which will significantly reduce the possibility of fugitive odour. From receipt of waste into the building all materials will remain

fully contained until the processed, dried digestate is removed for distribution off site for use as agriculture fertiliser granules. As the Thermophilic Aerobic Digester will be fully contained within the building, any odour will be contained and vented via the extraction system. The building will be kept at a slight negative pressure in order to prevent the escape of odorous air when a door is opened. Cleaned liquid will be returned for use in the process, being added at the preparation stage. The fast acting roller shutter doors will only open to allow the HGVs to enter and leave the building.

4.10.34 Odour is generated by the existing composting operations, although rarely have odour concerns been raised by nearby residents. Odour levels from the combined activities at the site are unlikely to be increased, due to the measures set out above to control odour from the TAD operations. The Environmental Permit will require an Odour Management Plan for the operations, in the event that any problems with odour are experienced off-site. Details of the Odour Management Plan can be found in the supporting Working Plan, included in Appendix 10.

4.10.35 An Odour Assessment has been carried out in order to support the application. This concludes that:

Odour emissions from the proposed biofilter at the TAD facility have been calculated based on odour concentrations and emission rates measured by ADAS at similar facilities, and ADAS experience of organic waste treatment odour emissions and biofilter performance.

The calculated emission rates were then used in an atmospheric dispersion model to assess the likely impact of odour in the area around the site. The modelling was conducted by the Met Office Rural Environment Team at ADAS Wolverhampton.

The model results predict that there would not be any exceedances of the Environment Agency's 3.0 ouE/m³ benchmark, chosen for this study, at any of a number of discrete receptors around the plant.

The modelled impacts are also well below the stricter H4 benchmark of 1.5 ouE/m³ that can be used for more offensive odours.

These results show that with good odour management, and with typical biofilter odour loadings and abatement performance, the proposed plant can be operated with very low risk of any off-site odour impact on local amenity. The modelling results also show that there is appreciable tolerance or headroom for higher emissions, for example if the odour concentration or biofilter abatement predictions used in the modelling are optimistic, without causing any adverse offsite impact.

4.10.36 The full Odour Assessment is included in Appendix 13. The odour assessment was created based on the presumption that the two biofilters would be positioned side by side. However, it is proposed that one biofilter is positioned each side of the TAD building to ensure that the odour is managed evenly throughout the building. This has no implications for the effectiveness of the odour modelling. An Odour Management Plan is also included in Appendix 13, which will ensure that the site will be managed in such a way to minimise odour.

Air Quality

4.10.37 The only emission to air from the TAD process is water vapour. Emissions from the generators will occur, in the form of engine gases, but the equipment is small scale and permitting of the emissions is not required.

4.10.38 A detailed Air Quality Assessment has been carried out and is included in Appendix 9. This Air Quality Assessment has been done based on the cumulative effect of the proposed TAD system and the REGF, which already has planning permission. The REGF permission has been implemented, but the power generation building is not now going to be constructed in the approved location.

4.10.39 The Air Quality Assessment concludes the following:

*Based on the Environmental Protection UK impact descriptive terms, the potential impact on local air quality at the location of maximum Process Contribution, close to the site boundary, would be described as **large** with a **slight adverse** impact. The corresponding values at nearby residential receptors would be classified as **small to imperceptible**. Model predictions for nearby residential receptors indicated that annual NO₂ Process Contributions at these locations were likely to be between ~2% and ~3% of the AQS objective. When taken in conjunction with the estimated background concentration of 10.4 µg m⁻³ for 2013, the impact on local air quality of emissions of NO_x from the four CHP engines associated with the TAD facility can be screened out as insignificant.*

4.10.40 The assessment demonstrates that the impact on air quality at nearby residential receptors will be small to imperceptible, indicating that no complaints are likely to be received by the local authority as a result of this application.

*The maximum annual average PM₁₀ process contribution represents a **small to imperceptible** change in ambient concentration and likely to have a **negligible** impact on local air quality in the vicinity of the development, as defined by the Environmental Protection UK assessment criteria. Similar conclusions were drawn for emissions of carbon monoxide and volatile organic compounds. A cumulative impact assessment was undertaken for emissions from the proposed TAD facility and the approved energy recovery facility to be developed on the Pebble Hall site. The results from modelling confirmed that the cumulative impact of emissions from the two facilities would be well within relevant AQS objective values, and can be screened out as insignificant in relation to Environment Agency guidance.*

4.10.41 The assessment concludes that the cumulative effect of the TAD facility with the REGF permission will be well within the relevant air quality standard objectives. Overall, the Air Quality Assessment concludes that:

The overall conclusion from detailed modelling of emissions from the proposed TAD facility at Pebble Hall, near Theddingworth, is that the potential impact on local air quality is likely to be low, and unlikely to pose a significant threat to the health of local residents or people working nearby.

4.10.42 In terms of air emissions, there is therefore no conflict with policy in the Development Plan that seeks to protect local amenity.

Flood Risk Assessment and Drainage

4.10.43 The Technical Guidance to the National Planning Policy Framework sets out the

requirements for the preparation of a Flood Risk Assessment. The proposal involves an area of less than 1 hectare, therefore a Flood Risk Assessment is not necessary. However, a combined FRA and sustainable drainage scheme has been prepared for the TAD and revised REGF facilities and is included in Appendix 11. For the TAD facility it states that:

An indicative drainage scheme is shown on the proposed drainage drawing in Appendix 1 [of the FRA]. Roof water from the building will continue to drain to the River Welland using the existing 150mm diameter surface water outfall. However, the water will be diverted to a balancing pond to the south west of the building to be attenuated and discharged at a limited discharge rate.

Waste for the TAD plant will be handled in the reception building and therefore the yard area will only be used for vehicle manoeuvring and parking of staff vehicles. This will remain a permeable hard-core surface as it is at present and no formal drainage will be provided.

Liquids from the waste stored in the reception building will be collected via an internal drainage system and recycled into the TAD system. Vehicles entering the building will be cleaned to ensure waste will not be transported into the yard area. Plant located around the building will generally be erected on concrete plinths. Rain water will be allowed to run-off the plant and onto the surrounding permeable hard core area and therefore no formal drainage will be needed.

Ecology

- 4.10.44 Policy CS14 of the Core Strategy requires that natural resources are protected and Policy CMD7 of the Control and Management of Development DPD requires proposals to consider opportunities to contribute to BAP targets.
- 4.10.45 The proposal will take place in an existing building within the setting of the commercial yard and waste operations. Therefore there are not any features of nature conservation interest that will be adversely affected by the development.
- 4.10.46 The recent landscaping work has been designed to enhance biodiversity at the Pebble Hall site. Therefore, the proposals comply with policy.

Dust, Litter and Mud (controlled by the conditions of an Environmental Permit)

- 4.10.47 Policy CS14 of the Core Strategy requires that local amenity is protected.
- 4.10.48 The operations that will be carried out in buildings are not dusty in nature and will be contained inside. Should dust become a problem from vehicles moving around the site, a mobile bowser with sprinkler would be employed to dampen the surface to eliminate dust blow.
- 4.10.49 Dust control measures are already in place for the composting operations, therefore there should not be a cumulative impact as a result of the proposed new operations. Details of procedures used to control dust and litter can be found in the supporting document Working Plan contained in Appendix 10.
- 4.10.50 All vehicles will be cleansed of mud before leaving the site to prevent mud on the highway.

4.10.51 In terms of dust, litter and mud, there is no conflict with policy that seeks to protect local amenity.

Pest Infestations

4.10.52 Policy CS14 of the Core Strategy requires that local amenity is protected.

4.10.53 The containment of the food waste materials within the reception building minimises any infestations from insects. The site will be inspected on a daily basis for evidence of pest infestations. A record of spraying insecticides will be kept in the Site Diary. Details will only be recorded when infestations are found. If necessary, the area will be sprayed with insecticide using knapsack sprayers (for flies), using insecticides kept on the farm. See the supporting document Working Plan in Appendix 10.

4.10.54 There is no conflict with policy that seeks to protect local amenity.

Fire Risk

4.10.55 Fire risk is low due to it being a largely wet process. The Dryer operates at a low temperature. There are large water tanks available on site for fire fighting purposes.

Cumulative Impact

4.10.56 The National Planning Policy Framework places emphasis on demonstrating that the cumulative effects of development in respect of some of the environmental impacts is acceptable. Cumulative impact has three components, in respect of successive, simultaneous and combined effects.

4.10.57 The proposed change of use to include a TAD facility, with a renewable energy generation component, adds a third waste operation at the Pebble Hall site. Green waste composting has been carried out at the site for 10 years. Permission exists for the construction of a REGF utilising wood waste that is already being managed at the site. The complex of buildings at Pebble Hall already benefits from permission for a commercial use, which has been implemented, therefore other activities are taking place within the complex. The successive impacts, resulting from a series of developments and permissions is similar to the simultaneous effects, where they are in existence together.

4.10.58 In considering the impacts of the addition of the new facility, account has been taken of the existing impacts from the combined developments already taking place. Some features of the development are similar to features associated with existing uses on the site. The potential for cumulative effects arises from traffic, visual impact, noise, air emissions and odour.

4.10.59 The location has been acknowledged as suitable for waste development, due to its remoteness from sensitive receptors and to its access directly onto an A-class road, which means that heavy lorries do not have to travel along country roads. This additional facility will benefit from the co-location with other waste uses, as it can share the use of the existing access, weighbridge and staff on site with experience of running a waste facility without giving rise to significant vehicle movement.

4.10.60 Traffic impacts are controlled at their existing level by means of a legal agreement with Leicestershire County Council, in connection with the use of the access. Therefore, there can be no increase in impact on the use of the access and the highway network. The

proposed TAD facility provides more certainty in terms of traffic numbers than the existing B8 use. This is outlined in detail in the Traffic Assessment included in Appendix 12.

- 4.10.61 The plant and equipment generate little noise, which in any event would be similar to the noise generated from the use of the building as a grain store or for B8 use. The distance from sensitive receptors means that this noise, together with noise from the other premises within the Pebble Hall complex, will not be obtrusive. Two Noise Assessments have been carried out which include the noise from the shredding operations associated with the green and wood waste operations as part of the background noise levels. Both reports concluded that there will be no adverse levels of noise as a result of this proposal.
- 4.10.62 The potential sources of odour have been identified and mitigation and management measures included in the Odour Management Plan. Therefore, adding the risk of significant odour to the existing risk of odour from composting operations will not lead to a level of odour from the combined operations that would be obtrusive. This is concluded in the Odour Assessment included in Appendix 13.
- 4.10.63 The potential landscape and visual impacts of the proposed development have been assessed earlier in this section. Due to the high level of the ground, the extension of the TAD building will not be visible from the nearest residential dwelling. The proposed stack will be barely visible due to the fact that it has a very small diameter (0.5 metres) and will be coloured grey in order to blend into the colour of the sky. In addition, even though it will need to be 17 metres high it will only be 5 metres above the height of the rising land to the South of the site.
- 4.10.64 An Air Dispersion Model has been created, which took into consideration the emissions from the consented energy production plant permission, the proposed TAD and the proposed REGF facility. It was concluded that the impact on local air quality as a result of the application is likely to be low.
- 4.10.65 None of the simultaneous effects from the existing and proposed development are considered to be objectionable, therefore there is no simultaneous combined effect.
- 4.10.66 In respect of the combined effects from the TAD development, none of the features considered in this section are close to being objectionable, none in combination could cause objections and there are no unusual features associated with the development. Therefore, there is no cumulative combined impact from the development considered on its own.
- 4.10.67 The conclusion is that there are no unacceptable levels of impact resulting from the addition of the TAD facility to an existing waste and employment site.

5 CONCLUSIONS

- 5.1.1 The proposed development seeks to change the use of one of the existing buildings at Pebble Hall into a TAD facility. It also seeks to extend the existing building on its North side by 223 square meters. The proposed change of use is considered to be acceptable in the countryside at this location, as it is for a use that is unsuitable to be located in a built-up area. The location in open countryside is beneficial, as it minimises the risk that environmental impacts such as odour and noise become a nuisance to residents in the locality; therefore the location complies with policy for the siting of biological treatment facilities.
- 5.1.2 In respect of the location of the development, it is concluded that as the facility is classed as preliminary treatment it is appropriately located at Pebble Hall, which is in the rural hinterlands. The site is an extension of an existing site, utilising previously developed land, therefore it is in compliance with the Development Plan's waste spatial strategy as it is:
- An extension of an existing waste site (in compliance with CS1)
 - On previously developed land (in compliance with Policy CMD1)
 - Incompatible with urban areas and also preliminary treatment so appropriate to locate in rural hinterlands (in compliance with CS2)
- 5.1.3 There is a need for the development, to meet some of the identified shortfall in capacity for the treatment of biological waste in the county.
- 5.1.4 The proposal will not give rise to unacceptable amenity impacts. It will not generate additional traffic or give rise to adverse landscape and visual impacts.
- 5.1.5 The proposal is for the one of most sustainable technologies currently available for the treatment of general and oil rich food waste.
- 5.1.6 The proposal is for a significant amount of renewable energy generation, which will contribute to meeting the targets for the East Midlands.
- 5.1.7 A sub-regional catchment area is justified for the facility and is consistent with policies in the Development Plan. The oil extraction and use of the TAD system will be the first of its kind in the region and because oil-rich food processors are concentrated in but scattered widely around the East Midlands. A similar size catchment has been agreed for permitted AD plants in the county, which target food waste streams.
- 5.1.8 The proposed development is therefore considered to be compliant with the development plan and national, regional and local planning policy guidance.
- 5.1.9 The proposed development is entirely compatible with the NPPF 'presumption in favour of sustainable development' as the following benefits significantly outweigh its potential insignificant adverse impacts.
- Provide 4MW of renewable electricity where there is a predicted shortfall in supply
 - CHPr to supply heat to proposed future developments
 - It is an innovative technology (attracting 2ROCs) that moves recycling up the waste hierarchy by increasing both energy yield, nutrient recycling and greenhouse gas reduction from food waste.
 - Addresses a food waste processing niche not currently being addressed within the region with 'Best Available Technology'

- Requires only slight changes to an existing building on an existing well operated waste site.
- Insignificant impacts on local amenity.

APPENDIX 1: Validation Checklist

Planning Statement	Included
Air Quality Assessment	Included, Appendix 9
Archaeology	Not Required
Cumulative Impact	Included as part of the Planning Statement, See Section 4.10
Daylight/Sunlight Assessment	Not Required
Design Statement	Design and Access statement Included
Dust, mud and debris on the highway and Litter	Included as part of the Planning Statement, See Section 4.10
Environmental Impact Statement	Not Required
Ecology / Protected Species / Biodiversity Survey & Report	Not Required, See Section 4.10
Flood Risk Assessment	Included, See Section 4.10 and Appendix 11
Foul Sewerage Assessment	Not Required
Geotechnical Appraisal	Not Required
Health Impacts	Not Required
Heritage Assessment (including historical features and Scheduled Ancient Monuments) / Conservation Area Appraisal	Not Required
Hydrological and Hydrogeological Assessment	Not Required
Land Contamination Assessment / Contamination Risk Assessment	Not Required
Landscape Assessment	Not Required
Landscaping Details	Included, see Drawing GPP/CL/PH/09/04 Rev 2
Lighting Assessment	External lights shown on Site Layout Plan, see Drawing GPP/WWM/PH/12/03
Minerals Safeguarding	Not Required
Noise Impact Assessment	Included, Appendix 8
Odour Impact Assessment	Included as part of the Planning Statement, see 4.10
Parking & Access Arrangements	Shown on Site Layout Plan, Drawing GPP/WWM/PH/12/03
Phasing / Working Programme	Not Required
Photographs/Photomontages	Photograph panels included, GPP/WWM/PH/13/07 GPP/WWM/PH/13/10 GPP/WWM/PH/13/11
Planning Obligations	Not Required
Draft Head(s) of Terms (s.106 Town and Country Planning Act 1990)	Previous 106 agreement agreed with Leicestershire County Council.
Playing Fields and Recreational Facilities	Not Required
Public Rights of Way	Not Required

Renewable Energy and Climate Change	Renewable Energy information included in the Planning Statement, Section 4.6
Restoration and Aftercare Statement/Plans	Not Required
Statement of Community Involvement	Not Required
Structural Survey	Not Required
Survey of Levels	Not Required
Transport Assessment	Not Required
Travel Plan	Not Required
Tree and Hedgerow Survey/Arboricultural Report	Not Required
Utilities Statement	Not Required
Vermin and Birds	Considered as part of the Planning statement, Section 4.10
Waste Audit and Waste Management Facilities Strategy	Not Required

APPENDIX 2: Synergies between TAD and REGF

There are a number of synergies between the proposed REGF and the proposed TAD facilities:-

Management of the Site

- Facilities could be shared, including the existing access, weighbridges and weighbridge staff, fire fighting systems and security.

Technical Considerations

- The supply of the electricity by the REGF to the TAD may reduce or negate the need for generator operation on the TAD site as the final oil product may be sold and used elsewhere for biodiesel production rather than returned to site and used for electricity generation depending upon commercial opportunities. This would eliminate the need for a 17m chimney and remove the main noise sources from the TAD facility.
- The REGF requires preparation of mains water for the boiler in a reverse osmosis plant. The concentrated natural salts from this reverse osmosis plant are highly beneficial for the TAD digestion process. It is therefore under active consideration that as part of the REGF water recycling scheme this water could be used within the TAD process. The use of the TAD plant for treatment of some of the boiler water effluent will simplify the design of the effluent treatment plant and reduce water usage.
- The off-specification organic fertiliser granule batches and the organic waste packaging from the TAD system could be used as biomass fuel in the REGF.
- The condensate water recovered from organics dryers could provide a clean water source to the boiler feedwater system. This would reduce effluent production, costs, and increase membrane life and efficiency of the boiler water treatment system.

Commercial Benefits

- By providing a combined grid connection, there would be a reduction in costs, compared to providing two separate connections. As a result of this co-ordinated approach, there would be a significant upgrade to the local grid, which will mean better electricity security for local residents and businesses in the Market Harbour area.

The supply of heat from the REGF to the TAD could be used to provide energy for the drying process for the final TAD pellets. This heat would be supplied by the REGF as a part of the renewable heat incentive RHI programme, as the REGF plant will be designed as CHP-ready from the outset.

APPENDIX 3: Lessons Learnt From Using the TAD Systems Elsewhere

The table below indicates the lessons learned from previous TAD sites. WWM has a detailed knowledge of operations on these sites through its close long term relationships with key suppliers to these sites WWM.

In their email of the 22/8/13 the Environmental Health Officer of Daventry has general concerns regarding potential odours from site operations and suggested adding a planning condition that odour management and general site management plans be submitted for the approval to the local planning authority. WWM is happy to accept this condition because these documents will have already been approved by the Environment Agency who is responsible for ensuring that best available technology and procedures are implemented to prevent environmental impacts.

Bonby	
	
Issues	WWM solutions
Odour from 2 x 800m ³ external open topped digestate Lagoons	Dryers and offtake contract. No lagoons proposed
Odour from external absorption of digestate on to compost heaps	Dryers and offtake contract. No compost heaps proposed.
External movement and storage of food waste	Larger reception building - all movements and storage will be inside a sealed building.
No energy generation or heat recovery	Install energy generation and heat recovery
Positive lessons learned	
Oil recovery trialed there for 3 years	Purchase an oil recovery system
Site has own Landbank and estimates the value of digestate at £100/t from crop yield improvement	WWM has landbank and will benefit from crop yield improvements

<p>Matts Hill Kent</p> 	
Issues	WWM solutions
No depacking or decontamination equipment restricts site to low gate fee feedstocks	Installed the modern depacker equipment
No landbank for secure economic digestate use	1450 acre landbank with existing waste spreading permits
No Odour Control	Sealed negative pressure building with organic large biofilter
Food waste stored outside	Large reception building for food waste storage.
No energy generation or oil recovery	Install energy generation and oil recovery
Bloods processing caused odourous digestate	No bloods processing

Topcliffe Barn Thirsk	
	
Issues	WWM solutions
Poor commercial plan Low gate fees, high power costs, and high digestate spreading charges made the site noncommercially viable and it was shut down	Niche feedstocks with high gate fees and high energy value complete with guaranteed power and fertilizer offtake contracts make this plan commercially sound
No depacking restricted feedstocks	Depacker to be installed
No odour control system	Odour control to be installed
Positive lessons learned	
Topcliffe barn installed a pre-mesophilic tank system with a Landia mixing system to recycle heat, reduce particle size and settleout contaminants. This system reduced processing times approximately 50% through the TAD	WWM will install a similar pre-mesophilic system

APPENDIX 4: Screening Opinion

APPENDIX 5: Process Details and Diagram

Depackaging

Packaging removal, centrifugal drying, cleaning and compaction with the output going to further recycling or refuse derived fuel (RDF).

The depacker reduces food particle size and creates a 'pumpable' slurry which is outputted to oil recovery and digester systems.

Tricanter Centrifuge System

The mechanical and thermal removal and clarification of oil for further processing into a biofuel.

Thermophilic Aerobic Digester (TAD) System

Pasteurization of CAT3 animal by-products organics fraction to Animal Health and Veterinary Laboratories Agency (AHVLA) standards.

TAD Dryer

Use of recovered heat to reduce volume by up to 85% by driving off water.

Production of granulated product for ease of handling in transfer to agricultural land.

Heat Recovery

Up to 50% reduction in energy usage at the TAD pasteurization stage.

Hot water and air for further washing and drying of plastics packaging.

Packaging Recovery

Waste packaging will be cleaned and compacted for transport off-site.

APPENDIX 6: Oil Recovery Process

10tph Oil Recovery Process

The continuous processing slurry preparation and oil recovery machine will process 10 tons of offal and organic food waste per hour. It is designed to run continuously and is fully automatic.

The machine is self-contained, it comprises a macerator, mixer, multi phase inline cooker, two three phase centrifuge and all the associated pumps and pipe work. It runs under the control of a PLC (programmable logic controller) that maintains the quality of the oil produced and controls all parts of the operation.

Process Description

The organic raw material is ground/macerated and moved by pump to the ASL plant, it is assumed that the pipework will be no longer than 10m.

The ground raw material goes through an inline steel kettle that heats the slurry. The kettle uses live steam as the heating medium and precise control of the steam is maintained by the PLC. The slurry is then further cooked to 80C in an inline cooker that has a residence time of 20 minutes at full capacity. From there the product is pumped to the separation process that uses two three-phase decanter centrifuges.

The centrifuges are a specially designed three-phase decanters that separates the slurry into solids, water waste and oil.

The solids are discharged via two screw conveyors that reach a height of 4.2m for discharge into a truck or transferred to the dryer module if supplied.

The oil is pumped from the separator to a 20m³ heated and insulated storage tank (tank to be supplied by others) via an inline mesh filter using a centripetal pump.

The water is discharged by gravity to effluent.

The PLC uses sensors within the machine to maintain product quality and efficient running. The PLC incorporates process start and stop programs as well as monitoring the performance of the centrifuge and separator. The process start program brings the machine up to working temperature and starts the various components in sequence to check their operation. The system stop program incorporates a cleaning sequence that makes sure the machine is available for start up when necessary with no operator involvement in cleaning. The PLC uses a waterproof touch screen to provide the operator interface and information on operation. The operator, using the PLC can set various parameters and also provision is provided for data logging from the PLC.

Machine commissioning and operator training is included.

All internal pipe work, wiring and mounting are included.

The machine can be supplied with a hard material processing unit (for processing bones) not included in quote. The main PLC electrical control system is programmed to be able to integrate the hard material processing unit with additional software.

Technical description

1) In feed

Organic raw material (de-packaged) enters the machine via the intake hopper is then macerated to a uniform slurry using a specially designed mincer/macerator.

2) Size reduction

The grinder macerator reduces the size of the raw material to a maximum size of 6mm.

3) Product feed

The resulting slurry is checked by sensors for viscosity and is pumped by a 2.2kw motor to the heating process

4) Heating

The first stage of the heating process is via an inline steel kettle that heats the slurry.

The kettle uses live steam with a specially designed injection nozzle that ensures rapid mixing of the slurry.

The final temperature is then achieved by recirculating the slurry within a secondary vessel that achieves 80C and has a residence time of 20 minutes at full capacity.

Precise temperature control is vital, product quality and the required temperature curves are maintained by multiple sensors and the PLC control of the steam valves.

5) Centrifuge

The centrifuges are a specially designed three-phase decanters that separate the slurry into solids, water waste and tallow.

The centrifuges differs from a normal machine in the design of the bowl and scroll – the protection system employed for the bearings, the speed and differential speed.

6) Solids discharge

The solids are discharged via a auger screw conveyor. A second auger screw conveyor sends the material to a lorry, skip or other container. (to be supplied by others)

7) Water discharge

The water is discharged by gravity to effluent.

8) Oil discharge

The oil is pumped from the separator to a separate storage tank via a centrifugal pump.

9) Control system

The PLC uses sensors within the machine to maintain product quality and efficient running. The PLC incorporates process start and stop programmes as well as monitoring the performance of the centrifuge. The process start programme brings the machine up to working temperature and starts the various components in sequence to check their operation. The system stop programme incorporates a cleaning sequence that makes sure the machine is available for start up when necessary with no operator involvement in cleaning. The PLC uses a waterproof touch screen to provide the operator interface and information on operation. The operator, using the PLC can set various parameters and also provision is provided for data logging from the PLC.

APPENDIX 7: Grid Connection

APPENDIX 8: Noise Assessments

APPENDIX 9: Air Quality Assessment

APPENDIX 10: Working Plan

APPENDIX 11: Flood Risk Assessment and Sustainable Drainage System

APPENDIX 12: Traffic Assessment

APPENDIX 13: Odour Report