

Edinburgh Zero Waste

Client: Alauna Renewable Energy

Location: Millerhill, Dalkeith

Value: £4.2m

Duration: 22 Months

In Brief...

Barhale were awarded the Edinburgh zero waste project valued at £4.2m by Greenfinch Ltd. The contract was to design and build the steel frame industrial building, a new welfare and office block, suds pond, associated drainage works and the construction of bund, retaining wall, tank foundations, concrete hard standing access road and car parking.



Aerial view of plant in commission. Borders Railway in background.



Tank Farm Bases and bund being constructed. Borders Railway under construction in background.

Environmental Benefits...

- The Environmental benefits of the plant will be the diversion of 31,000 tonnes of food waste per annum from land fill or in – vessel, where methane would be released to the atmosphere
- Methane is incredibly damaging to the atmosphere and 8 times more damaging than carbon dioxide
- In this type of process the methane is not released to the atmosphere, it is collected as biogas and used in the onsite combined heat and power engine (CHP) to create green energy in the form of heat and electricity. The energy is used to power the site and excess can be exported
- Over 90% of the electricity is exported to the grid and as enough to power around 3500 homes
- In addition to the energy produced, the food waste is converted in the process into a 'digestive'. This is wet compost and contains valuable nutrients
- Approximately 23,000 tonnes of digestate will be produced each year and will be applied to local agricultural land as a natural fertilizer. This will reduce the need for chemical fertilizer on the land
- The location of the site close to the source of food waste will reduce the need for bulking up and double handling of food waste at waste transfer stations with waste been delivered directly to site by collection vehicles. This will reduce transport and associated costs and carbon emissions

Other Benefits...

- Other benefits to the area are employment, with 10 new posts at the plant directly employed from the local area by the client to undertake the operation of the plant.

Technical Features...

- Site excavation including removing or encapsulating any contamination
- Final profiling of the site and balancing ponds
- Install all underground drainage and service ducts
- Hard landscaping completed along with fencing and gates

Design & Construct of;

- A flat reinforced concrete base for the raw waste buffer tank
- A flat reinforced concrete base for the primary digester tank
- A 15 deg conical reinforced concrete base for the pasteurisation tank
- Transformer concrete base for incoming services inclusive all ducts to and from the building highway
- A flat reinforced concrete base for the digestate storage tank
- A flat reinforced concrete base for the gas holder, surplus gas burner, stand by gas boiler and oil tanks
- Access road and concrete hard standing, including weighbridge, car park, tanker loading bay and drainage to sump
- A single building, to include a reception hall, digestate hall, office, meeting room, control room, workshop, showers, toilets and mess room