

Environmental Review & Recommendations

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**Prepared by
Sinéad Ní Mhainnín
Galway County Council**



Environmental Review Part I

Introduction

The XXXXX, is currently participating in a Waste Prevention Programme in conjunction with Galway County Council and Galway City Council. The aim of the programme is to assist businesses in waste prevention and energy use reduction. The programme is funded by the National Waste Prevention Programme and is administered by the Environment Protection Agency.

The aim of the programme is to identify practical implementable measures which will lead to waste prevention and a reduction in energy and water consumption, with 10% reduction targets set as a minimum to reach.

This Environmental Review is Part 1 of a two part review, focusing primarily on waste management but also including some energy data. Part 2 will comprise of expert analysis from Sustainable Energy Ireland, based on further energy reviews of the hotel and will be available and circulated in due course.

Business Descriptive Summary

The XXXXX was built in 1998. The hotel has 153 bedrooms, a busy restaurant and large function area, and a full leisure centre.

Space heating is primarily provided by electric heaters. There is a limited amount of under-floor heating provided by the natural gas fired boilers. These boilers also provide hot water for bedrooms, kitchen and leisure centre. Natural gas is also used in the kitchen for cooking. The hotel is equipped with meters to monitor gas consumption to the boilers and two kitchens.

There are approximately 200 staff employed, made up of many nationalities. The hotel is open 365 days per year with a daily average of 723 customers (excluding leisure centre).

Environmental Auditing

The first phase of the Prevention Programme in the XXXXX was to accurately assess the existing situation with regard to waste arising and energy and water usage. Waste and Energy audits were carried out during May, June and July 2007 in the hotel. Audits were carried out by the Project Team using auditing tools provided by the Clean Technology Centre, with the assistance of management and staff at the XXXXX. For the purpose of reporting the findings, the waste, energy and water audits will be dealt with individually, as will the recommendations for improved environmental practices.

Waste Audit Results

The waste characterisation and reviews were conducted on the 23rd May, 25th July and the 26th August. In addition, details of the annual waste arising were examined based on information available from waste contractors and invoices available in store.

Approximately 260 tonnes of waste was generated during the period May 2006 to April 2007 in the XXXXX. Segregation facilities are available for organic waste, glass and mixed recyclables. Chart 1 below shows the annual amount of waste arising at the XXXXX:

Chart 1

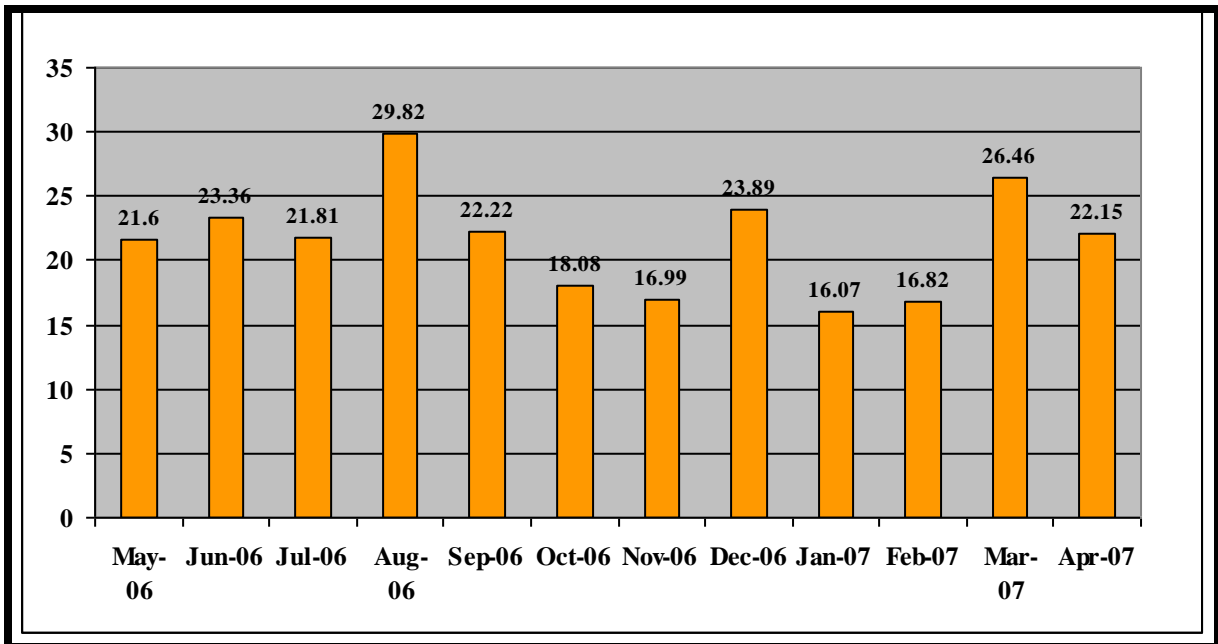
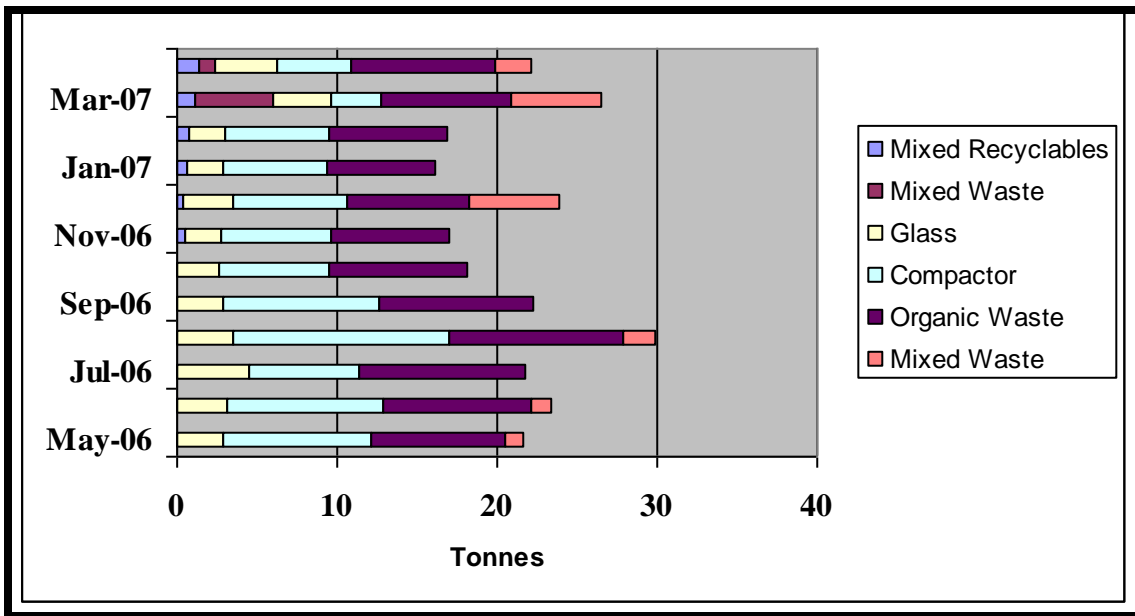


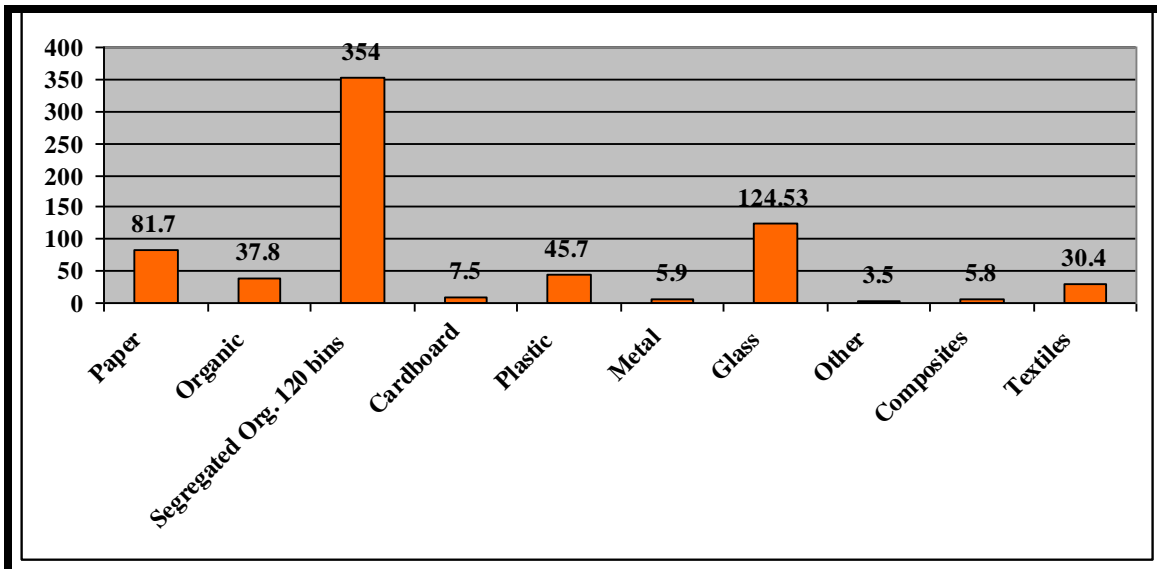
Chart 2 below shows the breakdown of the various types of waste collected between May 2006 – April 2007:

Chart 2



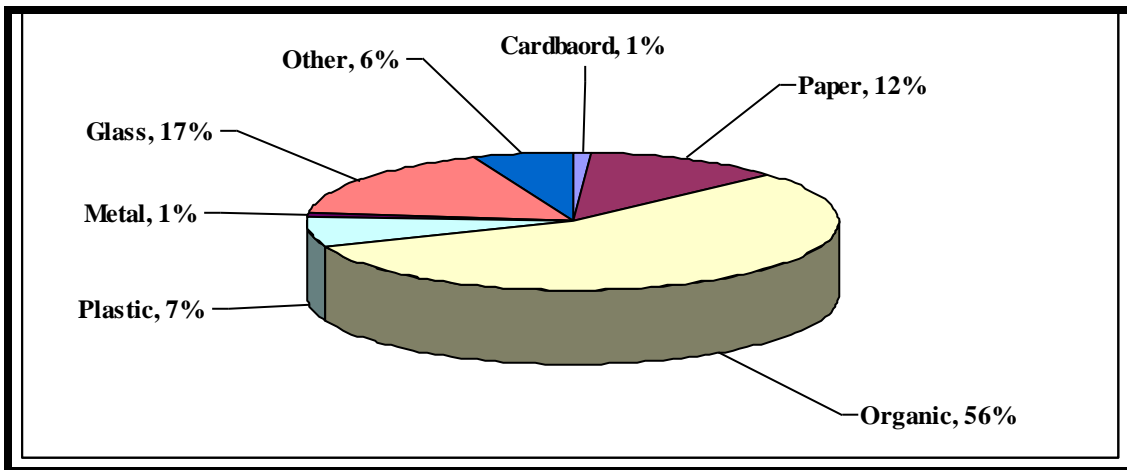
During the waste characterisation process 158 kilos of unsegregated mixed waste and 70 kilos of segregated waste was analysed. Annual waste bills and weights provided by the waste contractors were also analysed. See below in Chart 3 a breakdown of the daily waste arising:

Chart 3



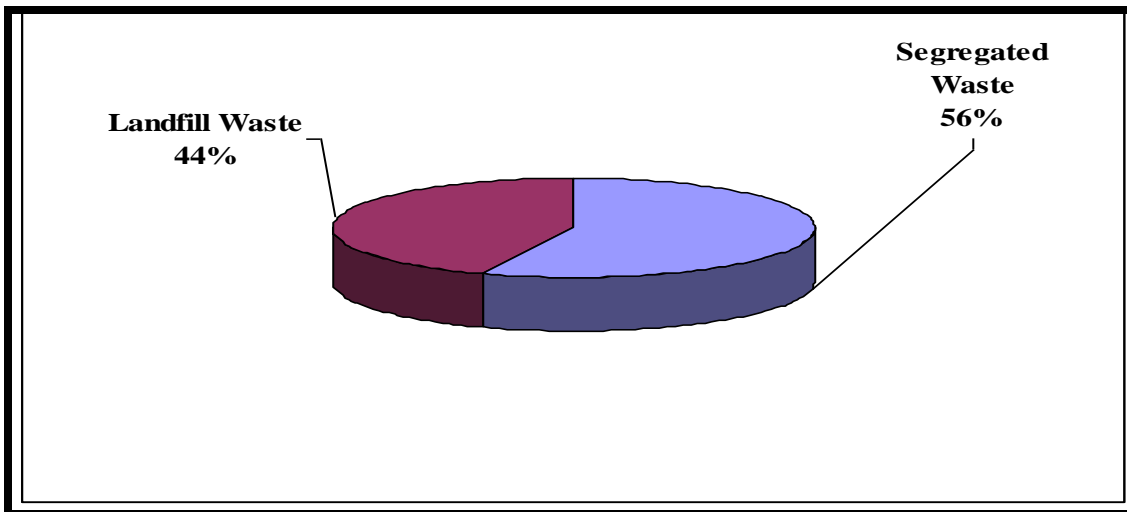
The waste auditing process identified the waste streams below as % of the waste, see Chart 4. Please note that this is a combined figure for waste arising within the mixed waste and segregated waste streams, also to include segregated organic and glass figures:

Chart 4



Mixed waste is the term used to describe waste where no effort to separate various waste types has been made. Of the total annual waste arising in XXXXX, 44 % is unsegregated mixed waste, and the additional 56% is segregated on site through the collection receptacles for mixed recyclables and organic waste. This figure for segregated waste is substantial and is due to organic waste making up approximately 56% of the daily waste arisings.

Chart 5



It was noted that although good processes were in place, contamination was evident in the waste and that further work need to be undertaken to ensure all staff are aware of the process and how they operate.

Based on the above figures, it is estimated that every 1 customer produces almost 1kg of waste (.98kg). 712 kgs of waste is produced per day at the hotel.

Current Waste Management Practice:

XXXXXX has undertaken a number of initiatives to improve their waste management practices in recent years. On site, there are receptacles for mixed recyclables, glass and organics and a compactor for landfill waste. There are several recycling bins for segregated items i.e. cardboard, plastic wraps etc.. During our visit, these bins did not

appeared to be operating successfully as high levels of contamination were observed and also waste suitable for recycling was observed in the landfill bins. Good practices were observed in the offices, however continual emphasis should be placed on waste prevention here, minimising paper usage.

Prior to the audit although staff training did occur, no formal arrangements existed that encouraged and ensured that staff in all sectors complied with recycling procedure. In the hotel as a whole, dry recyclable segregation other than organics and cardboard, paper and plastic is poor at present. There is however, an amount of paper, organic waste and plastic waste being presented as mixed waste which could easily be segregated for recycling.

In general, management and staff of the XXXXX thought that the existing practices were reasonably good. Although a good effort is being made there is scope for many improvements.

Recommendations / Actions for Improvement - Waste

Environmental Awareness

- Establish Green Team who will lead actions for better environmental practice in the business;
- Prepare an Environmental Policy in conjunction with Senior Management / Green Team and display in a highly visible area;
- Identify a regular date for monthly meetings of Green Team, i.e. first Monday of every month;
- Identify a suitable Green Notice Board accessible to both staff and customers;
- Develop a Waste Awareness Programme in relevant languages for staff i.e. posters, color coding of bins, signage to maximise segregation and encourage waste prevention;
- Inform staff about your environmental action plan. Ideally provide staff with ten top tips for waste, water and energy management at your hotel;
- Continue to advise your customers on environmental initiatives which you are taking.

Operational Options

General

- Identify and promote waste prevention options at all levels throughout the hotel;
- Examine the economics of changing to 1100 ltr bins instead of compactors, as this should encourage better waste management practices;
- Identify suitable number of waste stations throughout the hotel in conjunction with the Green Team/management, i.e. kitchen, bedrooms etc. and assign responsibility;

- Use clear refuse sacks for all waste collection to ensure recycling is maximized;
- Introduce colour coded receptacles for different waste streams and locate at relevant areas in store;
- Encourage options for waste prevention where possible;
- Purchase in bulk where possible, i.e. concentrated cleaning agents etc.;
- Provide information for guests on hotel initiatives to recycle in bedrooms. This information can be added to card which advises on towel reuse programme.
- Estimate accurately quantities of promotional brochures required to ensure they don't end up being disposed, in addition to addressed envelopes;
- Introduce reusable cups in crèche as opposed to plastic cups;
- Ensure recycling bins are emptied regularly to ensure maximum recycling is achieved eg kitchen;
- Encourage parents to bring home children's paintings from crèche.

Kitchen/Bars/Restaurants

- All cooked food waste should be segregated for composting;
- Use of disposable clothes should be kept to a minimum;
- Review existing packaging arrangements for sandwiches and investigate use of cardboard containers;
- Review the use of single use portions of jams, butters, biscuits etc., where possible;
- Ensure all disposable cloth rolls etc. are completely used prior to changing;
- Ensure all food containers are empty prior to disposal;
- Ensure all food waste is segregated, at the time of the review food waste was seen on top of the compactor skip suggesting that a percentage of this food is sent to landfill;
- Review system to determine quantities of food cooked throughout the day;
- Review use of downstairs kitchen as not used daily but general waste collected there consisted mainly of food and recyclables;
- Ensure the polystyrene vegetable containers are empty prior to disposal;
- Delivery of fish – encourage the use of reusable delivery containers;
- Composting of all food waste including lemons from bar and flowers.

Bedrooms

- Contamination of recyclables from bedrooms – teabags, sugar packets and soaps. Better training of staff;
- Replace individual toiletries in bedrooms with larger containers eg liquid soap, shampoo etc.;
- Collect old magazines from bedrooms and make available to staff/residents/charity shop;
- Provide two bin system in bedrooms - eliminate the use of plastic bin liners in bedrooms;
- Introduce bedlinen change on request card;

- Provide information to guests on waste segregation.

Delivery Area/Yard

- Investigate better methods for use of mixed recyclable skips, such as compaction;
- Formally review all suppliers asking them how they envisage reducing their packaging;
- Maintain records for waste sent offsite – a staff member should verify collection and have estimated / actual weight of each collection recorded;
- Ensure that all pallets/reusable containers are removed offsite by relevant distributors at all times;
- Ensure all batteries are collected for hazardous waste treatment;
- A lot of plastic was noted in the mixed recyclable skip on 25 July – as the hotel is charged on a per lift basis, it may be more economical to collect separately and to bale it.

Legislation

- Ensure compliance with all relevant legislation eg waste management, health and safety etc;
- Ensure that all waste collection contractors are permitted by the relevant authority;
- Implement a Hazardous Waste Management Programme and monitor and record these actions (Fluorescent tubes, batteries, detergents are key).

Training

- Training to be provided for all staff on correct waste management practices;
- Specific training to be provided for key staff in specific areas to ensure best practice.

Energy Audit Results

The total energy costs for the period May 2006 – April 2007 were €310,000 which represents 1,657,683 kilowatt hours of electricity (kWh) and 2,035,570 (kWh) of gas. Energy costs the business €849 per day which equates to 10118.5 kWh. Based on guests per annum (excluding leisure centre users), the energy cost is €1.17 per guest (13.99 kWh).

The breakdown of energy costs per month is included in Appendix 1. The company has been registered with their energy provider to allow for further analysis of their consumption patterns and maximum demand peaks. The maximum demand for the XXXXX is 400 kVA. During this period, excess capacity charges of €2,373 were incurred.

The results of the energy audit are presented in Appendix 2, based on the best possible information available at the time to the Audit Team. For the purposes of this audit, the hotel was subdivided into a number of areas to determine the energy costs associated with each. The results of the energy audit will be further analysed with an energy specialist from Sustainable Energy Ireland (SEI). This may identify any unquantifiable energy sources and ensure greater accuracy in the results.

Lighting

There are CFLs to be found in all bedrooms and also in the reception area, kitchen and halls, representing the main type of lighting in use throughout the hotel. A lighting survey of the building was conducted which involved listing **non energy efficient lighting**, together with the wattage and an estimate of the number of hours in operation per day to determine where improvements/cost savings can be made. This lighting which is mainly used for decorative purposes consisted of spotlights (50watts), candle lights (40 watts) and fluorescent tubes (58 watts).

This non energy efficient lighting is estimated to cost the business approximately €33,000 per annum. The Ballyvaughan Suite costs up to €6,000 per year, with the reception area and Lettermore Suite costing approximately €7,900 and €5,500 respectively. Costs are based on lights being switched on 15 hours per day. Substantial savings could be made by replacing 50watt spotlights and 40 watt candle lights with much lower wattages. Non CFL lighting in the kitchens costs approximately €3,155 and the 58watt fluorescent tubes here could also be replaced with lower, longer life alternatives. It must be noted that all calculations were based on a unit rate cost of 14 cent, which is slightly higher than the average.

Cost of Appliances

Appliances in use throughout the building were listed in addition to their respective wattage (where possible), approximate number of hours in operation and estimated time at maximum output in an effort to determine the cost to the business. The most expensive appliances are found in the kitchen. Further analysis of the equipment is required and this will be completed shortly.

Unestimated Costs

As stated, some of the heating, ventilation, air conditioning and refrigeration (HVAC) equipment has not been included in this report. These costs will be further analysed with assistance from SEI to ensure the highest level of accuracy possible in compiling the energy data.

Recommendations / Actions for Improvement – Energy

General

- Monitor energy use online to review bills, trends and unexplained peaks in usage;
- Reduce use of unnecessary equipment/lighting at peak times;
- Consider renewable energy suppliers for electricity;
- Review maximum demand on a regular basis.

Environmental Awareness

- Develop an Energy Conservation Programme in relevant languages for staff;
- Display relevant energy tips on Green Notice Board.

Training

- Training to be provided for all staff on energy conservation;
- Specific training to be provided for key staff in specific areas to ensure best practice.

Lights

- Continue to replace lighting with energy efficient alternatives;
- Ensure that lighting is in compliance with FLUX standards;
- Ensure lights are switched off when not required eg toilets etc;
- Investigate the installation of light sensors in underused areas – toilets, corridors, back of house, maintenance rooms.

Heating

- Ensure measures are put in place such as timers to optimise use of electric heaters for space heating;
- Review cost of electric heaters for space heating and consider alternatives;
- Investigate alternative energy systems.

Electrical Appliances

- Ensure all office equipment is turned off completely when not in use;
- Ensure temperatures in freezers/refrigeration areas do not exceed the recommended temperature;
- Review manufacturer's guidelines for operating costly equipment and use according to the relevant guidelines;
- Review use of equipment in the kitchen with the relevant staff and only turn on equipment when required and turn off when not in use;
- Restrict use of the compactor/baler to specific times of the day;
- Ensure that all new appliances purchased in the future are 'A' rated;
- Use gas sub meters in place to estimate annual usage of gas to kitchens and boilers;
- Develop simple departmental standards for energy management, e.g.
 - Turn off extractor fans in kitchen when not required, on when not required during review.
 - Gas Salamanders – on full but not in use
 - Turn off air conditioning when not required.
- Install pool cover to insulate pool;
- Install push button control on leisure centre showers.

Part 2 of the Environmental Review, comprising of expert analysis from Sustainable Energy Ireland, based on further energy reviews of the hotel will be available and circulated in due course.

Water

There is a metered supply of public water being provided to the hotel. Water pressures were checked in a number of bedrooms, kitchen and bathrooms. Results showed that most taps on baths and some on bedroom sinks were using too much water. Certain taps were very high and using up to 50 litres of water per minute and others very low, using 1 litre per minute. In the kitchens, the water pressure was too high in most sinks.

An assessment of water usage will also be included together with additional practical measures on water conservation in Part 2 of the Environmental Review.

Recommendations / Actions for Improvement - Water

- Establish the true volume of water supplied to the hotel by verifying meter readings;
- Review volume of water in toilet cisterns and implement reduction programmes;
- Review flow of water through guest taps and showers and install flow regulators to reduce flow to c. 12L per minute (test on sample rooms first);
- Measure flow in bedroom showers. If >20 l/min consider use of low flow shower heads;
- Review urinal cistern flushing frequency and install motion sensors as all urinals were on constant flow;
- Use stopper for all kitchen sinks when washing pots;
- Develop leak reporting initiative and repair all leaks immediately;
- Train staff in water conservation in each department and monitor vigorously; e.g. ensure accommodation staff minimise water consumption in cleaning of baths, sinks and toilets.

All figures used for auditing purposes in this Environmental Review are determined to be as accurate as possible at the time of auditing.

ENDS.

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- Chart 1** XXXXX Annual Waste Arisings May 2006 – April 2007 (Tonnes)
- Chart 2** Breakdown of Annual Waste Arising May 2006 - April 2007 (Tonnes)
- Chart 3** XXXXX - Daily Waste Arising by Area (Kgs)
- Chart 4** XXXXX - Daily Waste Arising (Kgs)

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- Appendix 1** XXXXX Monthly Energy Spend June 2006 – May 2007
- Appendix 2** XXXXX Lighting Survey Results
XXXXX Equipment Survey Results
- Appendix 3** Water Pressure Test Results

Appendix 1

XXXXX Monthly Energy Spend June 2006 – May 2007

Appendix 2

XXXXX Lighting Survey Results

XXXXX Equipment Survey Results

Appendix 3

Water Pressure Test Results